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The Economics of Housing

The Housing Wealth of Nations



EDITED BY

Susan J. Smith and Beverley A. Searle

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The Blackwell Companion to the Economics of Housing

The Housing Wealth of Nations

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Gareth Powells has a wealth of experience in the field of renewable energy and energy efficiency policy as well as studying the environmental and financial aspects of everyday life. Recent experience includes a collaborative CASE studentship PhD from the ESRC (Economic and Social Research Council) and NEA (National Energy Action), the national fuel poverty charity – studying the complex social, technical and economic relationships between state and nonstate actors, between national policy, sub-national implementation and domestic practices and between people and technologies in the energy sector. Gareth has a particular interest in understanding the connections between the economy, technology, politics and everyday life and in bridging the imagined gaps between academic and applied research, creative and critical insight and between conceptual exploration and practical outcomes.

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there is anything about the process of accumulating wealth into housing assets, and spending from this resource, that might be associated with well-being – or that might add to psycho-social stress. This research is developed in a new comparative project exploring the role and relevance of housing wealth as a tool for financial planning and a buffer against unexpected events for home owners in the UK and Australia.

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Preface

This *Companion to the Economics of Housing* is inspired by the ongoing work of the International Think Tank on Housing Wealth. This interdisciplinary collaboration first met in February 2007 at Durham Castle. The aim is to better understand the links between home prices, housing wealth, mortgage debt, and every scale of the wider economy; from global flows of credit and cash, through the fortunes of states and nations, to the intricacies of households' budgets.

Early in 2007 we had no idea that global credit markets would fail catastrophically, or that governments would be forced to bail out their countries' banks. It was clear that storm clouds were gathering. The Think Tank was centrally preoccupied with housing's financial risks; Karl Case and John Quigley were already talking about "how housing booms unwind." But there were six months to go before that fateful morning of 9 August 2007 when, following the discovery that Bear Stearns – one of the world's largest hedge funds – was not too big to fail, a large French bank stopped investors withdrawing their money from funds they could no longer value. So from the vantage point of the UK's most spectacular World Heritage Site, as the frost of the New Year took hold, the worst prognosis for 2007 was "mixed" . . .

Two years later, the Think Tank reconvened in Melbourne, Australia. The tone was more sombre, as academics, policy makers, and financial professionals of all kinds struggled to make sense of the story so far. The papers they produced contain both a reflection on the past, and a comment on the future. It is hard to imagine a set of authors better placed to tell, with such compelling logic and in such graphic detail, the story of how a cascade of housing, mortgage, and financial crises could have such far-reaching effects.

As we go to press, this is the only collection – indeed the only book of any kind – that systematically reviews the shifting financial fortunes facing households and whole economies in the "home ownership" societies of North America, Europe, and Australasia. The issues are more topical now than they were when this exercise began. But the most exciting discussions are still fragmented across a variety of journals; and debates are often specific to single disciplines. The Think Tank

on housing wealth in contrast is a truly interdisciplinary collaboration, just as this Companion is distinctive in bringing some critical debates together in a single accessible form.

Notwithstanding its title, readers will soon discover that the collection is not principally an exercise in economics. Obviously, we hope for an economics readership; after all, this is the one discipline that has interrogated the housing economy carefully and comprehensively for nearly half a century. But housing has hardly been central to mainstream economics – far from it. Furthermore, following a paradigm shift at the interface of economy and society, there is more interest than ever before, from a very wide disciplinary base, in the housing economy and its wide ranging social, political, and policy effects. So while this volume features a strong collection of papers on housing economics, written by some of the world's most prominent housing economists, it also includes a range of contributions from other social scientists who share broadly similar aims.

All the authors have written in a style that is readily comprehensible and accessible to the wide readership this implies. Together they have produced a fascinating, thought-provoking, comprehensive, and informative account of the changing fortunes of the housing economy. We hope this work will be read as much for its many vividly drawn and self-contained "parts," as for the tale of risky financial fortune that makes up its integrated "whole."

SUSAN J. SMITH and BEVERLEY A. SEARLE
Durham, May 2009

Acknowledgments

First and foremost the publication of this book rests on the enthusiasm of its authors. We are grateful to members of the First International Think Tank on housing wealth for their contributions. We appreciate the many revisions they made to prevent a rapidly changing economic climate overtaking the contents of the book. To those who came on board later, to fill important gaps and add new themes – Eric Belsky, John Edwards, Richard Green, Jonathan Reiss, Susan Wachter and Elvin Wyly – we extend our thanks for their prompt responses, fine work, and overall stamina.

The editors would also like to thank Andrew Benito, Duncan Maclennan, Geoffrey Meen, Gavin Wood, and Judy Yates for their helpful comments as referees for various combinations of papers. Cat Alexander and Gareth Powells both contributed to the literature reviews informing the editorial commentaries; Gareth also helped us prepare the final manuscript for publication. We are grateful again to Gareth, and to Kathy Wood and Rebecca Hedley, for their help in organizing the Think Tank for which these papers were first conceived.

Both editors were funded by the ESRC for various projects during the life of this collection; without this we would not have had the time for a work of this scale. Susan Smith particularly acknowledges the support of an ESRC Professorial Fellowship (RES-051-27-0126). We thank Durham University's Institute of Advanced Study for hosting and supporting various events associated with the work of the Think Tank; our colleagues in the Geography Department also provided valuable ideas and encouragement for the project.

We are grateful to George Lobell at Wiley-Blackwell for having the vision to adopt this project; for his input in the early stages; and for his enthusiasm and encouragement throughout. Thanks George – it would otherwise have been a much less ambitious project . . . and far less work (!) We also thank Constance Adler for her support and timely advice as the manuscript came to life; and we are pleased that Harry Langford was our copyeditor and that our project manager Linda Auld saw the book through to production.

Finally, this acknowledgement would not be complete without a special word of thanks to Professor Karl E. Case – "the happy economist" who threw so much energy and enthusiasm into the life of two Think Tanks on Housing Wealth, and brought to them the gifts of vision, humor, and friendship.

Chapter 1

Introduction

Susan J. Smith, Beverley A. Searle, and Gareth Powells

1.1 Introduction

Finally, housing is a hot topic for economics. The reasons are clear. At the dawn of the twenty-first century, on the crest of a wave of home-price appreciation, the wealth of nations appeared to be accumulating faster through housing than in any other way. Residential property formed the largest single class of assets in the economy, and became a key component of personal wealth (Muellbauer 2008). This is particularly true in those "home ownership" societies of North-Western Europe (especially the UK), North America (especially the USA), and Australasia (primarily Australia and New Zealand) that are profiled in this book.

In the wake of rising property prices, households in the English-speaking world also encountered a cascade of mortgage innovation. On the one hand, the integration of housing, mortgage and capital markets enabled previously-excluded households to buy into home ownership. On the other hand, it encouraged established buyers to borrow more, using loans secured against their accumulating housing wealth. A mix of other factors underpinned this, including low interest rates, competition among lenders, and limited regulation. Together, they conspired to extend the reach of owner occupation, whilst making housing wealth more fungible – or usable – than ever before, enabling it to fund consumption of all kinds. This nexus kept whole economies afloat in periods of recession (Nothaft 2004), just as it provided owner-occupiers with a flexible financial buffer, and an asset-base for welfare (Benito 2007; Parkinson et al. in press). Then the tenuous threads holding the housing economy together began to unravel.

At first, the problem seemed distinctive to the USA, as a ripple of subprime mortgage defaults made waves across the wider economy. The storm broke towards the end of 2006, when Housing International, the subprime face of HSBC in the USA, suspended its operation. By March 2007, the future of one of the largest subprime lenders in the country – New Century Financial – was also in doubt. The most profitable sector of the mortgage market was suddenly set to fail. Then a tide of defaults spread from the margins to the mainstream: the home price bubble burst,

a raft of foreclosures followed, and the consequences spilled into every sector of the economy (Case and Quigley 2008). Housing was not the only culprit. Arguably, it was a hasty and excessive relaxation of US monetary policy after "9/11" which set the stage on which a crisis of residential lending and borrowing played out. Whatever the reason, not since Washington shut down Wall Street in 1914 had financial fortunes of the USA looked so precarious (Silber 2007).

A more alarming discovery still was that events in the North America were just the start. Flowing from and feeding into a mounting credit crisis, home prices began to falter or fall across the owner-occupied housing world. Banking ground to a halt, and a round of massive government bail-outs began. Somehow, the failure of a niche mortgage market in a single jurisdiction had generated a shock sufficient to tip the global economy from growth into decline. It followed that, early in 2009, when world leaders met with the explicit aim of reversing the slide to recession, the housing economy would – for the first time in history – top the agenda of a G20 summit.

This sketch does little justice to the scale or complexity of recent shocks to the global financial system, or to the human consequences of this unprecedented economic failure. It does, however, serve to highlight three important features of the encounter between housing and economy.

First, it suggests that these links are close and critical. Housing has far-reaching implications for macroeconomic resilience; and some of the elements once thought to add stability (e.g., complete mortgage markets) seem equally to contribute fragility. There has been progress in recent years in explaining how, why, and with what effects housing impacts on the wider economy, but there is clearly much more to learn about the interweaving of home prices, mortgage debts, and consumption. Just as there is more to know about the links between all of these, the business cycles, and other indicators of economic wellbeing.

Second, the links between housing and other sectors of the economy are multidirectional. It has always been clear that macroeconomic analyses need firm microeconomic foundations. But it is increasingly apparent that financial shocks are transmitted in many directions, and variously amplified through complex networks that span all scales of the economy. The world is adjusting to a major financial dislocation triggered by budgeting crises among a handful of households (in global terms at least) whose homes account for maybe one-tenth of the value of the US housing stock (itself worth around $20 trillion in 2005). The entire banking system ground to a halt because of its links to a geographically concentrated and socio-economically selective subprime lending spree. To be sure, this degree of overlending was unsustainable, exacerbated as it was by a perverse system of incentives in which fees were paid to intermediaries irrespective of whether loans were viable (Quigley 2008). But even at the height of its popularity, and immediately prior to its demise, subprime accounted for just 20 percent of the US mortgage market. To be sure the sector was large – perhaps $700 billion per annum at its peak, with loans totaling $1.3 trillion outstanding among over seven and a half million households by early 2007. And the "near-prime" (so called "Alt-A") sector may have doubled this. But the US housing stock was worth much more, and overall the equity it contained far exceeded the debt stacked up against it (which totaled $11.2 trillion by the end of 2007). So the shock of the failure is enormous, and

the fact that its fallout spread beyond the USA is highly significant. It implies that the links between housing and mortgage markets and the wider economy operate globally, as well as nationally and locally, and that events at any of these scales impact on the fortunes of the others. This adds a whole new dimension to the analysis of housing and the macroeconomy.

Third, recent events indicate that the nexus of housing and mortgage markets, which has been a traditional focus of interest, cannot be considered apart from the changing role of capital or financial markets – arenas which, for a while, looked set to form the "new gold" of international exchange (Bryan and Rafferty 2006). It is, of course, this third element of the equation – the role of financial markets – that accounts for the transmission of localized housing shocks across national boundaries. After all, the ups and downs of housing have been weathered before; even the regulatory gamble that prompted the savings and loan debacle of the late 1980s (Barth 1991) soon passed. Arguably, a crisis in a single, restricted, sector of the US mortgage market should not have caused home prices to tumble across the globe, much less have brought the world's banking system to its knees. The fact that it did – and the reason things went so comprehensively wrong for so much of the housing economy within and beyond the USA on this occasion – has to do with the establishment and growth of the mortgage bond market and the capital markets that traded them.

Mortgage bonds most commonly take the form of mortgage-backed securities (MBS). They are wrappers for bundles of debt. By attracting capital from a wide investment community, a growing, and increasingly complex, market for MBS (totaling about $7 trillion at its height) substantially increased the flow of mortgage finance to borrowers. At the same time, however, it exposed investors around the world to a rising tide of unserviced loans. This is what Hamnett (2009) calls "the madness of mortgage lenders"; an unprecedented frenzy of risk-taking, whose subsequent failure was shared by hedge funds, investment banks, and other large actors. This occurred when the bonds (by now mixed with other securitized debt – in the form of collateralized debt obligations (CDOs)) lost all value. The derivatives markets invented to "insure" them (credit default swaps (CDS)) could not bear the loss. As a result, banks could no longer value their assets, interbank lending ceased and mortgage funds dried up. For struggling home buyers, refinancing became out of the question, as credit constraints tightened and a new era of mortgage rationing dawned.

And so the circle from home occupiers (mortgagors whose income streams could not support their housing outlays), through lenders (who had sold off their loan book but run out of funds), into the world economy (whose banks no longer trusted each other enough to circulate cash or credit) and back again (to borrowers who cannot buy into a falling market, or refinance to save their home) is complete. Housing has turned into a highly complex and risky financial business. In consequence, it has never been so urgent to recognize and specify the close, commutative links between three core themes. Namely: the microeconomic decisions and behaviors of households, intermediaries, and institutions; the operation of housing and mortgage markets; and the wider economy comprising whole nations, entire world regions, and capital markets.

This book is one contribution to that goal. The 25 chapters that follow, and the 42 authors who wrote them, present new data, original analyses, and innovative

ideas. They help explain how it was possible for the collapse of housing and mortgage markets in some states and neighborhoods to reverberate throughout the wider economy of the USA. They further consider what the quite different housing systems in Europe and Australasia bring to this mix. They document the extent to which globalizing housing markets interact with national and local economies, as well as with households' patterns of savings, spending and debt, to change the shape of society and alter the course of politics. The book as a whole thus recognizes just how interrelated the macro- and microscales of economics have become. It acknowledges, too, that the boundaries between economics, psychology, sociology, and politics are fuzzy, arguing that they cannot, indeed should not, be maintained where housing is concerned. In short, and above all, this collection underlines the centrality of the housing economy to almost everything else in life.

To set the scene, the remainder of the introduction falls into three sections. First, it examines the uneasy encounter between the topic of housing and the discipline of economics. Even today, it is surprising how peripheral housing is to the disciplinary mainstream; and it is curious to see what is, and is not, addressed by the vibrant subdiscipline of "housing economics" created to redress the balance. Second, there is a comment on the scope and rationale of the "Economics of Housing" as embodied by this collection. The difference between the two phrases – "housing economics" and "the economics of housing" – may sound like a semantic slip. But the distinction is deliberate. It implies that the housing economy is too large and unwieldy to be contained wholly within economics; that the challenge today is truly interdisciplinary. Third, and finally, the shape of the volume itself is explained: its mix of authors and approaches; a focus on three world regions; an emphasis on the English-speaking world; a preoccupation with owner-occupation; and a glimpse across three unevenly integrated – housing, mortgage and capital – markets. These are the foundations of a unique platform from which to view the unfolding of some quite extraordinary financial events.

1.2 Housing, Economics, and "Housing Economics"

> In many economies, credit markets and housing markets play far more economic roles at the macro level, as well as at the micro and spatial levels, than will be found in most economics text books. (Muellbauer and Murphy 2008, p. 26)

Housing and mortgage markets made headlines as never before in the year these words were printed. Yet housing markets are cyclical; their ups and downs are well-rehearsed, and it is perhaps difficult to understand why they have not always been a more central concern for economics as a discipline. It is true that housing systems have gone global only recently (Renaud and Kim 2007). Price cycles were previously less co-ordinated and arguably of less interest to mainstream macroeconomists. Likewise, lending is no longer the national affair that it used to be; the tangled world of mortgage and financial markets infuses the wider economy to an unprecedented extent. It could therefore be argued that the

significance of housing for the international economy, as well as for cities, regions, and states, is increasing, and that this inevitably will move it to the center of the economics stage.

Nevertheless, housing assets, mortgage debt, the residential property construction industry, and the myriad intermediaries and ancillaries in the housing business are not new. Neither are their economic effects. Housing investment is widely recognized as a leading indicator for the business cycle. Indeed, in the 1950s and 1960s, when Keynesian economics was in its prime, the housing construction sector was viewed as central to pump priming during an expansionary phase of fiscal policy that was designed to lower unemployment rates. All this notwithstanding, there is – in the silence around housing in much of the economics literature – still a trace of the truths set out by Lionel Needleman (1965) over 40 years ago. In one of the earliest texts on the economics of housing, he noted that "there can be few subjects of comparable importance that have been discussed so much and analysed so little" (p. 14).

Times *have* changed; but not that much. Undergraduate economics, for example, has – on the whole – rather little housing content. To be sure, most standard texts have a section or two on residential investment. But only one best-selling economics textbook covers housing as anything other than a sideline (Case et al. 2009; though see also Griffiths and Wall 2007); and there are few courses in economics that attract students specifically on a housing platform. This pretty much mirrors the wider academic field. The Nobel Prize for Economics for example has been awarded every year for more than four decades. But, so far, no recipient has been especially known for their work on the housing economy; none is a housing economist.

The underlying research effort has until recently, tended to mirror this silence. Even as late as 2004, in a round-up of research on housing and the macroeconomy, Leung (2004) made the "shocking" observation that " 'mainstream macroeconomics', simply put, ignores the housing market" (p. 250). It is hardly surprising, in the wake of recent events, that this vacuum is attracting more attention. We turn to this next – to a new wave of interest in the housing economy which is building on Leung's critique. It is drawing, too, on a scattering of earlier work embracing the interactions between housing and the "new (flexible, volatile, and internationalizing) economy" of the 1990s (Gibb and Hunter 1998; Elmer and Landis 2002).

Some of this macroeconomic work is country-specific. For the US market, for example, a "primer" on the economics of housing policy has been developed by Green and Malpezzi (2003); for the UK, Gibb et al. (1999) and Oxley (2004) continue a tradition of work on housing finance; and for Australia a steer is given by Ellis (2006). Other works aim for a more explicitly international sweep. Goodhart and Hofmann (2006), for example, gathered a wide range of evidence together to support their book-length account of the two-way link between home prices and the macroeconomy. Similar topics are introduced in Edelstein and Kim's (2004) theme issue of *Journal of Housing Economics*, and elaborated in a recent issue of the *Oxford Review of Economic Policy* (Cameron et al. 2008). These works are mostly preoccupied with the upswing of the housing cycle. They all consider the various channels by which home prices might interact with economic activity, as well as with credit markets and financial stability.

The latter theme (credit, debt, and resilience) also resonates with Leece's (2004) work on the *Economics of the Mortgage Market*. It is central to the prolific tide of analysis (itself profiled in this volume) produced by the Economics Department of the Organization of Economic Co-operation and Development (OECD). It has inspired renewed interest in the predictors of variability in the provision of housing finance (Warnock and Warnock 2008). And, of course, it underpins a growing concern to document the consequences of mortgage market deregulation (Stephens 2007).

Then there is a raft of new research on the downside of the cycle. Works hot off the press so far (and many more are in train) include Green et al.'s (2008) special issue of the *Journal of Housing Economics* on subprime mortgage lending, the *Journal of Economic Perspectives*' symposium on the early stages of the credit crunch (2009), and Gabriel et al.'s (2009) collection of papers on the "mortgage meltdown" published in *the Journal of Economic Analysis and Policy*. This latter collection also profiles the economic policy dimensions of the housing economy, complementing the wide policy arena and focus embraced in O'Sullivan and Gibb's (2002) earlier collection.

Notwithstanding a surge of new interest in housing and the macroeconomy, however, many of the gaps identified by Leung (2004) remain. There is still a great deal of work to be done to fully understand the wider effects of housing taxation, to document the links between housing and business cycles, to explore the collateral effects of home price dynamics and to explain the long waves of home prices. Many contributors to this volume – and in particular those writing in Part I – aim specifically to address these themes.

Microeconomics came under scrutiny for its marginalization of housing somewhat earlier. At the beginning of the 1980s, for example, Maclennan (1982) used the peculiar features of property to argue for more a nuanced account of the operational features of the major markets than prevailing general equilibrium approaches allowed. Neoclassical economics, he argued, placed most emphasis on refining theories of price and resource allocation at high levels of abstraction. This eased the derivation of elegant proofs of the determination of equilibrium prices. But this, Maclennan argued, directed attention away from critically important features of markets (e.g. asymmetric information) that shape performance. In light of this he made the case for "more reasonable structural assumptions," a more contextual approach, and an interest in how consumers and producers in specific markets "really behave," as the preface – perhaps – to a more general and workable microeconomic theory. There has, as Watkins (2008) shows in his review of a growing literature on the economic analysis of local housing markets, been some success in this regard. In the UK and Europe in particular, there have been many new attempts to address the complex spatial processes underpinning neighborhood segmentation. Less evident, however, has been an interest in the microeconomic dimensions of some common macroeconomic themes. For example, there has been a surge of interest in recent years in the size of housing's "wealth effect" on the wider economy (summarized in Case et al. 2005; Smith and Searle 2008). Yet there is rather little parallel interest in the impacts of housing wealth and mortgage debt at the micro-scale, where they infuse the everyday financial decisions of

households and individuals. Many of the papers in Part II of this collection have been written to fill that gap.

In addition to the scattering of books and theme issues which have, in recent years, begun to put housing into economics in a more concerted way, there is the ongoing work of an entire subdiscipline – housing economics – which was created specifically to deal with the housing "gap" at the heart of economic analysis. Insight into the content and direction of the core work here can be gleaned from the resulting "house" publication, *the Journal of Housing Economics* (JHE). First published in 1991, the editor then, as now – Henry Pollakowski – saw the JHE as the home for a previously fragmented research effort, which had scattered key substantive findings on the operation of the housing economy across a diverse range of specialist and technical outlets. "It is hoped" he wrote "that by providing a forum for the broad spectrum of topics and approaches which comprise the subject of housing economics, this journal will enhance the research process . . ." (1991, p. 1). Ten years, nine volumes (volume three having spanned two calendar years), and over 150 papers later, a cumulative subject index was published which shows how, to a substantial extent, that vision was achieved.

Figure 1.1 is based, in part, on the JHE's own subject index. It shows that the lion's share of the first decade of papers addressed questions of affordability, home (and land) prices, methods, mortgages, and models of housing markets. The editors of the present volume, with the help of Catherine Alexander, attempted to classify the papers published in the JHE since (in the period 2001–2008). This exercise used the same categories as a starting point, but paid particular attention to emerging themes and debates. It is hard to say whether we used exactly the same counting rules; ideally the same team would need to classify both sets of papers to achieve a comparable outcome. But it is interesting that the "top five" themes for the more recent period again include models, affordability, and prices. At the same time, specifically methodological papers are, together with several other main categories, much less prominent now, having been displaced by a new preoccupation with "risk" of various kinds.

"Risk" is the only distinctively new theme to emerge in the second classification exercise. It does, moreover, gather up works that may have been classed as mortgage-related in the earlier review. But more generally it is a label which covers a much wider range of risks – associated with both housing wealth and mortgage debt – than was apparent in the earlier period. Ongoing concerns around mortgage delinquency and underwriting risks (Diaz-Serrano 2000; Groverstein et al. 2005) thus sit alongside concerns about investment risks (Quigley 2006), financial risks more generally (Bradley et al. 2001), the role of housing in compounding the risk of persistent deprivation (Ayala and Navarro 2007), and the relevance of housing wealth as part of a wider strategy of risk management or self insurance (Buckley et al. 2003; Eroll and Patel 2005). Risk, in short, has become the touchstone for discussions of the housing economy today. It is a theme that runs through this entire volume, and one whose nature and implications are very squarely addressed in the papers published as Part III.

Looking forward, the Companion as a whole picks up some enduring and emerging trends identified in this very specific cut across housing economics. Authors

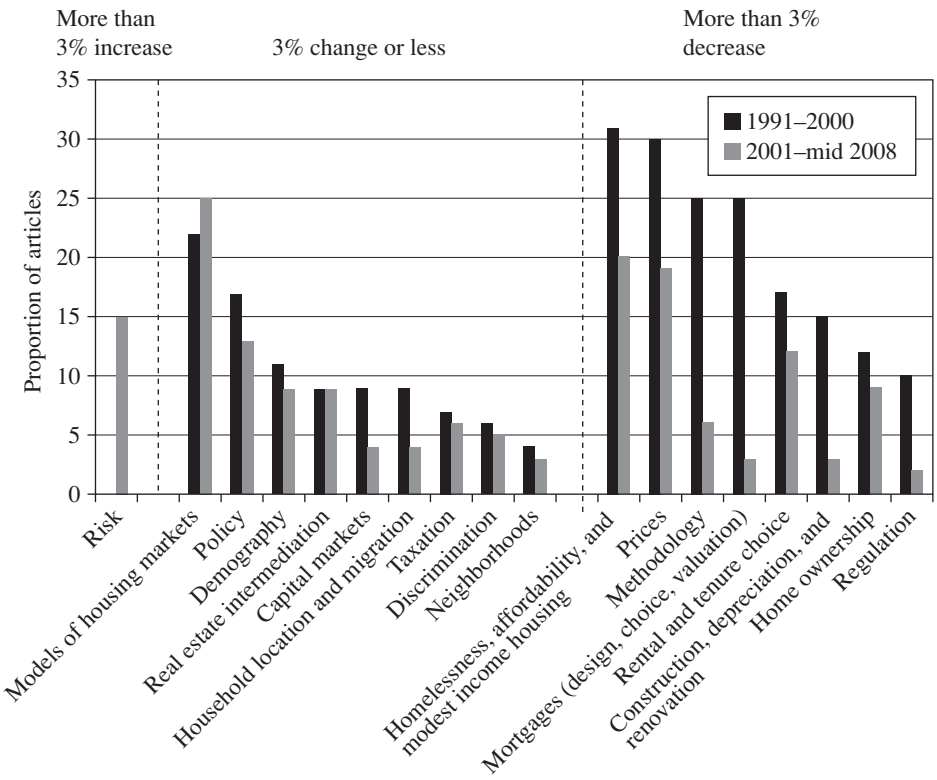

Figure 1.1 Continuity and change in the thematic focus of articles in the *Journal of Housing Economics* before and after the millennium. The denominator is the total number of articles published in each period (not the total of both periods together). A single article may be tagged with more than one theme, though it is rare for an article to fall into more than two categories.
Note: The *x* axis is labelled with article themes. The *y* axis refers to the proportion of articles devoted to a given theme in each of the two time periods.
Source: Authors' analysis of articles published in the *Journal of Housing Economics*

place the spotlight on home prices, and their link (through consumption, fueled by secured borrowing) to the wider economy. They examine the microeconomic implications of the changing character of housing wealth and its growing role as a financial buffer. They addressed the questions of risk and risk mitigation that this raises. But even more notable than any alignment these essays have with "housing economics" *sensu stricto* is the indication they give that this subdisciplinary steer marks the beginning rather than the end of the analytical story. The contents of the one journal devoted specifically to housing economics do – as the publishers currently claim – provide "a focal point for the publication of economic research related to housing encouraging papers that bring to bear careful analytical techniques on important housing-related questions." But as we go on to explain,

the project represented in this book is, of necessity, both broader in sweep and more focused in content than the label "housing economics" conveys.

1.3 The Economics of Housing

It could never be expected that a single journal would – even at the height of its popularity – contain everything of interest and merit written by economists on the topic of housing, much less that it would publish everything of significance on the housing economy. The journal *Real Estate Economics* (REE) (the house journal of the American Real Estate and Urban Economics Association) first published in 1973, the *Journal of Real Estate Research* (JRER) established in 1986, and the *Journal of Real Estate Finance and Economics* (JREFE) dating from 1988, all include work on the economics of *residential* real estate, for example. Indeed more than half the articles in the first volume of REE had an explicitly housing focus, and the first issue of JRER contained one of the first published attempts to account for intercity differences in home price appreciation (Manning 1986). At the same time, JREFE pays close attention to housing, mortgage, and financial markets, and to the comparison and contrasts between residential and commercial real estate. Nevertheless, there are many more broadly-based journals which publish both economic and other research relating to the housing economy; and it is the relevance of taking this broader sweep that is considered next.

1.3.1 An interdisciplinary project

The themes profiled in this book – home prices, housing wealth, mortgage debt, housing risk, and capital markets – are central to the housing economy, and to housing economics. The extent to which they penetrate the wider literature can be appreciated in a number of ways. We choose to illustrate this here with reference to a structured literature search for the period 1998–2009. The approach we took is analogous to the systematic review – a method of research synthesis developed to combine the results of randomized control (clinical) trials in medicine. This very stringent methodology has since been adapted to embrace the wider world of education and health interventions, where it is used to summarize large volumes of research in order to provide manageable, balanced reviews of the effectiveness of different interventions for professionals in policy and decision-making environments. The structured search methods employed outside the world of randomized control trials tend to be less formalized and more inclusive than those adopted for the standard systematic review. The argument is that even where it is not possible to combine results across studies, there are merits nevertheless in using clearly specified and transparent rules of inclusion in order to collate and summarize a large volume of articles across a firmly defined field (see Curtis et al. 2008).

This "relaxed" systematic review is the style adopted here. Sixty-six search terms were entered into the ISI Web of Knowledge database, using various combinations of housing, prices, wealth, mortgages, and economics in a bid to cast the net as widely as possible. The results were transferred to a bespoke database, where papers

are organized into themes, disciplines, and sources, among a variety of other characteristics. Over 2055 articles were returned by the search, of which somewhat over a quarter – 561 – refer squarely to the housing economy. As is usually the case, the majority of recovered articles were excluded from final review because they do not relate directly to the core field, despite being caught by the search terms. (An article on the cost of animal housing, for example, would have been returned by the search, but not included in the final review.) On the other hand, the advantage of the wide parameters set at the outset is that the search as a whole is unlikely to have missed key papers in any peer-reviewed journal listed by ISI.

Among the papers included in the review, just under half ($n = 253$; 45 percent) were submitted by authors who are economists or who work in Economics departments. Nearly two-thirds of the papers were published in mainstream economics or housing and urban economics journals ($n = 337$; 60 percent); about one-third ($n = 188$; 34 percent) could be described as traditionally neoclassical in approach. On the other hand, just *over* half those writing on the housing economy are from other disciplines. These are often, but not always, cognate to economics, and include geography, sociology, psychology, political science, and urban studies. Furthermore, relevant articles were recovered from over 140 ISI-listed journals, and nearly half the papers included in the review appeared in journals linked primarily to disciplines other than economics.

This may suggest that Pollakowski's concerns about the fragmentation of a subdiscipline are well-founded, and that this splintering is ongoing. Such an interpretation is underlined by the fact that there remains in housing economics a substantial "grey literature"; indeed many of the most significant papers of the past decade have been published outside ISI as on-line working or institutional papers, or in a new range of e-journals. A systematic review of these would be a far bigger project than the time-line for a book like this allows. The point we wish to make, however, is that the wide span of publications outlets for peer-reviewed work on the economics of housing may place the process of "splintering" in a more positive light. Effectively it is a way of recognizing that the housing economy is too broad, too complex, too interesting, and too important to be left solely to economics.

To be sure, articles published in the JREFE, the JHE, and REE are in the top five by volume of those recovered in the search. But so too are works published in the more interdisciplinary *Journal of Housing Studies* and *Journal of Urban Studies*. The rest of the top ten includes the *Journal of Urban Economics* and JRER, as well as *Regional Science and Urban Economics*. But the more sociologically orientated *Environment and Planning A*, together with *Housing Policy Debate* also feature.

In all, the disciplinary spread of papers is very wide, even for subjects pertaining to core themes, such as home prices. For example, a total of 141 recovered papers focus on home prices: two-thirds ($n = 89$) are standard neoclassical analysis; 23 use hedonic modeling to describe and explain price outcomes. A third of the papers on price, however ($n = 52$), present other perspectives; from geography, urban planning or policy studies; and from material sociology and cultural economy (ideas we will come back to shortly). This same complexity, across all aspects of the economics of housing is illustrated in Figure 1.2.

Figure 1.2 confirms that research on the housing economy is indeed dominated by economics – the discipline whose very rationale is to explore and explain the

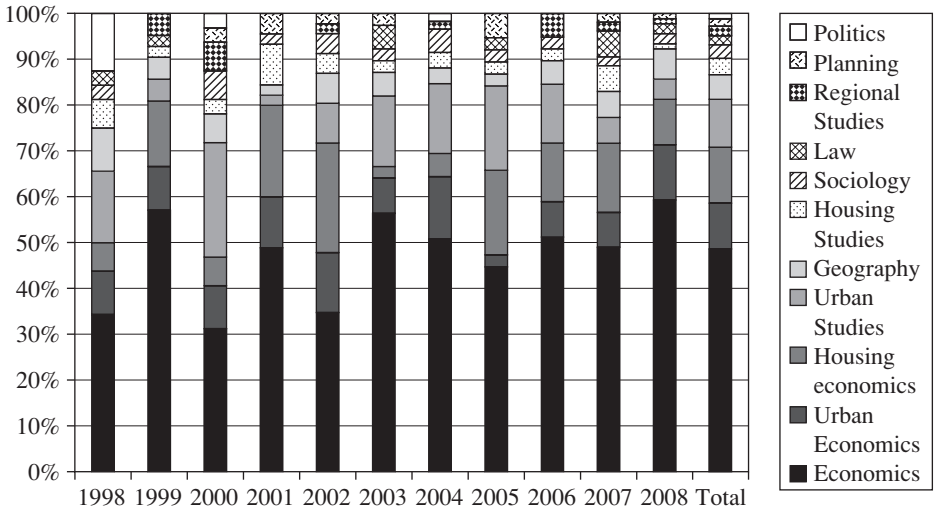

Figure 1.2 Disciplinary breakdown of articles from 1998 to 2008 showing disciplines with more than five results.
Source: Authors' analysis of articles published in the *Journal of Housing Economics*

economy using economic tools. But it is striking how many other disciplines have – in the past decade – made an active and sustained contribution to this "housing economy" project. In addition to politics and planning, disciplines including sociology, geography, and legal studies are now injecting both theoretical and empirical insights into how housing, mortgage, and financial markets work, charting the way they impact on both the macroeconomy of states and the microeconomy of households. And it is this mix that we seek to recognize in the title "The Economics of Housing." This is the phrase we propose to describe a collaborative attempt to "join up" the various elements, and scales of operation, of the housing economy. Such disciplinary mixing is significant for many reasons. Most importantly, it is a mode of integration that places the housing economy at the cutting edge of a much broader paradigm shift at the interface of economics, sociology, and public policy. It represents the extent to which an enduring division of labor between economists and "the rest" is beginning to break down.

1.3.2 An integrated approach

One version of a division of labor between economists and other scholars of society, in which the housing economy has been caught, is that it represents an historic intellectual "deal." The story is that, as long ago as the 1950s, the sociologist Talcott Parsons – in the midst of a bid to annex practically all of social science within a grand design for his own discipline – settled for a "pact" with powerful economists to the effect that: "You will have claim on the economy. We will study the social relations in which economies are embedded" (Stark 2000, p. 1). Another version of this split is more structural, suggesting that the act of

separating out a range of "essential" economic mechanisms from wider sociological and political scrutiny has hitherto been necessary for economics, economies, and welfare states to function as they do (Smith et al. 2009). But whatever its origins, the pact is under threat. This is not to imply that the transition is entirely comfortable or that its passage can be taken for granted. The trend in university economics teaching departments, in fact, has been to merge with business schools where economics is often more, not less, isolated from the wider social sciences. On the other hand, in so far as there is a sea-change at the interface of economy and society, there is a sense in which work on the housing economy is in the vanguard.

It is, in that context, worth noting that as well as forming the crest of a new wave of collaboration across the divide between economic and social research, the broad sweep of housing studies, particularly in Europe and Australasia, has always had a tradition of bringing these fields together. One of the Economic and Social Research Council's first large research center initiatives in the UK, for example, created the interdisciplinary Centre for Housing Research at Glasgow University in the mid-1980s. Nevertheless the end of the so-called "Parson's pact" in the present decade does mark some new, possibly fruitful, directions for analyzing the economics of housing.

Our sketch of this begins on a somewhat ironic note, observing that, just as sociology, anthropology and human geography are making overtures to economics, a significance branch of that subject – behavioral economics – has effectively eloped with psychology. We refer of course to the surprising turn of intellectual events in which the Nobel Prize for Economics was awarded to psychologist Daniel Kahneman in 2002. "At the core of behavioural economics" write Camerer and Leowenstein (2004) "is the conviction that increasing the realism of the psychological underpinnings of economic analysis will improve the field of economics." Since this has produced an explosion of interest in almost every field of psychology and economics, it is hardly surprising that Camerer and Leowenstein (2004) pick out housing as a huge but relatively neglected area which is "full of interesting opportunities to do behavioural economics" (p. 16).

More of a puzzle is the discovery that only a small number of studies (less than 5 percent) recovered in the structured search reported above actually adopt a behavioral approach. Most work to date has focused on the question of mortgage choice (Essene and Apgar 2007). There is surprisingly little interest in applying behavioral economics to decisions around home purchase. This is despite that fact that almost every hedonic analysis of home prices included in the reviews refers to problems, limitations, or the need for new approaches to handle the complexity of price. Accounting for price – for the costs buyers will bear and the debts they are able or willing to accrue to that end – is certainly one of the areas where the alliance of psychology and economics might be most fruitful. This is clear in Simonsohn and Leowenstein's (2003) reflections on "mistake 37" – just one among the many irrationalities exposed in Gary Eldred's (2002) "106 common mistakes homebuyers make . . .". In a refreshing attempt to recognize that "preferences" in markets are unstable, actions contextual and outcomes driven by whim (or at least by "salient cues that are difficult to justify normatively"), these authors show how the same prices for similar properties can mean different things to different

home buyers, depending where they come from. They argue, contrary to previous economic assumptions, that even very significant behavioral decisions can be affected by "arbitrary cues" in broadly predictable ways.

Nevertheless, the only sustained program of writing on the relevance of behavioural economics and finance to the dynamics of home prices is that of Yale economist Robert Shiller. Shiller originally employed the concept of "irrational exuberance" to account for the booms and busts of the stock market. In recent years, however – notably in the second, updated, edition of his book on this theme – he has used the same idea to help explain the amplitude and geography of the current housing cycle (Shiller 2005). This work has, in particular, helped catalyze debate on the extent to which housing cycles are driven by emotional energy or economic fundamentals. The question, in a nutshell, is whether housing "bubbles" reflect questions of space and supply in "superstar cities" as Gyourko et al. (2006) claim they do; or whether they are about the scramble to secure a place on the housing escalator in the "glamour cities" identified by Case and Shiller (2003) – those housing "hot spots" where the fear of missing out on potentially high rates of return drive prices to unsustainable heights. In short, do volatile home prices reflect "rational" adjustments to the ups and downs of interest rates, user costs, and other fundamentals (Himmelberg et al. 2005), or are they driven more by "animal spirits" (Akerloff and Shiller 2009).

Positions in this debate seem increasingly polarized. However, few argue that there are no nonrational drivers in the housing economy. In light of this one of the surprising features of the behavioral turn is how little discussion or debate there is concerning just how the emotional housing economy might work. To the extent that much at all is written on the behavioral housing economy, the tendency is to take for granted the operation of a particular kind of psychological motivation: one rooted in individual responses to a limited range of impulses including fear, greed, and herd behavior. More generally, and notwithstanding its claim to methodological eclecticism (spanning laboratory and field experiments, computer simulation, and brain scanning), the core of behavioral economics and finance relies increasingly on the findings of experimental psychology, neurophysiology, and neuroscience, to model and interpret larger scale survey data. Rather less attention is paid to the "close dialogue" that might also help to formulate some newly emerging "stylized facts" of housing market activity.

Other disciplines, nevertheless, promise to enlarge the behavioral dimension using a wide range of research. These studies borrow from the ethnographic approaches of economic anthropology or the qualitative interviewing skills associated with the sociology and economic geography of finance. The importance of this broader approach is underlined by Strauss (2008), who concludes her wide-ranging review of the fall and rise of rationality, contextuality, and economic behavior by arguing for "an approach to economic decision-making that combines insights from behavioural economics and cognitive science with both quantitative and qualitative methods and the theorisation of context, embeddedness and the role of institutions" (p. 151). The relevance of this vision for understanding the microstructures of the housing market is set out in a collection edited by Smith and Munro (2009). This set of essays makes the case for a sociological – as well as psychological – understanding of the emotional relations infusing housing

markets, on the grounds that this can add to the explanatory power of existing behavioral approaches (see especially Christie et al. 2008; Munro and Smith 2008).

Debates around the "behavioral turn" conspire, in the end, to make one very substantial point; namely that while the existing knowledge base for the housing economy has been constructed almost entirely from quantitative studies – only 3 percent of studies included in the structured review use a wider mix of methods – there is growing interest in monitoring the beliefs, experiences and behaviors of individuals in the housing economy using novel qualitative approaches. The importance of this is recognized in the papers that follow, particularly in Part II, which exposes the wide range of risks that individuals both manage and encounter as they negotiate their place at the intersection of housing, mortgage, and financial markets.

More generally, the title of this volume reflects the extent to which charting the economics of housing in an increasingly risky financial word is a multidisciplinary venture. It demands new alliances between economics and a range of other social science disciplines with an interest in economy. This is a challenge for all the disciplines concerned. It is not simply a matter of urging economics to be open to other fields, or about asking other subjects to get to grips with econometrics. It is about creating the new interdisciplinary collaborations that are required to address multifaceted economic themes.

In short, the vast majority of work on the housing economy in the past has been completed by economists. The character of this volume reflects that. But it is time for other disciplines to attend to such themes. This collection is equally designed to capture that trend. The chapters contain ample evidence of what the interdisciplinary shift has already achieved. They show, too, how fruitful any continuing alliance will be in meeting the challenge of understanding and managing the housing economy in 2010 and beyond.

1.4 The Housing Wealth of Nations

This book profiles the housing systems of the English-speaking world, drawing examples from societies in which home ownership, enabled by mortgage finance, is the norm. Such heavily leveraged owner-occupation represents a style of "residential capitalism" (Schwartz and Seabrooke 2008) to which nations increasingly subscribe. It is built on the integration of housing, mortgage, and capital markets, and this has a bearing on the extent and distribution of personal wealth, the patterning of debt, the structures of welfare, and the resilience of economies. It impacts too on the character, scale, and uneven experience of housing's financial risks. So although owner-occupation by no means subsumes or represents the entire housing economy, its changing fortunes – and the changing fortunes of the economies it most infuses – do serve as a barometer for the merits and limitations of a housing strategy that has set the pace for the past half century.

Adam Smith, the "invisible figure" in the subtitle of this collection, and of this chapter, was wary of claims pertaining to the wealth in residential property. "A dwelling house as such" he wrote in *The Wealth of Nations*, "contributes nothing to the revenue of its inhabitants." This might change if the property were rented,

but the cost would be borne by the tenant (as well as by owner-occupiers whose "imputed rents" for housing services would also rise). Hence, "the revenue of the whole body of the people can never be in the smallest degree increased by it."

This style of argument recently prompted Buiter (2008) to engage in a protracted debate around the claim that "Housing wealth isn't wealth." His point is that housing is a service; if prices rise (or fall), so do the costs of consuming those benefits. So there is in theory no net gain (or loss) in a system where everyone consumes housing and markets generally clear. But there are, of course, distributional effects, between places and across cohorts, as well as important systematic variations in the way rising (or falling) home prices impact on the borrowing (including equity withdrawal) and trading (including equity release through sale) decisions of home buyers. These behaviors and effects – and their implications for micro- and macroeconomic wellbeing – are what is critical about "the housing wealth of nations"; accordingly they underpin many of the ideas and analyses in this book.

There is another trace of Adam Smith infusing the housing economies under scrutiny here, and that has to do with the presumptions they contain concerning the merits of a deregulated financial world populated by self-provisioning subjects. There is an ideology as well as an economy of owner-occupation to which many individuals, as well as their governments, subscribe. The home ownership societies are saturated with notions of free markets as a source of enrichment and a resource for welfare. In these contexts, housing wealth may not be tradeable for whole nations but it is certainly usable for the households that own it; and the appeal and sustainability of owner-occupation is increasingly linked to this.

The idea of a free market for delivering the entirety of economic and social policy is not necessarily one that we – the editors – subscribe to. Nor is it one that, in the wake of the credit crisis of 2007, many governments can completely defend. Neither does the public's "buy-in" to very high rates of owner-occupation seem set to last as prices fall and debts cease to be sustainable. Indeed, one of the challenges taken up in this collection is to consider whether the risks of residential capitalism can be better managed, its rewards more widely shared, and its dominant tenure type – owner-occupation – modified in order to better secure the financial fortunes of both households and whole economies.

1.4.1 Owner-occupation: the heart of the housing economy

The three jurisdictions most closely profiled in the chapters that follow are the USA, the UK and Australia; though there are chapters addressing New Zealand, a variety of European jurisdictions and the whole of the OECD (the countries of the more developed world). Figure 1.3 is a stylized view of the steady expansion of owner-occupation across the twentieth century in the three "anchor" economies. This figure does not show all the nuances of history, but it does serve as a reminder that three jurisdictions that look quite similar today may be on rather different trajectories.

The UK for example has experienced a series of "tenure experiments" over the past century. In the early 1900s only 10 percent of households were owner-occupiers (the rest were private renters); by the late 1950s over a third were council tenants,

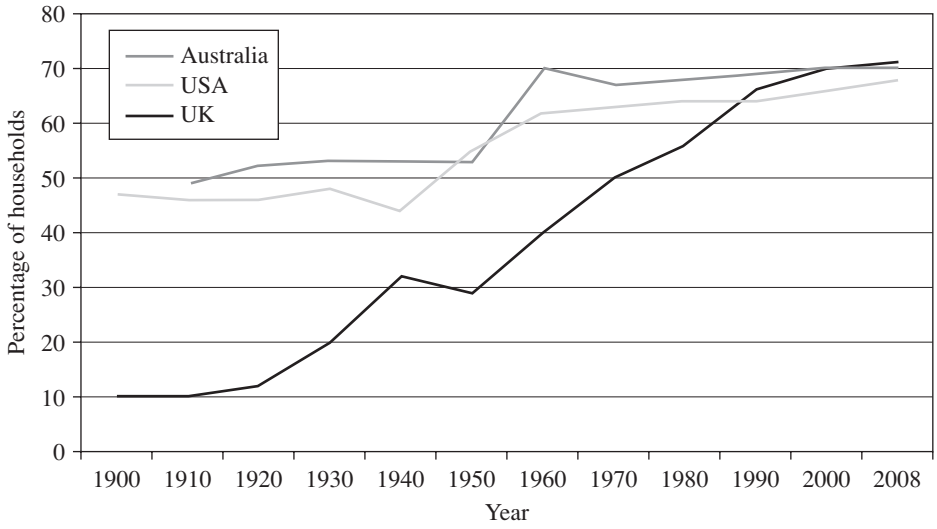

Figure 1.3 A century of owner-occupation.
Source: Survey of English Housing; US Census; Australia Bureau of Statistics

as social renting and home ownership expanded hand in hand. It was only in the 1980s (after social renters received the "right to buy" their homes at a discounted price) that owning began to expand at the expense of all the rented sectors, and so became both dominant and normalized. And it was only in the 1990s that today's very high rates of owner-occupation – around 70 percent – were achieved.

In contrast, for the entirety of the twentieth century, more than half Australia's households owned or were buying their homes. The social sector there has always been small, but a boost to owner-occupation occurred in the mid-1950s with a new Commonwealth-State Housing Agreement in 1956. This act tipped the balance by not only encouraging the construction of new homes for private ownership, but enabling social tenants to buy what rented stock there was (Murphy 1995). Accordingly, by 1960, rates of home ownership in Australia had achieved the very high levels (nudging 70 percent) that prevail today.

The USA has never had a substantial public rented sector, though private renting was common for the first half of the twentieth century. Since 1960, home ownership has dominated, however, with rates achieving over 60 percent ever since. The subprime experiment helped boost the sector into the twenty-first century by which time it accommodated over two-thirds of USA households. Rates peaked just a little lower than the UK and Australia, at about 68 percent.

The high rates and steady expansion of owner-occupation represented in this graph mark out housing as the only asset class that is so widely distributed among the general population and across the socio-economic spectrum. In these societies, two-thirds to three-quarters of the population inhabit a tenure sector which accommodates most of the rich and at least half the poor (Burrows 2003). So on the one hand, owner-occupation is – not least by virtue of its size – a highly heterogeneous sector, offering a wide variety of housing experiences. But on the

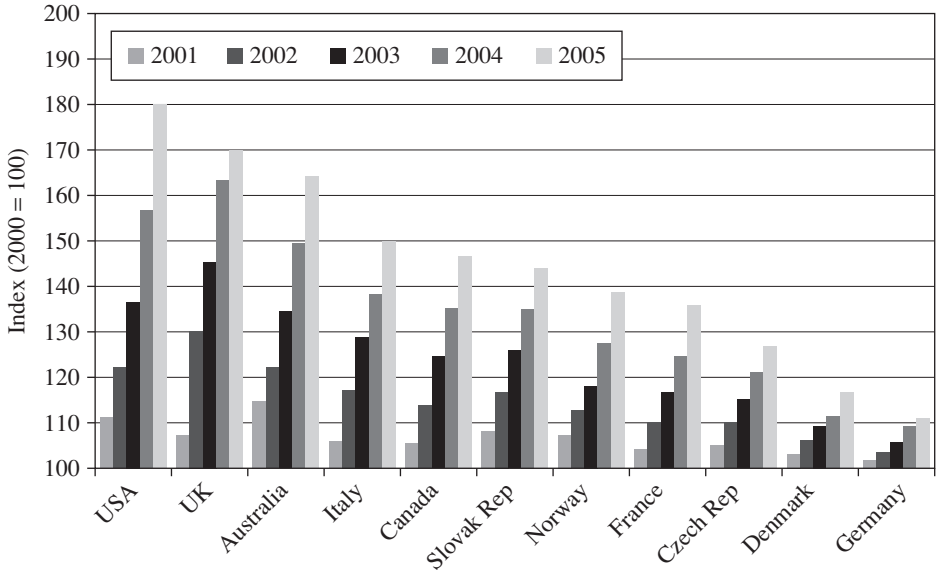

Figure 1.4 Growth in value of housing stock, selected countries 2000–2005.
Source: OECD

other hand, it has a similar role across the bulk of the socio-economic spectrum, as (with pensions) the only style of wealth-holding to which the majority of households have access, and (uniquely) as the vehicle in which most people hold the majority of any wealth – and certainly of any potentially realizable wealth – that they have. There are a wide variety of measures of this in the literature, so the figures often seem contradictory and can be confusing. Suffice to say that across the countries of the OECD, housing wealth generally accounts for more than half of all personal wealth, and as much as three-quarters of owner-occupiers' assets.

As the current home-price cycle approached its zenith, annual rates of home price appreciation reached double figures across the more developed world (with one or two notable exceptions, such as Germany and Japan). Even in the long run, and without the surge of prices in the early 2000s, housing performed relatively well, despite numerous ups and downs. This is especially true in the UK, where home prices appreciated by an average of almost 4 percent per year (in real terms) between 1971 and 2002. Growth rates over the same period in Australia reached just over 2 percent, and in the USA, just under that figure (Catte et al. 2004). By adding to this the effects of the twenty-first century housing "bubble." it is possible to track an astonishing increase in the value of residential wealth holdings across the first five years of the millennium. This is shown in Figure 1.4, which indicates that the USA, the UK, and Australia were at the very forefront of the trend. By 2005, not only did more people own more property in the more developed world than ever before, but that property – which exceeded the value of equities and bonds combined – had more wealth stored within it than any other asset class.

Housing has also, of course, been the anchor for a growing burden of debt. Just as housing forms the centerpiece of personal wealth portfolios, so mortgage

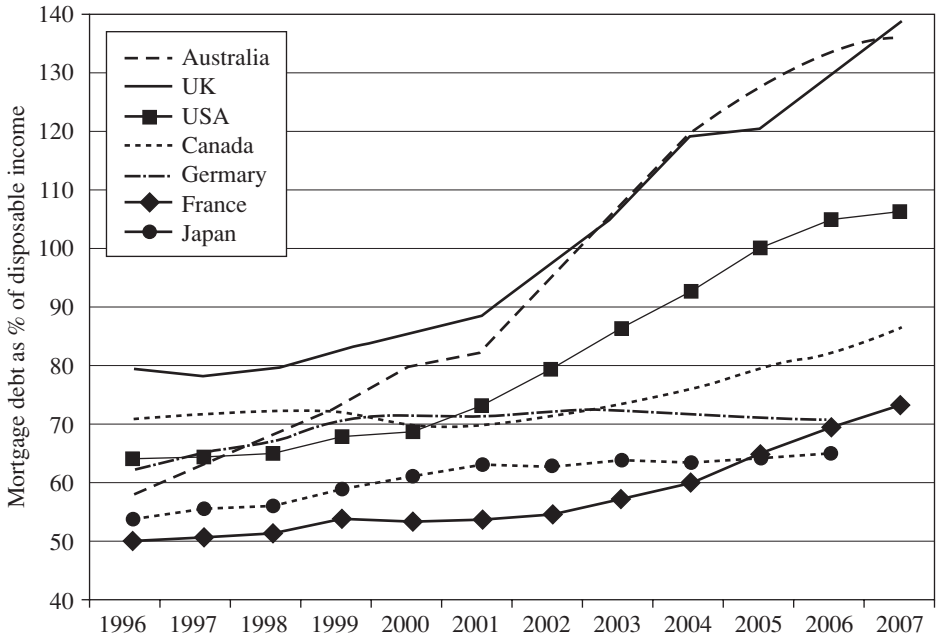

Figure 1.5 Mortgage debt as a proportion of disposable income.
Source: OECD; Reserve Bank of Australia

finance underpins the majority of households' borrowings. Even in the decade to 2002, residential mortgage debt in Australia doubled as a proportion of GDP, from 24 percent to 51 percent. From a higher base, borrowing increased from 45 percent to 58 percent of GDP in the same period in the USA, and from 56 percent to 64 percent in the UK (Catte et al. 2004). This increase in indebtedness is shown in Figure 1.5 as a proportion of disposable income. Again the UK, the USA, and Australia were at the crest of the (borrowing) wave. In that period, the mean size of loans granted to first time buyers increased by 68 percent in Australia and by an astonishing 83 percent in the UK.

A key reason that so much debt is stacked against home assets is that, as price rises outstrip incomes, home buyers have to borrow more simply to access the market. Another important consideration, however, is the trend in "mortgage equity withdrawal" (MEW). Broadly, this refers to the practice of using loans secured against residential property to fund nonhousing consumption. Such "equity borrowing" may be an important channel between housing wealth and consumption. Its macro- and microeconomic implications are considered at length in the first two Parts of the book, which together profile the changing role and relevance of the link between home prices, housing wealth, mortgage debt, consumption, and the rest of the economy.

The conceptualization and measurement of MEW is itself fraught with difficulty (for a discussion of this, see Smith and Searle 2008). In the USA, its most

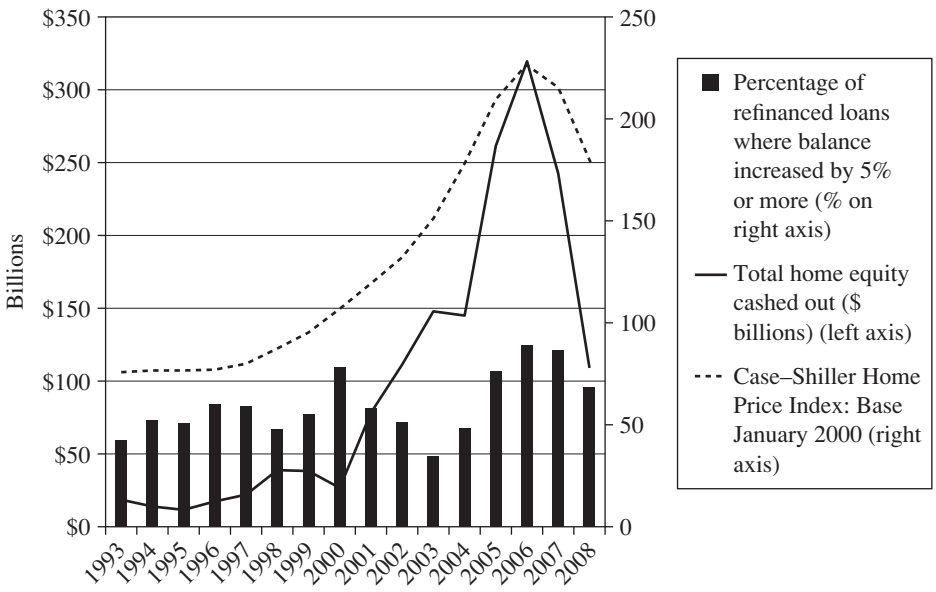

Figure 1.6 Home prices and cash-out refinancing in the USA.
Source: S&P Case–Shiller Index, Freddie Mac, conforming loans

common form is known as "cash-out refinancing". This is a method of remortgaging that – as its name implies – allows borrowers also to withdraw cash to spend at their discretion. When credit constraints are relaxed, and collateral values are rising, this is a cheap and easy way to borrow compared, for example, to personal or credit card loans (where interest charges can be much higher). If interest rates fall against this background – as they did into the early 2000s – it is even possible to release equity in this way without increasing housing outlays. It is not, therefore, surprising to see in Figure 1.6 that, as US home prices rose across the millennium, so the proportion of refinanced loans (remortgages) used to extract cash (rather than reduce or maintain balances) also increased from 38 percent to 62 percent at its peak in 2006. In that year, the value of this style of mortgage equity withdrawal rose as high as $3 trillion ($318.3 billion) – a figure which accounted for almost a third (29.1 percent) of the total value of all refinancing involving conforming loans.

Remortgaging is also an important channel for MEW in the UK and Australia, but in these jurisdictions it is much more common to have a drawdown facility attached to existing mortgages. An aggregate figure (embracing all styles of equity borrowing) thus captures the trend more effectively. Figure 1.7 for example shows the close links between changes in home prices in the UK and trends in mortgage equity withdrawal since the turn of the millennium. The peaks in 2003 and 2007 reflect low interest rates as well as rising prices. In 2003, mortgage equity withdrawal totaled almost £57 billion, and was accounting for more than 8 percent of post-tax income by the end of the year. The 2007 peak was a little lower, at just

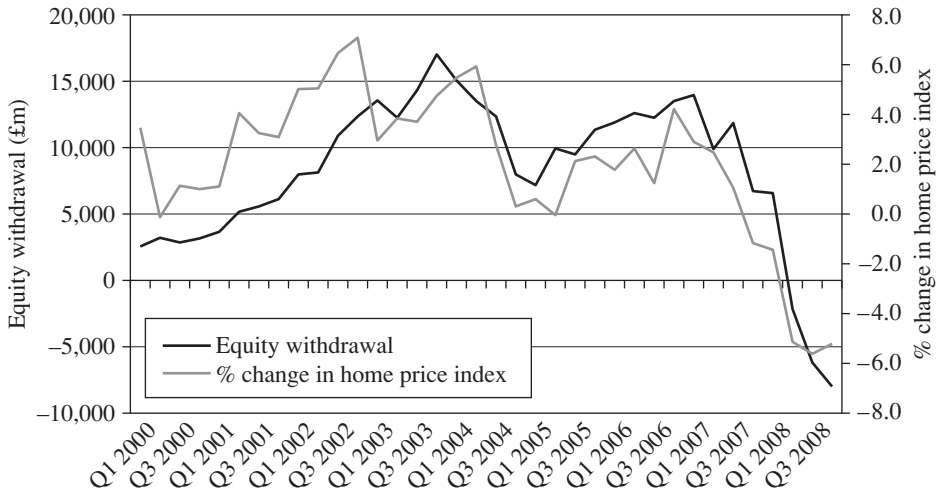

Figure 1.7 Mortgage equity withdrawal and home price change in the UK.
Source: Halifax House Price Index; Bank of England

over £42 billion, accounting for around 6 percent of disposable incomes in the most active quarter.

Figures of this magnitude serve to underline the impact which home prices, housing wealth, and equity borrowing might make to overall economic resilience, as well as to households' financial wellbeing, as the cycle of prices and borrowing runs its course. The complexities of all this are drawn out in the papers comprising Parts I and II of the book, which also, of course, point to the astonishing story of how housing booms can unwind. A flavor of this concerted "unwinding" is given in Figure 1.8, which shows price indexes falling in the USA from early 2006, in the UK from late 2007 and in Australia – less certainly – towards the end of 2008. These countries again lead the trend as growth rates slow across the OECD, turning negative – just – by the fourth quarter of 2008. In tandem with this, as Figure 1.9 indicates, a growing proportion of banks (in this case in the Euro Area) report that demand for household borrowing has been falling.

As these trends set in, the financial risks infusing the housing economy are once again laid bare. We have already tracked the cascade of price, liquidity, and credit risks that recent economic shocks set into motion. Part III of the book picks up on this, showing just how limited our understanding of the financial risks around housing have been, and asking whether there are more effective ways of recognizing, managing, and mitigating them.

To further set the scene for the essays that follow, the concluding section of this chapter provides a brief introduction to the wider contents of the Companion. More dedicated overviews are provided as the text unfolds; an editorial prefaces each of the three Parts of the text. What follows here is a crude "road map" – a rough guide to some key themes.

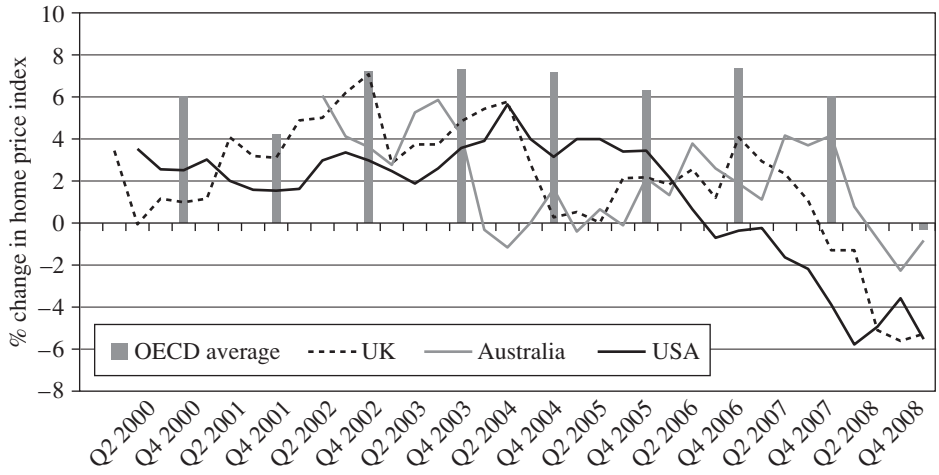

Figure 1.8 Home price changes in OECD and selected countries 2000–2008.
Note: Graph shows the quarterly changes in national home price indexes and, for the OECD as a whole, the annual average price change.
Source: OECD, Case–Shiller Home Price Index, Australian Bureau of Statistics, Halifax House Price Index

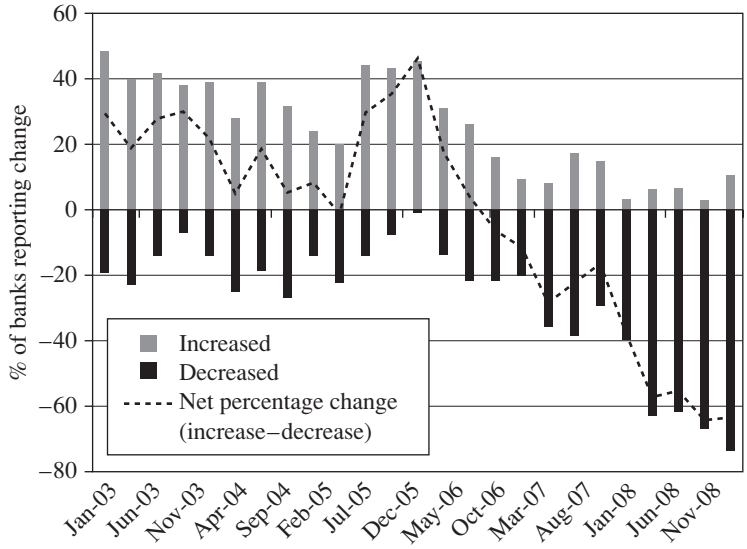

Figure 1.9 Change in demand for loans to households.
Note: Surveyed Banks were asked: "Over the last three months, how has the demand for loans to households changed at your bank, apart from normal seasonal fluctuations?"
Source: European Central Bank, The Euro Area Bank Lending Survey (various years)

1.4.2 Mapping the housing economy

Part I contains a collection of papers collectively labeled *Banking on Housing*. This title signifies the extent to which banks, governments, and the public – as well as whole economies – have come to rely in different ways on the value of residential property. The essays in this section therefore address an enduring macroeconomic question concerning the link between home prices, consumption, and the wider economy. They focus in particular on the close integration of housing and mortgage markets, directing attention to the way this nexus contributes to economic resilience (e.g., by channeling housing wealth into consumption, or by impacting on savings rates).

There is extensive coverage in this part of the book of the changing character of housing's "wealth effects." Authors engage in particular with the vexed question of precisely how home prices are channeled into consumption, shedding new light on a long-running debate. They examine, for example, the extent to which the link is indirect, noting that rising prices can be sufficient to prompt people to spend from their wider wealth portfolio. They ask whether the channel is direct and causal, thanks to the effects of equity release when homes are sold, or due to the mechanism of mortgage equity withdrawal, which releases cash for consumption. They also consider whether the link is secondary or artefactual, recognizing that both home prices and consumption may vary with other factors. Finally, they raise the equally pressing question of whether consumption adjusts to falling prices in the same way or to the same extent as it does to price appreciation.

Engaging with these themes, this Part of the book contains a round up of evidence from several world regions, as authors trace the accumulation of assets into housing, and chart the myriad patterns of spend from housing wealth. Clear links between housing wealth, mortgage debt, and consumption of all kinds are observed across the OECD, and in the individual countries of the USA, the UK, Australia, and New Zealand. To the extent that there is a consistent theme, it is that "complete" mortgage markets have a potentially (though not inevitably) stabilizing effect, because of the financial flexibility they introduce. Particularly important are the "collateral" effects of housing wealth (the possibility for mortgage equity withdrawal), which increased across the upswing of the recent housing cycle, alongside a relaxing of income (and other) constraints on borrowing.

Substantively, therefore, this set of papers contributes most to explanations of the impact of home prices and mortgage borrowing on consumption. The authors draw attention to the growing interchangeability of housing wealth with the wider economy, recognizing that – thanks to innovations in mortgage markets – the much-vaunted "wealth effects" of housing may be more accurately described as "collateral effects" (Muellbauer and Murphy 2008). The papers thus underline the growing importance of mortgage equity withdrawal as a mechanism transmitting home prices into the wider economy. And as much as this raises questions about the contribution of home prices and mortgage debt to macroeconomic resilience or fragility, it profiles too the changing role of housing assets and equity borrowing in households' strategies around savings, investments, spending, and debt. This microeconomy of housing is addressed in Part II.

The essays in *Part II* on *The Role of Housing Wealth as a Financial Buffer* are concerned less with the implications of housing for whole regional, national, and international economies, and more with its microeconomic significance for households' budgets and welfare. Authors therefore consider the changing role and relevance of housing wealth and mortgage debt in everyday financial affairs. Context for these analyses is provided by two key ideas. On the one hand is Benito's (2007) suggestion that equity borrowing enables housing wealth to form a financial buffer. On the other hand is Kemeny's (2005) concern that governments have made a "really big trade-off" between extending housing wealth to individuals and providing a more comprehensive collective safety net for those who are vulnerable to financial risk. Linking these themes, this group of papers considers the opportunities for, and limitations of, using owned homes as an asset base for welfare. That is, as well as asking whether and to what extent people engage in home equity release or mortgage equity withdrawal, this Part of the book asks why they do so, and, crucially, what they do with the money.

Part II comprises a wide-ranging set of papers, which use both conventional quantitative measures and innovative qualitative techniques. They tackle traditional questions concerning the extent to which housing wealth is being, or could be, mobilized to meet the needs of older age. They profile too the changing character and consequences of mortgage equity withdrawal, asking what precisely this is for. They cast light on the extent to which people engage in equity borrowing to add value to the housing stock, pursue lifestyle aspirations, or boost consumption of all kinds. They raise the possibility, too, that far from funding "champagne moments", such funds are used to accommodate adverse or uninsurable life events, substitute for earnings, cover for loss of income, meet the costs of accidents, emergencies and illness, or manage subsistence needs.

The findings also question the broader strategy of widening access to home ownership simply in order to extend this style of asset-holding into previously underserved markets. They expose the limited extent to which individual households and national governments can realistically look to housing wealth to promote welfare and wellbeing. They point to the severe implications for this kind of strategy that appear when the tide turns: when home asset prices fall, credit is restricted, and a financial buffer – which might have become central to social welfare – fails. Above all the papers in this section underline the extent to which the risks associated with high rates of owner-occupation impact not only on the fortunes of whole economies, but also on the welfare of individuals. The final Part of the collection reflects on these risks, and considers whether they can be more effectively managed.

The *third* set of essays are collected under the title *Mitigating Housing Risk*. They expose the wide range of financial risks that now permeate the housing economy, thanks to the uneven integration of housing, mortgage, and financial markets. Key concerns include the risks of depending too squarely on the accumulation of wealth into property, as well as the danger of being unable to service and sustain the debts consolidating against it. Conventionally it is the latter risks that attract attention, linked as they are with mortgage arrears and repossession. And mitigating such risks is of course high on the agenda, at a time when approximately one in four subprime loans in the USA are in default.

At the same time, the risks of overinvestment into, and overdependence on, housing as a financial resource, are less well appreciated. Yet they are equally pernicious, particularly at a time when households and policy makers are looking towards an uncertain store of wealth to meet fairly routine financial needs. At the peak of the US housing cycle, for example, borrowers had about $14 trillion of unmortgaged equity in their homes. As this book goes to press, this has – thanks to falling prices – probably halved to about $7 trillion; and by the time prices start to recover, the size of this equity cushion might be as low as $4 trillion. Already, over 15 million US residents have mortgage debts in excess of the value of their property. The picture may not be as dire in the rest of the developed world, but trends are pointing that way. The spectre haunting new visions of housing as an asset-base for welfare is that property booms are unwinding: an era of cheap credit is over, and the assets that secured it are dwindling.

It seems timely therefore that the essays in this Part should ask whether there is a more effective way to manage the distinctive mix of credit, investment, and welfare risks embedded in today's housing markets. In particular, and perhaps controversially, they ask whether the integration of housing and mortgage markets with financial markets – a process which has undoubtedly led to the current financial turmoil – might also hold the key to creating a more sustainable financial future for home occupiers. To consider this, the authors in this section evaluate some neglected financial innovations. They consider the merits and limitations of instruments which have been specifically designed to spread the risks, and share the gains, of home price volatility and mortgage market instability. The appeal of this exercise is rooted in the truism that, even today, residential real estate is the largest and most widely distributed asset class in the world, and is anomalous in being the only significant style of wealth holding (and the only wealth holding widely dispersed among the population at large) whose risks cannot be hedged, or managed, with innovations invented for that purpose. Effectively, therefore, this Part of the book is about the problems and potential of harnessing, regulating – perhaps transforming – financial markets, in the interests of better managing the welfare of home occupiers while also securing the stability of housing systems and the resilience of whole economies.

1.5 Conclusion

The authors contributing to this volume span a mix of disciplines and professions: they include housing economists, experts in the social study of finance, and specialists in qualitative research; they draw together analysts from the national Banks, the OECD, IMF, and other financial institutions, as well as academic researchers, financial engineers, and practitioners in financial markets. This mix encourages innovative thinking, and provokes a range of new research ideas. That is the spirit of this collection. It is not a comprehensive, technical guide to the conduct and achievements of housing economics. Rather, it is offered as an accessible introduction to, and overview of, the achievements and potential of the interdisciplinary collaboration required to explore the housing economy. There is no obvious beginning, nor indeed any clear end, to this project; but some signposts follow, and the journey is fascinating.

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Part I
Banking on Housing

Editorial

Susan J. Smith and Beverley A. Searle

The first part of this collection is concerned with the relationships between home prices, mortgage debt, and the wider economy. Collectively, the papers in Part I shed light on the extent to which, and circumstances in which, housing dynamics have a stabilizing or destabilizing effect. This question has moved to center stage in recent years, as analysts struggle to understand some dramatic shifts in the fortunes of the housing economy. It is, nevertheless, surprising – given the substantial proportion of the macroeconomy that housing occupies – that there is not a more sustained research tradition in this area. The papers in this section of the book testify to the importance of this agenda. They contribute to a growing effort to better document and more fully understand the implications of housing and mortgage market dynamics for the transmission of monetary policy and the resilience or fragility of economies.

The Dynamics of Price

Home prices are the hot topic of the twenty-first century. So much has been written on the ups and downs of housing markets that it is easy to forget that there are few long runs of reliable price data for residential real estate. Even today, the information base is geographically uneven. So despite an explosion of interest in the accuracy, stability, and utility of home price measurements (price indexes) there are still some parts of the world for which home price dynamics remain a mystery. Nevertheless, in those jurisdictions where data are available – in the more developed world, and in particular in the "home ownership" societies featured in this volume – considerable energy has been devoted to describing and accounting for price trends and their variability. This provides one platform from which to account for any link there may be between home prices, consumption, and business cycles.

Viewed historically, the cyclical character of home price dynamics attracts attention not least because of the implications of volatility – the presence of price "bubbles" that, by definition, might burst – for financial sector soundness. Geographical variability is also a lasting concern because of the implications this

has for the way home prices amplify market inequality and social exclusion. Traditionally, the challenge here has been to explain the sharp home price gradients between neighborhoods, cities, and regions. More recently, however, a concern with subnational geographies of price has been overlaid by growing interest in the possibility that 1995–2006 marks a new era: one in which sustained real price increases of 50–120 percent (as well as the subsequent widespread slump) show striking similarities across the Organization of Economic Co-operation and Development (OECD) (Renaud and Kim, 2007). The boom and bust of the first world-scale housing cycle raises the real possibility that housing dynamics are implicated in global, as well as national and local, economic stability or fragility.

The challenge of explaining price variability within and across jurisdictions nevertheless continues to vex, and often divide, the economics community. Debates focus on the role of taxation, zoning and planning constraints, and institutional governance structures, for example (on the supply side), as well as on the impact of incomes, interest rates, demographic change, and so on (on the demand side). Then there is the question of the role of economic fundamentals in relation to the behavioral or psychological factors that may cause prices to overshoot these more "rational" expectations. Finally, and critically, there is the regulation, cost, and availability of credit. The integration of housing and mortgage markets is the single most important factor driving the economics of housing into the present century. Needless to say, it is this that forms the centerpiece of the analyses which follow, as authors examine not only the close correlation between home prices and economic activity, but also the extent to which housing cycles "lead" rather than follow the rest of the economy (Goodhart and Hofmann, 2007).

Nathalie Girouard's overview of the recent work of the OECD Economics Department sets the scene for such discussion. She draws from a range of empirical material to argue that differences in the resilience of OECD countries (broadly speaking, the more developed world) to economic shocks is, to an extent, related to the performance of housing markets. This is particularly true in those jurisdictions where buoyant prices boost both private consumption and housing construction. Most notably, however, the economic implications of housing dynamics are linked in this analysis to the "completeness" or otherwise of national mortgage markets. In short, an OECD-wide view of recent trends in the housing economy shows how the link between home prices and economic resilience is mediated by the character of mortgage markets, and in particular by their ability to channel housing wealth into consumption.

The spotlight, then, is on the elements of mortgage markets that make a difference to housing's "wealth effects" – to the feed-through from housing into the wider economy. The remaining papers in Part I focus on this as they examine the changing relationship between housing markets and mortgage markets, between home prices and debt, in those Anglo-American jurisdictions where these markets are most closely linked. Notably, these papers draw attention to the way a decade of rising prices removed collateral constraints on borrowing, at a time when rising incomes and demographic changes boosted demand (for housing and mortgages), in a capital-rich macroeconomy where credit was cheap and the risks to lenders seemed low. Recent events show this latter view was flawed (the risks in fact were very high but widely ignored). The credit bonanza has, nevertheless, had far-reaching effects.

Housing Wealth and Mortgage Debt

Rising home prices go together with growing mortgage debt in countries like the UK, USA, Australia, and New Zealand. The papers in Part I ask (amongst other things) what this nexus of asset and debt means for the wider economy. There is variability between jurisdictions in the character, quality, and availability of data, and it is no easier to make broad conclusions from a series of case studies (which emphasize jurisdictional specificity over generalization) than it is from cross-national studies (which sacrifice specificity for common denominators). Nevertheless, there are two themes which appear consistently, and merit particular attention here.

First, several papers elaborate on the links highlighted by Girouard between home prices, mortgage debt, and the buoyancy and stability of whole economies. Some observers suggest that jurisdiction-specific institutional features of housing and mortgage markets play a large role in determining the strength of the effect of home prices on the economy (Goodhart and Hofmann, 2007). Understanding this is important because the liquidity of housing is context-dependent; it is a function of some important and underexplored questions about the predictors of variability in mortgage markets. Warnock and Warnock (2008), for example, identify inter-jurisdictional variability in a wide range of institutions, including the law and legal arrangements around property rights, as key determinants of the character and functioning of the mortgage market.

Mike Berry, however, argues in his paper that, in the case of Australia at least, the role of jurisdiction-specific institutional factors is dwarfed by the impact of an internationalizing wave of financial deregulation and innovation; by what we will later encounter as "the mortgage finance revolution." Berry's point is that, just as there is a shift to internationalization in housing markets, so changes in mortgage markets – which were once so distinctively national in scope – bear the imprint of globalization. Berry also argues that while the sheer size of housing as a class of assets (and the high proportion of personal wealth invested in it) has been a stabilizing force in a world of fluid capital movements, the changing character of borrowing may have the opposite effect.

Girouard's broad agenda is also furthered by Waldron and Zampolli for the case of the UK. Their attempt to test empirically whether rising levels of mortgage debt makes the economy more vulnerable to shocks is in one sense inconclusive (because in the aggregate, the accumulation of housing wealth and rising levels of mortgage debt have gone hand in hand, with relatively little change in the ratio between the two). However, they go on to argue that, because the ratios of individual's assets and debts are skewed, it is reasonable to suggest that whole economies featuring high levels of personal debt are more vulnerable to shocks than those with lower levels of debt.

A second key theme relates not just to the growth of mortgage debt, but to a change in the character of mortgage borrowing – a shift enabled by some aspects of financial deregulation, and encouraged by a phase of unprecedented mortgage product innovation in a period of intense competition among lenders. The net effect is that whereas mortgages were once large loans, used as leverage into home

ownership and steadily paid off, they are now a source of credit which, although secured against property, can be spent on other things. This has enhanced the "fungibility" of housing wealth. In some jursidictions it has effectively opened a new channel between home prices, housing wealth, and the wider economy.

Not all mortgage markets are "complete" enough to facilitate free interplay between housing wealth and mortgage debt. However, the findings of several papers are in line with those of Muellbauer and Murphy (2008), who argue that (for the UK and USA at least) "what is often called a housing wealth effect is a misnomer: it should really be called the housing collateral effect" (p. 2). Exploring this, the authors expand on two key elements: the changing relationship between home prices and household savings; and the relevance of mortgage equity withdrawal as a link between home prices and the wider economy.

The changing relationship between home prices and household savings is profiled in several papers, but examined in detail by Klyuev and Mills. The conventional explanation for the association between these sectors of the economy turns on the idea that people might – in certain times and in some places – prefer housing to (other) consumption goods. The decision to buy housing rather than hold savings (to buy other things) may, for example, account for the most recent upswing of the housing cycle (Iacoviello, 2006). But as housing wealth becomes more fungible – thanks to the innovation of mortgages that allow borrowers not only to inject equity into housing at will, but also to routinely and easily borrow back – it is equally plausible to argue that mortgagors have an incentive to offset their savings against their outstanding housing debt.

While Klyuev and Mills demonstrate that rising home prices, an increase in net wealth, and falling interest rates depress households savings rates; they find that falling prices do not have the opposite effect. A possible conclusion from this (though not one that Klyuev and Mills necessarily subscribe to), is that in jurisdictions where housing finance remains relatively flexible, savings and housing equity, far from representing two distinct uses for cash, may have become interchangeable.

If housing wealth embraces precautionary savings (rather than draining those savings into a ring-fenced alternate investment), the implications of the inverse relationship between housing wealth and savings raises a new suite of questions. Some of those questions are taken up in Part II of this collection, where the authors look in more detail at the role of housing wealth as a financial buffer. Before that, however, a cluster of papers consider what the changing articulation of housing and mortgage markets means for the link between home prices and the wider economy. They turn then to the vexed question of whether, how, and to what extent mortgage equity withdrawal provides a mechanism channeling housing wealth into nonhousing consumption. They consider just how large and influential housing's "collateral effects" have been.

From Home Prices to Consumption: the Role of "Collateral Effects"

Every paper in this section of the book has something innovative to say about the link between housing wealth and consumption, and its relevance for the wider

economy (boosting demand and generating employment; perhaps in ways determined by expectations of future income or investment returns). This collective interest is notable, because there is considerable debate among housing (and other) economists concerning the significance (or not) of several monetary transmission mechanisms. Labhard et al. (2005), for example, consider the marginal propensity to consume from *any* asset or wealth-holding; Case et al. (2005) weigh up the role of housing versus other financial wealth effects on consumption; and Attanasio et al. (2005) pondering the demonstrable association between home prices and consumption ask nevertheless precisely what factors might account for it. Amongst those who focus directly on the link between home prices and consumption (and most agree there is one, whose effects are generally larger than those of other financial assets), there is an equally lively discussion around the changing role and relevance housing equity withdrawal (HEW) in general (the release of home equity through any means, including trading down or via last-time sales), and of mortgage equity withdrawal (MEW) in particular (using housing wealth as the collateral for nonhousing loans), as a channel between housing wealth and the economy. For example, larger sums tend to be released through trading down or selling up, whereas, cash-out refinancing, and more routine equity borrowing became increasingly important across the most recent housing cycle not so much for their magnitude as for their ubiquity (Smith and Searle, 2008).

The papers that follow provide a fascinating account of the "state of the art" of housing and mortgage equity withdrawal in four countries at the peak of a housing cycle. Superficially these economies look much the same, combining high rates of home ownership, a decade of home price appreciation, and high levels of mortgage debt. There are, however, some intriguing and important cultural and institutional differences, with both macro- and microeconomic implications. These differences are occasionally also translated into differences in terminology, and there are definitional variations too. We have not tried to force consistency here, not least because some of the differences are built into the way data are collected and analyzed. We simply note that in drawing comparisons and contrasts, a careful reading may be required.

The position in the USA, where the mortgage market has been lightly regulated, but is, paradoxically, rather inflexible, is set out by Eric Belsky. Here, the expansion of home ownership into previously underserved markets turned housing wealth into a vital component of households' net worth for a broad cross-section of the population. A refinancing boom gave this wealth unprecedented liquidity, in which guise Belsky reports (anticipating themes taken up by the authors in Part II) that it not only fueled additional consumption but cleared other debts, and smoothed financial hardship.

Various questions are raised in this paper concerning precisely how large housing's collateral effects may be, whether the spending they inspire would have occurred without this facility, and so on. But a critical question concerns the viability and utility of the channel from housing wealth into the wider economy during the current economic downturn. The answer is uncertain; or at least, it points to the uncertainties that lie ahead for economic policy makers and business decision takers as downwardly sticky housing prices make for an unpredictable adjustment of consumption to the new financial environment. There is also the

matter of risk of all kinds, as borrowers still adjusting to the financial buffer of equity borrowing find home values falling and credit rather scarce.

Waldron and Zampolli present the case of the UK, where high rates of home price appreciation and an increasingly flexible lending regime have been directly implicated in the so-called consumer "boom." However, drawing together the Bank of England's research on these themes, and using a new analysis of the latest wave of the British Household Panel Survey, these authors paint a much more complex picture. In fact they argue that there is no inevitable link between housing prices and consumption; rather, it is likely that changes in both these features reflect wider adjustments to a variety of shocks in the economy (shocks which, nevertheless, home prices in particular can be influential in propagating). When, where, why, and how strongly housing wealth, collateral effects, and consumption are linked is thus an empirical question which may play out differently in different contexts. The fact that these interactions might be adverse underlines the importance of ongoing monitoring.

The case of Australia is also intriguing, because the mortgage market there has been flexible enough to enable mortgage equity withdrawal for many years. Historically this flexibility was overwhelmingly used to pay mortgages off early, not to borrow up against accumulated housing wealth. In the recent housing cycle, however, this may have changed. Schwartz, Hampton, Lewis and Norman provide the first systematic overview of decisions around home equity injection and withdrawal in a large survey of Australian borrowers. The findings are wide ranging, but they do suggest that, whereas property transactions are the route by which most home equity is released into the wider economy, attitudes towards the decumulation of housing wealth are changing, and mortgage equity withdrawal provides a viable alternate to, or substitute for, other forms of credit. This facilitates a level of consumption that would otherwise not have occurred or which would have been funded through savings or other loans.

Finally, Smith outlines the position in New Zealand – a country where, like Australia, the historical norm has been for any financial flexibility to produce a net injection of funds. However, new evidence suggests there should – from the point of view of economic effects – be as much interest in farm equity withdrawal (FEW) as in HEW. A sizeable increase in property prices and stock turnover in rural areas has prompted an increase in borrowing secured not only against housing but also against farms. The picture is complex, however, since the distinction between homes and farms is blurred, so that estimates of FEW and HEW are somewhat indicative. Given the importance of farming in New Zealand, however, there could be important economic implications – for home owners' savings and consumption behavior, as well as for the wider economy – from this turn to FEW.

Conclusion

The final paper in this section, by Duncan Maclennan, serves as a useful round-up of, and conclusion for, the ideas explored so far. Maclennan applauds the extent to which the interaction between home price movements and macroeconomic and

monetory policy have been brought into sharp focus following the boom, peak, and subsequent bust of housing markets globally. He welcomes a veritable sea-change in economists' understandings of the link between the housing sector and the business cycle that has occurred in recent years. However, he also draws attention to one element of the link between housing and the macroeconomy which has been at best implicit in that literature. Maclennan's concern is for the housing *system*; or more correctly, for an appreciation of the variable impact on economic stability associated with differences across housing systems. He is critical of the extent to which cross-national work has minimized the role of housing systems and household behaviors in favor of an emphasis on financial and labor market influences. And whilst the mix of case studies and cross-national overviews that comprise this section of the book help redress this imbalance, Maclennan argues there is still a danger that "the housing baby may have been ditched with the bathwater of macro-assumptions."

As work in this vein goes forward, the whole housing system may need to be more firmly at the forefront of economic analysis, modeling, and policy thinking. This is a critical point as the sustainability of a complex nexus of home prices, mortgage debt, and consumption is called into question, and as the risks it contains are laid bare. It is one of many ideas taken up in the papers that follow, as they consider how best to document, monitor, and mend the dynamics of these volatile links between housing and the wider economy.

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Chapter 2

Housing and Mortgage Markets: An OECD Perspective

Nathalie Girouard

2.1 Introduction

This chapter examines the linkages between housing systems and the business cycle in the countries of the OECD (Organization of Economic Co-operation and Development). It focuses on how differences in the degree of resilience to economic shocks can be affected by the structural and institutional characteristics of housing and mortgage markets. The discussion draws on a range of work completed in the OECD Economics Department on housing and mortgage markets in the twenty-first century, some of which is included in the housing chapters of the OECD Economic Surveys. The analysis attends, in particular, to the transmission channel from housing wealth to consumption, identifying those factors behind home price variability which help to determine whether the housing sector plays a stabilizing role or not. Housing markets can also have important implications for economic resilience via their effect on labor mobility; these are not discussed here. The structure of the chapter is as follows.

First, there is a brief account of the uneven resilience of the OECD countries to common economic shocks. Second, some stylized facts concerning the interaction between housing markets and the business cycle are examined, attending in particular to how closely home prices and output are associated over the cycle and whether countries differ in this regard. The third section is concerned with the mechanisms linking home prices with consumption, and the wider economy. Special attention is paid here to the institutions and characteristics of mortgage markets – an important aspect of the transmission mechanism of monetary policy – which may facilitate or impede the influence of housing wealth on household expenditure. Finally, there is a comment on the extent to which structural policy factors help account for home-price variability. The focus here is on tax incentives and zoning regulations, both of which can influence the speed with which monetary policy responses to shocks are transmitted, via housing, through economies. Key findings on the contribution of housing systems to macroeconomic stability are summarized in a short conclusion.

2.2 Resilience to Shocks in the OECD Economies

OECD economies exhibited different degrees of resilience over the cyclical downturn of the early 2000s, in the sense that some were better than others at weathering and recovering from a set of common shocks. One way of measuring this is given in Figure 2.1, which tracks the "output gap" of each jurisdiction from 1995 to 2003. The output gap is the difference between an economy's actual output and its potential or trend level; a positive gap is an output below potential, measured as a proportion of the Gross Domestic Product (GDP) that could otherwise have been realized. Judged according to this measure, the euro area (literally, the countries whose currency is the euro) showed less resilience to the negative and largely OECD-wide common shocks than Australia, Denmark, Canada, New Zealand or the UK. In these latter countries economic activity has remained closer to trend growth than it has in the countries of the euro area, with the average absolute output gap remaining small. Moreover, during the downswing of the early 2000s the largest output gaps observed were typically smaller in the five countries mentioned above, than in the euro area countries. These indicators imply little difference between the euro area and the USA, but it is notable that although the epicenter of most shocks – then as now – was in the USA, in the period represented in Figure 2.1 the USA recovered swiftly from recession.

Despite the differences in output gaps, inflation in the more resilient countries remained close to target, allowing a strong reaction of monetary policy to the international downturn. In the euro area, on the other hand, inflation remained relatively high, limiting the European Central Bank's room to cut interest rates more aggressively. Within the euro area, growth performance of most small countries was above average, but protracted weakness was evident in Germany and Italy, with France faring better. The remainder of the chapter considers the extent to

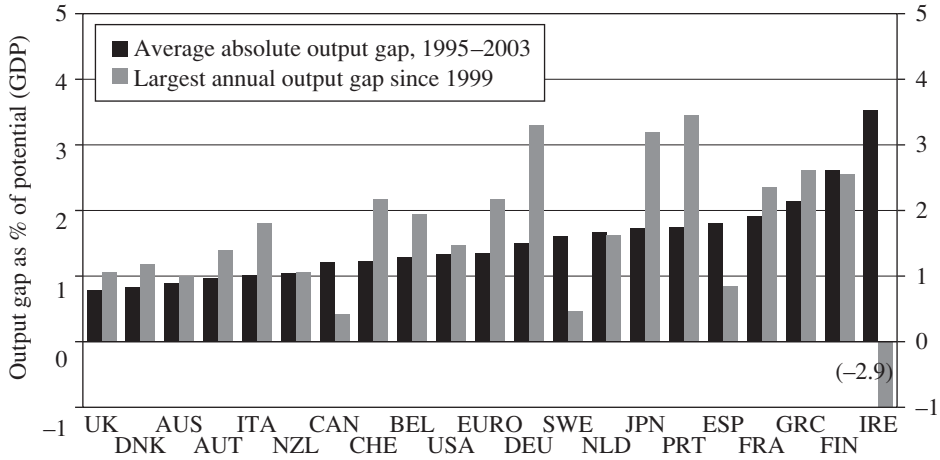

Figure 2.1 Output gap for OECD countries.
Source: OECD Economic Outlook database

which these differences in resilience may be related to the performance of housing markets.

2.3 Home Prices and the Business Cycle in OECD Countries: Some Stylized Facts

Stylized facts refer to empirical generalizations that have been made frequently enough to aid the building and testing of macroeconomic theory. Some generalizations important to understanding the link between housing markets and the business cycle are reviewed in this section.

In the vast majority of OECD economies, real home prices (the ratio of actual home prices to the Consumer Price Index (CPI) moved up strongly between the mid-1990s and 2006, reaching double figures in nine of the 17 countries shown in Table 2.1. The rate of increase in some countries, notably the UK, Australia and New Zealand, had nevertheless slowed by the end of this period.

Comparing an aggregate real home price index with the output gap for the OECD as a whole, it can be seen that house-price and business-cycle turning points roughly

Table 2.1 Rate of change of real home prices in OECD countries

Country	*Percent rate of change*						
	1995–2000	*2001*	*2002*	*2003*	*2004*	*2005*	*2006*[a]
USA	2.3	5.0	5.2	4.5	7.8	9.6	7.3
Japan	−2.6	−3.4	−3.8	−5.2	−6.1	−4.6	−4.4
Germany	−1.6	−1.9	−3.3	−2.0	−3.8	−1.9	−2.0
France	2.1	6.0	6.2	9.4	12.6	13.2	10.9
Italy	−0.9	5.7	6.8	7.3	7.5	5.2	4.4
UK	8.2	6.8	14.6	14.2	10.4	3.4	2.3
Canada	0.0	2.0	7.7	6.5	7.5	7.6	9.1
Australia	3.5	6.5	15.3	15.0	4.1	−1.1	1.5
Denmark	6.7	3.4	1.3	1.1	7.9	15.6	22.4
Spain	2.6	6.5	12.9	16.4	14.8	10.9	6.9
Finland	7.8	−3.5	8.3	4.5	5.9	5.1	9.8
Ireland	17.6	4.1	5.6	11.4	9.1	9.4	11.7
The Netherlands	11.6	5.6	4.3	2.4	2.9	3.3	3.1
Norway	9.3	3.9	3.6	−0.7	9.6	6.6	8.4
New Zealand	1.7	−0.8	6.6	17.3	15.2	11.1	6.7
Sweden	6.3	5.1	4.3	4.2	8.2	8.1	11.5
Switzerland	−2.5	0.9	4.0	2.3	1.5	−0.1	1.8
Euro area[b, c]	*1.3*	*3.3*	*4.1*	*5.7*	*5.8*	*5.5*	*4.4*
Total of above countries	*1.7*	*3.3*	*4.5*	*4.4*	*5.4*	*5.7*	*4.6*

[a] First half of 2006 relative to first half of 2005.
[b] Germany, France, Italy, Span, Finland, Ireland and The Netherlands.
[c] Using 2000 GDP weights.
Source: Various national sources, see Girouard et al. 2006, table A.1

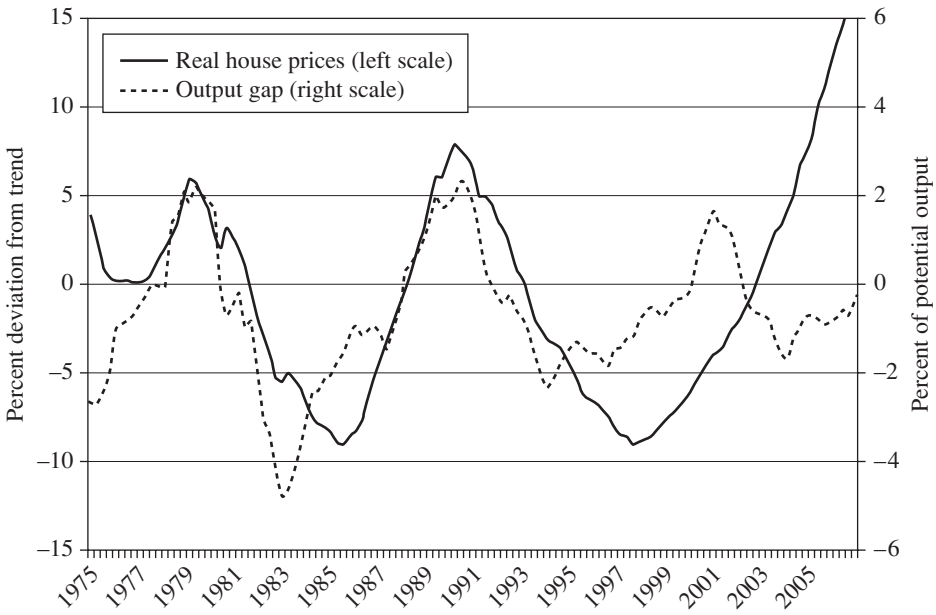

Figure 2.2 OECD real home prices and the business cycle.
Note: Real home prices have been detrended using a linear trend. The OECD aggregate has been computed using GDP weights in 2000 in purchasing power parities.
Source: OECD Economic Outlook 78 database and OECD calculations

coincided from 1970 to 2000, although in some upturns prices appear to have lagged OECD-wide slack (Figure 2.2). The home price boom of the early 2000s, however, is strikingly out of step with the business cycle. It is also more generalized across OECD countries than in the past. In fact, a historically high number of countries experienced fairly large increases in home prices for at least a decade from the mid-1990s. This is consistent with the findings of Otrock and Terrones (2005) who argue that global factors (from interest rates and to business cycles) are increasingly important determinants of home price cycles. Figure 2.3 identifies some of the factors shaping housing demand, and so impacting on price trends.

Low interest rates across the OECD economies have no doubt played a role. The estimated response of home prices to interest rates varies substantially across econometric studies, but the average semi-elasticity from the studies reported in Girouard et al. (2006) is around −3.5 – i.e. a drop in real interest rates by one percentage point will raise real home prices by 3.5 percent in the long run. This is not a large impact, but the effects of a temporary drop in interest rates can get amplified if expectations start to feed on themselves. But there other several other factors driving home price developments identified in Figure 2.3. Over long periods of time, by far the most important factor is real *per capita* income, since higher incomes lead to greater consumption of all goods and services, including housing. Most econometric studies find that the long-run income elasticity of real home prices is between 1 and 2 (see Girouard et al. 2006, table 3). Strong income growth has

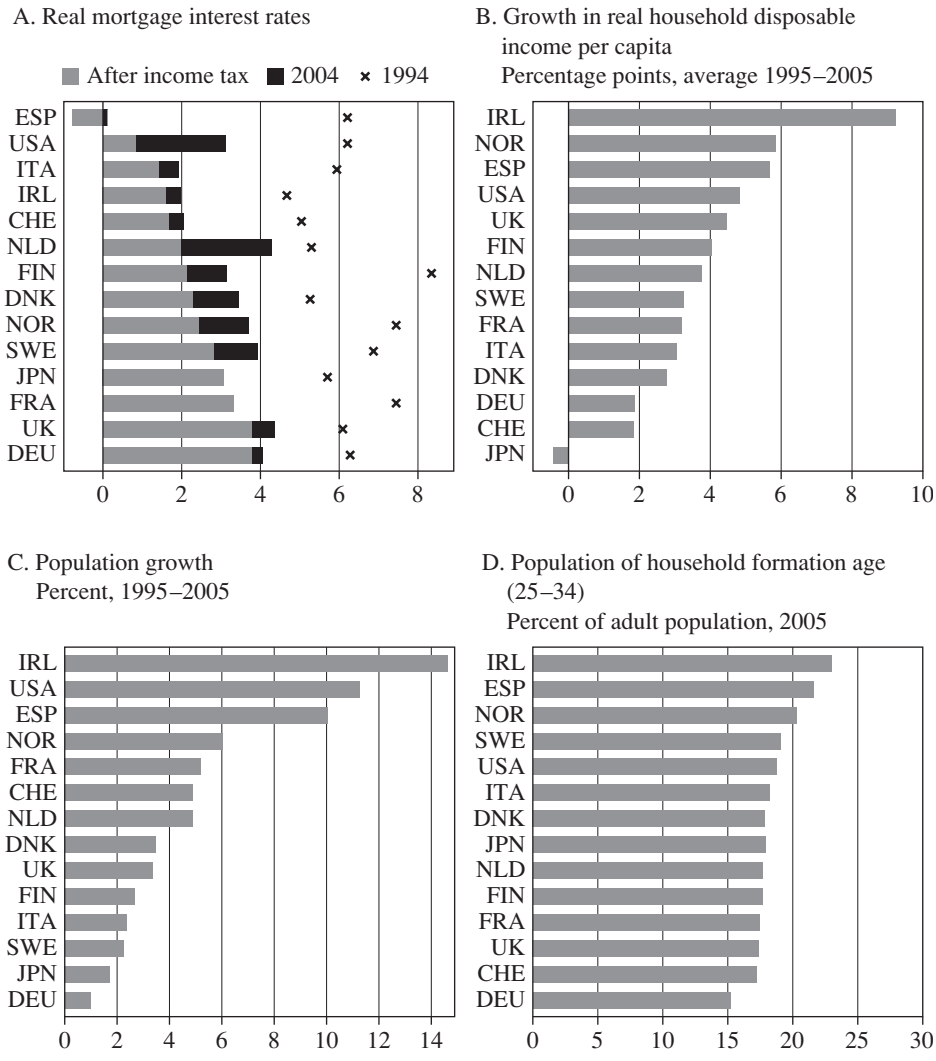

Figure 2.3 Forces shaping housing demand.
Note: In panel B the adult population comprises those aged 20 and over.
Source: OECD (2006b) and Girouard *et al*. (2006), for panel B

been a particularly key factor behind the home price booms in Ireland, Finland, and Spain.

Demography is also important. Population growth, often driven by immigration (sometimes as an in-flow of construction workers), obviously increases demand for housing, as does a younger population (though this shows less variability between jurisdictions). Portfolio adjustments have also played a role in some countries, where financial liberalization combined with a reduction in the interest rate risk premium have led households to increase their borrowing levels closer to international norms.

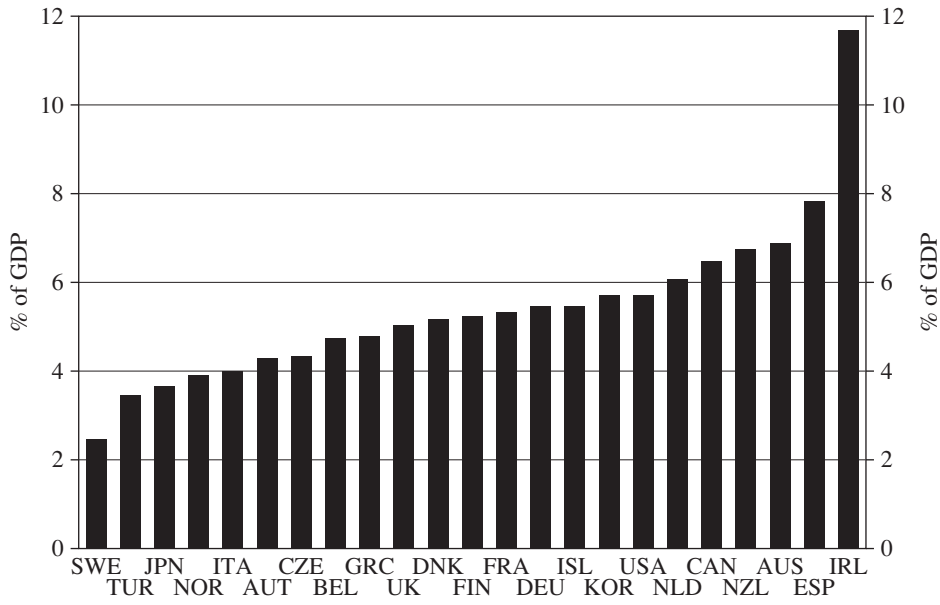

Figure 2.4 Housing investment share 2004.
Source: OECD, National Accounts and Economic Outlook 79 database

The rise in home prices has in turn brought forth an increase in supply, especially in Ireland and Spain (Figure 2.4), leading to a construction boom that to some extent has generated its own economic momentum. This round-up of stylized facts describes what was involved as home price trends became detached from business cycle trends in the early 2000s. Recently it has become clear that this detachment can produce instability as well as resilience. Explanations for both outcomes, and for their variability across jurisdictions, are partly rooted in the monetary transmission mechanism that links housing with the wider economy. This is considered next.

2.4 The Monetary Transmission Mechanism: Housing Markets as a Source of Resilience?

Monetary policy affects output and inflation in many ways. The speed and strength of the monetary transmission mechanism can depend on the flexibility of wages and prices, exposure to trade, the size of equity holdings, whether equity ownership is spread widely across the population and whether it is tied up in pension funds, the stock of foreign assets and liabilities, the extent of relationship banking, corporate and household leverage rates, the size and diversification of banks, the structure of the economy (whether it is service intensive, for example), the extent of competition in banking and mortgage markets, regulations governing mortgages and consumer credit, and so on. In a sense, therefore, every country has a unique

Table 2.2 Housing and mortgage market characteristics

	Residential mortgage debt (% of disposable income, 2003)[a]	*Average loan-to-value ratios of new loans (%)*	*Typical loan term (years)*	*Variable interest rates (% of all loans, 2002)*	*Securitization of mortgages*	*Home ownership rate (%, 2002)*[b]
Ireland	92.3	70–90	20	70	Limited	77
Australia	119.5	70–80	25	73	Yes	70
Austria	—	—	20–30	—	—	56
Canada	77.1	70–80	25	35–45	Yes	66
Denmark	188.4	—	30	15	No	51
Finland	71.0	75–80	15–18	97	Limited	58
France	39.5	80	15	20	Limited	55
Germany	83.0	70–80	25–30	72	Limited	42
Italy	19.8	50	15	56	No	80
Japan	58.4	80	25–30	—	No	60
The Netherlands	207.7	87	30	15	Yes	53
New Zealand	129.0	—	—	—	—	65
Norway	24.0	70	15–20	—	No	77
Portugal	32.6	—	15	—	—	64
Spain	67.4	—	15	75	Yes	85
Sweden	97.5	80–90	<30	38	Limited	61
UK	104.6	75	25	72	Yes	69
USA	77.8	80	30	33	Yes	68

[a] 2002 for Norway and Portugal, 2005 estimate for Ireland.
[b] Or latest year available.
Source: Various OECD Economic Outlook databases

transmission mechanism, being strong in some areas but weak in others. This is why it is difficult to generalize about different monetary responses.

Moreover, the transmission mechanism will change over time within an individual country. For example, the response to a rise in interest rates or the exchange rate in Finland or Sweden today would be radically different to 20 years ago when financial and corporate balance sheets were stretched to the limit. Thus, it may not be surprising that while the economic literature does find differences in the overall strength of the transmission mechanism across countries, the results do not point to *systematic* differences and instead depend heavily on the methods used and on which particular channel is being focused on. Nevertheless, there are some fairly robust conclusions concerning the housing channel. Some of these are discussed below.

Housing markets differ considerably across the OECD, largely reflecting the extent of liberalization of the mortgage market, tax regimes, and the extent to which home price changes feed through into residential construction. The feed-through can be small if planning restrictions are tight, even though higher home prices could strongly affect consumption via wealth effects. Housing markets are important in the transmission of monetary policy and a high interest sensitivity is beneficial as it implies that monetary policy is more powerful in boosting or damping cyclical fluctuations. Some housing and mortgage market differences that are key in this respect are illustrated in Table 2.2.

The strong transmission of monetary policy via the housing market channel is one of the major mechanisms that helped the UK to keep growth close to potential during the downswing of the early 2000s. It has one of the most liberalized mortgage markets. Loan-to-value ratios are typically lower in continental Europe and transactions costs – about 2 percent of the purchase price in the UK – are higher, especially in Germany, Italy, and in France. In the large continental Europe countries, the lower degree of liberalization and lower level of transactions due to the higher transactions costs implies less mortgage equity withdrawal and fewer opportunities for consumption smoothing for liquidity-constrained households. By contrast, cycles in owner-occupied housing markets in some of the smaller euro area countries have produced swings in household wealth that in turn exacerbated the cross-country variation in economic activity.

Changes in home prices and private consumption are correlated in most countries, but to widely varying degrees. Housing wealth effects are strongest in the USA, UK, Canada, The Netherlands, and Australia and they are small in France, Germany, and Italy. Consumption functions show the same (Catte et al. 2004): the marginal long-run propensity to consume (MPC) out of housing wealth is between 0.05 and 0.08 (between 5 and 8 cents in the dollar/euro) for the first group of countries, but negligible in Italy and insignificant in France and Germany (Table 2.3). These cross-country patterns are broadly confirmed in a range of other studies, although not surprisingly different studies do throw up occasional country-specific anomalies (as documented by Kennedy and Anderson (1994), Girouard and Blündal (2001), Iacoviello (2000), HM Treasury (2003) and Case et al. (2005)).

Taken as a group, however, studies like these deliver a message that is consistent with the OECD's own estimates of the marginal propensity to consume from housing wealth. Namely, that in the long-run it is positively correlated with mortgage debt ratios across countries. Mortgage debt ratios show large cross-country

Table 2.3 Short-term and long-term impact of financial and housing wealth on consumption

Country	*Short term*		*Long term*	
	Housing	*Financial*	*Housing*	*Financial*
Australia	0.02	—	0.07	0.03
Canada	0.03	0.03	0.06	0.04
France	—	—	—	0.02
Germany	—	0.01	—	0.02
Italy	—	0.01	0.01	0.01
Japan	0.01	—	0.01	0.07
The Netherlands	0.02	—	0.08	0.06
Spain	0.01	—	0.02	0.02
UK	0.08	0.03	0.07	0.04
USA	—	0.02	0.05	0.03

Source: Catte et al. (2004)

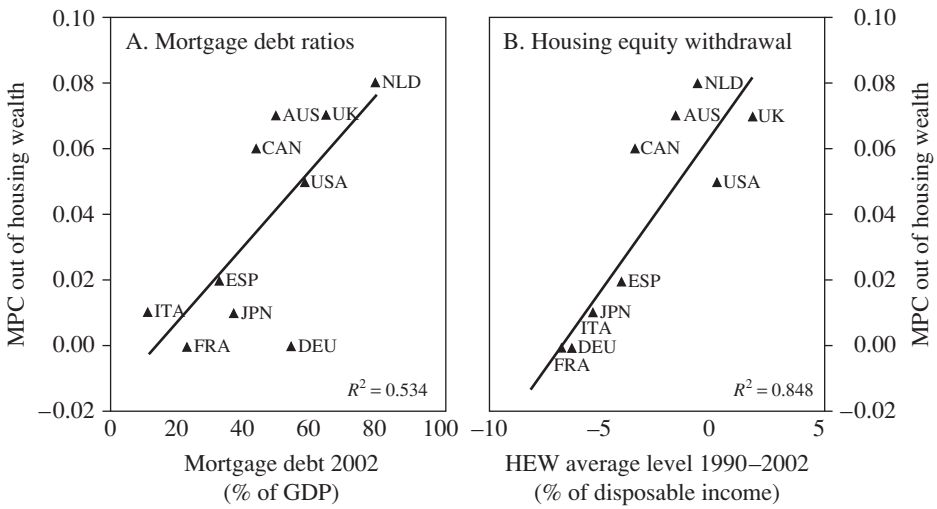

Figure 2.5 Leverage, housing equity withdrawal, and the propensity to consume out of housing wealth.
Note: MPC stands for marginal propensity to consume and HEW for housing equity withdrawal.
Source: European Mortgage Federation; US Federal Reserve Board; Japan Statistics; UK Office for National Statistics; Bank of Canada; Bank of France; Statistics Canada; Bank of The Netherlands; Bank of Spain; European Central Bank; Reserve Bank of Australia; and OECD

differences, with ratios being particularly high in Denmark, The Netherlands and the UK and low in France and Italy (Table 2.3). The link between these ratios, housing wealth, and consumption suggests that mortgage markets are pivotal in translating home price swings into spending responses (Figure 2.5, panel A).

The indication is that the influence of the housing market on consumption depends on the extent to which housing wealth can be accessed and, in particular, how easy it is for homeowners to borrow against housing wealth through mortgage equity withdrawal. Mortgage equity withdrawal is the increment to the mortgage debt less the amount used for residential construction. It is notable that the size of mortgage equity withdrawal is closely correlated with the impact of housing wealth on consumption (Figure 2.5, panel B). The strong relationship suggests that in the countries that show a low correlation between home prices and consumption, it is liquidity constraints that matter.

These large country differences in the link between housing wealth, mortgage debt, and consumption are mainly explained by financial market characteristics, together with housing transactions costs and exemptions from capital gains taxes and a high rate of owner-occupancy (Catte et al. 2004). Financial market characteristics are of particular note and can be summarized in an index of market completeness. The characteristics of a complete mortgage market include the range of mortgage products available, the coverage of potential borrowers served as well as distribution channels, and the quality of information and advice offered to consumers. Less regulated and more competitive markets are most complete: they offer a greater variety of mortgage products, serve a broader range of borrowers, and apply lower mortgage interest spreads. They also provide second mortgages and mortgage equity release products. For the few countries for which the completeness index exists, there is a strong correlation between the sensitivity of consumption to changes in real home prices and this index (Figure 2.6, panel A). There is

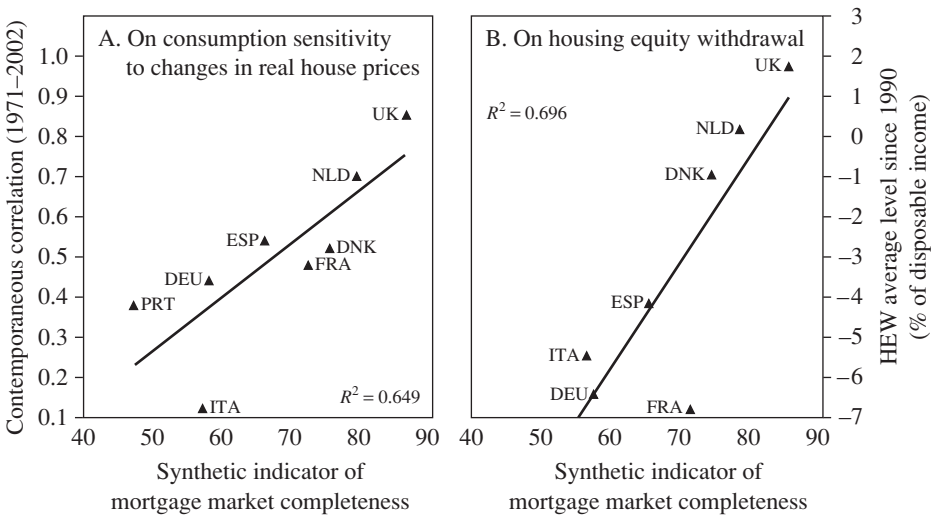

Figure 2.6 Effects of mortgage market completeness.

Note: HEW stands for housing equity withdrawal. The synthetic indicator of mortgage market completeness is presented in table 5 of Catte et al. (2004). For Portugal, the correlation between consumption and real home price changes is calculated over the period 1989–2001, due to limited data availability.

Source: Low et al. (2003); US Federal Reserve Board; Japan Statistics; UK Office for National Statistics; Bank of Canada; Bank of France; Statistics Canada; Bank of The Netherlands; Bank of Spain; ECB; Reserve Bank of Australia; and Catte et al. (2004)

also a close correlation between mortgage market completeness and mortgage equity withdrawal (Figure 2.6, panel B).

The composition of mortgages as between fixed and variable rates is also of crucial importance. In Germany, for instance, rates are typically fixed for 10 years and it is very difficult to refinance. In Finland and the UK, most loans are variable rate loans and interest rate changes feed through quickly into monthly service payments. In the USA, where most loans are fixed rate, penalty-free prepayment options are common, as mortgage lending is largely funded through mortgage-backed securities (Green and Wachter 2005, Chapter 18, this volume). The rise of interest-only loans in many countries should further magnify the exposure of households to interest rate changes (in particular if taken up on a variable rate basis).

Two key indicators of the mortgage market's ability to provide access to financing are typical or maximum loan to value ratios and mortgage terms. Both are strongly correlated with the size of mortgage markets (Table 2.2). Maximum ratios are above 100 percent in The Netherlands and the UK and particularly low in Italy. Concerning mortgage terms, equity withdrawal is easy in most English-speaking countries, The Netherlands, and several Nordic countries. They are not widely marketed or not offered in France, Belgium, and in southern European countries. Such differences partly reflect the legal protection of collateral, which seems weak in France, Belgium, Italy, and Portugal, which have long legal procedures for repossessions.

Further liberalization, better integration of mortgage markets, and lower transactions costs across countries would be beneficial from the point of view of economic efficiency; and it would also strengthen the effectiveness of monetary policies, while at the same time reducing asymmetries in the transmission channel between countries. However, cycles in owner-occupied housing markets can also produce swings in household wealth that in turn exacerbate the cross-country variation in economic activity. To the extent that housing cycles are asymmetric, i.e. are not synchronized and/or very different in intensity across the countries, they also tend to intensify cyclical swings. This feature of the home-price cycle stems from the relatively inelastic supply of housing producing strong movements in prices, which can be amplified or damped by planning and tax policies. The role of these structural policy factors, which can sometimes produce speculative housing market bubbles, propagating rather than containing shocks, is considered in the last section of the chapter.

2.5 Policy Determinants of Home Price Variability

Although, as a matter of principle, policy should neither hinder adjustment, nor exacerbate the cycle, macroeconomic and structural policy factors are implicated in speculative housing market bubbles and therefore in the propagation (rather than mitigation) of shocks. Key among the structural factors identified as a potential source of such volatility are tax incentives and zoning regulations. This section examines each of these in turn, drawing from Hoeller and Rae's (2007) analysis of housing markets and adjustment in the context of monetary union. The aim is to identify the conditions in which the benefits of housing market flexibility for macroeconomic resilience and stability are best achieved.

2.5.1 Tax incentives

The main purpose of any tax is to raise revenues, but the tax system is also used to promote various economic and social objectives. This is done by tax exemptions, preferential tax rates, and special reliefs affecting incentives. Taken together these elements undermine tax neutrality and create distortions.

One issue in assessing housing taxation and tax neutrality is that housing is a special good: it can be either considered as an investment or as a consumption good. As housing provides a flow of services consumed by people, it should be taxed so that the costs of owner-occupation and renting are equal. The tax advantage of homeowners is that they often do not pay taxes on the services (imputed rental income) provided by housing, while they are allowed to deduct the mortgage interest payments from income tax. According to the tax neutrality principle, the imputed rental income should be taxed, but homeowners should be allowed to deduct their mortgage interest payments and operating costs from this income. On the other hand, as an investment good housing should be taxed such that it would not distort incentives to invest in different assets. In this case, the additional tax advantage of investing in housing relative to other forms of investment is that capital gains from housing are often exempt from taxation. In practice, tax systems often violate the tax neutrality principle between different forms of investment and housing tenure (Table 2.4). Home ownership is often promoted by the deductibility of mortgage interest payments and the nontaxation of imputed rental income and capital gains.

Tax incentives that stimulate home ownership are a factor that can exacerbate volatility in home prices. A tax system that contains generous incentives for home ownership not only results in a higher steady-state level of home prices (and an associated misallocation of resources), but may also result in greater volatility of home prices, as the tax incentive can increase the slope of the demand curve. The tax breaks for owner-occupied housing could act as a destabilizing force, to some extent offsetting the automatic stabilizing properties that are normally attributed to income taxation.

Van den Noord (2005) estimates the real financing cost of housing and the tax wedge between the market interest rate and the financing cost of housing investment in the euro area. The real cost of financing is generally lowest in the smaller euro area economies, with the tax wedge being clearly negative (i.e. the tax system subsidizes housing) in The Netherlands, Luxembourg, Ireland, Spain, Finland, Austria, and Italy but close to zero in Belgium, France, Germany, and Portugal. Only in Greece is housing heavily taxed. These tax incentives had been introduced to boost home ownership and to offset the high real cost of financing prior to the introduction of the common currency.

Theory suggests that price variability of owner-occupied homes would be largest in countries where the tax breaks for owner-occupied housing are largest (van den Noord 2005) – and it is. Regressing the marginal effective tax wedges on owner-occupied housing in euro area countries on the variability of home prices (gauged by the standard deviation of the home price index) confirms this (Figure 2.7, panel C). More than a third of the variation in the standard deviation of

Table 2.4 Taxation of residential property: cross-country variation

Country	*Imputed rental income taxed*	*Tax relief on mortgages*		*Capital gains on housing assets taxable*	*Inheritance tax*
		Interest	*Principal repayments*		
Austria	N	Y (up to a ceiling)	N	Y	Y
Belgium	Y (with fixed deduction)	Y (up to imputed rental income)	Y (within limit)	Y (if sold < 5 years) POOD are exempt	Y
Canada	N	N	N	Y (on 50% of gains) POOD are exempt	N (but subject to capital gains tax)
Denmark	N	Y	Not applicable.	Y POOD are exempt	Y
Germany	N	N	N	Y (if sold < 10 years) POOD are exempt	Y (lower than for financial assets)
Finland	N	Y (up to a ceiling)	Not applicable	Y POOD exempt if sold > 2 years	Y
France	N	N	N	Y POOD are exempt	Y
Ireland	N	Y	N	Y POOD are exempt	Y
Italy	N (for POOD)	Y (for POOD)	N	Y (50% for POOD)	Y (until 2001)
The Netherlands	Y	Y	N	N	Y (above tax free threshold)
Norway	Y	Partly (as other interest expenses)	N	Y	Y
Spain	N (for POOD)	Y	Y	Y (exempt if reinvested)	Y
Sweden	Y	Y	N	Y (exempt if reinvested)	N
UK	N	N	N	Y POOD are exempt	Y
USA	N	Y (up to ceiling)	N	Y (until 2002; deduction for POOD if held > 2 years)	Y (to be phased out)

POOD, principal owner-occupied dwellings.
Source: Catte et al. (2004) and Baunkjoer (2004)

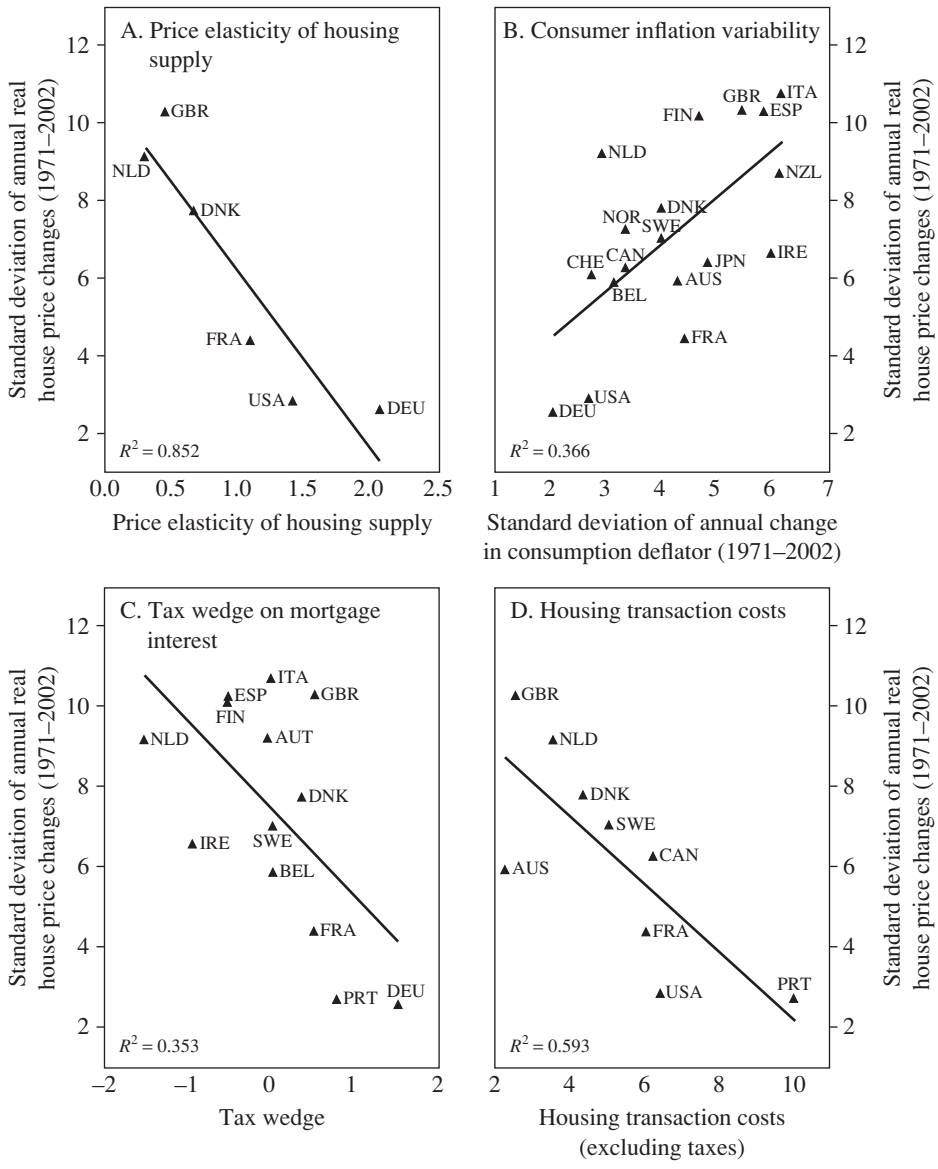

Figure 2.7 Real home price variability and selected explanatory variables.
Note: In panel C, the tax wedge is defined as the difference between the after-tax and the pre-tax real interest rate on mortgage loans. It also incorporates the effect of property taxes. Thus, a low or negative tax wedge indicates a more favorable tax treatment of mortgage interest.
Source: Bank for International Settlements and Quotable Value Ltd, New Zealand for house price data; the Economist for data on housing transaction costs; Swank et al. (2002) for estimates of price elasticities of housing supply; Van den Noord (2005) for tax wedges on mortgage interest and OECD for data on consumer inflation variability

home prices across euro area countries is explained by the tax wedge on housing. The position is exemplified in The Netherlands, which combines the largest tax breaks with a place in the group of countries with the greatest price volatility. Sweden and Denmark occupy the middle ground (medium tax breaks and medium price volatility). Germany is at the other end of the scale, with a high tax wedge and little volatility. In short, tax incentives may make some housing more prone to cycles, by lowering the cost of the leverage that finances housing investments (see also Catte et al. 2004).

An additional type of housing taxation is that on property values. This tax often raises revenue to finance local services provided by the municipalities, but may also accrue to central government. It can also be a means to tax gains from the increase in the value of property due to the changes in the zoning of land. Furthermore, a property tax may be considered as a tax on location. The property tax differs from the tax on imputed rental income as it does not involve taxation of the service income provided by housing and hence does not necessarily affect the tax neutrality between rental housing and owner-occupation.

Maclennan et al. (1998) and Muellbauer (2005) argue that the taxation of residential property would help in dampening home price cycles since higher home prices have an immediate effect on tax payments and thus on households' income. Moreover, if households extrapolate home price rises into the future they will also anticipate the greater tax burden. This will lead to more cautious spending and portfolio decisions. But for the stabilization property to work effectively, tax rates would need to be high enough and property tax would have to be linked to current or recent home price developments throughout the home price cycle. These conditions seem unlikely. The property tax take tends to be low in the euro area countries, at typically well below 1 percent of GDP (France being an exception with 2 percent of GDP). This is because such tax rates as there are on property are low, and because in many countries property values are updated only with a long lag – a process that is anyway politically sensitive. Taxation of residential property is close to 3 percent of GDP in Canada, the UK and the USA, but this is not sufficient to manage price volatility and impede the propagation of shocks.

2.5.2 Zoning regulations

The variability of home prices is likely to be higher if the supply of housing is price-inelastic and if the demand for housing is subject to large shocks. There is evidence that supply rigidities are indeed important; price volatility is high where the price elasticity of supply is low and among the few countries for which data are available, the relationship is strong (Figure 2.7, panel A). The housing stock is given in the short run, while its long-run elasticity with respect to relative price changes is likely to depend mainly on the natural or policy-induced scarcity of urban land. For example, several studies (Swank et al. 2002; European Commission 2006) have found that in the UK tough local zoning regulations and a slow authorization process are among the reasons for the rigidity of housing supply, and an important factor for both the trend rise of home prices and their high variability. Similarly in the USA, studies on the US regional housing markets

(Glaeser et al. 2005; Saks 2005) have found that the low supply elasticity of housing units is an important factor behind the recent larger price increases in some urban markets. In particular, home prices are much higher than construction costs throughout parts of the northeast and the west coast. The studies suggest that recent regional patterns of home price expansion do not just reflect faster growing income and population, but also other factors including building regulations on the size and characteristics of homes. They also report that US homebuilders have faced increasing difficulty in obtaining regulatory approval for the construction of new homes in some states, notably California, Massachusetts, New Hampshire, New Jersey, and in Washington, DC. An additional factor has been the increased ability of established residents to block new projects. The elasticity is also very low in The Netherlands, while it is relatively high in France, Germany, and the USA.

While aggregate supply elasticities can shed some light on supply constraints, they say nothing about the underlying mechanisms. Economic analysis and evidence in this area are sparse for other countries, but the OECD country reviews shed light on the underlying mechanisms. Examples include the following.

In Finland, land prices have risen much faster than construction costs, an astonishing feature because Finland is sparsely populated and land is abandoned around the metropolitan areas (Vartia 2006). This is partly explained by the slowness of the planning process, which allows for multiple possibilities to appeal over decisions on local plans and building permits. More importantly perhaps, municipalities have a disincentive to allocate sufficient land for construction purposes, because they are responsible for providing costly infrastructure and they also pay for schools, children day care, health care, and other services for new residents. Against this, the property tax rate on residential buildings is capped at 0.5 percent and only provided 2 percent of total municipal revenues in 2004.

In Denmark and Sweden it is zoning regulations that are tough and cumbersome, with administrative procedures that are slow. In Denmark, migration will increase net expenses of a municipality in the short run (Erlandsen et al. 2006) and in the vicinity of Copenhagen the weak supply response is related to a too-low infrastructure capacity, which raises commuting time and makes the development of new areas outside the capital less attractive. In The Netherlands there are also tough zoning regulations, especially in rural areas. These are a major barrier to increased land supply, while building regulations are cumbersome and have grown in complexity. Moreover, the use of public enquiry procedures has increased, which delays the issuing of building permits (OECD 2004).

Housing supply in Spain has reacted strongly to the surge in home prices, with the share of residential construction rising to 9 percent of GDP in 2005, nearly double the EU average. Local governments, which control the supply of building land, face conflicting incentives. Municipalities are entitled to 10 percent of the rezoned land and thus have an interest to keep land prices high. On the other hand, they benefit directly from rezoning and have thus an incentive to approve new developments. The Economic Survey of Spain (OECD 2006a) judged that on balance, the overall effect has increased the price of land, which is reinforced by the length and complexity of local planning procedures to build the required infrastructure.

In summary, there are a variety of structural and policy factors which account for cross-country differences in the extent to which the housing sector contributes

to economic resilience. Home prices seem subject to larger oscillations in countries where housing supply is relatively inelastic (due, e.g., to unnecessarily restrictive zoning regulations) and where a favorable tax treatment of mortgage interest encourages the leveraging of housing equity. As a basic principle policy should neither hinder nor exacerbate the cycle; in practice, however, sometimes it does. And this is one reason why some economies are more exposed to instability than others.

2.6 Conclusion

This chapter presents a synthesis of the large body of work on housing and mortgage markets completed in recent years by the Economics Department of the OECD. A key theme is the link between housing and the wider economy; particular attention is paid to the contribution of housing and mortgage markets to economic resilience or instability. The findings suggest that housing markets are important in the transmission of monetary policy, and that feed-through from home prices to economic activity occurs largely through wealth channels affecting personal consumption. This may in part capture a traditional wealth effect as envisaged in life-cycle models (in which equity withdrawal occurs through trading down or intergeneration transmission), but there is also an impact via home prices, as higher collateral values facilitate households' access to mortgage finance.

The characteristics of housing and mortgage markets differ widely across countries, and there is corresponding behavioral asymmetry. To illustrate this, estimates of the marginal propensity to consume out of housing wealth are presented for ten OECD countries. The findings indicate that the strongest impact on consumption is in countries that have large, efficient, and responsive mortgage markets. Particularly important in this regard is the degree of mortgage market "completeness" – i.e. the extent to which the market is able to offer a variety of products and to serve a broad range of potential borrowers. Especially salient is the extent to which mortgage markets provide opportunities for housing equity withdrawal. Through its consequences for equity borrowing, the degree of mortgage market "completeness" strengthens the housing wealth effect on consumption. Lower transaction costs and higher owner-occupation rates may also assist this transmission process.

Differences in resilience can thus be related to differences in the performance of housing markets. Home price appreciation – where it is fuelled by fundamentals – appears to have boosted private consumption and residential construction. This helped to offset weaknesses elsewhere. These benefits to resilience – which arise from liberalizing housing and mortgage markets and reducing housing transaction costs – would appear to be enhanced where supply-side conditions are favorable. The analysis presented in this chapter indicates that policies which create a low and stable inflation environment, which enhance the efficiency of the housing market via a neutral tax structure, and which encourage housing supply responsiveness by avoiding unnecessarily restrictive zoning regulations can act to ensure that asset price movements in the housing market are based on solid fundamentals. Any wealth-effects that result are likely to be sustainable and should boost resilience.

But while economic resilience may be enhanced by removing mortgage market rigidities and facilitating a stronger monetary policy response via housing wealth channels, the indication is that partial and/or ill-timed reforms can cause imbalances to emerge, in the form of housing price bubbles. Removing regulatory and tax-induced distortions to housing and mortgage markets can be expected to yield both long-run benefits in terms of efficient resource allocation and greater resilience to shocks, but the sequencing of structural reforms is also important. Inappropriate sequencing can generate macroeconomic instability in the short run and lead to the accumulation of imbalances, whose subsequent reabsorption may require a lengthy and costly adjustment process. For example, during the 1980s in several Nordic countries financial market deregulation took place in a context still characterized by large tax subsidies to mortgage borrowing and inadequate prudential supervision. This gave rise to a pronounced home-price cycle fuelled by overlending, and this eventually led to costly bank bailouts and a protracted period of balance-sheet consolidation in both the household and the financial sector.

Even in the absence of ill-timed policy reforms, the possibility that speculative bubbles may emerge in the housing market cannot be ruled out, as the events of the past few years clearly show. This needs to be guarded against. Some of the special characteristics of the housing market that set it apart from other asset markets – a prevalence of small investors; the absence of derivatives and short-selling; the heterogeneity and indivisibility of the traded asset, and low transaction frequency – tend to create some degree of inertia in price movements and to exacerbate informational problems. They may also make it easier for prices to be driven by expectations that depart from fundamentals. Several studies have documented a tendency of home price expectations to be of the extrapolative kind. For these reasons, supervisory authorities must continue to ensure that the prudential framework is also resilient, by discouraging excessive risk-taking on the part of lenders and monitoring the possible emergence of financial fragilities in balance sheets in situations where asset prices may be subject to large corrections.

In short, institutional set-ups in housing and mortgage markets play an important role not just for overall economic efficiency and real incomes but also for the propagation of shocks. Hence structures which enhance longer-term economic performance may also lead to better short-term outcomes. In general, resilience is strengthened and potential instability reduced to the extent that: distortions are avoided; monetary policy is effective in controlling inflation; and prudential controls are in place to ensure the solidity of financial institutions faced with variations in home prices. A tentative conclusion is that structural policy settings that are desirable for the sake of efficient resource allocation also tend to be conducive to greater macro-economic resilience to shocks. And while structural reforms should be undertaken primarily for longer-term efficiency reasons, they may also have important implications for macroeconomic policy effectiveness.

The current episode of financial turmoil illustrates quite forcibly the way housing market institutions can influence the speed and magnitude with which monetary policy responses to shocks are transmitted through economies. This has activated a long-standing debate about the conduct of monetary policy during asset price misalignments; It has triggered a review of financial markets' prudential and regulatory frameworks in national and international institutions. In addition, in an

environment of greater internationalization of financial institutions, recommendations for unambiguous cross-border procedures for managing crises and dealing with weak banks have been prompted. No doubt fundamental and orderly reform of the financial system and its regulation will be a key focus of policy debate going forward.

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Chapter 3

Is Housing Wealth an "ATM"?: International Trends*

Vladimir Klyuev and Paul Mills

3.1 Introduction

"It's like installing an ATM on the side of your house." As the most recent housing cycle gained momentum, loan advertisers and financial commentators were quick to identify the rise in additional secured borrowing in the USA with withdrawing housing equity to finance consumption. The former lauded the flexibility of borrowing against housing collateral to consume; the latter fretted that US households were overstretching by adding to their debt burdens and eroding the equity in their houses. The decline in the US personal saving rate, such that households came to consume more than their disposable incomes, was readily ascribed to the rise of home equity withdrawal (HEW).

This chapter assesses whether, during an era of cheap credit and rising home prices, reality matched this perception. First, the analysis considers whether measures of the negative US household saving rate (hereafter referred to simply as saving) reflect reality or are a statistical artifact. Second, the question of what role, if any, the institutional changes associated with financial liberalization played in reducing US saving and fostering HEW. Third, the chapter examines the degree to which increasing housing wealth and HEW have been responsible for the decline in US saving.

The chapter addresses these questions, comparing the US experience with that of Australia, Canada, and the UK to see if other countries with competitive mortgage markets and similar homeownership rates provide additional insight into the interaction of housing wealth and savings. It does so by first describing financial sector innovation in each country, which helps to calibrate the degree to which constraints on accessing home equity have been relaxed. The paper then uses regression analysis to draw possible implications for the US personal saving rate of the declining housing market.

* The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, or its management.

3.2 Have Saving Rates Really Fallen?

The household saving rate – the ratio of household net saving to personal disposable income – has been on a declining trend in the USA since the mid-1980s. Over the past decade, saving rates have also declined in other large, industrial economies with "Anglo-Saxon" financial markets, notably Australia, Canada, and the UK (Figure 3.1). Recent declines in saving rates have given rise to concerns about measurement issues. Some of these are conceptual, questioning whether the measure employed in the national accounts is appropriate; others are more technical, asking whether changes in the behavior of certain macroeconomic variables may have affected the measured saving rate without genuine changes in household behavior. This short section addresses measurement issues, rejecting merely statistical explanations for a reduction in savings rates, as a prelude to the more substantive concerns taken up in the remainder of the paper.

The main conceptual issue is whether saving should be calculated as the difference between disposable income and consumption (a flow measure) or as a change in the household net wealth (a stock measure). This is a long-standing issue (see, e.g., Hicks 1939). The main argument of statistical agencies (Perozek and Reinsdorf 2002), which report the flow measure in national accounts, is that it appropriately measures funds available to finance new investment, while valuation changes, which account for the difference between the stock and the flow measures, do not create "real wealth."

Although generally applicable, this argument does not hold in some instances. For example, if dividends paid by firms to households are banked and then on-lent to firms to expand capacity, household wealth and saving will increase by the amount of the dividend. If firms invest out of retained earnings rather than paying dividends, however, household wealth still increases as stock prices rise,

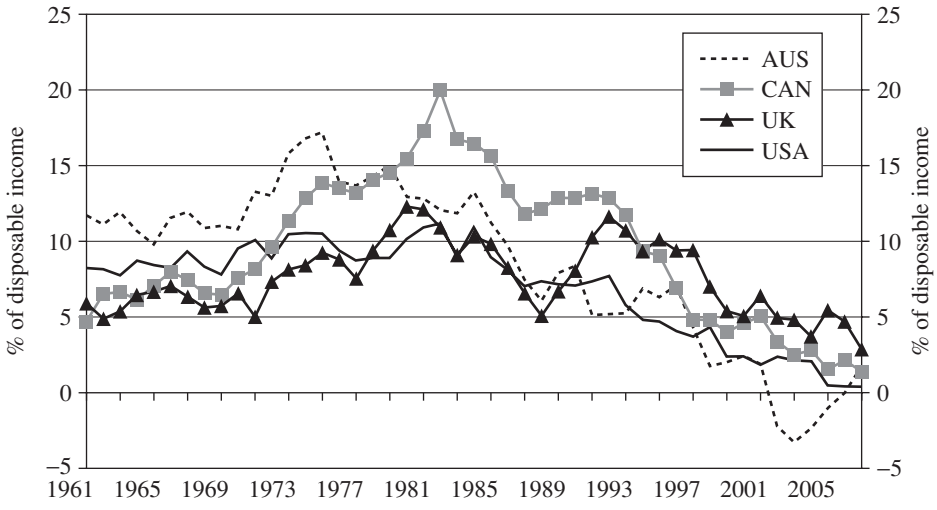

Figure 3.1 Household saving rates: national definitions.
Source: Haver Analytics

reflecting the value of the investment, but measured saving rises in the corporate, rather than household, sector. As another example, an increase in net financial claims on foreigners, owing to valuation changes, may be considered accumulation of real wealth for residents but would not be classified as "saving" in the national accounts.

In addition, saving flows largely reflect underlying household decisions, while changes in stocks are affected by volatile movements in market prices. This could reduce the stock measure's usefulness as an indicator of underlying trends in the economy. Also, given the volatility of asset prices, the marginal propensity to consume out of income is much larger than that out of wealth, since households treat unrealized capital gains as potentially transient. A final aspect of capital gains is that they have to be realized to provide funds available to fund expenditure, although as a consequence of financial market innovation – including home equity withdrawal – this becomes less of an issue.

We do not take a position in this debate, since the purpose of the chapter is to explain movements in the measured flow saving rate. We note, however, that the household saving rate as defined by national accounts may well decline in periods of rapid asset price appreciation without driving down the ratio of household net worth to disposable income.

Another well-recognized conceptual issue has to do with the erosion of the real value of fixed nominal assets owing to inflation (Jump 1980). As inflation goes up, the interest rate also increases, pushing up both disposable income and saving by the same amount, assuming there is no change in real consumption. The result is that one tends to observe higher saving rates in periods of high inflation. The correlation, however, is spurious,[1] as the inflation component of higher interest receipts represents not return *on* investment but rather return *of* investment, that is compensation for the erosion in the real value of financial assets.[2]

A simple adjustment subtracts the product of the inflation rate and the stock of fixed-income assets from disposable income and from net saving and adds the product of the inflation rate and the stock of liabilities to net saving. As Figure 3.2 demonstrates, this adjustment indeed lowers the US saving rate perceptibly in the high-inflation period of the 1970s–1980s. The adjustment changes sign at the end of the 1990s, as the stock of household fixed-income assets falls below that of liabilities. At the same time, the adjustment is clearly insufficient to account for more than a small fraction of the decline in the saving rate. This conclusion pertains to the other three countries as well.

There are also technical concerns related to asset price inflation. First, although realized capital gains are not included in household income, taxes on them are deducted, driving down disposable income and the saving rate. According to Reinsdorf (2004), capital gains taxes equaled 1.65 percent of US household disposable income in 2000, at the peak of realized holding gains, and their increase contributed 0.5 of a percentage point to a 5.9 percent decline in the saving rate between 1992 and 2001. The importance of capital gains taxes declined after the bursting of the dotcom bubble, and so has the wedge between the standard measure of household saving and the one that does not subtract capital gains taxes. (The reduction in realized capital gains may explain some of the sideways drift in the household saving rate early in this decade before the plunge in 2004–2005.)

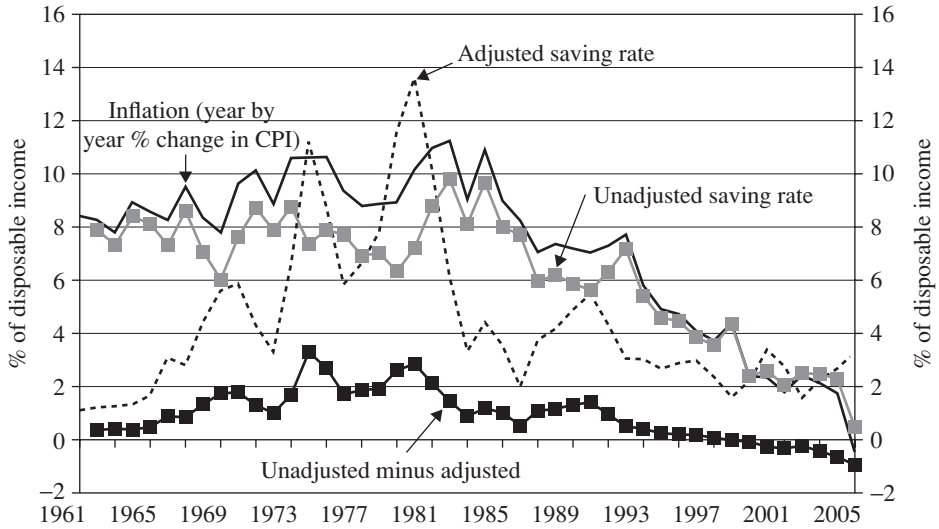

Figure 3.2 USA: Household saving rate adjusted for effects of inflation on fixed-income assets and liabilities.
Source: Haver Analytics; and IMF staff calculations

Second, an increase in home prices drives up imputed rents (the notional amount that homeowners are considered to "pay to themselves" in the national accounts) and consumption of fixed capital (the cost of physical depreciation), lowering the saving rate even if there is no change in household behavior. A simple way to judge the importance of this effect is to examine changes in the ratio of *gross* saving to the difference between *gross* disposable income and imputed rent. Figure 3.3 shows that such an adjustment raises the US household saving rate by a remarkably stable amount, meaning that these factors do not help explain the decline in the measured saving rate over time.

Other corrections considered in the literature, such as splitting personal income and saving into those of households and nonprofit institutions serving households or excluding defined-benefit pension plans from the personal sector, also have little impact on the measured fall in saving (Reinsdorf 2004). Thus, we conclude that although a number of factors may have magnified the decline in the flow measure of the saving rate, the bulk of the decline is real. Saving ratios for the four countries in our sample, adjusted for consumer price index (CPI) and home price inflation, are shown in Figure 3.4.

3.3 Likely Impact of Financial Innovation and Liberalization on Home Equity Withdrawal and Saving

Saving behavior, especially "buffer-stock" saving, is affected by the ease with which households can borrow to finance consumption on durable and house purchases. Institutional changes associated with financial liberalization and innovation in the

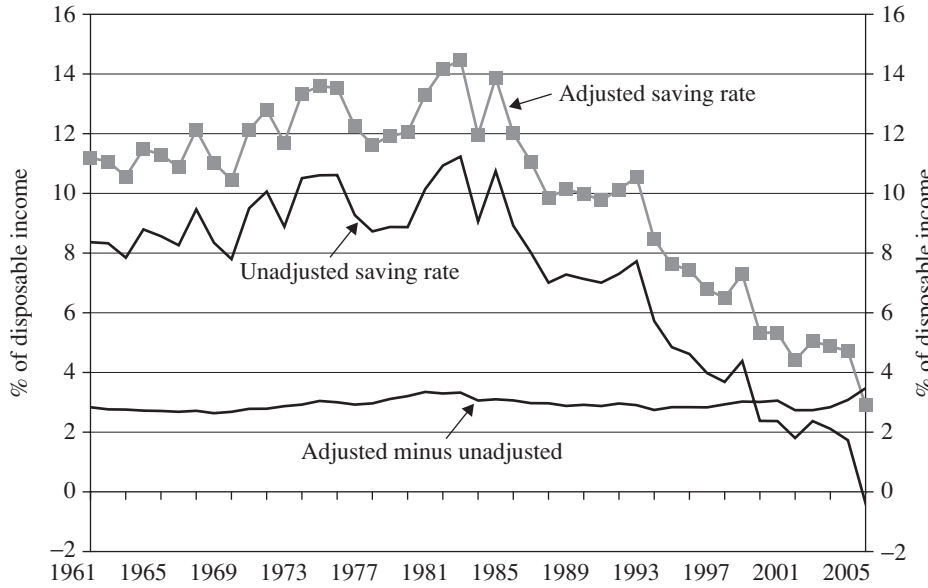

Figure 3.3 USA: Household saving rate adjusted for treatment of rental expenditure and residential capital consumption.
Source: Haver Analytics; and IMF staff calculations

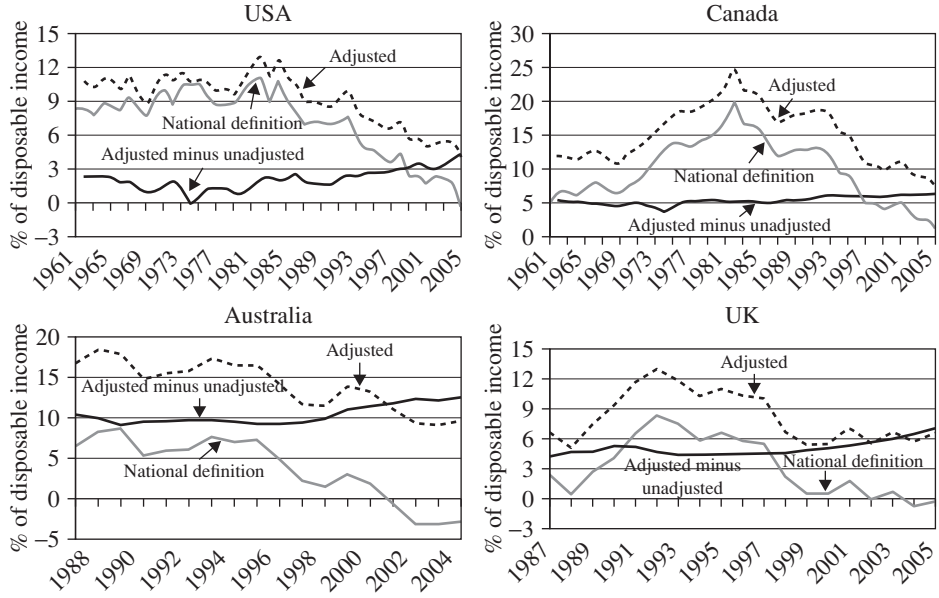

Figure 3.4 Adjusted household saving rates.
Note: See the text for a description of the adjustments. The UK national definition excludes residential capital consumption allowance from income and saving, as is the case for the other countries.
Source: Haver Analytics; national sources; and IMF staff calculations

provision of borrowing facilities to households eased these constraints in the four countries under consideration over the period of this study (see Box 3.1). Initially, measures were concentrated on relaxing controls on the ability of financial institutions to attract deposits or to satisfy the potential demand for credit. Liberalization of deposit and lending markets permits intermediaries to raise finance more cheaply and satisfy loan demand if their expected rate of return on capital justifies the extension of their balance sheets and commitment of scarce capital.

In addition, a reduction in mortgage and refinancing transaction costs can be achieved by increasing competition in loan markets (through new entrants, foreign competitors, and new technology). Competition can be facilitated by the entry of purely wholesale-financed lenders unconstrained by the sunk costs required to attract retail deposits, and by mortgage brokers originating mortgages to be securitized in pools of loans backing mortgage-backed securities (MBS). The ability of lenders to securitize mortgages (and other consumer loans) allows access to a wider

Box 3.1 Financial Liberalization and Mortgage Product Innovation

Country	*Selected measures of financial liberalization*
Australia	Interest rate ceilings (1980) and other controls (1984) on bank deposits abolished. Limits on savings bank assets abolished (1982). Entry of new banks permitted, including foreign banks; abolition of exchange controls (1983). Securitization introduced (1987).
Canada	Ceiling on bank loan interest rate abolished (1967). Restrictions on bank mortgage financing abolished (1967). Bank mortgage subsidiaries permitted (1980). Securitization introduced (1987).
UK	Abolition of capital controls (1979), money supply and credit controls (1980), and minimum lending rate (1981). Banks allowed to compete with building societies (1981). Building societies allowed to diversify assets and funding sources (1986). Securitization introduced (1987). Second Banking Directive implemented (1993). First issue of covered bonds (2003).
USA	Securitization introduced (1971). Phasing out deposit interest rate cap (Regulation Q – 1980 on). Elimination of thrift portfolio restrictions (1980).

Sources: Boone et al. (2001); Commonwealth Treasury of Australia.

Country	*Recent mortgage product innovations*
Australia	Flexible mortgages with variable repayments. Split-purpose loans (for primary and tax-advantaged buy-to-let loans). Deposit bonds (insurance company guarantees payment of deposit at settlement). Nonconforming loans. Redraw facilities and offset accounts. New providers including mortgage originators and brokers.
Canada	Shorter term mortgages, initial fixed-rate period shortened from 5 years to 1 year, more variable-rate loans. Skip-a-payment, early mortgage renewal and flexible payment schedules. Easier access to subprime loans.
UK	Flexible mortgages. Offset mortgages (savings and mortgage held in same/linked accounts, with savings offset against mortgage balance). Base rate trackers and lifetime mortgages – equity release for retired homeowners.
USA	High loan-to-value ratio loans, including second lien "piggyback" mortgages. Hybrid and interest-only loans with variable and low "teaser" rates. Flexible mortgages with variable repayment options, including negative amortization. 40- and 50-year mortgages.

Sources: Scanlon and Whitehead (2004); OECD (2005).

range of investor capital, increases the ability of lenders to manage their capital and so potentially reduces the cost of mortgages. (A possible adverse effect of securitization is to increase credit rationing for those borrowers whose characteristics do not meet the criteria needed for eligibility into the pools of mortgages to be securitized.)

One indication of the competitiveness and potential for innovation in the mortgage market is the degree to which the stock of mortgages has been securitized. As illustrated by Figure 3.5, US mortgage securitization expanded rapidly in the 1980s and 1990s so that MBS now finance around 60 percent of the US mortgage stock. Elsewhere, MBS markets have grown rapidly in the past decade. The Australian market increased from about 3 percent of mortgages outstanding in the mid-1990s to around 22 percent in 2006, whereas that in Canada grew from 4 percent to around 16 percent in the same period. Though no time series is available to show the trend, MBSs were first issued in the UK in the late 1980s

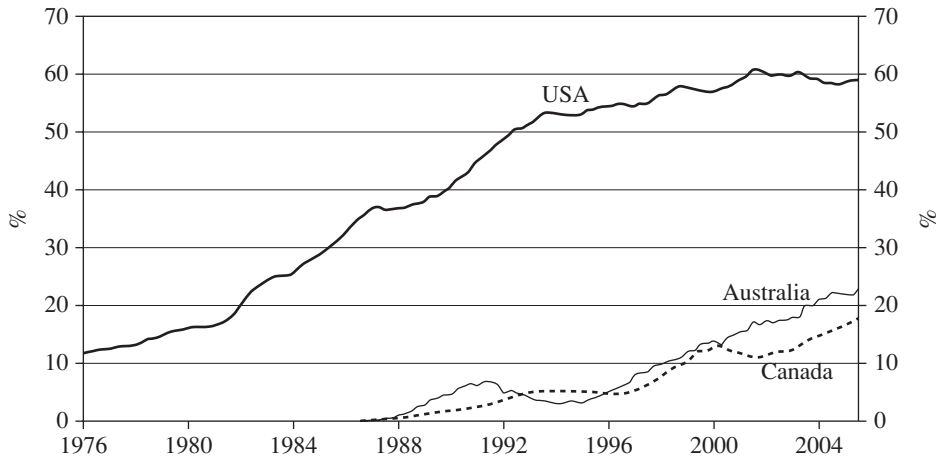

Figure 3.5 Mortgage-backed securities as a share of mortgages outstanding.
Source: Board of Governors of the Federal Reserve System; Reserve Bank of Australia; and Statistics Canada

and accounted for 12 percent of the mortgage stock by the end of 2004 (CML 2005, p. 6), a ratio similar to that of Canada.

In addition, advances in credit scoring techniques (through the greater availability of data on pools of borrowers) reduced perceived default risk premia while search costs fell through the development of the internet and competition amongst mortgage brokers. (See Frankel (2006) for a discussion of how the credit scores of mortgages backing non-agency MBS have declined markedly between 2000 and 2005.) These developments helped extend access to credit to borrowers of more marginal creditworthiness, albeit at higher interest rates (Edelberg 2006). The expansion of such subprime lending, assisted by the growth in the issuance of securities backed by subprime mortgages, is believed to have contributed significantly to the recent increase in homeownership in the USA (Bernanke 2006; Doms and Motika 2006).

Financial innovation, competition, and technological advances should therefore have a number of effects on the housing market. First, liberalization increases the access of marginally creditworthy borrowers to loans and reduces the need for first-time buyers to save for substantial down payments.[3] Second, transaction and search costs are lowered for taking out a mortgage, refinancing it, or moving house. Third, borrowing against existing collateral (e.g., through home equity loans or second mortgages) should be cheaper and available to more households, thus increasing the accessibility of accumulated housing equity. As credit rationing constraints are relaxed, increasing the supply of credit for any given interest rate, both consumption and home prices are likely to rise simultaneously during a period of transition until a new equilibrium is reached. Hence, financial liberalization and innovation can themselves help drive the saving ratio down, at least temporarily.

Such financial innovation should also allow greater flexibility for households to smooth consumption through times when income is expected to grow, enable households to borrow to maintain consumption when income is subject to shocks, and

increase the liquidity of housing wealth relative to financial assets. Hence, one would expect mortgage innovation to lead to a higher and less volatile average propensity to consume from income, and an increase in the value of housing as an investment asset as its liquidity increases.[4] By relaxing immediate cash-flow constraints and providing greater flexibility over the interest paid in the immediate future, such changes may also soften the immediacy of the elasticity of consumption with regard to changes in nominal interest rates. Part of this smoothing will occur through HEW.

As can be envisaged from the components of HEW (see Box 3.2), it is often strongly linked with the level of housing transactions and increasing housing equity

Box 3.2 Defining Home Equity Withdrawal

Home equity withdrawal (HEW) is the generic term for transactions whereby homeowners collectively reduce the equity in their homes. HEW can arise as the result of housing transactions, additional borrowing, or a combination of the two. HEW rises when homeowners:

- take out a mortgage with a value in excess of that of the house;
- exercise mortgage negative amortization options, thereby increasing their debt;
- remortgage or refinance their existing mortgage with a higher principal;
- take out a second mortgage or home equity loan;
- increase their mortgage indebtedness when moving into a new house of similar value;
- trade down to a lower value house when they have no mortgage or while maintaining their level of secured debt; or
- sell a house, repaying any mortgage, to move into rental accommodation or realize a bequest.

Conversely, households inject equity into their holdings of housing wealth when they:

- make a down payment on a first-time purchase;
- make amortization and additional payments on a mortgage or home equity loan;
- remortgage, or refinance their existing mortgage, with a lower principal;
- reduce their mortgage indebtedness when moving into a house of similar value;
- purchase second homes and investment properties with cash; or
- finance home improvements other than through a mortgage.

Net HEW is the difference between these two measures. When home improvements are financed through secured borrowing, there should be no impact on net HEW.

arising from price appreciation. Indeed, a substantial component of gross HEW has been extracted as a result of housing turnover in the USA since the mid-1990s (Greenspan and Kennedy 2005). However, HEW has also been found to be strongly positively correlated with the degree of mortgage market completeness (see Catte et al. (2004) who examined the degree to which HEW as a proportion of disposable income was related to a constructed indicator of mortgage market completeness in eight European Union countries from 1990 to 2002; see Girouard, Chapter 2, this volume). Financial liberalization and innovation makes HEW easier by:

- *Reducing the delay and transactions costs of refinancing*. Innovation in credit scoring and greater competition seem to have resulted in a sharp fall in the transactions costs of refinancing.[5] As a result, households are more likely to refinance their fixed-rate loans when interest rates fall and when they wish to withdraw equity. Krainer and Marquis (2003) attribute the far higher rate of US mortgage refinancing in 2001–02 compared to 1990–91, despite a similar decline in long-term mortgage rates, to the greater build-up of home equity and lower transactions costs. Lower transactions costs also increase the "churn" rate on house purchases, providing opportunities to extract equity. The average life of a mortgage in the UK fell from seven years in 1995 to three in 2004.
- *Introducing flexible mortgage terms*. A number of new mortgage products include cheap or costless options to borrow against existing equity in one's home. For instance, in Australia and the UK, "offset" mortgages, in which transaction balances are netted off from the borrower's mortgage debt, provide flexibility for the debt to rise as long as a degree of equity is maintained in the house. Similarly, a significant proportion of US mortgages extended in 2004–05 contain negative amortization options, so permitting the borrower to increase debt flexibly against the equity.
- *Increasing access to second mortgages and home equity loans*. Better credit scoring and mortgage broker competition have increased access to, and lowered the relative rate charged on, secondary mortgages. In the USA, this trend has also been driven by the dramatic growth in the issuance of securitized pools of home equity loans (HELs) and lines of credit (HELOCs), thus reducing their cost. (Issuance of US HEL and HELOC asset-backed securities rose from $61 billion in 1999 to $515 billion in 2005; JPMorgan 2006.) Since the early 1970s, when unsecured debt accounted for a third of US household borrowing, there has been a trend decline in the share of unsecured credit to total household debt (see Figure 3.6 – for comparable data available since 1989), encouraged by the withdrawal of the tax deductibility of interest on unsecured debt in 1986. This movement has been most pronounced in Australia but has recently begun to reassert itself in the UK and the USA following a cyclical upswing. Canada displays a contrary tendency, with unsecured consumer borrowing growing strongly relative to mortgage debt as a result of the absence of cost-effective HEL products.
- *Increasing ability to access home equity in retirement*. Although not significant in absolute amounts in any of the four countries, home equity release loans, designed for older homeowners to generate income in retirement, are

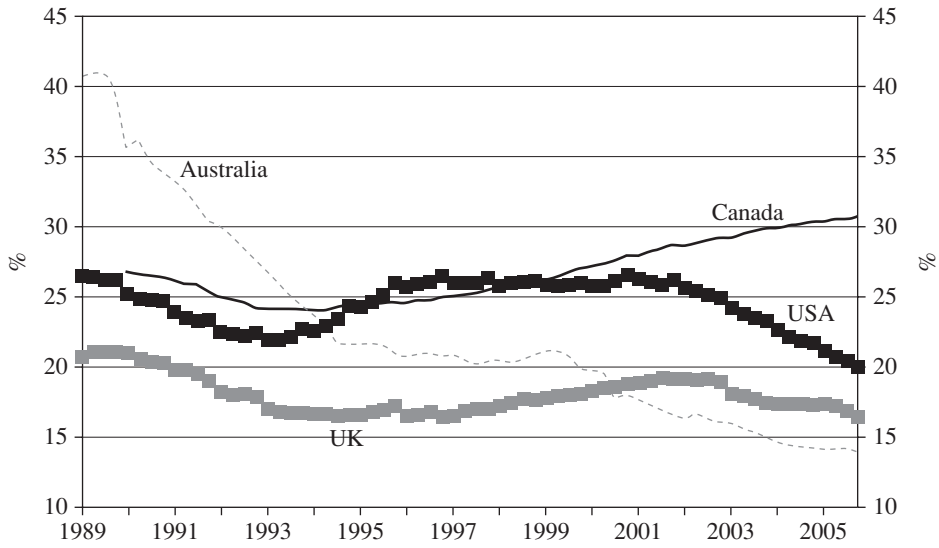

Figure 3.6 Ratio of unsecured credit to total household debt.
Source: Board of Governors of the Federal Reserve System; Bank of England; Reserve Bank of Australia; and Statistics Canada

beginning to become more widely available and publicized.[6] Such products enable housing equity to be converted into income without the need to move out of one's home in retirement. Their existence reinforces the belief that home equity can be used as a supplement to pension savings.

3.4 Trends in HEW and Household Saving Across Countries

One way to examine the link between HEW and saving is in the context of an accounting relationship between national accounts and flow-of-funds accounts. In principle, net saving should equal the increase in net assets, real or financial, although in practice the two are somewhat different because they are estimated from different sources. (This analysis uses comparable definitions across countries; hence it does not necessarily reproduce national data.) Figure 3.7 shows the decomposition of household net saving into net home equity injection (the difference between net investment in housing and net borrowing secured by housing – the reverse of net HEW) and net flow into financial assets (i.e., net acquisition of financial assets minus net nonsecured borrowing). One can observe substantial differences across countries.

In the USA, from 1961 until the mid-1990s, HEW was fairly small relative to household income and switched from negative to positive and back, moving generally in the same direction as the saving rate. Only in the past 10 years has a pronounced growth in HEW relative to disposable income coincided with a decline in household saving. At the same time, flows into net financial assets tended to rise, at least after the collapse of the IT bubble, giving credence to the claim that

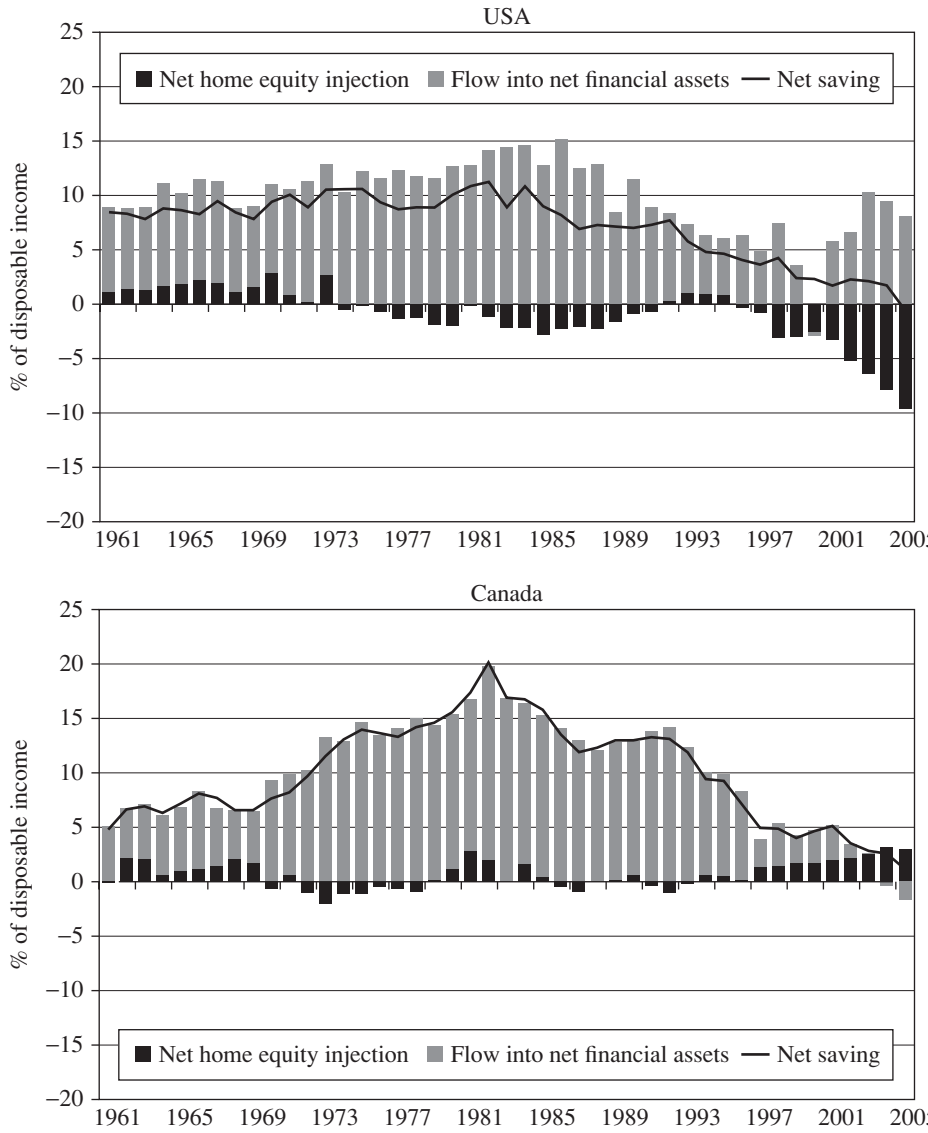

Figure 3.7 Uses of net saving.
Source: Haver Analytics; national authorities: IMF staff calculations

HEW was used largely for portfolio rebalancing (paying off more costly non-secured debt and moving wealth from residential to financial assets).

Canada is unique among the four countries in that it has not witnessed substantial HEW. Moreover, in the past few years home equity injection has picked up noticeably, in a development possibly related to a housing boom in western Canada. The decline in household saving has reflected diminishing flows into financial assets.

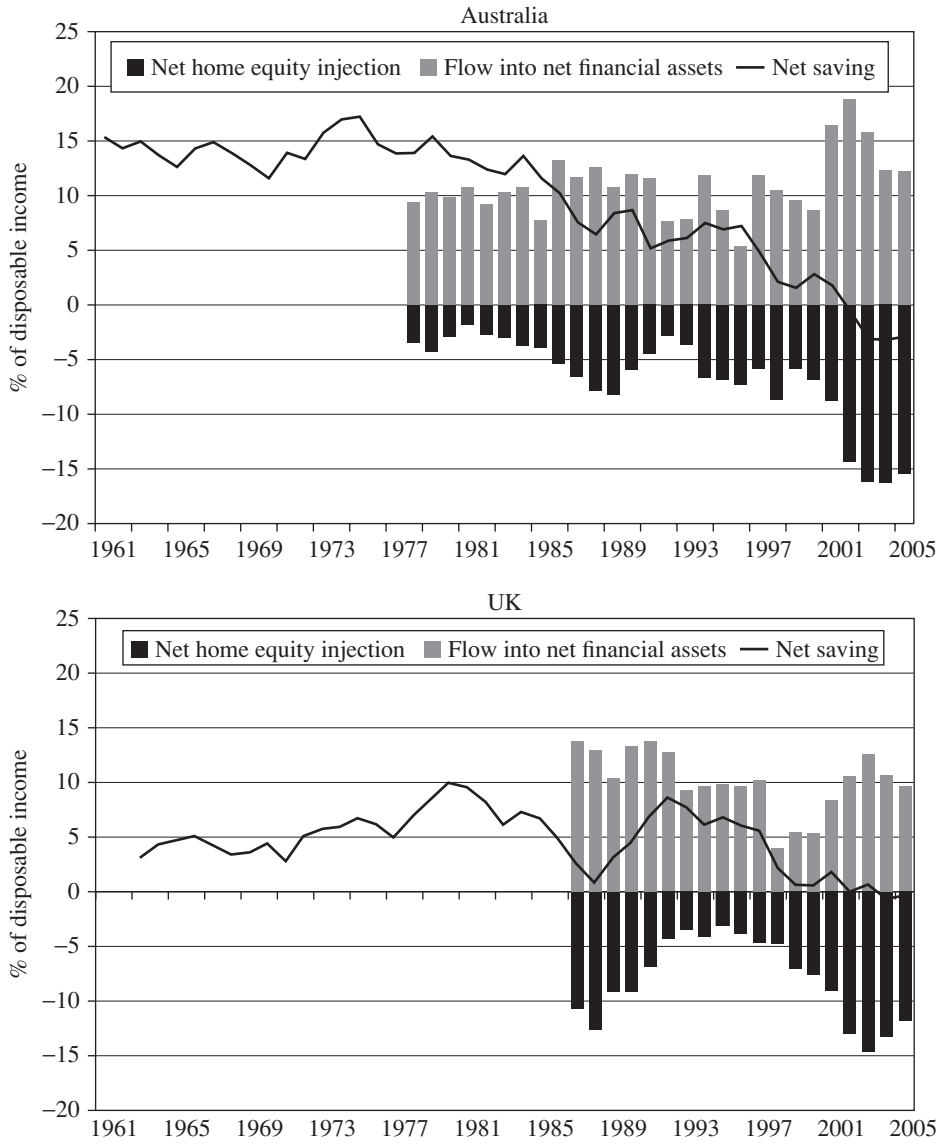

Figure 3.7 (*Cont'd*)

Both Australia and the UK featured substantial HEW in the short periods for which data are available. In Australia, since the late 1970s, HEW has increased while the saving rate has declined, although fluctuations of the two variables have not been synchronous. In the UK, HEW and the saving rate have generally moved in opposite directions since the late 1980s. Both countries, towards the end of the period under review, experienced a sharp reduction in home price appreciation, associated with some decline in HEW and stabilization of the saving rate. Flows into net financial assets have not exhibited an apparent trend in either country.

3.5 How Does HEW Affect Household Saving?

Two schools of thought have emerged that differ in the influence on consumption they ascribe to HEW. One believes that the strong negative correlation of HEW with saving rates (particularly in the USA since the mid-1990s) indicates causation and that HEW has a strong influence in driving consumption growth. This school anticipates a strong impact on consumption as HEW declines sharply with the slowing US housing market. The other school regards any such correlation as being largely driven by independent factors that led to rising HEW and falling saving (e.g., rising income expectations or a positive home price shock). According to this line of argument, although some proceeds from HEW undoubtedly find their way into immediate consumption, the direct impact is unlikely to be substantial or long-lived. Any increase in US saving as a result of a cooling housing market will arise from households' reaction to lower wealth rather than to lower HEW.

The preceding empirical literature provides mixed messages. In two cross-country OECD studies (Boone et al. 2001; Catte et al. 2004; and see Girouard, Chapter 2, this volume), HEW was found to be strongly positively associated with a high estimated marginal propensity to consume from housing wealth. Indeed, Catte et al. (2004) find that HEW dominates housing wealth as a driver of consumption, with 89 percent of HEW estimated to be consumed in the UK, 63 percent in Canada and Australia, and 20 percent in the USA.

Conversely, survey evidence from homeowners about their motives for extracting home equity indicates that a limited proportion is used to finance immediate consumption, although it may boost residential investment through home improvements. A 2004 survey of Australian homeowners found that the bulk (72 percent) of HEW was extracted via property transactions, principally through older owners selling to younger buyers with larger mortgages. Two-thirds of HEW was used to acquire financial assets or pay off debts, with household expenditure accounting for 18 percent (Reserve Bank of Australia 2005; Schwartz et al. 2006, Chapter 7, this volume). A similar picture was painted by a UK survey of households conducted in 2003. The majority of HEW arose from housing transactions, with the most commonly cited motives being to save or pay off other debts. Expenditure was, however, a significant reason for many of those withdrawing equity through second mortgages or refinancing, primarily for the purpose of home improvement (Benito and Power 2004). (In addition, the Dutch National Bank surveys households in The Netherlands annually to assess their use of HEW (van Els et al. 2005). In 2003, respondents said that increases in secured debt were used predominantly (70 percent) for home improvement, followed by savings and investments (10 percent), consumption (8 percent), and repayment of other debt (6 percent).)

United States survey evidence for the uses of some types of HEW comes from questions posed to householders concerning the use of funds released from cash-out refinancing (Canner et al. 2002). Within the survey period (2001–2002H1), 45 percent of those who refinanced their mortgage extracted equity, amounting to an estimated $132 billion. Of this HEW, 35 percent was used on home improvements, 26 percent for the repayment of debt, 21 percent for the acquisition of real assets, and 16 percent to finance consumers' expenditure.

Although the format of these surveys differs across countries, a similar picture emerges. This is one of HEW occurring primarily through housing transactions rather than homeowners increasing their mortgage debt, with households using the equity extracted primarily to acquire financial assets or repay other debts. Spending intentions were focused principally on home improvements (leading to no net effect on HEW) with usually less than 20 percent used to finance consumption. Hence, although some HEW is consumed, it appears to be used primarily as a tool for acquiring financial assets, repaying more expensive debts, or improving the housing stock rather than direct consumption (but see Searle and Smith, Chapter 15, this volume).

3.6 Econometric Analysis

This section uses an econometric model to explore the reasons for the decline in the household saving rate and the role HEW might play, focusing on four explanatory variables: net worth as a multiple of personal income, the short-term real interest rate, inflation, and HEW as a proportion of personal income. As indicated above, rapid asset price appreciation may leave household wealth unchanged or even rising relative to income, despite a falling saving rate. In a life-cycle model, such as that by Galí (1990), an increase in wealth relative to income would induce households to increase their consumption relative to income, financing it out of wealth, and thus bring down the saving rate. The effect of an increase in the real interest rate on saving is theoretically ambiguous, as the higher reward for saving may be offset by an income effect if net financial assets are positive, but most empirical studies have found the substitution effect to dominate. Higher inflation is expected to be associated with higher saving, owing to the need for households to compensate for the erosion in the real value of their assets, and to raise precautionary savings given heightened uncertainty. In addition, the saving rate may exhibit a downward trend, reflecting financial market development – which relaxes liquidity constraints and reduces the need for precautionary saving – and, possibly, demographic developments. Home equity withdrawal is included to explore the validity of claims that it may affect the household saving ratio in the short and long run.

We modeled the evolution of the saving rate in an error-correction framework, in which, in the long run, the saving rate is co-integrated with the net worth ratio and, potentially, the real interest rate and inflation. In the short run, the saving rate changes in response to its deviation from long-run equilibrium (the error-correction term) and, potentially, other variables. Since we are interested in the impact of HEW on the saving rate, we included it, as a percentage of household disposable income, both in the long-run and in the short-run relationships.

Our general specification took the form:

$$\Delta s_t = \alpha + \alpha_h \Delta hew_t - \gamma(s_{t-1} - \beta_n nw_{t-1} - \beta_r r_{t-1} - \beta_\pi \pi_{t-1} - \beta_t t - \beta_h hew_{t-1}) + \varepsilon_t, \quad (3.1)$$

where s is household saving, hew is home equity withdrawal and nw is household net worth (financial and residential assets net of liabilities), all measured as a ratio to disposable income); r is the short-term real interest rate; π is CPI inflation; and

Table 3.1 USA: Time-series regression results for household saving[a]

Long-run relationship	*HEW in long and short run*		*HEW in short run only*	
	Coefficient	*Standard error*	*Coefficient*	*Standard error*
Net worth	−0.02	0.004***	−0.02	0.005***
Real interest rate	0.38	0.08***	0.39	0.08***
Inflation rate	0.39	0.07***	0.39	0.07***
Trend	−0.13	0.02***	−0.14	0.01***
HEW	−0.11	0.09		
Error-correction term	0.85	0.16***	0.83	0.16***
Δ(HEW)	−0.18	0.11	−0.16	0.11

[a] Dependent variable is the difference in the saving rate. The estimation uses annual data for the 1963–2005 period.
*, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.
Source: IMF staff calculations

t stands for the time trend. (See the Appendix for variable definitions and data sources.) This is a standard approach for modeling a relationship between variables that exhibit trends individually, but do not diverge too far from each other – that is, they cointegrate, as demonstrated by our statistical tests. Changes in cyclical variables, such as real GDP and the unemployment rate, were initially added to the dynamic equation but were consistently found not to be significant. Annual data were used, with the estimation period dictated by the availability of housing wealth data.

As can be seen from Table 3.1, in the long run the US personal saving rate tends to decline when household net worth rises relative to disposable income,[7] with a coefficient slightly greater than two cents on the dollar,[8] and rises with increases in the real interest rate and inflation. In addition, for given values of the explanatory variables, the saving rate trends down over time, probably indicating a reduction in precautionary saving as liquidity constraints were relaxed as a result of increasing financial market completeness.

As column 1 shows, HEW is not found statistically significant either in the long-run relationship or in the dynamic specification, and an equation that omits HEW (column 2) has nearly identical coefficients for the other regressors. A 10 percentage point increase in the ratio of HEW to disposable income is associated with a temporary 1.5–2 percentage point decline in the saving rate, although the coefficient was different from zero at only the 12 percent probability level. An increase in household net worth explains 1.75 percentage points of a 6 percentage point decline in the personal saving rate since 1993, while the contribution of an increase in HEW is about 0.25 percentage points. At the same time, an increase in HEW also explains 0.25 percentage points of a 2.75 percentage point decline in the saving rate between 2000 and 2005, when household net worth ratio did not change from the beginning to the end of the period.

Results for the other countries (reported in Table 3.2) confirm a negative relationship between the saving rate and household net worth, with coefficients of the

Table 3.2 Time-series regression results for household saving (national comparisons)

Country	*Long-run relationship*	*HEW in long and short run*		*HEW in short run only*	
		Coefficient	*Standard error*	*Coefficient*	*Standard error*
Canada[a]	Net worth	−0.03	0.02*	−0.06	0.02***
	Real interest rate	0.78	0.18***	0.67	0.25**
	Inflation rate	1.21	0.21***	1.15	0.28***
	HEW	1.02	0.45**		
	Error-correction term	0.40	0.10***	0.30	0.09***
	Δ(HEW)	−0.03	0.22	−0.21	0.21
Australia[b]	Net worth	−0.05	0.03*	−0.07	0.01***
	HEW	−0.44	0.53		
	Error-correction term	0.38	0.29	0.38	0.29
	Δ(HEW)	−0.20	0.18	−0.15	0.18
UK[c]	Net worth	−0.02	0.03	−0.02	0.04
	HEW	−0.18	0.55		
	Error-correction term	0.32	0.37	0.26	0.30
	Δ(HEW)	−0.51	0.28**	−0.47	0.22**

[a] Dependent variable is the difference in the saving rate. The estimation uses annual data for the 1968–2005 period.
[b] Dependent variable is the difference in the saving rate. The estimation uses annual data for the 1979–2005 period.
[c] Dependent variable is the difference in the saving rate. The estimation uses annual data for the 1989–2005 period.
*, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.
Source: IMF staff calculations

same order as in the USA. (The coefficient was not statistically significant in UK regressions.) Real interest rate and inflation were positively correlated with the saving rate in Canada, but in the relatively short time series for Australia and the UK the relationship was not found statistically significant. The coefficient on the time trend was not found to be significant in any of these countries, which is perhaps not surprising given the short samples for Australia and the UK, and the limited evidence of financial innovation in Canada.

The results with respect to home equity withdrawal varied across countries. In the UK and Australia, HEW was not found significant in the long-run relationship. The short-run coefficient in the Australian regression is of a similar magnitude to the US result, but is not significant, while in the UK the effect was close to a half, and statistically significant. The effect of HEW on saving was also less temporary in these regressions. Canada stands out as a special case, with an improbably large and positive coefficient in the long-run relationship and a small, statistically

Table 3.3 Panel regression results for household saving[a]

Long-run relationship	*HEW in long and short run*		*HEW in short run only*	
	Coefficient	*Standard error*	*Coefficient*	*Standard error*
Net worth	−0.03	0.02*	−0.03	0.02*
Nominal interest rate	0.81	0.32**	0.87	0.36**
HEW	−0.36	0.37		
Error-correction term	0.13	0.05***	0.11	0.05**
Δ(HEW)	−0.20	0.09**	−0.18	0.09**

[a] Dependent variable is the difference in the saving rate. The estimation is on an unbalanced panel of annual data with 132 observations and country fixed effects.
*, **, and *** indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively.
Source: IMF staff calculations

insignificant short-term coefficient. Given the small scale and limited fluctuations in HEW over time, we regard this result as most likely reflecting spurious correlations.

We ran a panel regression (Table 3.3), although in view of cross-country heterogeneity this exercise is mostly intended as an illustration and summary of the data. The results support the conclusion that HEW matters for saving in the short run with an effect of around 20 cents on the dollar, but not in the long run. The negative long-run coefficient on net worth equals approximately three cents per dollar. The long-run coefficient on the nominal interest rate is about 0.9 (an increase in the nominal rate of one percentage point raises the saving rate in the long run by 0.9 percentage points). Results are similar if the inflation rate is entered instead of the nominal interest rate. The real interest rate has not been found statistically significant in the panel regression.

3.7 Recent Experience of HEW in Australia and the UK: Implications for the USA?

In the light of the recent slowdown and reversal of home price appreciation in the USA, it is instructive to examine the experiences of the countries that have recently gone through such a slowdown, namely Australia and the UK.

In all three countries, the link between real home prices and consumption appears to have weakened dramatically since 2000 (see Figure 3.8).

Although there was some decline in HEW (the HEW series used here are gross rather than net) around the time of home price deceleration in Australia and the UK, quarterly data suggest that the rebound in the saving rate was relatively small (Figure 3.9) and may have reflected the wealth effect. This is broadly consistent with our regression results that imply changes in HEW have a limited, short-term effect on saving.

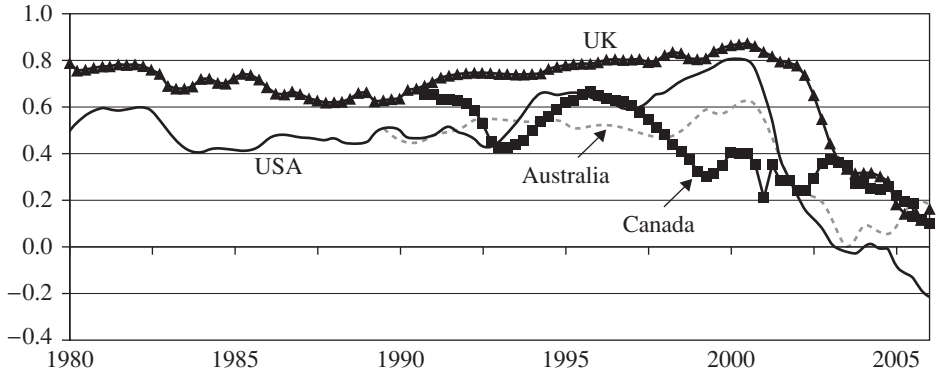

Figure 3.8 Home price increases and consumption growth.
Note: Ten-year rolling correlation between growth of real home price index (deflated by personal consumption deflator) and growth in private consumption.
Source: Haver Analytics; Census and Economic Information Center; national sources; and IMF staff calculations

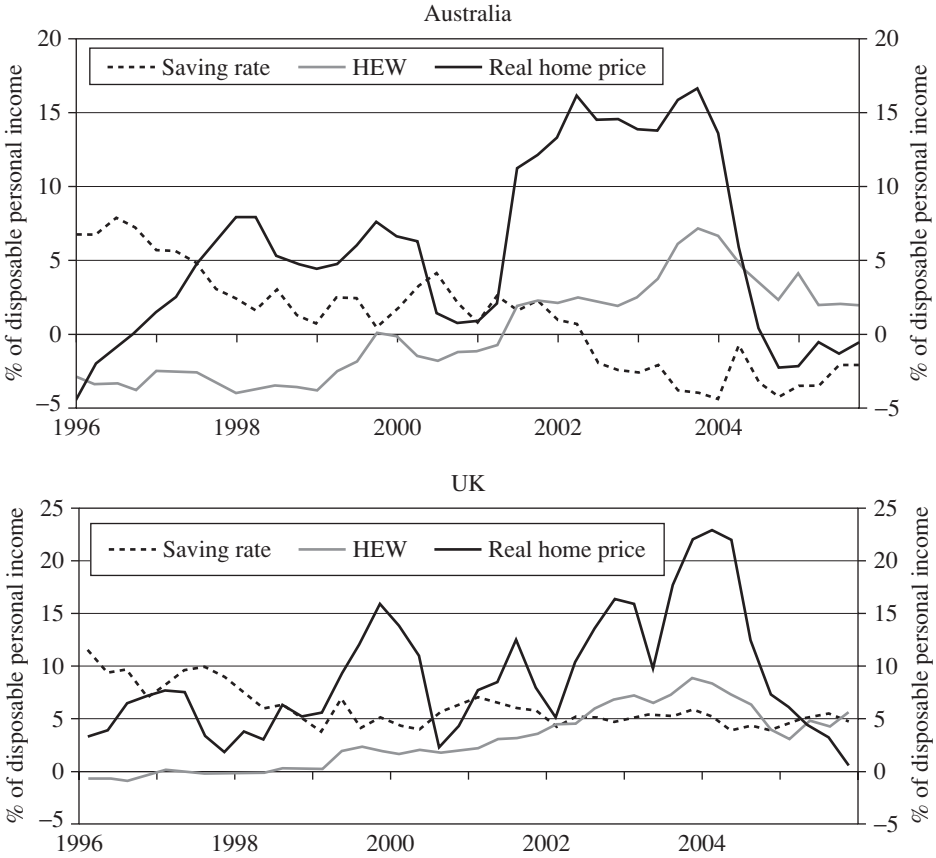

Figure 3.9 Australia and the UK: home prices and home equity withdrawal.
Source: Haver Analytics; national sources; and IMF staff calculations

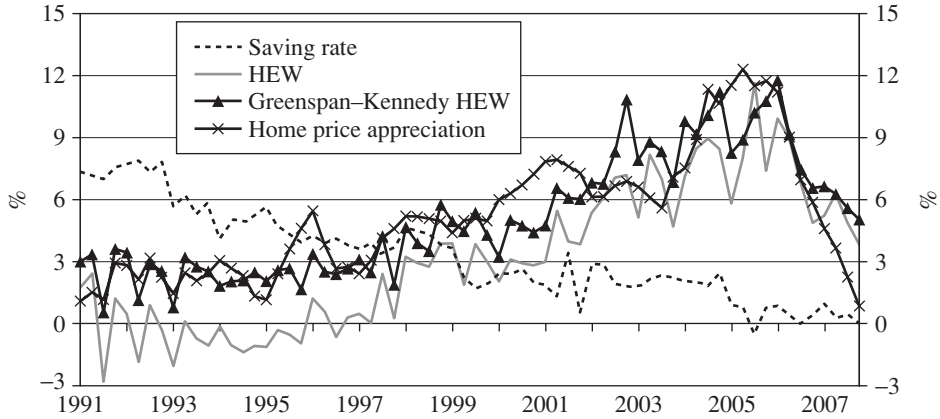

Figure 3.10 USA: Home prices, HEW, and saving rate.
Source: Bureau of Economic Analysis (saving rate); Office of Federal Housing Enterprise Oversight (home price index); Federal Reserve Bank (flow of funds data for calculating HEW).

The latest developments in the USA are consistent with this analysis. As Figure 3.10 illustrates, a dramatic decline in HEW in the USA over the last two years, triggered by a sharp slowdown in home price growth, did not push the personal saving rate up.

3.8 Conclusion

The regression results reported here are consistent with earlier studies in finding that US households react to an increase in their net worth and lower real interest rates by reducing their saving rate. Home equity withdrawal also has a negative impact on household saving in the short run, although its size is limited to around 20 cents in the dollar. This result indicates that the reversal of US home price growth, HEW, and tightening financial conditions should lead to a recovery in the US saving rate, or at least arrest its trend decline. However, this rise is likely to be limited. For example, even a reduction in the HEW ratio from its peak of 8 percent to the long-run average of 1 percent in a year would temporarily boost the saving rate only by about 1.25 percentage points, broadly consistent with the recent experience of Australia and the UK. That said, a decline in the growth of HELs and cash-out refinancing may have at least as large an impact, and possibly a more persistent one, on housing investment through its effect on home improvement spending.

The inclusion of a trend variable, intended to represent the ongoing effects of financial liberalization and innovation, was strongly significant in the US regression results. This result is consistent with the view that financial innovation lowers household saving by increasing access to financial products. Another implication is that households could be able to smooth consumption more effectively over time, thereby lowering its volatility.

These results indicate that those who attributed the sharp recent fall in the US saving rate to HEW were wrong. Housing affects US saving behavior primarily

through its effects on wealth. Financial liberalization has increased the liquidity of home equity by making its withdrawal easier, but HEW itself does not explain changes in saving rates. In that sense, US housing wealth is not an "ATM."

Appendix: Data Issues

The personal saving rate in the US National Income and Product Accounts (NIPA) is measured as a ratio of personal saving to personal disposable income. Both saving and income are net of consumption of fixed capital, which represents primarily the depreciation of housing stock. The personal sector includes households and nonprofit institutions serving households (NPISH). Separate accounts for the two subsectors are available for only a limited period for the USA and are not available for the other countries in this study. It should also be noted that households enter not only as consumers and providers of factors of production, but also as producers ("unincorporated businesses" – e.g., family farms). While we are in principle interested only in the former role of households, statistically separation between the two is infeasible, as, for example, the same assets may be used both for personal and business purposes.

The calculation of personal saving in the four countries in this study is fairly similar. The only exception is the UK, which focuses on gross rather than net saving. There are more differences in the definition of disposable income. In particular, while interest payments by households are subtracted before disposable income is calculated in Australia and the UK, so that personal saving equals personal disposable income minus personal consumption, in the USA and Canada some interest payments and some transfers are considered to be made out of disposable income. There are also some idiosyncrasies in the treatment of pension funds. Calculating saving rates on a uniform basis for the four countries would be quite a complicated enterprise, and would likely result in rather small and stable corrections. We have opted to use the national measures, which also have the advantage of being recognizable, except for the UK, where we subtract consumption of fixed capital from both saving and disposable income to arrive at the net ratio, comparable to that of the other three countries.

Home equity withdrawal is calculated as the difference between borrowing secured on dwellings and net acquisition of residential assets, both from the flow of funds. For Australia and the UK, residential investment (from national accounts) net of consumption of fixed capital is used as the subtrahend, since the flow of funds accounts cover only financial flows. For Australia, borrowing secured on dwelling was calculated from a scaled-up series on the stock of housing debt for the household sector provided by the Reserve Bank of Australia.

Our measure of HEW for the USA is close to a widely cited estimate by Greenspan and Kennedy (2005), but is not identical due to differences in definition (in particular, Greenspan and Kennedy focus on discretionary equity withdrawal) and coverage. The Bank of England publishes regularly a measure of home equity withdrawal (Bank of England, 2006), and the Reserve Bank of Australia has shown its estimates on several occasions (Reserve Bank of Australia 2003, 2005). The evolution of their measures over time is very close to that of our measures, but the level is lower largely because they arrive at their measures by subtracting gross rather than net housing investment from borrowing secured on housing.

Household net worth is calculated as a sum of the value of residential real estate and financial assets minus liabilities, from national balance sheets. The inflation rate is the year-on-year growth rate of the consumer price index, and the real interest rate is calculated as the nominal interest rate minus inflation. For the USA and Canada, the interest rate is the yield on a three-month Treasury bill; for Australia, it is the 90-day bank acceptance rate; and for the UK, it is the 3-month London interbank offer rate (LIBOR).

Notes

1. The link considered here is purely mechanical. There may be a behavioral change if households raise precautionary saving, since higher inflation typically means more uncertainty.
2. Looking at a ratio of *real* household saving to *real* disposable income would not solve the problem, since both saving and income would be deflated using the same price index, and the ratio would not be affected. The issue is that consumption expenditure and nonasset income are proportional to the price *level*, while the inflationary component of interest receipts and payments is proportional to the rate of price *increases*.
3. Frankel (2006) shows how the share of "prime" mortgages backing US nonagency MBS issuance has fell from around 50 to 25 percent since 1995 as "Alt-A" (near-prime) and subprime lending grew. Subprime loans now constitute 9 percent of US securitized mortgage debt and financed 15 percent of home sales in 2005 (JPMorgan 2006, p. 29). However, subprime MBS issuance virtually disappeared in 2007H2 and 2008H1 due to the sharp rise in mortgage delinquencies and fall in home prices.
4. Boone et al. (2001) find that financial deregulation and innovation raised the marginal propensity to consume in Canada, the UK, and the USA. (Australia was not included in the sample). Borrowers may also seek to reduce interest costs by refinancing unsecured consumer credit through cheaper secured debt, especially if interest on mortgage debt is tax advantaged relative to unsecured debt (as it has been in the USA since the Tax Reform Act of 1986).
5. In the USA, according to Freddie Mac data, as a proportion of the loan, average fees and points charged on a 30-year fixed rate mortgage fell from 2.5 percent in 1984 to 0.6 percent in 2005. Although the inclusion of zero-point loans in the sample in 1998 resulted in a fall in this data series of about 0.3 percent to 0.5 percent, there has nevertheless been a trend decline in this measure of mortgage transaction costs. Consequently, long-term interest rates need to fall significantly less than they did previously to make it worthwhile for the borrower to refinance in net present value terms (Bennett et al. 2001).
6. Such schemes generally take one of two forms. A home reversion plan entails a homeowner selling all or part of their home for a lump sum with the right to remain in occupation. On sale, the lender receives their equity share of the proceeds. A lifetime mortgage involves the borrower remortgaging their house to take a cash lump sum or annuitized income stream. Interest accumulates and is settled on the sale of the property. In the UK, roughly £1.25 billion p.a. of home reversion mortgages and home income plans were sold in 2003–2005 (UKFSA 2006).
7. When entered separately, net housing wealth (the value of real estate net of debt secured on dwelling) and net financial wealth (financial assets net of nonsecured debt) had similar quantitative impacts on saving.
8. This coefficient is somewhat smaller than values reported in other studies (e.g., Maki and Palumbo 2001).

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Chapter 4

Housing Wealth Effects and Course of the US Economy: Theory, Evidence, and Policy Implications

Eric S. Belsky

4.1 Introduction

Housing wealth soared in the USA from 2000 to 2005. After tracking real income growth closely for at least the previous 30 years, home price appreciation catapulted ahead of income growth. Apart from a brief period during the dotcom bubble, home equity has long been the largest single component of household net worth and commanded a record share by 2005 (Federal Reserve Flow of Funds Tables.) Moreover, because stock wealth is more concentrated than housing wealth, home equity is vital to more Americans.

This boom in housing markets was credited with fueling consumer spending by making homeowners feel wealthier and inclined to spend more freely and borrow more liberally. The steady rise in the national homeownership rate beginning in 1994 and peaking in 2004 added to these "wealth effects" on consumer spending by contributing more than 5 million additional owners over and above the nearly 8 million attributable to household growth (Federal Reserve Flow of Funds Tables.)

At the same time, the transaction costs of refinancing dipped, mortgage rates fell sharply from 2000 to 2003, and credit was extended as never before to borrowers previously denied access due to past problems repaying their debts. This created a degree of liquidity for tapping housing wealth that was without precedent. Second mortgage debt outstanding (in the form of home equity lines and loans) increased $480 billion from 2000 to 2005, in 2007 dollars, and the amount of real dollars cashed out through refinancing over those years was $826 billion, compared with $179 billion in the previous five years. Furthermore, turnover in the housing stock hit new highs (Figure 4.1). This increased borrowing and home sales helped cash-strapped homeowners, who might not otherwise have had the opportunity to spend from current housing wealth, to do so.

These favorable conditions for wealth effects of housing to fuel consumer spending had ended abruptly by 2007. On a weighted average basis home prices fell across all three major US indexes of home price change. The S&P/Case–Shiller index of repeat sales peaked in the second quarter of 2006 and had fallen 18.2 percent

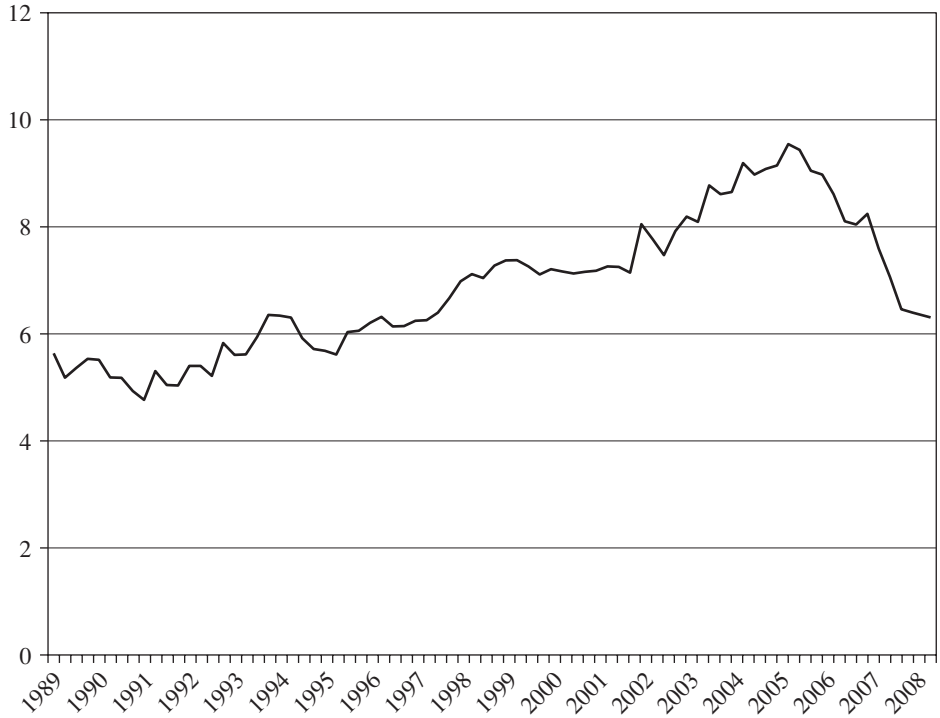

Figure 4.1 Total existing home sales as percent of owner housing stock.

by the second quarter of 2008, while both the Office of Federal Housing Enterprise Oversight Purchase-Only Index and the Freddie Mac Conventional Mortgage Home Price Index had peaked by the second quarter of 2007, falling 2.3 and 3.5 percent respectively a year later. Nevertheless, the dominant role that housing wealth has played in the net wealth of households and in the strength of the economy will continue long after the painful correction in domestic housing and mortgage credit markets, and indeed in global capital markets precipitated by the US subprime meltdown, has ended.

Housing wealth effects have been studied extensively in the USA and abroad. While there is general consensus based on several approaches to modeling wealth effects that rising home values stimulate consumers to spend more than they would if their values were flat or declining, the estimates of the magnitude of the effect differ sharply and in some cases no effect has been detected. In addition, empirical evidence is mixed on the magnitude of the wealth effects relative to the magnitude of effects of other nonhousing assets which appreciate and depreciate in value. Most but not all studies show that changes in housing wealth have a larger impact than changes in other forms of wealth. Moreover, only recently has the possible effect on the magnitude and timing of wealth effects of the cost and availability of home equity loans and lines of credit, cash-out refinances, and realized capital gains been considered. Lastly, not much explicit attention has been paid to whether housing wealth effects are symmetric; that is, whether the impact on

consumer spending of a change in housing wealth has an equal impact on consumer spending whether prices rise or fall.

All these aspects of housing wealth are matters of great consequence for understanding consumer spending – which makes up more than two-thirds of total domestic product – and for formulating public policy on housing and the economy. This chapter examines the importance of housing wealth to the balance sheets of the more than two-thirds of American households who own homes, to total tangible US assets, and to broader economic activity through the mechanism of housing wealth effects. The chapter ends with conclusions based on the theory and evidence on wealth effects, and draws out the policy implications of what is known, thought, and not known about these effects.

4.2 Housing Wealth Trends

Housing is the cornerstone of household net worth. Though its share of aggregate wealth in the household sector has ebbed and flowed, it has usually exceeded that of other assets. Since 1970, the real estate share of household sector wealth has been markedly higher than the corporate equity share except for a brief period during the technology boom. After peaking at 32.3 percent in 1981, the real estate share fell to 23.5 percent in 1999, but recovered and has remained above 30 percent in recent years (Figure 4.2). Not only is home equity a major part of the value

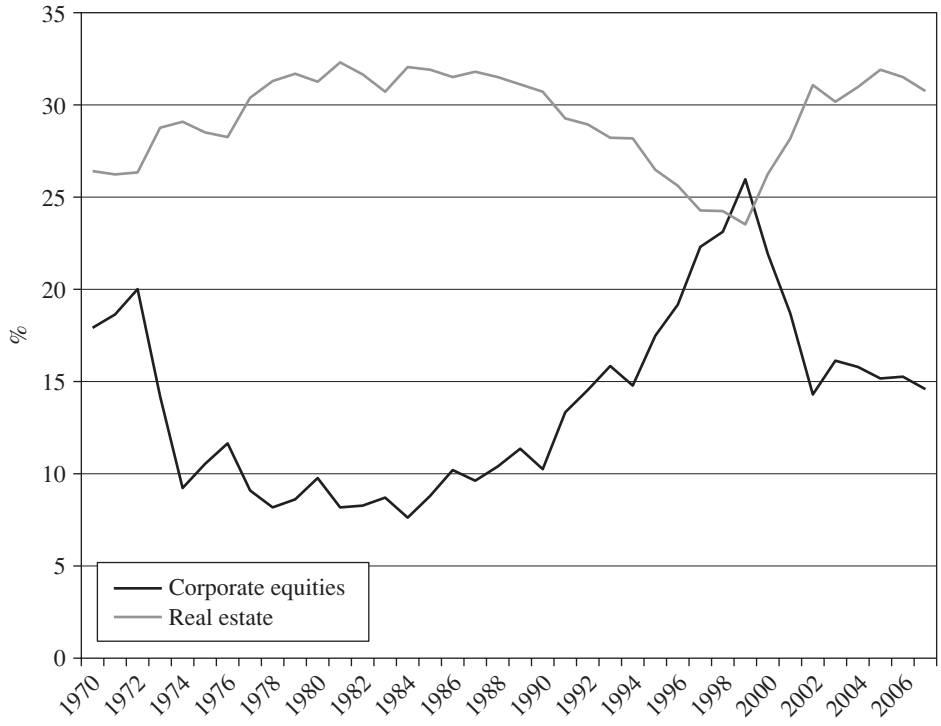

Figure 4.2 Aggregate share of household sector net worth (percent).

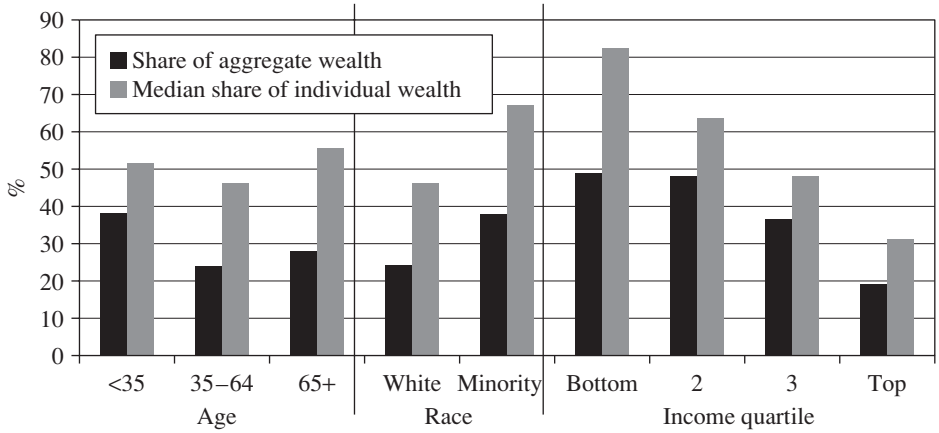

Figure 4.3 Home equity share of household net worth (percent).

of household assets, the total value of residential real estate has long been a significant component of the nation's tangible wealth. The real estate share of fixed assets and durable goods held steady at slightly over one-third during most of the 1980s. In the past two decades the share has increased gradually, starting at 33.7 percent in 1990 and reaching 35.7 percent in 2000 and 38.5 percent by 2005. Though the 2005 share is the highest since 1929, even at its lowest point in 1970 residential real estate was still 31.8 percent of national tangible assets (Bureau of Economic Analysis, *Survey of Current Business*, September 2006.)

4.2.1 The distribution of housing wealth

Among those who own homes, home equity is a larger fraction of wealth among younger, minority, and low-income owners than of others (Figure 4.3). Although the median home equity share of household net worth is highest for those aged 65 and over, the aggregate home equity share of net wealth is highest, at 38.2 percent, for homeowners under the age of 35. The median ratio of home equity to net worth for minorities is roughly two-thirds, compared to less than half for whites. For homeowners in the bottom income quartile, the median ratio is 82.8 percent, compared to just 31.4 percent for top-quartile owners.

Although home equity is heavily concentrated among households in the top fifth of the income distribution, it is less so than other forms of wealth (Figure 4.4). Though households in the top income quartile hold almost 60 percent of home equity, their share of bonds by value is 96 percent and of stocks, 85 percent. Though holding only 6.3 percent of the nation's home equity, the bottom quartile of households still has nearly four times as large a share of housing wealth as it does of stocks, nearly twice as large a share as of other financial assets, and half again as large a share as of other nonfinancial assets. Thus, changes in housing wealth affect more consumers and, presumably, that portion of consumer spending which responds to fluctuations in home values.

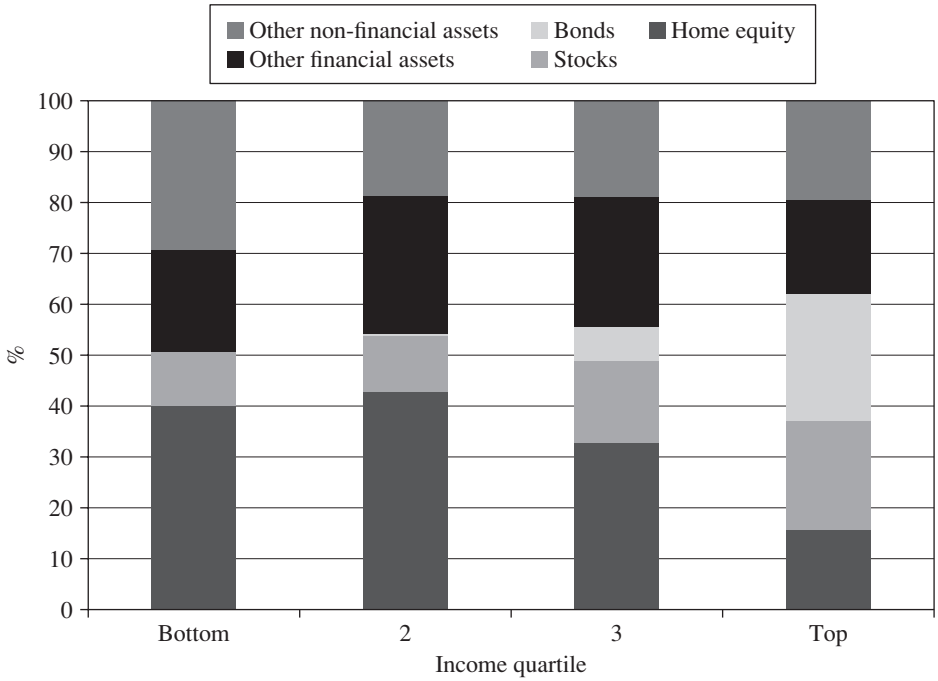

Figure 4.4 Share of aggregate wealth held by households (percent).

4.2.2 Leverage and owner-renter disparities in net wealth

At any point in time, the wealth holdings of homeowners are dramatically greater than those of renters for all age, income, and racial and ethnic groups (Figure 4.5). Homeowners under the age of 35 have 20 times more wealth than their renting

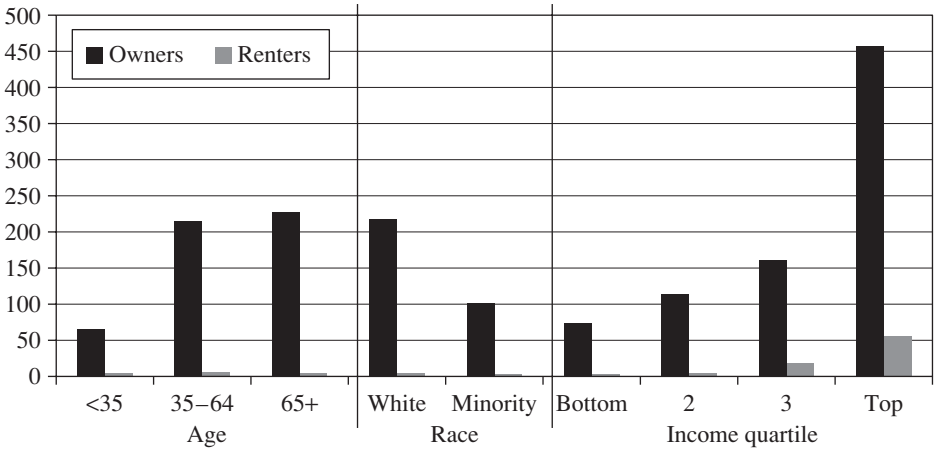

Figure 4.5 Median household net worth (thousands of dollars).

peers, but seniors 65 and over have 53 times the wealth of renters of similar ages, with a median net worth of $230,200 compared to just $4,300. The net worth of both minority and of low-income homeowners is both about 40 times more than those of similar renters. Even though renters in the top income quartile have a median net worth of $60,700, that of top quartile owners is seven and a half times higher at $461,600.

Part of this wide disparity reflects self-selection – those most motivated to save and invest are also likely most motivated to own homes and start out as homeowners earlier in their life-cycles. It is difficult to control for this self-selection bias because standard datasets do not ask questions that might help distinguish between those who do and do not have such motivations. Even if such questions were asked, it would be hard to quantify responses. In one study that attempted to use prior period savings and investment among renters as a predictor of future transitions to homeownership and correlation with later housing wealth, the authors did not find a statistically significant effect (Di et al. 2003).

That same study found that homeowners' greater wealth accumulation persisted even after obvious factors that might have caused owners to have more wealth were controlled for, including starting wealth when they first transitioned to ownership, income, education, and age. The main reason that those who invest in housing likely accumulate more wealth (even after subtracting equity borrowing which they can tap but renters cannot) is that homeownership presents a unique opportunity to earn a leveraged return on investment. Few households would be able to, or do, get credit to acquire stocks or bonds. But a majority of households are able to get mortgage credit at least at some point in their lives. Though just 20 years ago, 20 percent or greater down payments were the norm while 10 percent down payments were uncommon and down payments of 5 percent or less were rare, by the middle of the 2000 decade down payments of 10 percent were common and of 5 percent or less becoming so. Among first time homeowners in 2007 that bought in 2005 or later, 23 percent had less than 10 percent equity in their home and 12 percent had less than 5 percent. Comparable shares in 1997 (first time owners who bought in 1995 or later) were 18 percent and 8 percent (Department of Housing and Urban Development, 2007 American Housing Survey.)

Leverage provides an opportunity to translate small nominal or real gains in the value of housing into much greater ones. Even a 20 percent down payment boosts returns fivefold and a 5 percent down payment twenty-fold. The non-trivial fraction of borrowers who put no money down at purchase are in a position to benefit from large potential returns relative to whatever minimal transaction costs they incur. Leverage also means that while upside potential is unlimited, losses are capped at the amount of money put down. (Cross-sectional studies of differences in the wealth of owners and renters also do not control for the fact that those who fail in ownership (and reduce the wealth they may have accumulated) show up as renters. Thus, cross-sectional differences, even if they control well for income, education, and other factors, overstate the benefit to homeowners and disguise the very real fact that housing depreciates as well as appreciates in value at different points in time.)

Of course, other items must be considered. There is a cost of capital, transaction costs are much greater for buying and selling homes than for moving among

rentals, and the tax treatments of ownership and rental housing are different. Thus, the proper way to compare the costs of owning and renting is through a user-cost framework. Formally, the use cost of capital (U_c) for homeownership summed over n years for each of years "i" and purchase year "0" is:

$$\Sigma U_c = \{(1-t)[m_i + P_i(pr)_i] + P_i(d_i + op_i) + P_0(1-\alpha)(a)_i + pmi_i\} + P_i(tr_o + tr_n) + B_r(tr_r) - [g + t(nhd)],$$

where P_i is house value in year "i;" $g = (P_n - P_0)$ is house value in sale year minus house value in purchase year; t is owner's marginal tax rate; m is mortgage interest paid annually; pr is annual local property tax rate; d is annual depreciation rate of the housing stock; op is operating costs, including maintenance, repairs, and insurance; pmi is annual cost of mortgage insurance if any; upb is unpaid principal balance; tr_0 is transaction costs as a share of house value in any years the mortgage was refinanced; a is the rate of return on alternative investments, usually stocks or bonds; α is the percent of the house value financed; and nhd is nonhousing tax deductions taken by the owner.

While all the elements in the calculation have an impact, those which dominate the user cost (and the relative costs of owning and renting for that matter) are price changes and the amount of leverage. Under exceptional circumstances, interest rates can also play a pivotal role, as when they soared in the early 1980s. But in the normal course, it is by how much home prices go up or down that makes the big difference. Indeed, backwards looking expectations about home prices (home prices will go up or down as much in the future as they did in the recent past) is credited with creating periods in which prices are driven well ahead of rents as households make a rough user cost calculation in their head before they decide how much they are willing to pay now to reap the rewards of expected appreciation later (Case and Schiller 1988, 1989; Glaeser et al. 2008).

4.2.3 The rising tide of mortgage debt

Aggregate home equity as a share of aggregate housing wealth declined over the course of the 1990s (and until home prices peaked nationally in 2006) both because average down payments declined and because owners borrowed against their equity as never before. After that time, equity borrowing slowed. But by 2008 lenders were demanding larger down payments and the aggregate debt outstanding held steady while the aggregate value of housing assets deflated. As a result home equity as a share of house value eroded even more (Figure 4.6).

The willingness of borrowers to start out with lower debt and then take on higher amounts of debt, and a larger share of mortgage debt relative to their home values is showing up across age groups in their cohort mortgage-debt (Masnick et al. 2006). Comparing homeowners in 1990 and 2000, older age groups have shown an increasing propensity to borrow, increasing both their debt balances and the age at which they can expect to be mortgage-free (Figure 4.7). This shift toward greater indebtedness later in life may mean that these cohorts will still be carrying heavy debt loads past the peak earning ages of 45–54 and even into retirement



Figure 4.6 Aggregate owner's equity as a share of household real estate (percent).

age, forcing them to work longer, sell their homes, or find an alternative way to support continued high living expenses as their income declines.

4.3 Home Equity Extraction

Unlike other forms of wealth in which it is usually possible to sell fractional shares to raise cash, the only way to extract equity from homes is to either sell a home and purchase a home of lesser value (downsize) or borrow more against home equity. Furthermore, the transaction costs of buying and selling homes are enormous relative to selling, say, stocks or bonds. Financial asset sales involve small commissions and fees while the services of a real estate broker alone typically amount to several percentage points of the selling price, not to mention moving costs, legal costs, and the closing costs on the next home if continuing as an owner. To tap equity, therefore, owners must either downsize or borrow against their home equity. This raises the possibility that housing wealth will have different effects on consumer spending when more homes are being sold and when home equity borrowing is more vigorous than when they are not, especially for households that lack savings or other assets they can sell to spend from newfound housing wealth.

Thus, it is worth taking measure of the full extent of home equity borrowing over the recent past. The ability to tap home equity as never before and at a time when interest rates were historically low in nominal and real terms, as we will see below, appears at a minimum to have pulled forward some of the long-term effects of housing wealth on consumer spending and may even have increased it as the price discovery process added to households' perceived wealth. In theory, choking off home equity borrowing should have a similarly compounding depressing effect, though this has not been studied yet in the recent period.

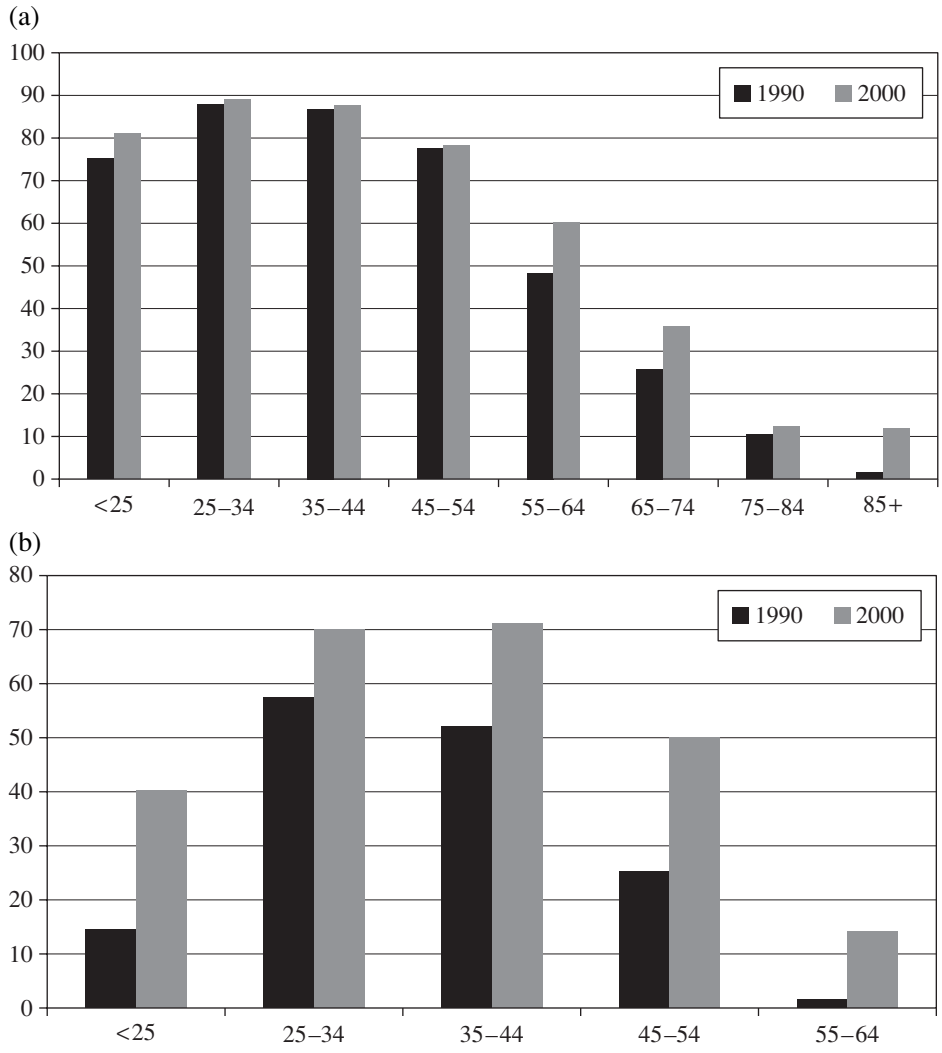

Figure 4.7 (a) Share of homeowners with housing debt (percent). (b) Median house debt (thousands of 2001 dollars).

4.3.1 Forms and trends in extractions

Former Chairman of the Federal Reserve Board, Alan Greenspan, viewed home equity extraction as so important that even while the sitting chairman, he co-authored a paper that produced a set of consistent time series of home equity extractions. He grouped these into realized capital gains upon sale, equity extracted through paying off one mortgage and replacing it with a larger one, and second mortgage borrowing (Greenspan and Kennedy 2005).

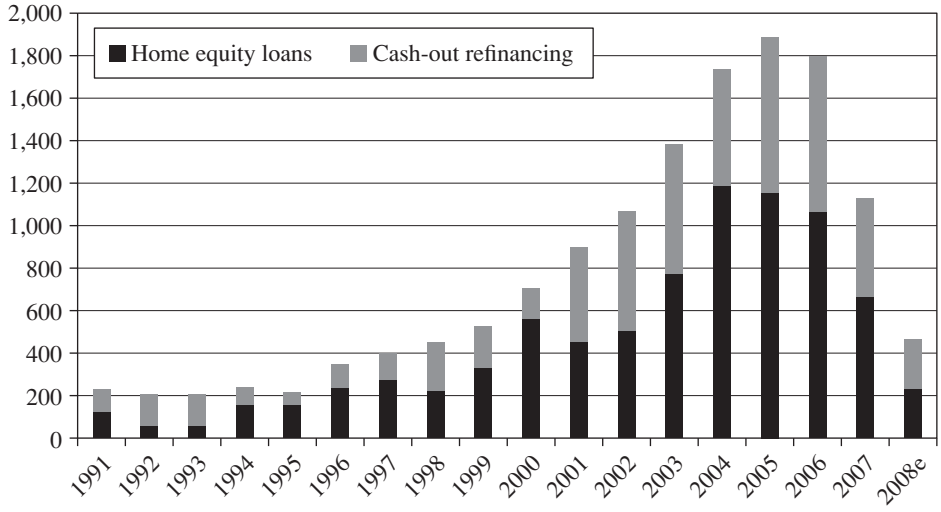

Figure 4.8 Home equity extracted through borrowing per capita (2007 dollars).

Some simple charts tell the tale: the amount of home equity extraction through borrowing soared during the 2000s in a truly epic manner (Figure 4.8). In 2005 total real mortgage equity extracted through home equity loans and cash-out refinancing was $1,880 for every adult and child in the USA, nearly ten times the level in the early 1990s. Though equity extraction through home equity borrowing peaked in 2004, and cash-out from refinancing peaked in 2005, neither dropped significantly until 2007, and even then the combined total still amounted to $1,136 per capita.

The velocity of home sales also reached new levels, unlocking additional stores of home equity and converting it to cash in the pockets of consumers (Figure 4.9). In 2005 realized capital gains on sale reached almost one trillion dollars. While most of these proceeds were likely put towards a down payment for the next home purchase, if one is to believe a recent 2003 National Association of Realtors (NAR) survey, 18 percent of net sale proceeds are put to other uses, which in this case amounts to nearly $180 billion (Greenspan and Kennedy 2007). However, this too has done a recent about face, dropping by half by 2007.

4.3.2 Reported home equity borrowing spending patterns

Surveys of how households use cash that is freed up through home equity borrowing are instructive. According to the Surveys of Consumers, in 1997 home equity loan borrowers used proceeds to repay other debts 61 percent of the time, and paid for home improvements in 45 percent of cases. The shares were reversed for home equity lines of credit, with 49 percent using proceeds to repay other debts, and 69 percent paying for home improvements. Thirty-seven percent of line borrowers,

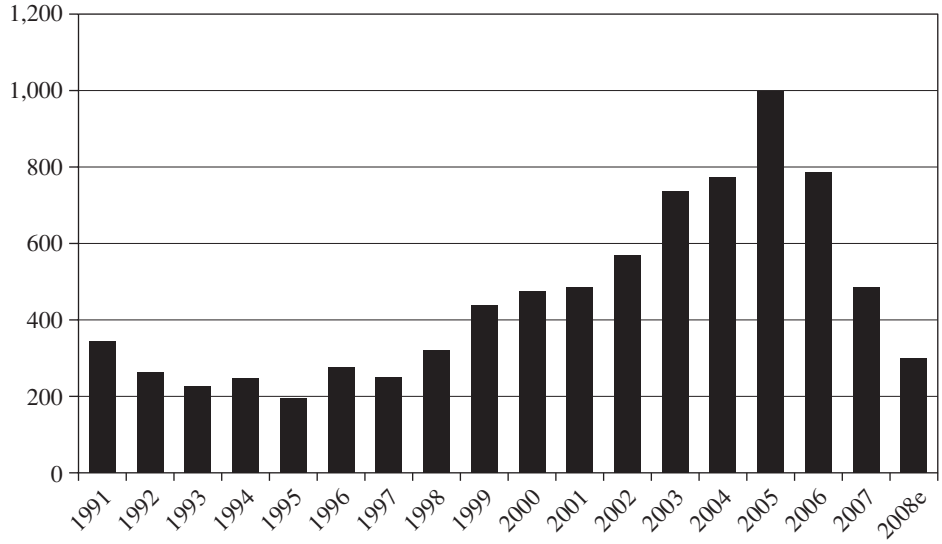

Figure 4.9 Home equity extracted through home sales (billions of 2007 dollars).

and 6 percent of loan borrowers, purchased cars, while other consumer expenditure uses included education, medical and business expenses, and vacations (Canner et al. 1998). In 2001 and 2002, 51 percent of borrowers who took out cash when refinancing used proceeds to pay other debts, while 43 percent paid for home improvements and 25 percent used proceeds for consumer expenditures. The dollar share put toward home improvements was larger, at 35 percent, compared with 26 percent for debt repayment and 16 percent for consumer expenditures (Canner et al. 2002).

It is also revealing to consider how home equity is used by those in extreme financial distress to avert disaster by studying how consumers in bankruptcy used cash out. In an unpublished 2007 survey of 658 bankrupt homeowners and former homeowners, fully 43 percent said they had refinanced a mortgage and 32 percent had borrowed against equity at some point before filing. Though some borrowers cited changing their loan terms as a motivator, the major reason given for taking out post-purchase loans was debt consolidation. That is, 62 percent of home equity borrowers and 53 percent of refinancing owners who filed for bankruptcy first used home equity to pay down other debts. Other reasons for tapping equity included paying for home improvements (48 percent of home equity borrowers and 28 percent of refinancing owners), paying off medical bills (17 and 13 percent respectively), financing a business (11 and 6 percent), and getting cash for day-to-day needs (2 and 5 percent).

These survey findings and descriptive results, however, leave open the question as to whether the additional spending would have occurred anyway in the absence of home equity borrowing. In theory, rising wealth should trigger further spending regardless. Households can borrow in other ways to finance consumption and investment when they have greater wealth. While borrowing against home equity is usually less expensive because it is secured and tax-advantaged, there are

other ways to borrow, and many households can simply spend more from current income and save less or sell other assets for cash. Nevertheless, given the important role that debt plays in financing consumption, and considering the low savings rates and thin holdings of nonhousing assets among many households in the USA, it is not unreasonable to want to test for possible effects of freeing liquidity constraints on housing wealth effects.

4.4 Housing Wealth Effects

The theoretical exposition and empirical testing for wealth effects is far more formal than the simple caricature it is reduced to for communication to lay audiences. The notion that consumers spend more as their wealth increases, while intuitive, is rooted in life-cycle theory. This theory also explains why consumers tend to borrow earlier in life and later save more.

The most direct antecedent to life-cycle theory was the permanent-income hypothesis posited by Friedman (1957). Friedman put forward the theory that consumers base their current consumption decisions in part on expectations of their future income. Ando and Modigliani (1963) extended this idea by positing that households smooth their consumption over their lifetimes by borrowing against future earnings early in life, building wealth and repaying debts in the middle of life, and spending down wealth and using government transfer payments late in life. More specifically, life-cycle theory holds that current consumption (C) of any individual household i is a function of life expectancy (LE), expected labor income and government transfer payments YE, wealth entering the period (W), and a personal discount rate (D) that captures time preference for consumption. In other words, at any time t:

$$C_i = LE_i + YE_i + W_i + D_i.$$

There are several observations to make about this formalization. First, notice that it refers to an individual household. The theory holds that each household will have its own expectation as to how many years it will be until each member in the household dies, what their expected income from labor and transfers will be, a known level of wealth, and an individual time preference for consumption today versus consumption in the future. Thus, approaches that use macroeconomic methods to estimate wealth effects implicitly assume that the aggregate data reflect millions of individual choices and expectations.

Notice also that this formulation does not distinguish between different forms of wealth. Thus, the model is largely mute on the question of whether different forms of wealth might, for any number of reasons, have different effects. But also notice that life expectancies play a pivotal role. The model assumes that households smooth their consumption over the expected remaining period of the lives of its members. Thus, if there are differences (and there are) in the average ages of people with different assets, the model does imply a higher wealth effect for assets held by older people on average (less time left to spend it over their lifetimes). Finally, note that current period wealth does play a role so that as overall

wealth in a nation increases, over time the wealth effects should be larger. Thus, though simple, the model does generate specific predictions.

This theory, like all, is an abstraction from reality. One of the important simplifying assumptions is that consumers do not face any liquidity constraints. In fact, the model basically assumes that consumers have unimpeded and costless access to perfect capital markets. This, of course, is not the case. There are many barriers to accessing credit markets and there are costs of tapping them. Furthermore, these barriers and costs vary over time.

Another important simplifying assumption is that households plan to spread out their savings and consumption so that the last householder is penniless on the last day of his or her life and not a day sooner. This plan of course would be difficult to get right even if one intended it because lifespan is uncertain and difficult to predict. In addition, it does not take into account motivations many have to bequeath their wealth to heirs or charities. In practice, it is clear that many people do have a motivation to bequeath wealth (Browning and Crossley 2001). Indeed, far from being smooth, consumption over the life-cycle is lumpy and not characterized by the amount of borrowing early in life and savings in middle age predicted by the life-cycle model (Courant et al. 1984). Nevertheless, several microeconomic estimations of wealth effects have found that these effects are smaller among younger than older consumers, as the theory predicts (Fellowes and Mabanta 2007; Li and Yao 2007).

In reality, the model abstracts from a spate of uncertainties that prevent actual smoothing of life-cycle consumption (Hubbard et al. 1994). People do not know with certainty how much they will earn in the future, when and for how long and how many times they will experience employment gaps, when and for how long they will pair up with additional earners in a household, how long they will live, their medical expenses, and what the returns to their investments will be. Nor do these models take account of findings that mental accounts are managed differently. Thaler (1990) found that individuals form "mental accounts" and treat the accounts for current income, current assets, and future income differently. He found that the marginal propensity to consume from current income is close to unity, from future income near zero, and from current assets somewhere in between. This helps explain a key finding not predicted by the life-cycle model: consumers spend more heavily from windfall current income gains than from increases in current asset values and do not spread out windfall spending smoothly over time (Courant et al. 1984).

All of this notwithstanding, the simple intuition of the model is compelling. And testing of it has produced results largely – though by no means entirely – consistent with the theory's predictions. Macroeconomic studies, especially, have found a relationship between wealth gains and consumption. In some cases, the overall effect is surprisingly close to what the model would suggest ought to occur in the aggregate given the average age of consumers and published life expectancies. Belsky and Prakken (2004), for example, find a 5.5 cent marginal propensity to consume from a dollar of housing wealth which accords with average ages and life expectancies. Moreover, it is most common to find wealth effects in the 3–7 cent range (Poterba 2000).

Others have balked at the notion that these empirical results provide confirmation of life-cycle theory. Poterba and Samwick (1995) have posited that future

expectations, not actual stated values of wealth, may matter most. Morck et al. (1990) have argued that asset prices are correlated with future output so higher asset prices may just be a leading indicator of future output that governs consumption. Romer (1990) argued that it is consumer confidence that influences both spending from wealth and overall consumption. Less refuted is that there is an empirical effect of aggregate wealth gains on aggregate consumer spending under most specifications and in most places.

There have been many ways wealth effects have been tested and wide differences in results with respect to the magnitude and timing of effects, the impact of liquidity constraints and home equity borrowing costs on effects, if effects are symmetrical when home values are rising or falling, and if they differ in timing and magnitude from nonhousing wealth effects. Each of these is discussed below.

4.4.1 Approaches to testing and estimating the effects

There are two principal methods used to estimate housing wealth effects. One fits models to macroeconomic data while the other fits them to microeconomic data. Within these broad categories, a host of different model specifications and variables are utilized and applied to different datasets, over different timeframes, and in a variety of different countries. It is customary to use a measure of personal consumption expenditures even though, at least in the USA, such a measure does not cleave precisely to theory. In fact, personal consumption expenditures include durable good spending when what should be included to be consistent with theory is the imputed flow of services derived from the stock of durable goods (Belsky and Prakken 2004). The accuracy of home price measures, which are at the heart of testing for a housing wealth effect, is subject to question. In the USA the three most widely used measures – two of them based on repeat sales and one on the median of homes sold through the Multiple Listing Services maintained by state and local associations – differ in their volatility and range. Choice of measure, or making an implicit choice by using a government series like the Flow of Funds account that estimates aggregate changes in housing wealth, makes a difference. The same is the case for many other variables, including the values of corporate equities.

Many macroeconomic models take a log–log form. In this specification, the coefficient on the housing value variable can be directly interpreted as the percent change in monthly, quarterly, or annual consumption brought about by a monthly, quarterly, or annual percent change in housing value. Not surprisingly these coefficients, in all studies that find an effect, are always a fraction since the spending down of wealth is parceled out over a considerable period of time (which theory predicts is based on life expectancies) and added wealth does not cause people to spend more than the addition. A host of different controls are included to account for other factors that drive changes in consumption, but the most notable and important are labor income, transfer payments, and asset income.

In the context of microeconomic analysis, the measures of spending used depend on the specific question asked rather than on national income and product accounts which are heavily massaged by government agencies to provide a basis

for macroeconomic analysis. In these microeconomic models it is also common to use more readily available homeowners' estimates of value rather than actual revealed market prices. In some respects, though, this has the advantage of gauging people's perceived values and, in the absence of refinancing or selling, it is these perceived values that may well govern spending. Also, many surveys that contain detailed information on wealth also contain detailed information on savings and different categories of assets, but do not have much information on consumption. Studies using these surveys look mostly at the effect of changes in home values on savings and portfolio composition (Haurin and Rosenthal 2004). Still, a reduction in savings is tantamount to an increase in current consumption.

4.4.2 The magnitude and timing of the effects

There are two ways of expressing the magnitude of wealth effects. The elasticity of consumption with respect to housing wealth is the percent change in spending brought about by a 1 percent change in house value. The marginal propensity to consume (MPC) is the aggregate amount by which consumption increases relative to aggregate wealth and is usually expressed as a number of cents on the dollar. The MPC is therefore influenced not only by the elasticity of consumption but also by the ratio of wealth to consumption at any point in time.

The overwhelming majority of studies find a housing wealth effect and the size of the impact is material. However, there is considerable variation in the magnitude of these effects, from no impact to large ones. The smallest impacts were found in microeconomic studies by Skinner (1989) and Englehardt (1996). Using household survey data in the USA covering the period 1969–1979, Levin (1998) for example, did not find a statistically significant relationship between housing capital gains and the marginal propensity to consume. Lettau and Ludvigson (2001) found essentially the same thing using a macroeconomic approach, and Tan and Voss (2003) the same using data from Australia. Two studies of the influence of wealth expectations also produced no effect (Thaler 1990; Hoynes and McFadden 1997). But these studies are the exceptions.

The Federal Reserve of the USA has been estimating wealth effects since the 1960s. These estimations were based on models that constrained the housing wealth effect to two times the stock effect through the early 1990s. These estimates found that the marginal propensity to consume from housing wealth was about 6 cents in 1978, 8 cents in 1983, and 7 cents in 1985. After lumping housing wealth in with all other forms of nonhousing wealth in revisions to the model made in the early 1990s, the constraint on the size of the nonfinancial wealth effect relative to the stock effect was lifted. After this revision the Federal Reserve found that this effect was about 7–8 cents. Belsky and Prakken (2004) found a 5.5 cent effect in the USA when modeling macroeconomic data dating back in some cases to 1960. They found that housing reached fourth-fifths of these long-run effects within 1 year. Case et al. (2005) used data for US states from 1982 to 1999 to estimate the effect in the USA and found an elasticity of 0.05–0.09 percent. Kishor (2007), examining US macroeconomic data from 1952 to 2002, found a marginal propensity to consume from housing wealth of 7 cents on the dollar. Cross-country comparisons

using macroeconomic models are consistent with these effects. Case et al. (2005) across 17 OECD countries found housing wealth effect elasticities of between 0.11 and 0.17. Looking at OECD countries, Ludwig and Slok (2002) found similar results. Sierminska and Takhtamanova (2007), using microdata on wealth, found that elasticity of consumption with respect to housing wealth was 0.12 in Canada, 0.10 in France, and 0.13 in Finland. They report that Pichette and Tremblay (2004) found a similar value for Canada using a macroeconomic estimation. Tse et al. (2007) found an elasticity of 0.10–0.15 in Hong Kong from 1983 to 2005, and Kim (2003) found an elasticity of 0.229 from 1988 to 2003 in Korea. While these estimates clearly vary, effects in the 0.10 percent to 0.17 percent range for every 1 percent change in housing value are not uncommon, and low-end estimates fall in the range of 0.03 percent to 0.05 percent.

Microeconomic analysis has the benefit of enabling researchers to test for differences in wealth effects by subgroups. One might expect from the theory, for example, that spending from housing wealth will be lower for those with a stronger bequeath motivation but greater for the old without such a motivation because they have fewer years over which to draw down the increased wealth. Skinner (1989) found no propensity to increase consumption from changes in housing wealth among seniors, reflecting either strong bequest incentives or reticence to trade down or borrow to tap housing wealth. Yet Li and Yao (2007) find an increased propensity for seniors to downsize in response to home price risk. In addition, Campbell and Cocco (2007) found that in the UK higher home prices had a larger impact on the consumption of older homeowners than others. With respect to income, Fellowes and Mabanta (2007) found that lower income people in the US increase their borrowing as they age and that low-income seniors take on more revolving credit than younger low-income people. Haurin and Rosenthal (2004) used the Survey of Consumer Finance and the Longitudinal Survey of Youth to examine income differences as well. They found that a one dollar increase in home price appreciation raised debt from 13 cents to 16 cents for their full samples but by different amounts for three income groups studied.

4.4.3 Home equity withdrawal effects

Very little work has been published on the potential influence of relaxing liquidity constraints on the magnitude or timing of housing wealth effects. Recall that the life-cycle theory of consumption assumes that consumers have costless and unrestricted access to credit. This is, of course, not the case. Those with low credit scores have difficulty accessing capital markets, and access varies over time in response to cycles of tightening and loosening underwriting standards. Furthermore, interest rate movements can have a dramatic impact on how much consumers borrow to support consumption.

Canner et al. (2002) speculated that home equity withdrawals might have an influence on housing wealth effects because owners may discover their home is worth more than they thought when they refinance or sell. The idea homeowners will discover that their homes are worth more than they thought is supported by studies which have found that homeowners on average do underestimate their home's

value (Kain and Quigley 1972; Goodman and Ittner 1992). Thus, when they go to sell or refinance, owners may find they have more wealth than they thought and spend more accordingly. In addition, Canner and his colleagues (1998, 2002) contended that some homeowners are both liquidity constrained and have their wealth locked up in a home. Thus, the only way they can tap it is to sell or borrow against it.

The only study to directly test for separate home equity withdrawal effects in the USA found that home equity withdrawals had a significant but temporary effect of boosting consumption by about 5 cents for every dollar increase in liquidations (Belsky and Prakken 2004). Accounting for home equity withdrawals also increased the model fit. Given that the 5 cent effect found is smaller than the 25 cents on the dollar suggested by survey data in the USA of how much consumers say they spend on consumption, this likely reflects substitution of home equity borrowing for other forms of credit consumers would have used to spend from their greater wealth.

4.4.4 Time-series properties of wealth effects

Few studies have tested to see whether wealth effects are different when home values are going up than when they are going down. Most studies fit models that show wealth effects making a positive contribution to consumption during periods of increasing values and negative contributions during periods of falling values. The most convincing evidence that wealth effects may be asymmetric comes from a study by Case et al. (2005). This study found an asymmetric effect in six models of spending based on both data from 14 countries and the US states. Interacting the house value term with dummy variables for periods of declining and increasing prices consistently produced statistically significant differences in the coefficients on the wealth effect. Though the magnitude of the effects varied across the six models, the signs were consistent. Periods of decline produced negligible negative effects and periods of increases produced far larger and positive effects on consumer spending. However, Engelhardt (1996) found the opposite. Modeling panel data on households in the USA, he found that households reduced spending when real capital gains fell and did not change their spending much when they increased.

4.4.5 Differences from nonhousing wealth effects

Although a handful of studies find no or barely any evidence of housing wealth effects, the overwhelming majority do. Similarly, of studies that separately estimate housing and stock (corporate equity) wealth effects, the vast majority show a stronger housing than stock effect. The life-cycle consumption theory, with its punishing set of simplifying assumptions, leads to only one reason for a possible difference – the average age of the holders of different assets. But taking a more practical view of the set of factors that might cause the timing and magnitude of effects to diverge, there are several important differences between stock and housing wealth (Catao 2002; Green 2002; Belsky and Prakken 2004; Case et al. 2005).

First, stock wealth may be viewed as more volatile than housing wealth. If this is the case, one would expect spending from stock wealth to be lower and slower

to ramp up to its long-run effect because consumers feel they can count less on the permanency of stock than housing gains. If volatility does drive differences in wealth effects, more volatile stocks should also produce smaller wealth effects than less volatile stocks. Looking just at differences among stocks, Edison and Slok (2001) found this to be the case. Testing more directly for the impact of volatility and the degree of permanence in shocks to stock versus housing values, Kishor (2007) finds evidence that shocks to housing values were more permanent in the USA from 1952 to 2002 and that this helped explain the estimated 4 cent larger marginal propensity to consume from housing than stock wealth.

Second, differences in the tax treatment of housing and stocks could lead to differences in wealth effects. Specifically, the waiving of taxes on real estate assets at bequest might make those with a bequest motivation hang on to housing wealth longer than stock wealth. However, because spending is fungible, this is not a compelling argument. On the other hand, and more importantly, the waiving of capital gains taxes on sales of primary residences might increase the per dollar spending from a gain in wealth because that wealth is not reduced by taxes in the minds of consumers. Hence, the impact of tax differences is ambiguous, although it tilts towards a larger wealth effect for housing than stocks.

Third, price discovery is less certain and more costly in housing than stock markets (Case et al. 2005). Heavy volumes of stocks are traded daily, and one can follow the value of a stock literally minute to minute. Houses on the other hand are heterogeneous and trade infrequently. This makes it more difficult to get an accurate assessment of house values. Typically, owners have to incur appraisal costs to get a decent approximation. Although there are now websites that purport to show daily changes in individual home values, these are not likely accurate, especially during times when homes are especially thinly traded such as during the sales slowdown that enthralled the USA in 2007 and 2008. The greater ease in discovering stock prices, though, has an ambiguous influence on wealth effects because it mingles with differences in stock and home price volatility. If in fact volatility, as the evidence suggests, is a significant influence on the magnitude and timing of effects then the impact of sudden movements in stock markets will be discounted and of movements in housing amplified (but in the case of homeowners only after they incur the costs to get a clearer reading on their home's value).

Fourth, and linked to price discovery, is liquidity. Selling stock incurs far lower transaction costs and portions of stock holdings can be readily sold. To tap home equity requires either selling a home and buying one of lesser value or borrowing against home equity. Both actions are more costly than selling stocks, and the latter action involves making a simultaneous decision to take on debt. However, in theory, households that have greater housing wealth and want to spend from it can sell stocks to do so or use other forms of borrowing. To the degree that borrowing against home equity is less costly it is a preferred form of borrowing if a decision is made to finance consumption. Still, those without stocks to sell and disinterested in borrowing to finance consumption may forgo spending out of housing wealth gains in a way that they would not for stock gains. Liquidity considerations, therefore, at least for some, are likely to blunt housing wealth effects relative to stock effects, all else being equal.

Fifth, as pointed out by Thaler (1990) and noted above, some forms of wealth may be framed in the minds of their owners as being for long-term savings and others for current use. Poterba (2001) develops this notion specifically in the context of stock wealth effects, invoking it as a possible reason for his finding that wealth effects are larger for stocks held directly than for stocks held in retirement accounts. In the absence of information on the mental accounting tendencies of consumers with respect to the different assets they hold, the influence of any differences in housing and stock mental accounting are ambiguous.

In sum, there are many reasons to expect that housing and stock wealth effects might be different, but in many cases the impact of the drivers of these differences are ambiguous. On the margins, these reasons tip towards expecting stronger and faster housing wealth effects because both tax treatment and volatility favor larger housing wealth effects.

In the end, though, the question of if and in what direction housing wealth effects differ from stock wealth effects is an empirical question. And the answer to that question is that the majority of studies that have tested for differences have found housing wealth effects to be much greater than stock wealth effects. These studies include the Federal Reserve (Brayton and Mauskopf 1985), Bank of England (2000), the International Monetary Fund (Ludwig and Slok 2002), Case et al. (2005), Tse et al. (2007), Hrung (2002), Bayoumi and Edison (2003), Kim (2003), Pichette (2004), Benjamin et al. (2004), Sierminska and Takhtamanova (2007), Bhatia (1987), and Kishor (2007). Many of these papers estimate housing and stock wealth effects in multiple countries. Both in the USA and abroad, using microeconomic and macroeconomic data, these papers often find housing wealth effects to be at least two times and often four or more times greater than stock wealth effects. Indeed, in many stock effects are found to be negligible but housing wealth effects are found to be on the order 0.7–0.17 percent change in consumption for every percent change in housing value. Against these studies are a few that find smaller housing wealth effects (Berg and Bergstrom 1995; Levin 1998; Boone and Girouard 2002; Dvornak and Kohler 2003). Belsky and Prakken (2004) did not find a material difference in the magnitude of the effects, but did find that housing wealth effects reached their long-run magnitude much faster than stocks, consistent with the view that consumers view housing gains as more lasting so wait less to start spending from these gains.

Conclusion

After lifting the US economy for years following the 2001 recession, housing wealth effects reversed in 2007. While most of the studies reviewed above imply that the drop in US home values and home equity withdrawals will drive down consumption spending via the housing wealth effect, the single study that has tested for asymmetries suggests that the impact going down maybe muted relative to the large boost in spending going up. Indeed, Case et al. (2005) found historically negligible effects of falling prices on consumption in the USA. For policy makers, uncertainty around how much housing wealth effects may run in reverse during down markets is unwelcome. It leaves economic policy makers and business decision makers alike uncertain just how much pressure consumer spending will come under.

At the broadest level, the fact that rising housing wealth lifts consumption when prices are increasing (as the preponderance of evidence suggests) is consistent with the life-cycle view of smoothing consumption over the life-cycle. But its close association in the USA over much of the period after 2000 with the tapping of home equity to produce these effects has raised a raft of public policy concerns. First, it has resulted in what most feel is a major substitution of mortgage debt for consumer debt. As a consequence, lenders have less of a cushion against losses and defaults during periods of price declines and borrowers less recourse to restructure their debts. In addition, consumer debt is more readily discharged in bankruptcy than housing debt. This leaves borrowers more vulnerable to financial meltdowns from which they cannot recover. Second, it leaves homeowners more vulnerable to scam artists that try to press owners to keep refinancing while packing fees into the new mortgage each time. Third, it means that people, as we have seen, are borrowing against home equity later in life. This means many will have to service debts later into retirement at a time when most are on a fixed income. This will place further pressure on social safety nets. Fourth, it leaves a key source of consumer liquidity tied to house values, amplifying the systemic risks posed by home price declines. Smith and Searle (2008) have also taken note of the fact that less and less of the proceeds of home equity borrowing are finding their way back into housing and more and more into consumption. This long-term trend is viewed as corrosive of wealth accumulation.

Leverage is all important to the absolute and percent return on housing assets. Thus, the tightening of credit standards in 2008 has reduced upside potential returns on investment for new entrants to the market and has elevated downside risks. By leveraging less, the value of homes purchased will be lower all else being equal, and thus the ratio of household wealth to consumption and with it the marginal propensity to consumed from wealth. This could be a drag on the positive influence of home price growth on consumption once the current turmoil has passed.

Summing up, housing wealth effects make a difference to the economy, and the appreciation or depreciation of housing values which drive them make an enormous difference to the balance sheets of over two in three American households. Efforts by policy makers to avoid large swings in values would produce more stability in the economy while providing an opportunity to build wealth in housing with less risk, though also with potentially lower reward.

Acknowledgment

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Chapter 5

The Rise in Home Prices and Household Debt in the UK: Potential Causes and Implications

Matt Waldron and Fabrizio Zampolli

5.1 Introduction

Over the two decades since 1987 home prices and household debt in the UK rose substantially. In this chapter we consider the potential causes of these developments and their implications for monetary policy.

The rise in home prices and debt was accompanied by some large and potentially long-lasting changes to the macroeconomic environment faced by UK households: the inflation rate has fallen to a low and stable level; long-term real interest rates have also fallen to historical lows; the structure of the population has changed as the baby boom generation has grown older; the rate of household formation has increased; and the economy has become more stable with lower output volatility and lower unemployment. To what extent did these changes contribute to the observed increases in home prices and household debt over that period?

We also consider two questions that have been topics of recent research at the Bank of England. First, do changes in home prices necessarily lead to changes in consumption? Second, has a higher level of debt made the economy more sensitive to interest rates or vulnerable to shocks?

The paper begins by reviewing the developments in the housing market and the associated changes in the balance sheet positions of UK households, drawing in particular on the latest data from the British Household Panel Survey (BHPS). The next two sections review what we believe are the most important drivers of the observed changes and discuss the potential implications of the boom in home prices and debt for monetary policy. Both of these sections draw on research work which has been carried out or is ongoing at the Bank of England. We draw conclusions in the final section.

5.2 Major Trends in the UK Household Sector

5.2.1 Aggregate trends

Between 1987 and 2006 total household debt in the UK has more than quadrupled to over £1.25 trillion. Primarily, this rapid increase in debt reflects a rise in borrowing secured on housing, but unsecured borrowing has also grown rapidly. Over the same period home prices have also more than quadrupled – by the end of 2006 the price of an average house had grown to over £170,000 compared to around £40,000 in 1987. (Calculated by the Nationwide on a mix-adjusted basis.) To a certain extent these changes can be explained by an increase in household disposable income over the same period. But, even after adjusting for higher household income, total debt (left-hand panel in Figure 5.1) and home prices (right-hand panel in Figure 5.1) increased by more than 50 percent.

Despite the rapid increase in household debt, the total net worth of UK households has grown over this period (left-hand panel Figure 5.2). Partly that is due to

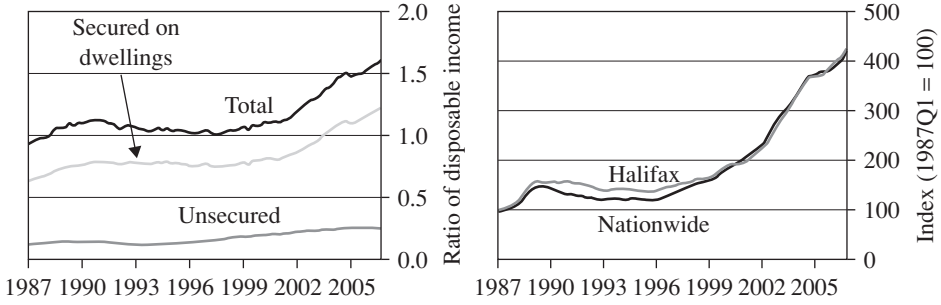

Figure 5.1 Household debt and home prices.
Source: (left) Office of National Statistics (variable reference: NNPP, NNRP), Bank of England (variable reference: VZRI); (right) Nationwide, Halifax

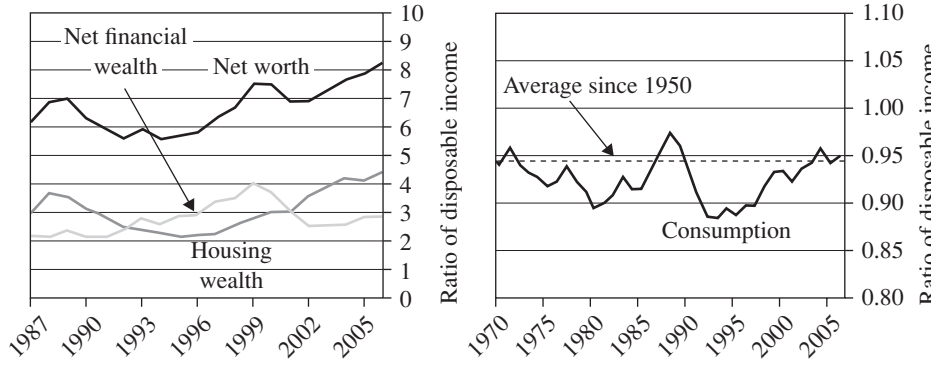

Figure 5.2 Household wealth and consumption.
Source: (left) Office of National Statistics (variable reference: CGRC, NNML–NNPP, CGRI, RPHQ); (right) Office of National Statistics (variable reference: ABJQ, RPHQ)

the sharp rise in home prices and consequently gross housing wealth, but it is also due to an increase in net financial wealth. The latter reflects both an increase in the value and quantity of financial assets owned by households. In fact, in aggregate over this period, households have been accumulating financial assets at almost the same rate as financial liabilities. The result is that, with the exception of the late 1980s and early 1990s when the UK economy experienced a boom followed by a recession, consumption as a share of income has increased only gradually and was only just above its historical average by the end of 2006 (right-hand panel of Figure 5.2). (See, e.g., Attanasio and Weber (1994) or King (1990) for a discussion.)

But the aggregate picture does not tell the whole story because there might be significant heterogeneity among households. In particular, it does not seem likely that the households accumulating the additional liabilities were the same as those accumulating the additional assets. In fact, the household-level data suggest that relatively few households simultaneously hold large amounts of both assets and liabilities. For example, the 2005 BHPS suggests that only 40 percent of households simultaneously hold both; and only 26 percent (15 percent) of households simultaneously hold more than £1,000 (£5,000) of both assets and debts. So, given these facts, it is important to examine the disaggregated picture.

5.2.2 Disaggregate trends

Figure 5.3 plots the median (the bars) and mean levels (the lines) of secured and unsecured debt by age from the BHPS.[1] There is significant heterogeneity within and between age groups, both in terms of the level of debt taken on by different households and the extent to which this has changed over time. The distribution of unsecured debt is particularly skewed (the right-hand panel of Figure 5.3). It is predominantly held by younger households[2] and, for most age groups, its mean comfortably exceeds its median. By contrast, most secured debt is held by middle-aged households, who are more likely to be homeowners and have

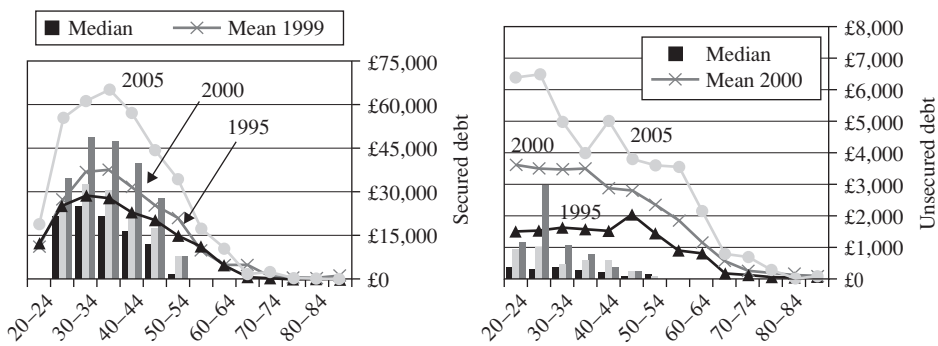

Figure 5.3 Secured and unsecured debt.
Source: BHPS (collected by the ESRC Research Centre at the University of Essex) and Bank of England calculations

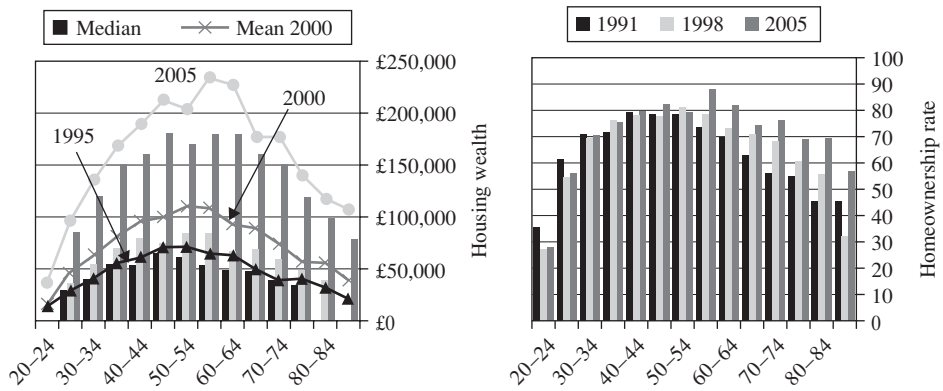

Figure 5.4 Housing wealth and homeownership rates.
Source: BHPS (collected by the Economic and Social Research Council Research Centre at the University of Essex) and Bank of England calculations

mortgages (the left-hand panel of Figure 5.3). It is households of these ages who have increased their indebtedness the most (see Waldron and Young (2006) for further discussion and analysis). Consistent with the aggregate data shown in Figure 5.1, the largest rise in secured debt took place after 1999.

Figure 5.4 shows that middle-aged and older households are more likely to be homeowners and tend to hold more housing wealth than younger or older households. Moreover, housing wealth boomed between 1999 and 2005 to the advantage of older generations in particular. Homeownership rates for younger households (20–29 year olds) are lower, having declined between 1991 and 2005. This probably explains why younger households collectively did not enjoy such large increases in housing wealth. The left-hand panel of Figure 5.4 also suggests that the distribution of housing wealth has become more skewed, which might be associated with the more pronounced decline in homeownership rates among younger, poorer, and less well educated groups.

The extent to which the growth in debt might pose repayment problems for individual households depends in part on how their overall asset and wealth position has evolved. The left-hand panel of Figure 5.5 shows that net financial wealth – the difference between a household's financial assets (excluding pension claims) and its liabilities – is negative for the majority of younger households and positive for the majority of older households. Figure 5.5 also shows that these differences have become more pronounced since 2000. If we include housing assets (the right-hand panel of Figure 5.5), most households have positive net worth.

To summarize, the rapid rise in home prices was accompanied by a rapid increase in debt. Higher home prices meant that new entrants to the housing market (i.e., first time buyers) have needed to borrow more to finance their purchase (Hamilton, 2003). Those trading up (i.e., moving to a larger and more expensive home) were also likely to have taken on more debt. Consistent with that, secured debt increased the most among young and middle-aged households, who were more likely to be first time buyers or to be trading up the housing ladder.

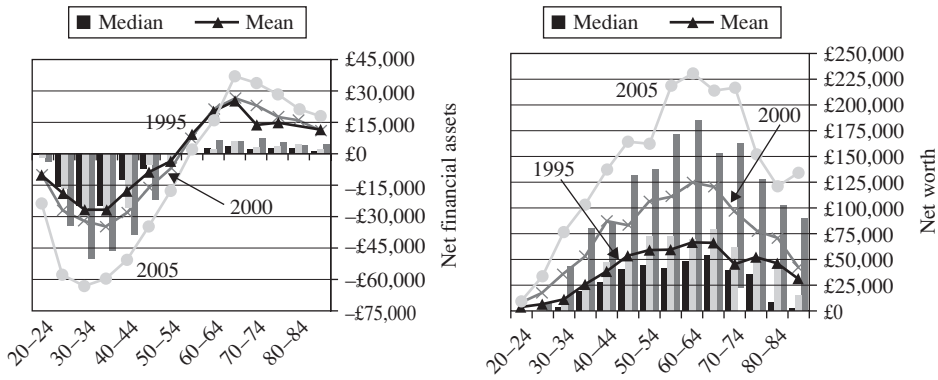

Figure 5.5 Net financial assets and net worth.
Source: BHPS (collected by the Economic and Social Research Council Research Centre at the University of Essex) and Bank of England calculations

But, at the same time, the ultimate sellers or those trading down (i.e., moving to a less expensive property) have been made wealthier by the increase in home prices. As such, these households were more likely to add the proceeds of house sales to their financial assets. In this way, higher home prices might have been associated with an increase in financial assets as well as higher debt (Nickell, 2004). Consistent with that, financial wealth increased among older households.

So, increased indebtedness has not been accompanied by a marked deterioration of the aggregate household sector balance sheet, but instead has been associated with higher home prices and a change in the distribution of financial assets and liabilities across households.

5.3 Structural Changes and Causes of Household Sector Trends

What can explain the aggregate and disaggregate trends described above? There are a number of candidate factors: the fall in the real interest rate, the fall in the inflation rate, demographic changes such as the baby-boom generation becoming older, and a less volatile and more predictable economy.

5.3.1 Potential drivers

Lower real interest rates
Real interest rates have fallen over the past two decades. For example, the three-year spot rate derived from the UK index-linked government bond market fell by more than one percentage point between 1987 and 2006. (See Anderson and Sleath (1999) for a discussion of how the Bank of England calculates both real and nominal UK government yield curves.)

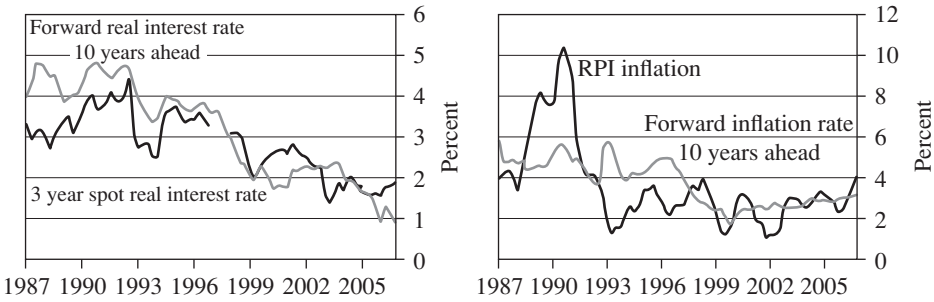

Figure 5.6 Real interest rates and inflation.
Source: (left) Bank of England; (right) Office of National Statistics (variable reference: CHAW), Bank of England

A lower real interest rate could support higher equilibrium levels of debt and higher home prices by lowering the cost of borrowing[3] and by lowering the real cost of housing. (Weeken (2004) uses a dividend discount framework to show that a fall in the real interest rate could account for a large part of the rise in home prices.) Importantly, measures of expectations for real interest rates in the future – the 10-year instantaneous forward rate in the left-hand panel of Figure 5.6 – also fell to the same low levels, implying that households might have expected low real interest rates to persist.

Lower inflation and more relaxed borrowing constraints
Inflation (as measured by the retail price index) fell by over 1 percent relative to 1987 and by over 5 percent from its local peak in 1990 (right-hand panel Figure 5.6). In addition, measures of inflation expectations derived from financial markets also fell.

To see why lower inflation might increase the equilibrium levels of debt and home prices consider a typical mortgage contract. Borrowers are required to make constant nominal payments over the life of the loan. When inflation and nominal interest rates are higher, repayments as a percentage of income decline more quickly over the life of the loan but are larger initially. That initial high repayment burden can restrict the amount that households can afford or choose to borrow. For example, a new mortgagor would have to devote around twice as much of their income to make the first repayment on an otherwise identical mortgage at 10 percent inflation than at 2 percent (left-hand panel of Figure 5.7). Equivalently, for a given initial repayment, the household could borrow around twice as much in the lower inflation world. (See, e.g., Campbell and Cocco (2006) or Barnes and Thwaites (2005) for a fuller discussion.)

If lower inflation had facilitated more borrowing, one would expect households to have borrowed more relative to their incomes than they used to. The right-hand panel of Figure 5.7 plots each decile of the loan to income (LTI) ratio for first-time buyers at the time they took out their mortgage. That is, at each point in time, each decile shows the percentage of first time buyers with lower LTIs than indicated by that decile. For example, the middle line in the chart shows how the median LTI

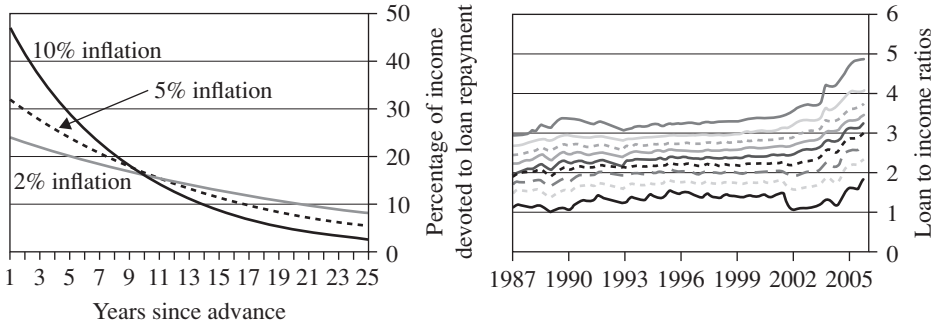

Figure 5.7 Credit constraints, mortgage contracts, and inflation.
Source: (left) authors' calculations; (right) Survey of Mortgage Lenders and authors' calculations

ratio for first time buyers changed over time. First time buyers' LTIs drifted up at all points in the distribution. This suggests that either lenders were prepared to lend households more relative to their incomes or that households chose to borrow more as their initial repayments were reduced in line with lower nominal interest rates. (LTIs grew more rapidly after 2002. However, over that period loan to value ratios have fallen, perhaps reflecting a trade-off between the two. See Fernandez-Corrugedo and Muellbauer (2006) for a discussion.)

Lower macroeconomic volatility

Not only did inflation fall but it also became less volatile. Similarly, aggregate output growth became more stable. This means that households may have benefited from a more stable and predictable economic environment than used to be the case (Figure 5.8; see also Benati, 2005). The associated reduction in uncertainty may have allowed households to reduce their balances of precautionary saving, making households willing to take on a larger amount of debt than in the past.

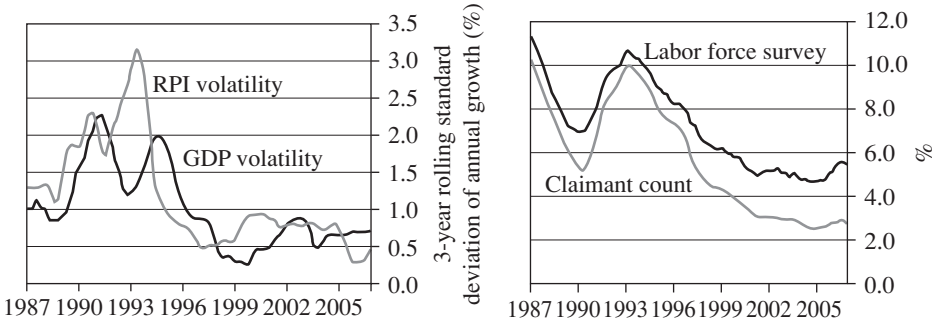

Figure 5.8 Macroeconomic volatility and unemployment.
Source: (left) Office of National Statistics (variable reference: ABMI,CHAW), authors' calculations; (right) Office of National Statistics (variable reference: MGSX, BCJE)

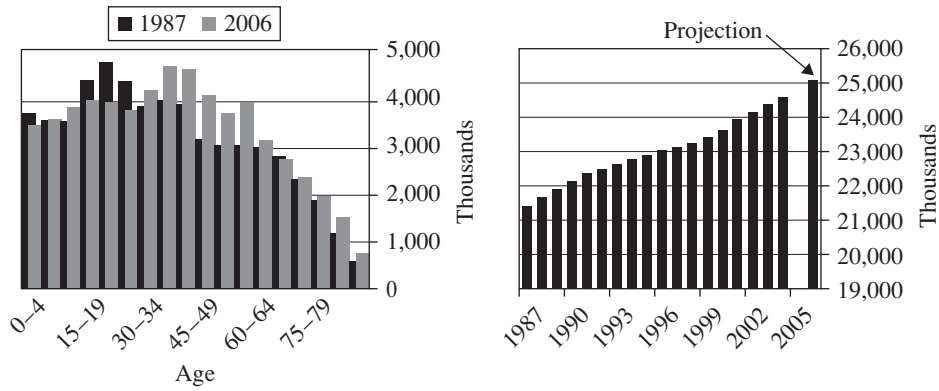

Figure 5.9 Population distribution and household formation.
Source: (left) Office of National Statistics; (right) Communities and Local Government, Scottish Executive

Demographics
Changes to the distribution of the population, for example as a result of an aging population and immigration, as well as higher rates of household formation might have contributed to stronger housing demand. Figure 5.4 suggests that middle-aged households tend to consume more housing than younger or older households. Hence, aggregate housing demand might also have been strengthened by higher demand for housing from the baby-boom generation as they moved through their 30s, 40s and 50s (the left-hand panel of Figure 5.9).

Due to higher divorce rates and lower marriage rates, there was a relatively rapid increase in the number of households (right-hand panel of Figure 5.9). In particular, the number of single households increased, reducing the mean household size. This ought to have increased the demand for housing because larger households can share living space. So, for a given number of individuals, the demand for housing would likely be higher if the average size of a household were smaller. This might also be expected to change the mix of housing demanded. (For example, a population with a larger number of small households would likely demand more flats than a population with a smaller number of large households. See Barker (2004) for a discussion.)

This list of factors that could explain the rise in home prices and household debt up until 2006 is by no means exhaustive. Over the past two decades, the abolition of mortgage payment tax relief and more competitive lending practises might also have affected home prices and debt. These are not the focus of this article.

5.3.2 The relative importance of various drivers

What is the relative importance of the factors highlighted above? A methodology for investigating questions such as this is to build a model of household behavior and experiment with changes in the variables that are an input to agents' economic

decisions. Ongoing research at the Bank of England is attempting to do just that. Building on earlier work by Tudela and Young (2005), one model that has been developed is a life-cycle overlapping generations (OLG) model of the household sector. This can be used to analyze the medium- to long-run consequences for consumption, debt, and home prices of changes in the real interest rate, in inflation, and in the structure of the population (the model is the same as used in Benito et al. (2006)). The analysis so far conducted with this model suggests that a lower real interest rate, provided it is perceived as permanent, is the relatively more important factor behind the rise in home prices and debt. Demographic change and lower inflation (which in the model causes a relaxation of borrowing constraints faced by households) do not appear to be as quantitatively important.

That the real interest rate is a potentially quantitatively important factor in the determination of home prices was also a conclusion of recent (and ongoing) research by Kiyotaki et al. (2007). Their model, which is calibrated to the US economy, features life-cycle effects and the use of land in the production of both houses and productive capital. In this model, the effects of changes in real interest rates are stronger the more intensive is the use of land in the production of houses (which means, were the model true, the effect would be stronger in the UK than in the USA). Furthermore and in line with our work, Kiyotaki and colleagues also find that a loosening of borrowing constraints has only modest effects, if any, on home prices. (Note that the model in Kiyotaki et al. (2007) is calibrated to the US economy and hence does not address the question of what has driven the changes in home prices and debt observed in the UK.)

The models used in this research are based on the explicit modeling of the welfare maximizing decisions taken by forward looking households along with the constraints that they face. A different (and complementary) approach for assessing the relative importance of the various potential drivers of home price and debt is to estimate and analyze an econometric model of the data. These models are normally less grounded in theory, but instead seek to measure empirical regularities observed in past data. Recent work by Cameron et al. (2006) employs one such model to investigate the recent rise in home prices in the UK. Unlike the quantitative theoretical models cited above, they find that a relaxation of credit conditions was a relevant factor in affecting home prices. The fact that credit constraints are found to be more important in empirical work than implied by theory-based models, is perhaps an indication that more research is needed to improve the realism with which credit constraints are currently modeled.

5.4 Macroeconomic Implications of Higher Home Prices and Debt

In this section we discuss the possible implications of higher home prices and debt for the economy, and monetary policy in particular. First, we discuss the link between home prices and consumption. Second, we consider whether the transmission mechanism of monetary policy may have been altered by the increase in indebtedness. Related to that, we also consider whether the economy had become more vulnerable to shocks.

5.4.1 The link between home prices and consumer spending

The outlook for consumption growth is of course one of many factors assessed by policymakers in forming a judgment on inflationary pressures and growth prospects. Home price inflation and consumption growth have tended to be closely associated in the past (left-hand panel of Figure 5.10), so strong home price growth is often seen by some commentators as a *cause* of stronger consumption growth. Yet this view can be misleading. Correlations do not mean causality and the strength of empirical correlations can change over time, making predictions based on them potentially unreliable. That possibility is illustrated by the right-hand panel of Figure 5.10, which shows that the correlation between real home price inflation and consumption growth fell rapidly between 2002 and 2005. Recent research at the Bank of England has looked at the relationship between home prices and consumer spending (Benito et al. 2006). This section reviews that research.

Common shocks

Shocks to preferences, productivity, the availability of credit or interest rates (in the case of a small open economy) are important reasons why home prices and consumption may move in the same direction. Indeed, standard economic theory predicts that home prices and consumption would both rise in response to a fall in long-term real interest rates. So, home price inflation and consumption growth would tend to be correlated even if there were no direct relationship between the two. But home prices provide additional channels through which changes in these shocks can be amplified and propagated through the economy, thus potentially strengthening the correlation between home prices and consumption.[4] The most important relate to the effect of home prices on the distribution of wealth, the collateral available to households for loans, and their balances of precautionary savings.[5]

Wealth redistribution

When home prices increase, wealth is redistributed from renters and those trading up (normally first-time buyers and young homeowners) to landlords and those

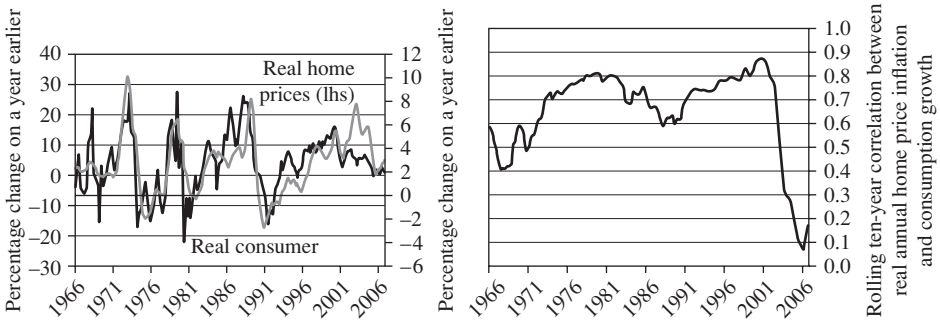

Figure 5.10 Home prices and consumption.
Note: lhs, left-hand side.
Source: Office of National Statistics (variable reference: ABJQ) Nationwide, authors' calculations

trading down (normally old homeowners). In aggregate, these gains and losses broadly offset so that there may be no aggregate wealth effect from home prices to consumption. But if the marginal propensity to consume out of wealth differs significantly across ages and groups, then the redistribution of wealth could have aggregate consumption implications. (An individual's marginal propensity to consume depends on a variety of factors including the degree of their impatience, their wealth, the amount and price of any credit available to them, the size of their family and the number of years they expect to live for.) Of relevance to that is the degree to which older generations care about younger generations (either through bequests or inter-vivo transfers). The redistribution of wealth would be smaller if older generations have strong altruism towards younger generations.

So, if the wealth redistribution channel is important, then we would expect – after controlling for income, interest rates, etc. – to observe large differences in the relationship between home prices and the spending of old homeowners, who are "long" housing, and young renters, who are "short" housing. The evidence on that is mixed. Using household level data Campbell and Cocco (2007) find evidence in favor. They report that the home price elasticity of consumption for old homeowners is 1.7 (i.e. a 1 percent increase in home prices leads to a 1.7 percent increase in spending), compared with an elasticity of zero for young renters. But Attanasio et al. (2005) use the same data set and do not find significant heterogeneity in the relationship between home prices and consumption in the two groups. Instead, they find that young renters and old homeowners both increase consumption in response to higher home prices. The authors attribute that finding to common shocks. In particular, if households expect productivity to improve and their incomes to increase at some point in the future, then housing demand and home prices would rise, as would the consumption of young renters. Unfortunately, it is not yet clear why the results from the two studies differ.[6] Overall, given the conflicting results in the literature, it is very difficult to say how important the wealth redistribution channel might be.

Collateral

Unlike many other assets, housing can be used as collateral for loans. When home prices rise, the amount of housing equity and hence collateral at homeowners' disposal increases. That can boost spending because, when there is more collateral, lenders are usually prepared to lend more at a lower rate of interest. So, the collateral channel can strengthen the correlation between home prices and consumption (Aoki et al. 2001).

The extent to which an increase in home prices, housing equity, and collateral boosts spending is likely to vary over time. In particular, the channel would likely be stronger if the interest rate at which households can borrow were more sensitive to the health of household balance sheets. In that case, an increase in the amount of collateral has a larger effect on the price of credit than it would have done otherwise. The strength of the channel would also depend on the collateral households already have at their disposal and on the price of unsecured credit (Bridges et al., 2006).[7] When borrowing is already supported by the widespread availability of collateral – notably, following a period of sustained home price rises – or if unsecured credit is cheaply available, then the impact of further increases in

housing equity and collateral on consumer spending should be more limited than when levels of housing equity are low or unsecured debt is more expensive.

Precautionary saving

Insurance markets are far from perfect so households tend to build up savings as a form of self insurance. Housing assets can form part of households' precautionary savings. For example, if a homeowner falls ill and this affects earnings, one option that could be available is to withdraw equity from the home to tide things over until earnings recover. As evidence of that, Benito (2007) uses household-level data to show that households are more likely to withdraw equity if they have experienced a shock (see also Parkinson et al. in press). So, as home prices and housing equity rise, the need to hold other forms of wealth for precautionary reasons may be reduced. That can provide further support to spending, and further strengthen the correlation between home prices and consumption.

The strength of this channel would vary in response to changes in perceived uncertainty. If households were to become more uncertain about their economic prospects, they may be less willing to run down their precautionary savings. In common with the collateral channel, the strength of this channel should diminish in line with increases in the amount of housing equity that households have. When households already have sufficient equity in their homes to satisfy their need for precautionary saving, additional increases in equity provide no additional insurance and so would be less likely to be associated with increased consumption.

What explains the weakening empirical relationship between home prices and spending?

Figure 5.10 shows that the empirical, reduced-form relationship between home prices and consumption has weakened over the past few years. One reason for that might be that the economy has been hit by an unusual combination of shocks over that period. But it is also possible that the channels discussed above have become weaker.

For example, the size of the redistribution of wealth between generations associated with a given change in home prices may have become smaller because of greater parental generosity. According to Tatch (2006), the proportion of first-time buyers under the age of 30 receiving financial help with their deposit increased from less than 10 percent in 1995 to nearly 50 percent in 2005.

It is difficult to assess whether the collateral channel has become weaker over the past decade. Higher home prices have meant that mortgagors have large amounts of housing equity at their disposal, which might indicate that they are rather less constrained than in the past. However, the health of household balance sheets may have contributed, everything else unchanged, to cheaper secured credit.

Over the past decade, the amount of housing equity at homeowners' disposal has risen substantially: at the aggregate level, net housing equity was one and half times as large as annual household disposable income in 1995, but was nearly two and half times as large by 2002, just before home price inflation accelerated (left-hand panel of Figure 5.11). It is possible, however, that the rise in net housing equity at the aggregate level was concentrated among certain homeowners. The right-hand panel of Figure 5.11 suggests that that has not been the case. By 2002

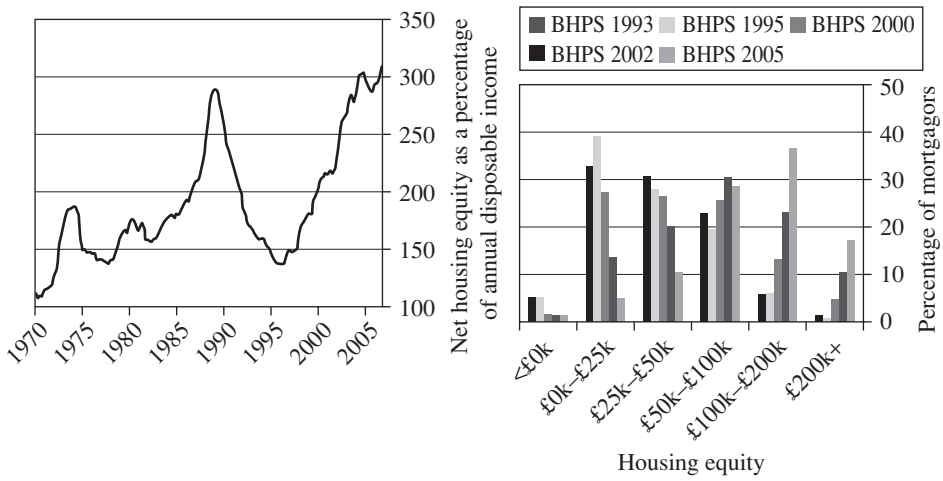

Figure 5.11 Housing equity and its distribution.
Source: (left) Office of National Statistics, Bank of England (variable reference: CGRI, VTXK, RPHQ), authors' calculations; (right) British Household Panel Survey, Bank calculations

the proportion of mortgagors with small amounts of equity in their homes was substantially lower than it had been in the mid-1990s. That is consistent with a broadly based rise in collateral at households' disposal and suggests that households were rather less constrained at the beginning of this decade than they had been prior to previous periods of rapid home price rises. In addition, a fall in the price of unsecured credit and a reduction in macroeconomic uncertainty may also have reduced the strength of the collateral and precautionary saving channels over the past few years.

Between 2004 and 2007, the spread between the rate at which households could borrow and bank rate fell (see, e.g., Bank of England *Inflation Report* August 2007). The substantial increase in housing equity may have contributed to that by reducing the individual and aggregate risks associated with secured lending. If true, that would be evidence of the collateral channel in operation, not of it having become weaker. However, during this period other factors such as changes in the lenders' sources of funding, increased competition and improved credit scoring techniques contributed to lower lending spreads. Assessing the relative importance of each of these stories is difficult, making it difficult to draw firm conclusions. In either case, lower spreads may have boosted consumption by reinforcing the substitution effects of declining long-term interest rates described earlier.

Overall, the Bank of England's research suggests that the link between home prices and consumption is a complex one. It is by no means the case that an increase in home prices would always be associated with stronger consumption growth. Indeed, we have discussed several reasons why the causal relationship between home prices and consumption may have changed over time. Rather, the strength of the relationship depends on the combination of shocks that the economy is experiencing. So, it should not be surprising if the reduced-form, empirical relationship between home prices and consumption were to change again at some point in the future.

5.4.2 What are the implications of increased indebtedness for monetary policy?

The higher level of debt prevalent today raises two important questions for monetary policy: has the transmission mechanism changed? And have households become more vulnerable to unexpected shocks?

The available evidence is inconclusive. On the one hand, analysis using household-level data suggests that the ability of households to smooth consumption in the face of shocks did not change as a result of higher debt. On the other hand, other analysis – mostly using aggregate data – suggests that economies generally become more responsive to shocks at higher levels of debt.

Benito et al. (2007) report evidence from the 1997–2004 waves of the BHPS, showing that consumers with high levels of debt adjusted their spending in a similar way to consumers with low levels of debt in response to news about their financial situation over that period. (Similar results have been found for the USA by Johnson and Li (2007).) This suggests that increased indebtedness did not make it more difficult for households to adjust to shocks. This finding is consistent with other evidence that households had a number of ways to react to changes in their financial circumstances without having to curb their expenditure. For example, they may have had access to housing equity (Benito 2007), unsecured debt (Bridges et al. 2006; Del Rio and Young 2006), and additional work opportunities (Bottazzi et al. 2007).

This evidence should not be overemphasized. The sample period for the analysis (1997–2004) was a period characterized by historically low macroeconomic volatility (see Figure 5.8).[8] So it is possible that most of the shocks experienced by individual households over this period were idiosyncratic shocks that affected them in isolation, rather than aggregate shocks that affected the economy as a whole. Alternatively, it is possible that some shocks were aggregate in nature, but relatively short lived. It is very likely that households would have more limited opportunities to smooth their consumption through a persistent aggregate shock. For example, they might find it more difficult to increase their borrowing or work longer hours during a general downturn, which may be accompanied by a contraction in the supply of credit and an increase in unemployment. In addition, the difficulties faced by households in such circumstances might be compounded by an accompanying endogenous fall in the prices of assets like houses and equities.

In contrast to the household-level evidence, aggregate time-series studies across different countries and over different time periods tend to find that high-debt economies are more sensitive to shocks than low-debt economies (Balke 2000; Catte et al. 2004). For example, a recent study by Calza et al. (2007) on a sample of OECD countries (including the UK and USA) finds that consumption is more responsive to monetary shocks in economies with more developed mortgage markets (as reflected by higher debt to income ratios, smaller deposit requirements for house purchase and a higher rate of equity withdrawal). It is not easy to rationalize this finding with economic theory. A priori, it would seem likely that households should find it easier to smooth consumption over monetary shocks in economies with more developed mortgage markets. One possible explanation – advanced by Calza et al.

(2007) and Girouard in this volume (Chapter 2) – is that a significant number of debtors are credit constrained. In this way, more developed mortgage markets are associated with a greater sensitivity of consumption to monetary shocks by making it easier for households to convert changes in asset values into consumer spending. That is, by strengthening the collateral channel.

Empirically, with reference to the UK, it seems unlikely that a large number of mortgage holders were credit constrained over this period. For example, only 14 percent of mortgagors in the 2007 NMG Research survey perceived themselves to be credit constrained. (The NMG Research survey is a survey of household balance sheets commissioned by the Bank of England. See Waldron and Young (2006) for a summary of results from the 2006 survey.) In addition, as discussed previously, the collateral channel may be weakened by wider availability of unsecured credit, which might go hand in hand with a more developed mortgage market. Therefore, it seems unlikely that credit constraints alone can fully account for Calza et al.'s (2007) empirical findings. It is of course possible that a significant share of noncredit constrained, but indebted consumers react excessively to changes in their repayments and current incomes, but this is also hard to rationalize using standard economic theory.[9] This is an area that probably warrants more research.

Other channels, such as wealth heterogeneity, may also play an important role but are not captured by models like that employed by Calza et al. (2007) For example, Bean (2004) notes that the impact of changes in interest rates on demand may be affected by higher debt levels if indebted individuals respond more strongly to a rise in interest payments than do savers to a corresponding rise in their interest receipts. Indeed, in addition to substitution effects that induce all consumers to postpone consumption, there are income effects that are likely to affect debtors and savers differently: a rise in interest rates lowers the lifetime resources of debtors while it raises those of savers. Further effects may also stem from redistributions of wealth associated with changes in home prices (and other asset prices). As an example of that, results shown in Benito et al. (2007) from the simulation of an OLG model of household behavior suggest that the effect of a change in interest rates on consumption is somewhat larger in more indebted economies.[10]

To sum up, the available evidence is inconclusive about the importance of debt for the monetary transmission mechanism. It is possible that the contradiction between the micro- and aggregate studies reflects the relatively short sample periods used in the microstudies and the prevalence of idiosyncratic shocks (rather than aggregate shocks) over those periods. The possibility that adverse interactions between debt, home prices, and consumption could arise makes the continued monitoring of household and lender balance sheets important.

5.4.3 Developments since the summer of 2007

The present chapter was mainly written before the summer of 2007 and was accordingly devoted to describing the potential drivers and implications of the increases in home prices and debt that took place over the late 1990s and early to mid-2000s. But, triggered by rising US subprime defaults, the summer of 2007 marked the end of the continual rise in UK home prices. According to the

Nationwide, UK home prices declined by 12 percent between October 2007 (which marked the recent peak in home prices) and September 2008. What can we draw on from the discussion above to shed light on the potential causes and implications of this?

The fall in home prices was accompanied by a sharp tightening in the availability of secured credit, precipitated primarily by funding problems in the banking sector (see, e.g., the Bank of England 2008a). That is consistent with the empirical findings of Cameron et al. (2006) in which credit conditions are found to play a role in shaping housing market developments. Although some of the factors which explained a weaker link between home prices and consumer spending in the mid-2000s still applied as of September 2008 (e.g., most mortgagors still had large cushions of housing equity), others did not. Tighter credit conditions would have made it more difficult for some homeowners, particularly higher risk households, to access their housing equity. That would likely have put downward pressure on the spending of those households, by reducing the resources available for consumption and by increasing the incentive to hold precautionary savings to cope with unexpected fluctuations in future incomes (see Bank of England 2008c). Moreover, there is evidence that lenders responded to falling home prices by further tightening credit conditions (see Bank of England 2008d). That may also have put downward pressure on consumer spending as home prices fell.

As of 2008 Q1, mortgage arrears and property repossessions were still well below their early 1990s peaks (see, e.g., Bank of England 2008b Inflation Report, p.21). So, it remains to be seen whether the high debt levels built up over the past would adversely interact with financial sector adjustment and the economic slowdown that had become evident in the official data by the end of Q2 2008.

5.5 Summary and conclusion

Over the past two decades, home prices and household debt in the UK have increased dramatically. In this paper we have documented – using the latest data from the BHPS – how these events have been accompanied by notable shifts in the distribution of both financial and housing wealth. We have then reviewed the changes to the macroeconomic environment that might have driven these shifts and discussed their possible implications for monetary policy.

Higher home prices have been associated with increased indebtedness because they have meant that new entrants to the housing market and those trading up have needed to borrow more to finance their purchase. But the BHPS data suggests that the increase in home prices has also been associated with an increase in financial assets. That is because older homeowners have been made wealthier. When these households trade down or sell for the last time they add the proceeds of the sale to their financial assets. In this way, increased indebtedness has not been associated with a marked deterioration of the aggregate household sector balance sheet, but instead has been associated with a change in the distribution of financial assets and liabilities across households.

Without downplaying the importance of other factors, our analysis suggests that the fall in long-term real interest rates was likely to have been one of the key

factors behind the increase in home prices and debt. Higher household formation rates and lower macroeconomic volatility may also have been important, but it is difficult to assess to what extent that is true in the absence of models that capture those factors. One implication of the analysis is that the future outlook for long-term real interest rates ought to be an important factor in determining the sustainability of high levels of debt and home prices.

Home prices and consumer spending have often moved closely together in the past. Do changes in home prices necessarily lead to changes in consumption growth? Recent research at the Bank of England suggests that the answer to this question is no. That is because, primarily, the relationship between consumption and home prices reflects the common causality of shocks hitting the economy. For example, an expected future increase in productivity and incomes would tend to be associated with faster consumption growth and higher home price inflation. But home prices may also amplify and propagate the initial effects of shocks or long-term structural changes to the economy. In particular, a change in home prices leads to a change in the equity that homeowners own in their homes. That can affect consumption for two reasons. First, housing equity can be used as collateral for loans and lenders are usually prepared to lend more at lower rates of interest when there is more collateral. Second, housing equity can form part of households' precautionary savings balances, so an increase in housing equity may reduce the need for households to hold other forms of precautionary savings.

A weakening of these channels could help to explain why, other than the economy being hit by an unusual combination of shocks, the empirical correlation between home price inflation and consumption growth weakened during the early to mid-2000s. However, it is difficult to draw firm conclusions. On the one hand, when borrowing and precautionary saving is already supported by large amounts of housing equity, as it was by 2002, the impact on consumption of the further increases in home prices and housing equity that occurred after 2002 should have been more muted than it might have been in the past. But the greater availability of housing equity may have contributed to a compression of secured credit spreads, which would have boosted spending. Given the uncertainty about what caused its recent weakening, it would not be surprising if the reduced-form, empirical relationship between home prices and consumption were to change again at some point in the future.

Did higher indebtedness make the economy more sensitive to interest rates or vulnerable to shocks over this period? Again, the available evidence is inconclusive. Evidence from the BHPS data suggests that the rise in household debt did not appear to have impaired the ability of households to smooth consumption in the face of shocks. That suggests that increased indebtedness did not make households more vulnerable. But this evidence is based on a relatively short sample, encompassing a period of historically low macroeconomic volatility. Other evidence based on aggregate data across different countries and different time periods suggests that high-debt economies are more sensitive to shocks than low-debt economies. The possibility that adverse interactions between debt, home prices and consumption could arise makes the continued monitoring of household and lender balance sheets important. And developments since the summer of 2007 only serve to underline this.

In conclusion, it should be apparent from the number of unresolved issues that further research is needed to refine and improve our knowledge of the mechanisms through which home prices and indebtedness matter for the consumption outlook and the macroeconomy more generally.

Notes

1. The household level BHPS data used in this subsection were constructed along the lines described in Redwood and Tudela (2004). Briefly, responses to questions asked at the individual level were summed across household members to form a household level response. Missing values were removed from the sample so that statistics were computed over available responses only.
2. The sharp rise in younger households' unsecured debt might partly reflect increased use of student loans. The 2005 BHPS survey shows that around 8 percent of people aged 18 to 25 had a student loan, compared to around 2 percent in the 2000 survey.
3. In addition, a lower real interest rate would reduce the incentive to save and so would encourage all households to bring forward their consumption. More accurately, there are substitution, income, and wealth effects following an unanticipated change in real interest rates.
4. Home prices can also affect GDP through their impact on residential investment. That is likely to be less important in the UK than in the USA because residential investment accounts for around 3 percent of UK GDP on average, compared to 4.5 percent of US GDP. An increase in home prices that boosts residential investment would also support consumption via the extra income that would be generated.
5. Home prices can also influence consumption because they tend to be correlated with housing transactions and housing transactions are associated with higher spending on certain types of goods and service. However, any effect that this has on aggregate consumer spending is likely to be very small because the types of goods and services that people tend to buy at the time they move house account for a small proportion of aggregate spending. And the number of households that move home each year typically constitutes only a small proportion of all households (Benito and Wood, 2005).
6. Unpublished work by Cristini and Sevilla Sanz (2007) seeks to explain why the two studies differ. On the one hand, they show that both housing tenure status and age are more important in explaining differences in consumption behavior than tenure status or age in isolation. Yet Attanasio et al. (2005) look at the differences between young vs old or renters vs owners without interacting the two variables. On the other hand, Cristini and Sevilla Sanz (2007) find that the results in Campbell and Cocco (2007) are sensitive to the model specification adopted, the price deflator and the specification of the synthetic cohorts used in the estimation. Our reading of the preliminary results in Cristini and Sevilla Sanz (2007) is that neither of the cited studies are entirely robust to changes in specifications and variables used.
7. Despite the higher interest rate on unsecured debt, taking on an unsecured loan may turn out to be cheaper than secured borrowing once transaction costs (e.g. remortgage fees, time, etc.) are taken into account. This is even more likely to be true if the amount being borrowed is relatively small. It is likely that stronger competition among lenders has reduced the price of unsecured credit over the past decade, which might have reduced the strength of the collateral channel. But the price of unsecured debt is not likely to be independent of households' net worth. Therefore some unsecured borrowing may reflect the collateral channel rather than dampen it.

8. Lower macroeconomic volatility may, to some extent, be the consequence of changes in financial markets and institutions. The same changes may also have facilitated more borrowing and made it easier for households to smooth their consumption through shocks (see, e.g., Dynan et al. 2006).
9. Benito and Mumtaz (2006) find that, at most, 40 percent of UK households' consumption was excessively sensitive to their current incomes. That could be because of credit constraints, precautionary saving, or limited rationality (e.g. cognitive biases, imperfect information, lack of planning skills, etc.). However, they find that households with no housing equity are more likely to be constrained, so it is likely that a large proportion of the households they identified as being constrained are renters, not mortgagors. The 2007 NMG survey supports that: around 27 percent of renters consider themselves to be constrained, compared to around 14 percent of mortgagors.
10. An additional consideration is the rise in the proportion of mortgagors with fixed-rate mortgages over recent years. These contracts have made households less vulnerable to unexpected shocks (especially when these are associated with changes in interest rates). But the more widespread use of fixed-rate mortgages could be interpreted as a sign that households feel they have become more vulnerable to shocks, perhaps because of their increased indebtedness.

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Chapter 6

Housing Wealth and Mortgage Debt in Australia

Mike Berry

6.1 Introduction

By the end of the nineteenth century around 40 percent of Australians were home owners. Most lived in urban centers. By 1960 this proportion had risen to 70 percent, with a further 25 percent of the housing stock owned by private landlords, overwhelmingly individuals or couples holding one or two dwellings. This pattern has, broadly speaking, been maintained over the past 50 years. Not surprisingly, then, the majority of personal wealth in Australia is held in the form of housing. Currently, housing accounts for around 58 percent of net wealth in this country; 44 percent held by owner-occupiers and 14 percent by private investor-landlords (ABS 2007a). Between 1994–95 and 2003–04, the mean housing wealth of Australian owner-occupiers rose by 68 percent to $297,000 (ABS 2007b). Although average housing wealth has climbed markedly during the past decade (see next section) the distribution of that wealth has become more unequally distributed across households.

The accumulation of housing wealth has always depended heavily on the availability of and access to mortgage lending. Mortgage finance has, historically, been provided by friendly and building societies in the nineteenth century, state government owned savings banks after World War I and the large clearing banks after World War II, more recently supplemented by foreign banks and a plethora of mortgage originators and other intermediaries active in the rapidly growing secondary mortgage market. The radical deregulation of the Australian financial system from the early 1980s onwards has massively expanded the scope and scale of mortgage lending and locked it into the international circuits of financial capital. The accumulation of housing wealth in Australia and the operation of mortgage markets have become ever more entwined.

The long and pronounced economic boom in Australia, from the early 1990s to the present day, has been driven by buoyant, expanding domestic consumption fed by rapidly expanding personal debt. Growing housing wealth has, in turn, underpinned consumption financed by mortgage borrowing and indirectly via the wealth

effect. This dynamic poses important challenges for economic policy makers in Australia. As a medium-sized, open economy, Australia's consumption-fed boom has generated a large and growing balance of payments deficit on current account (around 7 percent of GDP), leaving the economy vulnerable to sudden shifts in global economic conditions, a growing threat in the wake of the US subprime mortgage crisis and associated global credit squeeze unleashed in 2007 and still reverberating with uncertain outcomes into 2008 and beyond. Increasing volatility in Australian housing markets in early 2008, characterized by a marked easing of prices and transaction volumes, may feed through into falling consumption and a weakening investment climate.

However, Australian policy makers face a very difficult dilemma. Although domestic demand and investment are slowing, the export sector continues to boom driven by a seemingly insatiable demand for Australian minerals and natural resources by China and India, pushing the value of the Australian dollar to the highest level against the US dollar for 30 years and increasing the risk of inflation. Consequently, Australian interest rates are very high by international standards – the official rate is now more than 5 percentage points higher than in the USA and the gap is widening as US authorities battle to deal with their financial market crises. The Australian economy faces the prospect of a serious recession if demand from China, in particular, drops while Australian interest rates and debt levels are high but housing wealth and domestic consumption are falling.

This paper begins by outlining the long housing boom in Australia, from the mid-1990s to the present day. The next section focuses on the role of mortgage finance in underpinning the housing boom, followed by an analysis of the interactions between the credit-supported housing market and the macroeconomy. The final section briefly reflects on the implications of the current "subprime" mortgage crisis and credit squeeze in the USA (see Case and Quigley, Chapter 19, this volume) for developments in the Australian economy and housing sector.

6.2 The Boom

The period 1997–2005 witnessed a pronounced housing boom in many countries. Australia, along with the UK, Ireland, Spain, and South Africa, experienced the highest rates of home price inflation during this period (*The Economist* 2005a). In the case of Australia, the boom moderated in 2005 and 2006 (see Figure 6.1) but gathered pace again in 2007 (see Table 6.1).

The renewed housing boom in 2007 was underpinned by a sharp rise in rental investor borrowing, which rose by 18 percent on 2006 levels to $75.4 billion; in Victoria, rental borrowings increased by almost 30 percent to an annual figure of $15.6 billion. This coincided with a reduction in investor borrowing for the purchase of newly constructed homes (ABS 2007c, table 11; Colebatch 2008).

As the data summarized above indicate, home price changes vary greatly over time and across regional housing markets. In the case of Perth (capital of the resource-rich state of Western Australia), for example, average housing prices continued to rise sharply during 2005 and 2006, as the boom moderated in eastern Australia. Booming minerals extraction and exports to rapidly growing economies like China

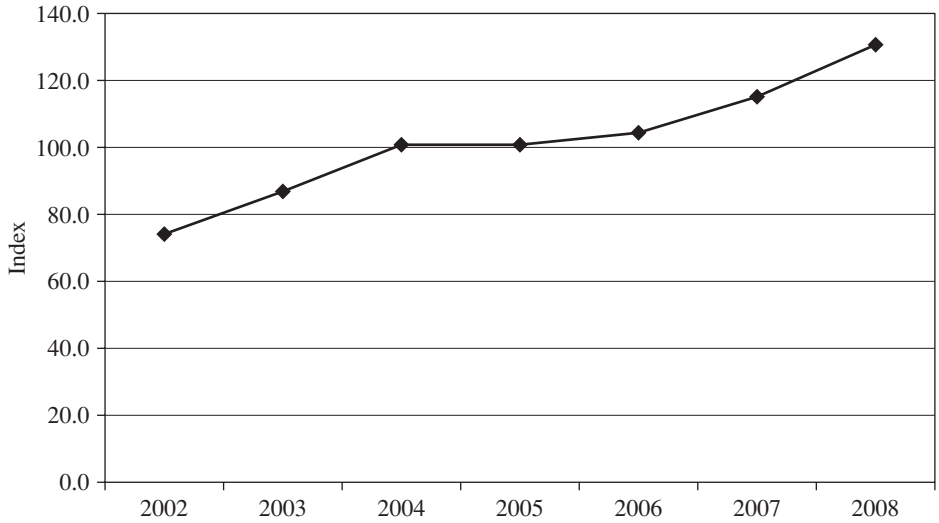

Figure 6.1 Australian eight capital cities home price index, established houses: 2002–2008 (March quarter).
Source: Australian Bureau of Statistics 2008

Table 6.1 Median home price changes in the eight capital cities of Australia, 2007

City	*Annual % change to December 2007*	
	Houses	*Units/apartments*
Sydney	4.8	1.7
Melbourne	25.2	14.7
Brisbane	20.1	11.3
Adelaide	20.0	24.1
Perth	1.7	0.7
Canberra	14.6	11.4
Hobart	11.3	18.9
Darwin	5.3	−2.1

Source: Australian Property Monitors 2008

underpinned Perth's hectic property boom during this period. However, although China's growth and high demand for natural resources continued through 2007 and into 2008, Perth's housing market stalled, precisely at the time the eastern and southern states, excluding New South Wales, went into overdrive. The annual growth in Melbourne (in particular) during 2007 was astounding, even given the tendency for the figures to overstate the situation due to the likely overrepresentation of higher value, well located houses in that year's sales turnover (see immediately below). Similar levels of variation characterize the distribution of housing wealth across the nation. In 2003–04, the average housing wealth of owner-occupiers varied from

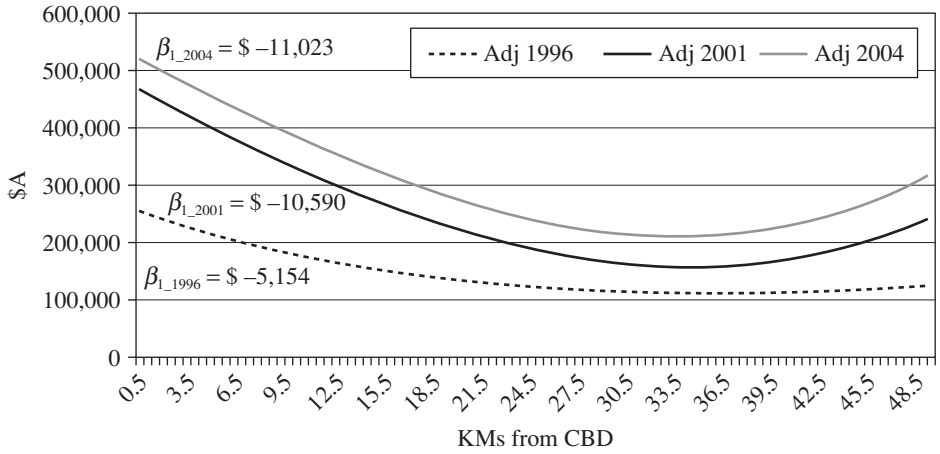

Figure 6.2 Estimated home price–distance gradients 1996–2004, Melbourne ($1996 = 100).
Source: Wood et al. 2007

$174,000 in Darwin to $506,000 in Sydney; the average housing wealth of people living outside the capital cities was significantly lower than in the capitals (ABS, 2007b).

Moreover, home price movements varied considerably *within* each of the major metropolitan regions. In Melbourne, for example, average prices increased fastest in the central and inner suburbs, close to the location of high-value producer service jobs. Figure 6.2 presents median home price gradients at three points during the general boom. Over time the gradient has both risen and steepened, reflecting the fact that average prices rose throughout the metropolitan region, and rose more quickly the closer to the central city area housing was located; the parameter in each case represents the reduction in median prices for every one-kilometer distance from the center.

The bullish sentiment in Australian urban housing markets in 2007 was in stark contrast to the situation in most other advanced countries, especially the USA (see Case and Quigley Chapter 19, this volume). The resilience to date in Australia has everything to do with Australia's strong international export performance and the particular factors driving domestic housing markets noted below. However, in a globally connected world it may be only a matter of time before the Australian housing sector converges with the experience in other countries. It is not surprising, then, that after 12 consecutive rises in official interest rates (including a rise of 150 basis points in the last 18 months) and a bumper year in 2007 in eastern Australia, average housing prices fell moderately during the first quarter of 2008.

The scale and uneven nature of the boom has clearly impacted on the overall distribution of wealth in Australia. During the 1990s, for example, there is clear evidence that wealth became more unevenly distributed. Kelly (2001) found that the Gini coefficient (a common measure of inequality) for almost all asset classes, including housing, rose between 1991 and 1999; only superannuation savings became

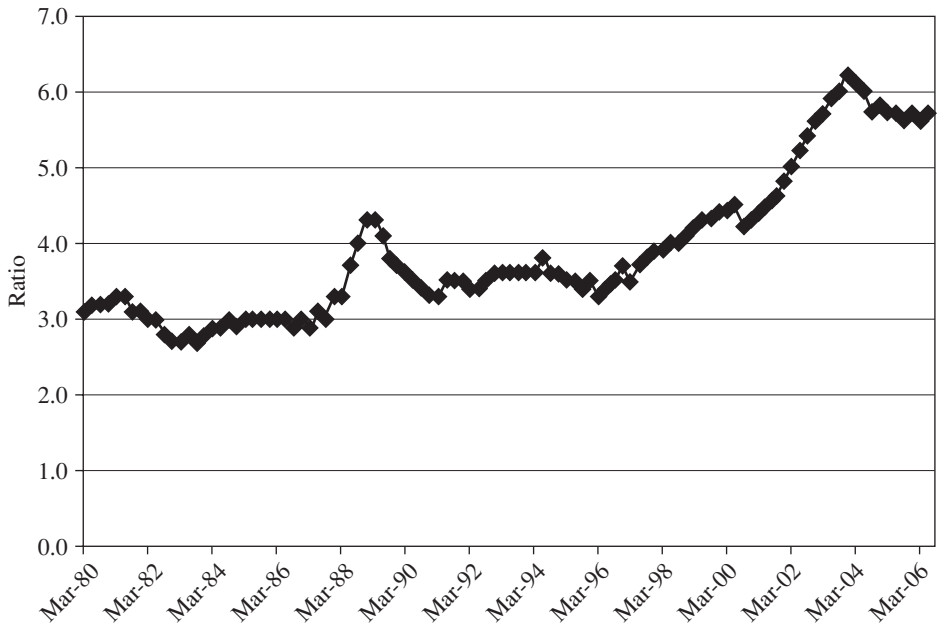

Figure 6.3 Home prices to household income.
Note: Average annual household disposable income, excluding unincorporated enterprises; income is after tax and before the deduction of interest payments.
Source: Data supplied by Reserve Bank of Australia

more evenly distributed, thanks to the impact of the universal Superannuation Guarantee Scheme introduced in the 1980s and the highly unequal access of Australians to this form of wealth accumulation in the past. The subsequent progress of the housing boom in the new century, favoring well-located high-value areas, has only intensified housing wealth inequalities. Thus in 2005–06, the ratio of the net wealth of households at the 90th percentile was 47 times that of households at the 10th percentile (ABS 2007b).

The overall consequence of the housing boom has been for average home prices to rise much faster than average incomes over the past decade (see Figure 6.3).

Australia's housing boom shared many common features with similar booms occurring at much the same time in a number of other OECD countries. In particular, the globalization of both the real and financial sectors increasingly locked the advanced economies into step with each other, Japan notwithstanding. Rapid home price inflation fed off and back into buoyant economic growth. In Australia's case, the national economy has (to mid-2008) experienced 17 continuous years of growth, driven by high levels of consumption financed by escalating private borrowing and foreign capital inflow. High economic growth has been associated with moderately high population growth and (given falling average household size) even faster increases in the growth of households. The *geographic concentration* of household growth in the capital cities and some coastal and mining centers has further contributed to the rapid, uneven growth in housing demand, running ahead of supply responses in those areas (Ellis and Andrews 2001).

To these fundamental economic drivers are overlaid a number of institutional and policy forces (Berry and Dalton 2004). Existing taxation settings encourage investment in owner-occupation and small scale rental landlordism (Beer 1999; Berry 2000; Wood 2001). The substantial rise in female workforce participation rates in the 1980s and 1990s boosted the capacity to pay for housing by two-income households. The "meltdown" in stock markets in the early 2000s may have also encouraged investors to turn to the property market, further overheating housing markets, at least in the short to medium term. Important as these factors have been in Australia's recent housing history, they are dwarfed by the impact of financial deregulation and innovation, to which we now turn.

6.3 The Role of Mortgage Finance

The Governor of the Reserve Bank of Australia commented in 2003, "The story of household debt is largely a story of about housing and, of course, is ultimately tied up with the subject of rising house prices" (quoted in Economic Reference Committee 2005, p. 131).

The Australian financial system underwent large-scale reform during the 1980s, beginning with the relaxation of foreign exchange controls, floating of the Australian dollar, the ending of direct central bank quantitative controls on domestic credit and interest rates, and the entry of foreign clearing banks. Subsequently, the Federal Government granted independence to the Reserve Bank of Australia to conduct monetary policy in pursuit of a low inflation climate. (However, the Bank's charter still requires it to pursue policies that will achieve high employment, maintain external balance, and ensure the wellbeing of the Australian people. It is not clear how the Bank is to simultaneously achieve all these goals while keeping inflation within a self-proclaimed narrow band of 2–3 percent.) In consequence, financial innovation and diversification flourished. In particular, the residential mortgage market grew rapidly. New lending products proliferated, allowing households to unlock equity in their homes to invest or consume as they saw fit. Increased competition among lenders shaved borrowing costs. From the mid-1990s, the secondary mortgage market expanded from virtually nothing to a major source of finance for both homeowners and rental investors via origination and as a new asset (sub)class for superannuation funds seeking long-dated, low(ish) risk paper in a climate of growing government budget surpluses and a shrinking supply of government bonds.

Figures 6.4 and 6.5 show the rate of growth of lending to both owner-occupiers and rental investors in the first decade of the new century. Total housing loans outstanding at the end of 2007 were $701 billion. Loans outstanding in the secondary mortgage market stood at just over $200 billion as at September 2007 (ABS, 2007c, table 12). What stands out here is both the high rate of lending growth overall and the increasing importance of investor activity, a trend initiated in the mid-1990s with the development of a thriving domestic secondary mortgage market. The latter could be expected to deliver a greater degree of volatility to mortgage markets than has been apparent in years past. Indeed, the financial market turmoil in 2007–08 has focused on a number of nonbank originators active in the secondary market. Nevertheless, in spite of this factor, it is still the case that

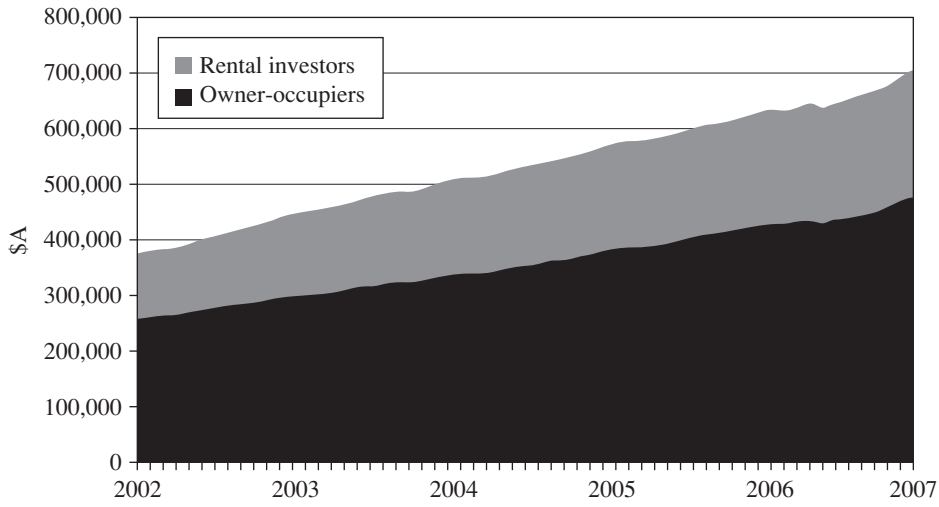

Figure 6.4 Housing finance loans outstanding by owner-occupiers and rental investors, to authorized deposit-taking institutions (ADIs) 2002–2007, Australia ($Amillions).
Source: ABS 2007c (Catalogue number 5609.0, table 12)

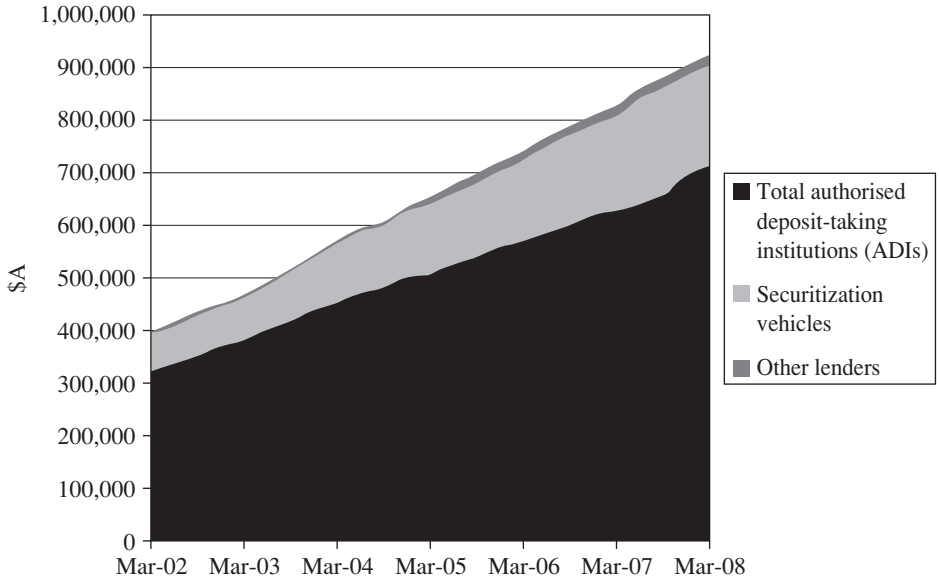

Figure 6.5 Housing finance, total loans outstanding by all lenders 2002–2008, Australia ($Amillions).
Source: ABS 2007c (Catalogue number 5609.0, table 12)

owner-occupation, accounting for just under 70 percent of the total housing stock (though significantly less and falling when outright ownership is excluded), provides a solid bulwark in the housing system, one that might be expected to impart a degree of stability in a world of fluid capital movements. Undermining this buffer, however, is the increasing "fungibility" of housing as an accessible store of wealth. Housing equity withdrawal or release, facilitated by "trading down" and/or refinancing allows owner-occupiers to maintain their primary residence while increasing their consumption or investing in other housing and nonhousing assets (see Colic-Peisker et al. Chapter 14, this volume; also see Searle and Smith Chapter 15, this volume for evidence in the UK). The extent to which and manner in which households do this can ratchet up risk management challenges facing them and have significant impacts on the overall economy (see below). Investors are also able to maximize leveraged housing investment strategies by successively refinancing existing stock to acquire further stock – but only as long as housing prices continue to rise and liquidity in the financial system grows. The nontransparent nature of mortgage securities derivatives and the manner in which they were rated can add a further element of potential instability, as the unfolding saga of the subprime mortgage crisis and subsequent general credit squeeze has amply demonstrated in the USA. Once housing prices stall and liquidity dries up, house owners – owner-occupiers and investors, alike – may find themselves overextended and forced to sell or refinance at higher rates. If an asset "fire sale" develops, the crisis can spill over into the general economy through mechanisms noted in the next section.

In 2005, the Australian Senate carried out a national inquiry into the impacts of household debt on the Australian economy (Economics Reference Committee 2005). Between June 1990 and March 2005 the inquiry found that total household liabilities rose from $A187 billion to $A861 billion. As a percentage of gross household income, total household liabilities rose from 70 to 157 percent. Bank lending to households grew rapidly to 67 percent of GDP by 2005. Around 85 percent of this lending was in the form of dwelling mortgages and 5 percent on credit cards. By mid-2005, investors accounted for about a third of total housing mortgage debt.

The Committee's final report listed a number of factors responsible for the observed increase in household debt (some of which are discussed further in the next section), notably:

- *Financial deregulation* freed up financial markets and allowed credit to be more readily available. Deregulation resulted in the removal of restrictions on bank lending to particular clients or for particular reasons, increased competition between existing lenders, attracted new lenders into the market and encouraged innovation that led to a much wider choice of financial products, including interest-only loans, re-draw facilities, etc.
- *Greater competition* contributed to lower interest rates and lender operating margins. It also led to more advertising and promotion of financial products and higher bank fees
- *A prolonged period of high economic growth*, falling unemployment, low inflation, and historically low nominal interest rates increased consumer confidence.

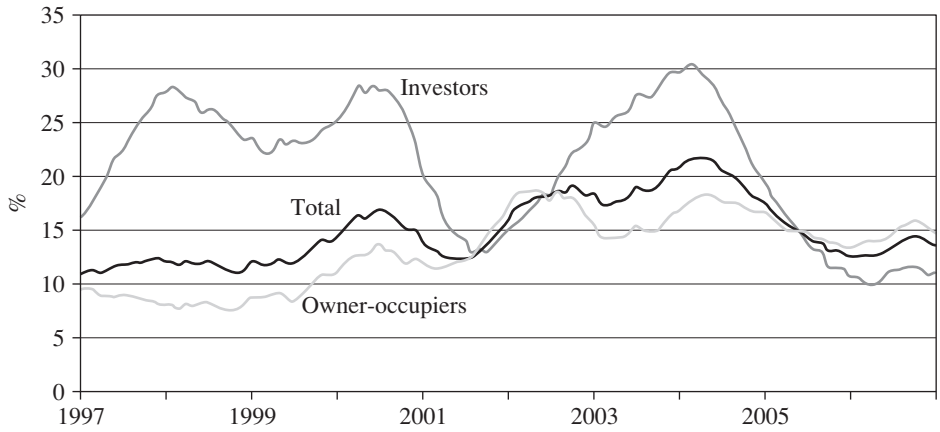

Figure 6.6 Housing credit growth: 12-month-ended annualized percentage change.
Note: Growth rates for credit are based on data that include securitized loans and other housing loans provided by non-ADIs.
Source: Reserve Bank of Australia selected financial aggregates

- *The asset boom of the late 1990s* and, especially, the housing boom that continued after the stock market correction in 2000 encouraged households to borrow for investment purposes. This trend was encouraged by the weakly regulated growth of the financial planning industry and the increasing financial literacy of the baby boomer generation preparing for retirement. The concept of "good debt", promoted by financial planners and accountants, encouraged baby boomers to embark on wealth-creating strategies based on leveraged investments in equities and property.
- *The wealth effect* based on rising home prices (see below).
- *An increase in the number of borrowers*. Since 1996, the number of owner-occupiers with mortgage debt has risen by around 40 percent (RBA 2005).

Not surprisingly, the volatility in housing lending has been high during the boom. Figure 6.6 demonstrates this point, particularly with respect to rental investors.

As early as late 2005, the Reserve Bank (RBA 2005, p. 16) noted "the high levels of household debt make the household sector vulnerable to change in the generally favourable economic and financial climate. Given this, developments in household sector finance and the housing market will bear close watching in the period ahead." Nothing that has happened in the two-and-a-half years since, during a worsening economic and financial climate, has lessened the need for "close watching."

6.4 The Housing–Macroeconomics Nexus

The housing boom in Australia is significant in the macroeconomic context because, fuelled by the explosive growth of mortgage lending, it underpinned the high rate of consumption growth responsible for the long, unbroken period of economic growth noted above.

Girouard and Blöndal (2001) found that, over the 1970 to 1999 period, home price movements in the OECD countries were closely related to changes in the level of aggregate economic activity (see Girouard Chapter 2, this volume). The *causal* link between rising consumption and home prices depends on several key factors:

- *The wealth effect*. According to the conventional "life-cycle savings theory", as households become wealthier they tend to reassess their current savings behavior downward, preferring to consume more now. The reverse is also true; as their wealth falls, they seek to restore future consumption options by cutting back on current consumption and saving more now. Rising (falling) asset values therefore drive increasing (declining) consumption through the economy, increasing (reducing) aggregate demand and growth. Estimates of the wealth effect vary between countries; Girouard and Blöndal (2001, p. 28) quote data showing that the marginal propensity to consume (MPC) out of wealth ranges from about 5 percent in the USA to 12 percent in Canada and 18 percent in Japan. These authors also point to evidence that consistently finds that the wealth effect is higher for housing than other assets, notably equities. This latter conclusion was supported by a study of 14 advanced economies by Case et al. (2003). A study by Catte et al. (2004) found evidence of substantial housing wealth effects in the USA, UK, Canada, The Netherlands, and Australia. Other Australian studies (notably, Tan and Voss, 2003) have found lower but still positive estimates of a wealth effect for equities, along with the seeming anomaly that the housing wealth effect is insignificant.
- *The collateral effect*. As housing prices rise, the risk of lending to house owners falls. Mortgage lenders will then be willing to lend more to those owners at lower interest rates, for both consumption and investment purposes. In other words, the credit constraint on expanding current consumption (and investment) is relaxed, in line with the improved balance sheet position of households. The aggregate effect is to further increase housing demand, prices, and wealth – both directly to the extent that borrowers invest in acquiring or improving housing and indirectly as rising aggregate demand increases growth and incomes.
- *New construction*. As the prices of existing houses rise, so too do expected profits from the construction of new housing. Expanding housing construction increases aggregate demand and growth in the economy, feeding back into housing markets. To some extent, rising housing supply will moderate home price inflation. However, lags in construction may mute this market effect.
- *Demand for consumer durables*. Increasing construction (and renovation of the existing stock) increases the demand for a range of home-based consumer durables – white goods, carpets, entertainment centers, etc. – contributing to the surge in consumption and economic growth.
- *The Economist* magazine presented data from 14 OECD countries, comparing their rates of home price inflation to their respective rates of growth in consumption over the 2000–2004 period (*The Economist* 2005b, p. 70). The countries where home prices fell – Japan and Germany – had among the lowest rates of consumption growth. Conversely, those countries with the highest rates of home price inflation – Spain, UK, Ireland, and Australia – also had the highest growth in aggregate consumption.

Dvornak and Kohler (2003) carried out a detailed analysis comparing the wealth effects of housing and equities in Australia. They argued that the seemingly low or insignificant wealth effects found by other researchers may have been due to problems with the data used – namely multicollinearity of the two wealth variables at the national level. Their analysis was based on a panel study disaggregated to state-wide level, controlling for changes in household wealth and employing a range of microeconometric techniques to estimate and test for robustness of results. The data consisted of panel observations on the five mainland Australian states with respect to five key variables: consumption, income, stock market wealth, net dwelling wealth, and net other financial assets. The period spanned quarterly observations from the fourth quarter 1984 to the fourth quarter 2001. Estimates of the five variables were drawn from relevant Australian Bureau of Statistics and Reserve Bank of Australia sources (for details see Dvornak and Kohler 2003, Appendix A).

The main findings of the study, averaged at the national level, were:

- the MPC for equities is between 0.06 and 0.09 – i.e. for every dollar increase in stock market wealth, consumption increases over the long run by between 6 and 9 cents
- the MPC for housing wealth is 0.03

Hence, unlike the USA, housing has a smaller (though still positive) wealth effect than equities.

Use of state-wide data allowed the researchers to separate out some of the differential impacts of housing and nonhousing wealth effects, since the state populations have different wealth profiles and housing markets are influenced by a number of specifically regional factors. The MPC estimates for each form of wealth varied widely across the five states and, considered alone, must be treated with caution. The authors conclude, "we can be reasonably confident about our estimates at the 'average' (i.e. national) level, even if the range of estimates for particular states seems implausibly wide" Dvornak and Kohler 2003, p. 17).

It is not clear why the housing wealth effect should be lower than for equities in Australia, especially given the rate of deregulation and openness of Australia's financial system. Part of the answer may have to do with the way Australian homeowners view their homes. In behavioral finance terms, Australians may place their homes in a "don't touch" mental account. It may also be the case that many homeowners are unsure as to the current value of their homes. Finally, in spite of the explosion of new financial products and their aggressive marketing by financial institutions, some households may be reluctant to withdraw equity in their houses to finance current consumption, both for prudential and inheritance reasons.

To some extent, the four factors noted above interact, boosting consumption, growth and the demand for housing in a positive feedback loop. If, for any reason, housing prices begin to fall, the process goes into reverse. Falling prices signal declining wealth and a weakening of the house owner's credit standing. Lenders re-price risk and restrict credit and/or increase the lending rate. New house construction stalls and the demand for consumer durables falls. Once again, these factors can interact, imparting considerable volatility to both the housing sector

and the economy overall. Volatility can be further exacerbated to the extent that speculative forces reinforce the underlying fundamentals. "Irrational exuberance" may lead to a housing asset bubble that prolongs the boom and makes the subsequent "bust" deeper (Case and Shiller 2003; Simon 2003).

Increased volatility increases the risk that the economy may move from a general boom to a "hard landing" or serious recession. The potential impact of a significant decline in housing prices on aggregate economic activity will depend, in part, on the burden of existing household debt. Figures 6.7 and 6.8 suggest that,

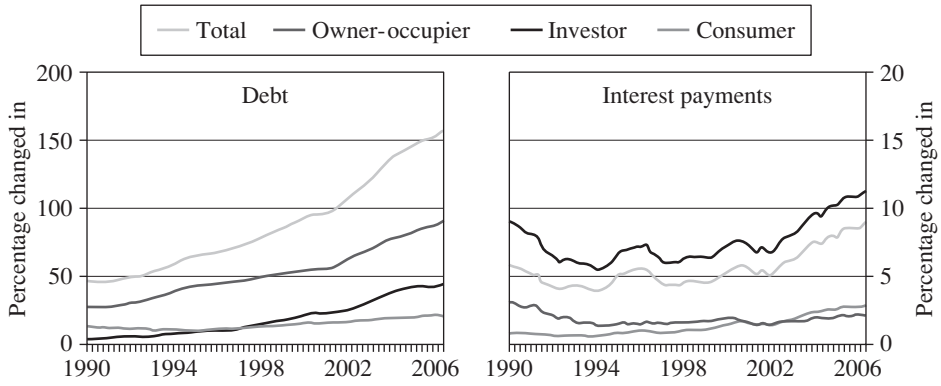

Figure 6.7 Household debt and interest payments.
Note: Household sector excludes unincorporated enterprises; disposable income is after tax and before the deduction of interest payments.

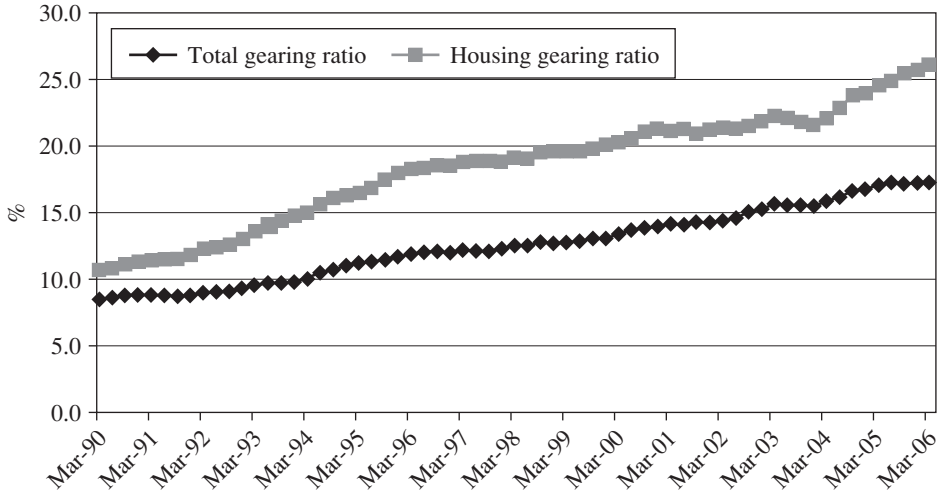

Figure 6.8 Household gearing ratios, 1991–2006.
Source: Data supplied by Reserve Bank of Australia

in Australia, this burden rose sharply during the housing boom. The ratio of mortgage debt to disposable income for both owner-occupiers and landlord-investors doubled from the mid-1990s to 2006. Interest payments on housing debt, not surprisingly, rose at about the same rate. The rate of increasing indebtedness on consumer debt (mainly credit cards) rose also but more slowly from a lower base. The ratio of housing debt to housing wealth rose to over 25 percent.

La Cava and Simon (2003) interrogated data on *who* has been holding this increased debt. They drew on data from the 1993–94 and 1998–99 Household Expenditure Surveys and the Household, Income and Labour Dynamics in Australia (HILDA) Survey for 2001, conducted by the Australian Bureau of Statistics. They found that between 1993–94 and 2001 the main factor resulting in increased debt-to-income ratios had been an increase in the average size of housing loans and that between 1998–99 and 2001 most of the increasing debt had been taken on by "financially unconstrained households". The latter were defined as households who did not report difficulties in meeting mortgage repayments, utility bills, insurance premiums, etc. They therefore suggest that, overall, increasing debt was not, during the 1990s, posing a significant problem.

This conclusion is, perhaps, too strong, given that their data also showed that over the 1998–99 to 2001 period, "financially constrained households" – those that did report difficulties in meeting housing and related payments – increased their average debt-to-income ratio from 61 to 69 percent. Moreover, the authors admitted that they were unable to separate out subgroups of investors who may be highly leveraged and vulnerable to small shifts in interest rates and general economic conditions. Finally, it is not clear whether the results pertaining to the late 1990s still apply to more recent years, especially given the succession of interest rate rises and growing volatility on global markets.

In a parallel study, Ellis et al. (2003) also drew on the HILDA dataset – but instead focus on the leverage rate, the ratio of housing debt to housing assets (rather than income). The authors note that highly leveraged households may be especially vulnerable to interest rate rises, since the impact on their disposable incomes will be large and lenders will tend to be less willing to extend further loans, resulting in sharp reductions in household consumption.

Ellis et al. (2003) found that leverage was highest among households in mid-life with high incomes. These households tend to be those best able to bear high debt burdens. They also argue that leverage is highest in areas that are least vulnerable to home price "reversals" – i.e. the outer suburbs of large cities and nonmetropolitan regions that had experienced relatively small home price inflation over the preceding decade. This is a highly arguable interpretation. It is in such areas that younger home purchasers tend to concentrate, a subgroup that the authors themselves point out display high leverage and low incomes at this stage of the life-cycle. Just because peripheral areas have not boomed does not mean that they will not crash. Indeed, growing spatial polarization in the capital cities like Melbourne suggests that it is precisely the outer suburbs that will suffer as housing markets cool overall.

Nevertheless, in Australia's case, the housing sector has not, to date, declined sharply. The fact that the housing wealth effect appears to be more muted in Australia compared to a number of other countries, along with lower volatility in the

housing sector, may reduce the impact of the housing sector on the macroeconomy. Although home prices flattened out in 2005, they turned up again in 2007 and the Australian economy continued to grow robustly. By early 2008, the national unemployment level was at its lowest for three decades – but the first signs of moderate falls in housing prices, especially in western Sydney, and a slowing (though still growing) economy were evident. The fundamental and institutional factors noted above continued to drive housing markets and a booming minerals sector, fed by the high demands of Chinese and Indian industrialization, guaranteed continuing export-led growth. However, this trajectory, as noted earlier, has posed increasing problems for macroeconomic policy makers. Although, a high value of the Australian dollar has restrained inflationary pressures in the recent past, the increasingly tight labor market and supply-side bottlenecks in critical sectors like transport have encouraged the Reserve Bank of Australia to increase official interest rates in November 2007 and February 2008 by a total of 50 basis points, following five interest rate hikes over the preceding 3 years. In its first quarterly report for 2008 the Bank clearly indicated that further rate rises were likely that year (RBA 2008). Precisely at the same time as the USA and European Union countries are implementing or considering interest rate cuts to stimulate flagging economies, Australian policy makers are reining in spending via restrictive monetary and fiscal measures. The danger here is that these policies will grip just as the US economy dives into recession due to the fallout from the subprime mortgage crisis. The following section takes up this point.

6.5 The Impacts of the US Subprime Mortgage Crisis

In a July 2007 special report – "House Prices and Household Debt: Where are the Risks?" – Fitch Ratings (2007a) evaluated 16 advanced economies with respect to the degree of overvaluation in national housing markets and overindebtedness in the household sector. Australia appears in the first three countries with respect to adverse household balance sheet exposure, tenth in terms of home price overvaluation and sixth in the overall risk ranking (see Table 6.2). Interestingly, in light of subsequent developments, the USA ranks down the list at around tenth, although the report points out that data limitations have probably underestimated overall debt service ratios in the USA (and Spain).

Australia's high debt vulnerability has been partly due to the pronounced pattern of housing market innovation since the mid-1980s and the proliferation of mortgage equity withdrawal (HEW) products (Fitch Ratings 2007a, pp. 4–9). Although a survey of HEW in Australia carried out by the Reserve Bank in 2004 (Schwartz et al. Chapter 7, this volume) found borrowers were in general well able to service their mortgage debt at that time and that equity withdrawn was mainly directed towards investment rather than consumption, developments in financial markets since then cast some doubt on this conclusion.

The Fitch report summarizes the situation in mid-2007 as follows:

> While a number of long term fundamental factors have driven up real house prices and household indebtedness over the last decade or so – including

Table 6.2 Household risk exposure

Housing overvaluation	*Household debt vulnerability*	*Overall risk exposure*
1. France	1. Norway	1. New Zealand
2. UK	2. New Zealand	2. Denmark
3. Denmark	3. Australia	3. UK
4. New Zealand	4. Denmark	4. Norway
5. Sweden	5. Finland	5. Sweden
6. Ireland	6. Sweden	6. Australia
7. Norway	7. UK	7. Finland
8. Spain	8. The Netherlands	8. France
9. USA	9. Canada	9. Ireland
10. Australia	10. USA	10. USA
11. Finland	11. Ireland	11. Spain
12. Italy	12. Germany	12. Canada
13. Canada	13. Spain	13. The Netherlands
14. The Netherlands	14. France	14. Italy
15. Germany	15. Japan	15. Germany
16. Japan	16. Italy	16. Japan

Source: Fitch Ratings 2007a, p. 2

> declining real interest rates, credit market deregulation and macroeconomic stability – there is also evidence of house price overvaluation in many countries. The rise in household debt (and, in some countries, debt service) and shifts in the composition of assets towards illiquid housing have left households more exposed to shocks to income, house prices and interest rates (Fitch Ratings 2007a, p. 1).

In the succeeding months the shocks to households have indeed occurred, emanating in the world's largest economy in the form of a serious and deep credit squeeze sparked by rising defaults and expected defaults in the subprime residential mortgage market. The causes and likely consequences of this phenomenon are dealt with in detail throughout this book. What follows is a view from Australia, the key issue being to what extent this buoyant but overstretched national economy would be immune to the direct and indirect effects of a US economy in gathering recession.

It is unclear at the time of writing the degree to which Australian financial institutions are at risk of direct financial contagion from the sharp rise in mortgage defaults, chaos in bond markets, and consequent credit squeeze in the USA. Some smaller nonbank Australian mortgage lenders and property companies have, indeed, struggled to rollover short-term debt and one substantial mortgage originator directly dependent on US funds – RAMS Home Loan – was unable to refinance its short-term debt and has been taken over by one of the big domestic banks. A small number of nonbank share brokerage firms have also been driven into receivership. The banks, as a whole have increased their dominant share of the residential mortgage market over the past year. Australia's largest bank – Commonwealth Bank

of Australia – increased its share of new mortgage lending in the second half of 2007 to 24 percent (Saulwick 2008). By and large, subprime mortgage lending in Australia (referred to as "low doc loans") has been confined to the nonbank fringe lenders, suggesting that Australian financial institutions are relatively underexposed to the US crisis, at least in direct terms.

However, there is a great deal of uncertainty as to exactly what exposure Australian institutions of various types actually have. In February 2008, local markets were shaken by news that one of the "big four" banks – the Australia and New Zealand (ANZ) – had made provisions in excess of $A350 million to cover its exposure to clients caught up in the global credit crisis (Moncrief 2008a). $220 million of this sum was allocated to cover its exposure to the US bond insurer, ACA Capital, in relation to "credit default swaps" entered into between 2005 and early 2007. ACA Capital insured bonds were downgraded by Standard and Poors to junk status (CCC) in December 2007. By April 2008, the ANZ had increased its provision for bad debts to $A980 million and reported its first drop in profits for more than a decade. Consequent to the anxiety among Australian investors, local stock exchanges have fallen roughly in line with Wall Street. Bank shares, in particular, have fallen to early 2007 levels, with the price of Commonwealth Bank of Australia shares down around 25 percent over the past year. This has left average price-earnings ratios in Australia at modest levels, by historical and international comparison, in a period when most listed Australian companies are still posting robust earnings.

Nevertheless, even a significant provision such as that made by the ANZ hardly signals a meltdown in local financial markets. The CEO of ANZ pointed out to a meeting with local financial analysts the much more serious turmoil elsewhere in the world, commenting: "I would recommend all of you to visit London and New York in the near future just to see what is really happening there. This is a financial services blood bath [there] and I think the Australian banking system is in remarkably good shape in comparison" (quoted in Moncrief 2008b). Developments in the USA in September 2008 (see below) would support this judgment. The Reserve Bank would appear to concur since, in its quarterly statement on monetary policy (RBA, 2008) it implicitly endorses the strength of the domestic banking system and focuses instead on the imminent dangers of domestic inflation, signaling that Australian monetary policy may need to be further tightened in the first half of 2008. In the wake of the February 2008 RBA review, domestic financial markets anticipated a further 50 basis point rise in official rates during the year, in addition to a similar rise in late 2007 and February 2008 (however, by April, market analysts were becoming more circumspect and factoring in no further rate rises during the remainder of the year). In addition, mortgage lenders have begun to pass on the higher cost of finance to mortgagors caused by the sharp steepening of the short end of the yield curve. Thus mortgage rates have been rising in Australia, due to both upward movement in official rates and the rising cost of short-term debt worldwide.

Although the incidence and severity of residential mortgage defaults in Australia nowhere approaches that in the USA, defaults and arrears have been trending up over the past few years, albeit from a very low base. A large survey of mortgage backed securities with a total backing of $168 billion, carried out by Fitch

Ratings (2007b) found evidence of increasing arrears of 30, 60, and 90 days. More particularly, high arrears rates were concentrated in particular states and regions. For example, arrears rose most rapidly in NSW but remained steady in Western Australia. Six of the seven highest +30 day arrears rates were found in suburbs in Western Sydney. Nonbank lenders (wholesale originators) have seen arrears rates treble over the past two years (estimated to double during 2007) (JP Morgan-Fujitsu 2007, p. 21). This report also estimates that mortgage interest rates would rise by a full two percentage points post September 2007 and that 113,000 households were in severe mortgage stress and at risk of default (JP Morgan-Fujitsu 2007, p. 5). "There is an important feedback loop here – because as stress gets worse, and households rush to sell, home prices in specific suburbs will fall and this can make stress worse, and create pockets of negative equity" (JP Morgan-Fujitsu 2007, p. 5). Subsequent research by Fujitsu Consulting suggested that the number of households at risk of default could be as high as 300,000 (Gough 2008) with those in severe stress estimated at 188,000 by February 2008 (Fujitsu Consulting 2008).

It is also the case that, in the second half of 2008, Australia's banks have significantly increased provision for write-downs on US subprime related securities. In July 2008, one of the two largest commercial banks – National Australia Bank (NAB) – informed markets that it had an A$1.2 billion exposure to US collateralized debt obligations (CDOs) and wrote off 90 percent or A$830 million of this stake against current earnings. This will result in the first fall in NAB profits in over 30 years. Market analysts expect that the other large Australian banks are likely to follow suit and that the NAB may still risk future provisioning against other assets held by related conduits (Moncrief 2008c). The RBA has recognized the danger of a slowing Australian economy and in spite of persisting inflationary pressures, reduced the official interest rate by 25 basis points in September 2008, the first reduction in seven years. This cut was passed onto mortgagors by the commercial banks. In the light of the September turmoil in the US financial sector – resulting in the government bail out of Fannie Mae, Freddie Mac and AIG, the bankruptcy of Lehman Brothers, the takeover by Bank of America of Merrill Lynch, the threat to the remaining two independent investment banks, and most spectacularly, the move by the US Government to establish a fund to buy up defaulting mortgage loans at a forecast cost of between $500 billion and one trillion dollars – Australian financial markets have priced in two further RBA official interest rate cuts in 2008. The exposure of the four Australian banks to the collapse of Lehman Brothers is estimated at a relatively modest A$400 million (Gluyas and Jimenez 2008). The Australian Government and Reserve Bank continue to stress the much stronger balance sheets of Australia's major mortgage lenders (the big four banks), by comparison with US and UK lenders, and the robust nature of the local banking regulatory system overseen by the RBA and the Australian Prudential Regulatory Authority. However, the Australian Government has followed its US and UK counterparts in controlling short selling on the stock market. ("Naked shorts" have been banned and all "covered shorts" have to be based on explicit share loan agreements and reported daily to the Australian Stock Exchange.)

The major issue for Australia, then, is the extent to which the US economy slows down or is driven into recession by the crisis in its financial markets *and* the extent to which this impacts on the Australian economy through international trade and

financial flows. Historically, a downturn in the US economy resulted in a decline in Australia's exports, both to the USA and to its major trading partners, notably Japan. In this indirect manner, a crisis generated by the American housing market could conceivably reverberate through to a sharp fall in Australia's rate of economic growth, especially where, as now, interest rates and the Australian dollar are high. Rising unemployment and high mortgage rates could, in turn, spark a fall in housing prices in Australia, feeding into a domestic recession, the much feared "hard landing." The relatively weak balance sheet position of many Australian households, noted above, would feed into such a downward spiral. Moreover, as Shin (2003) has argued, when home prices fall, the balance sheet position of mortgage lenders also worsens. Loans outstanding become riskier since the collateral value of homes has fallen, encouraging banks, the major lenders, to rein in borrowing in order to preserve capital adequacy standards. This depressive effect occurs alongside and may reinforce bearish sentiments occasioned by uncertainty and excess volatility in financial markets.

The IMF's *Global Financial Stability Report* (International Monetary Fund 2008a) has presented a fairly bleak picture of the trajectory and impacts of the US-induced credit crisis. Total losses to banks, insurers, borrowers, investors, and other financial institutions are estimated to reach $US945 billion, extending well beyond the subprime mortgage market to engulf prime residential and commercial real estate, consumer credit, and low- to high-grade corporate debt. "Moreover, combined with losses to nonbank financial institutions, including monoline bond insurers, the danger is that there may be additional reverberations back to the banking system as deleveraging continues" (International Monetary Fund 2008a, p. x). The report went on to say that "industrialised countries with inflated house price levels relative to fundamentals or stretched corporate or household balance sheets are also at risk" (International Monetary Fund 2008a, p. ix). In another major report, the IMF identified those countries with the most overvalued housing markets (International Monetary Fund 2008b, chapter 3, Box 3.1, p. 11). Home price rises in Australia between 1997 and 2007 were estimated to be 25 percent higher than could be explained by fundamental economic factors. Only Ireland, The Netherlands and the UK were deemed to have more overvalued residential property markets (30 percent or more). In this view, Australia is at prime risk from further US developments.

Against this view, the traditional close linkage of the Australian and US economies is being increasingly questioned in the context of the economic rise of China and India. The argument is that the Australian and US economies have become "decoupled." Australian exports to the USA are now "only" a third of its exports to China, who now account for more than 15 percent of Australia's total export income (Moncrief 2008b).

If, in this alternative view, China keeps growing in near double digit figures, Australia's resources exports will continue to boom, driving the economy at a high rate of growth and capacity utilization which will, in turn, reinforce housing demand and values. This view is reinforced by the claim that China's growth is increasingly less driven by exports to the USA and increasingly dependent on buoyant domestic demand. The key unknown is the extent to which a flagging US economy will slow Chinese growth, through reducing the current scale of Chinese exports to the USA. If China's economy stalls, then so will Australia's exports to China.

If that happens, economic growth would slow just at the time when RBA interest rate rises peak and consumers begin to feel less wealthy – both through falling home prices and declining superannuation savings occasioned by a "bearish" stock market.

These complex and uncertain developments are intimately tied up with the central role of housing and mortgage markets and the importance of housing wealth as the major asset class in the portfolios of households in the advanced economies, including Australia. Whatever the outcomes in broader macroeconomic terms, the year 2008 may have formed a watershed, as the US subprime mortgage crisis approached its zenith.

6.6 Conclusion

It is not clear just how vulnerable the Australian housing system and overall economy are to the volatile developments in North American and European financial markets in 2008 and beyond. Several things are, however, clear.

First, Australia has experienced a period of pronounced home price inflation that has helped drive one of the longest economic booms in the country's history. Second, the accumulation of housing wealth through the boom has been underpinned by the process of financial market deregulation and global integration, dating from the late 1970s in the Western world. Third, the explosive growth in residential mortgage markets, both in volume and product offerings, has encouraged owner-occupiers and investors to increase indebtedness to historically unprecedented levels. Fourth, high levels of household debt have made consumers, in particular, vulnerable to future interest rate shocks. Finally, the strong export performance of the Australian economy, based on rapid industrialization in emerging economies like China, has intensified domestic inflationary pressures, causing interest rates to rise and remain high in Australia.

Thus, *if* Chinese industrialization falters, and US recessionary forces strengthen, Australia is in a poor position to avoid a sharp correction in local housing markets and a full-blown "hard" economic landing – in spite of the fact that, by international standards, the banking system is well regulated, subprime loans are insignificant in value, corporate balance sheets are strong, and wage inflation has not, to date, been a problem.

However, the weakness in all this is the housing sector. In short, domestic home price inflation – the source of escalating housing wealth accumulation in Australia over the past decade – has rendered the Australian economy vulnerable to a sharp decline in consumption as housing prices slow and then begin to fall. Australian economic policy makers have, to date, been unwilling to directly address the forces unleashed by financial sector deregulation that threaten asset bubbles, in particular regional housing markets across the country. If, in addition, Australia is *not* insulated from the increasingly severe turmoil in global financial markets, then the macroeconomic impact on the Australian economy will be further magnified as liquidity constraints reinforce household debt "overhang" (and a negative wealth effect) in reducing consumption and aggregate demand. Falling new house construction will aggravate the downward spiral. The prime lesson here is that the

housing wealth of nations is a potent factor in understanding the nature and causes of the wealth of nations.

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Chapter 7

A Survey of Housing Equity Withdrawal and Injection in Australia[1]

Carl Schwartz, Tim Hampton, Christine Lewis, and David Norman

7.1 Introduction

In Australia, for much of the period since the early 2000s housing-secured debt increased by more than household spending on new housing, renovations and housing transfer costs. As a result, the household sector extracted equity from the housing stock, in contrast to the experience of previous decades (Figure 7.1). (Measuring aggregate housing equity withdrawal is not straightforward, particularly with regards to household purchases of land from the government or business sector. This issue is discussed in Appendix A of Schwartz et al. (2006).) The move from a situation of net equity injection to one of net equity withdrawal coincided with strong household consumption growth and a decline in the household saving rate. Many other countries experienced a similar phenomenon (Klyuev and Mills, Chapter 3, this volume).

The shift to housing equity withdrawal in Australia for much of the 2000s reflects longer run fundamental changes to both the demand and supply side of housing finance. Lower nominal interest rates associated with lower inflation allowed households to take on larger debts, and the relative stability of interest rates and the economy gave households greater confidence of their ability to service larger debt burdens. Competition among intermediaries further lowered interest rates on housing loans and increased households' ability to access equity using more flexible mortgage products. These developments were associated with strong growth in home prices, which increased the amount of equity accessible by property owners. (These fundamental changes have been discussed at length in many Reserve Bank of Australia (RBA) publications and elsewhere (see, e.g., RBA 2002a, b).) More recently, however, the reappraisal of risk associated with

[1] At the time of the study the authors were employed by the Reserve Bank of Australia. The views expressed are those of the authors and do not necessarily reflect the views of the Reserve Bank of Australia.

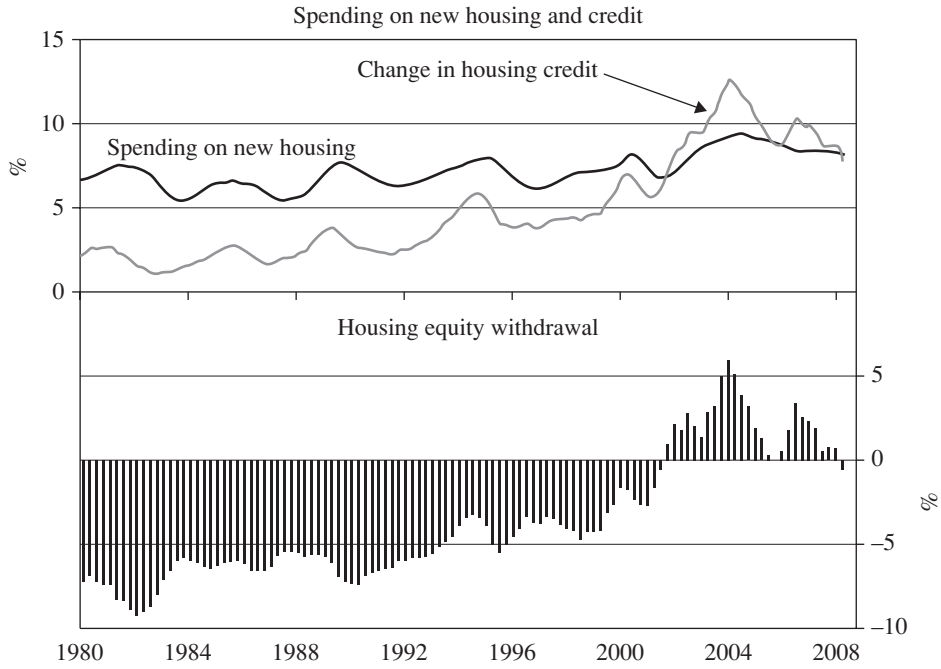

Figure 7.1 Housing equity withdrawal.
Note: Four-quarter moving average.
Source: Australian Bureau of Statistics, Australian Treasury, and Reserve Bank of Australia

the global financial turmoil is materially impacting on borrowers, lenders, and housing markets, and is serving to somewhat dampen growth in housing debt.

While we can identify macroeconomic factors conducive to housing equity withdrawal and injection in Australia, little is known about the household behavior underpinning it. Given this lack of information, the RBA commissioned a survey to better understand how households were withdrawing and injecting housing equity, the characteristics of households engaging in these activities, and how the withdrawn funds were used. The survey covered flows over 2004 associated with housing debt, housing transactions, and renovation spending. In addition to being the first of its kind in Australia, this comprehensive survey represents an important extension to the more narrowly focused international literature on this topic.

The rest of the paper is structured as follows. First it provides details of the survey. The next three sections present survey results on how equity was withdrawn and injected, the characteristics of the households that withdrew and injected, what the withdrawn funds were typically used for, and where the injected funds were sourced. The fifth section considers the implications of the survey results for aggregate housing equity flows and economic activity, and conclusions are drawn in the final section.

7.2 The Survey

7.2.1 Design and sample characteristics

The increased housing equity withdrawal evident in a number of countries over the past decade or so has prompted a number of surveys to help better understand this development. Many of these had a narrow focus on housing equity withdrawal not related to property transactions. Canner et al. (2002) from the US Federal Reserve looked at refinancing behavior of US households for the period January to June 2002. A similar survey of Dutch homeowners that had taken out at least one mortgage between 1995 and 2000 was commissioned by the Dutch central bank (de Nederlandsche Bank 2000) and repeated in 2003 (van Els et al. 2005).

In late 2000, the Bank of England commissioned a more comprehensive survey of UK households (Davey and Earley 2001). In addition to withdrawals through mortgage refinancing, the survey covered equity flows resulting from some property transactions, including equity injections. The survey covered mortgage holders that had moved house, refinanced, or taken out a further advance or a second mortgage during the previous two years. However, by surveying only mortgage holders, this survey was not able to identify equity flows by those moving into a debt-free property or withdrawals by last-time sellers (i.e., those selling their entire residential property portfolio).

To better capture these flows, an additional module was added to the Survey of English Housing in 2003, with the results summarized in Benito and Power (2004). Even so, the last-time sales category still excluded what they considered to be the most significant component – the sale of properties resulting from the death of an owner. Consequently, the authors scaled up the recorded data on last-time sales by a factor of five. This approach was also followed by Smith and Vass (2004), who noted that these data should be treated with caution.

Information on equity injection was available only from the UK survey discussed in Davey and Earley (2001), and covered equity injection associated with refinancing and property transactions only.

The RBA's survey of Australian households builds on these earlier surveys in several important respects. These surveys examined the withdrawal or injection of equity associated with individual events, whereas the survey undertaken for this paper focused on net injection or withdrawal over the course of a calendar year. This approach ensures coverage of injections as a result of regular or lump-sum principal repayments – important forms of injection not captured by these earlier surveys. Other forms of injection, including renovations, were also dealt with more comprehensively in this survey by capturing renovations that were financed without debt. In another advance, the survey asked respondents about inherited residential property and funds received from the sale of inherited property. This is necessary because sales of deceased estates result in an equity withdrawal, which otherwise would not be captured. The survey also collected information on the features of each household's mortgage to assist in gauging the importance of financial innovations to housing equity flows.

The RBA engaged Roy Morgan Research (RMR) to assist in questionnaire design and conduct the survey. The results in this paper are based on 4,500 respondent households, interviewed by telephone in February 2005.

The myriad of ways in which households can withdraw or inject housing equity required a questionnaire with different paths depending on the behavior of the household. At its core, the questionnaire asked for data relating to changes in housing-secured debt and housing-related transactions over 2004. Respondents were asked about the characteristics of their property holdings, followed by questions to determine how their housing equity had changed over 2004. From these responses, it was possible to determine whether the household was a net withdrawer, injector or neither. Finally, there were questions about the use of funds by withdrawers and source of funds for injectors. (Further information on survey design, fieldwork, data preparation, and sample characteristics is available in Appendix B of Schwartz et al. (2006).) With respect to the main household characteristics, the sample appears reasonably representative. Of the main household characteristics of interest, the greatest discrepancies between the sample and population estimates based on alternative data relate to the age of the main income earner, with the overall sample older than the population due to an overweighting of 45–64 year olds. Some summary statistics on property ownership from the sample are presented in Table 7.1.

Table 7.1 Characteristics of property ownership (as at December 2004)

	Owner-occupied property	*Investment property*	*Second home/land*	*All properties*
By property				
Median value ($)	320,000	270,000	230,000	300,000
Median capital gain ($)	175,000	90,000	98,000	154,000
Median time held (years)	10	4	4	8
Share with debt outstanding (percent)	50.2	59.7	42.1	51.2
Median debt outstanding ($)	104,500	154,000	100,000	111,600
Median LVR (ratio)	0.33	0.58	0.57	0.39
By household				
Share owning that property (percent)	72.2	9.8	5.0	74.3
Median total assets ($)	345,000	817,500	650,000	340,000
Median total property debt ($)	108,000	310,000	161,000	109,000
Median total LVR (ratio)	0.33	0.41	0.41	0.34

Notes: Households could provide multiple responses for the purpose for which they owned properties other than their home. Properties were classified as investment properties if one of these purposes was to rent it out. Debt and loan-to-valuation ratio (LVR) are only for properties that had debt outstanding.

7.2.2 Calculating equity withdrawal and injection

Over a given period, households may undertake a number of housing equity withdrawals and injections or take no such actions at all. For the purpose of analysis, households were divided into withdrawers and injectors on the basis of the net result of their actions over 2004. That is, over 2004, a household made a net equity *withdrawal* if the change in housing debt minus the change in housing equity from property transactions (including inheritances flowing from the sale of property) minus renovation expenditure was greater than zero. Similarly, a household made a net equity *injection* if this calculation was less than zero. These calculations are described in further detail in Table 7.2. In analyzing the results, households identified as having withdrawn or injected net equity over 2004 were classified into two further broad subgroups: transactors in the property market, and nontransactors.

Table 7.2 Classification of equity injectors and withdrawers

Component	*Calculation*	*Notes*
Change in housing debt	Outstanding housing debt at end 2004 *minus* Outstanding housing debt at end 2003	Households with offset accounts separately provided information on offset account balances at end 2003 and end 2004, which were used to obtain net loan balances.
Change in housing equity from transactions	Value of properties purchased (including transfer costs) over 2004 *minus* Value of properties sold (net of transfer costs) *minus*	Households provided information on the value of residential property purchases and sales, including funds flowing from the sale of inherited property, either by the household selling the property directly, or receipt of funds arising from trustee sale. This ensured that equity withdrawals arising from death were captured.
	Value of funds obtained through sale of inherited property	The value of any properties inherited and retained during the year were not counted as an injection, largely because such transfers did not involve spending by the inheriting household. Transfer costs associated with the acquisition were, however, counted as housing spending.
Renovations	Amount spent on renovations	Attempts were made throughout the survey to ensure that renovation spending captured only alterations of a structural nature in accordance with national accounts definitions; that is, not redecorations and maintenance such as repainting, for example.

Note: Housing equity withdrawal is calculated as change in housing debt, minus change in housing equity from transactions, minus renovations.

The group of households that undertook *property transactions* includes: households that reduced their property holdings; households that increased their property holdings, often as a first-home buyer or an investor; and those that were both buyers and sellers. For the bulk of this group, the housing equity flows associated with their transactions were the main drivers of whether they made a net withdrawal or injection over 2004.

Nontransacting property owners that injected equity did so by paying down principal on existing debt or through renovations financed, at least partly, from their own funds. Those that withdrew equity increased housing-secured debt via methods such as refinancing or drawing down a home-equity style loan. Households that withdrew in this way included some renovators, where the increase in housing-secured debt exceeded the amount spent on renovations.

7.3 How was Equity Withdrawn and Injected?

Aggregate data on housing equity withdrawal provide little insight into how households withdraw and inject equity, and how widespread such activities are. This section provides results from the survey on these questions.

According to the survey, 42 percent of households changed their housing equity over 2004; 12 percent of households made a net withdrawal of equity over 2004, while 30 percent made a net injection (Table 7.3). The remaining households neither withdrew nor injected equity, largely because they did not own any property, or owned their property outright.

By number, the bulk of households changing housing equity were nontransactors – 33 percent of households versus 9 percent that were property transactors. Around 7 percent of households made a net equity *withdrawal* by increasing debt on their existing property; for these households, the median increase in debt over the year was $20,000, while the mean was considerably larger. A much larger number of households *injected* equity into their existing property, with 19 percent of all households injecting equity through scheduled and additional payments on their housing loans, and a further 6.5 percent injecting equity through renovations.

Table 7.3 How equity was withdrawn and injected

	Share of all households (percent)	*Median value ($)*	*Mean value ($)*
Nontransactors in property			
Withdrawal of equity by increasing debt	7.3	−20,000	−36,700
Injection of equity by:			
Paying down debt	19.0	9,000	19,500
Renovating	6.5	14,000	31,800
Property transactors			
Withdrawing equity	4.4	−82,700	−159,100
Injecting equity	4.6	55,100	122,200

The median value of injections by nontransactors was considerably smaller than the median withdrawal made by nontransactors.

The finding that 9 percent of households were involved in at least one property transaction in 2004 is broadly consistent with the available housing turnover data. These households were almost equally split between those withdrawing and injecting equity. However, the median change in equity resulting from these transactions was considerably larger than for nontransactors, such that property transactions contributed the bulk of the value of gross injections and withdrawals.

7.3.1 Withdrawals

Almost three-quarters of the value of all (net) withdrawals by households that were net withdrawers over 2004 were accounted for by those that engaged in property transactions (Table 7.4). Of the net withdrawals by property transactors, around three-quarters of the value was accounted for by the 2.7 percent of households that sold more properties than they bought. This large contribution in part reflects the larger median withdrawal by such households – $125,900 versus $33,500 for withdrawals based on other combinations of property transactions. These other property transactions were fewer in number and smaller in value, but nonetheless remained significant as a share of overall withdrawn equity – accounting for almost one-fifth of the total value withdrawn.

Sales of owner-occupied property – which include last-time sales of elderly households' properties – appear to be associated with larger net equity withdrawals than sales of investment property. This is consistent with the finding that for

Table 7.4 Housing equity withdrawal by method

	Share of all households (percent)	*Median value ($)*	*Share of value withdrawn (percent)*
Nontransactors in property	*7.3*	*20,000*	*27.9*
Refinancing and new loans	4.5	28,000	20.3
Redraw facilities	1.4	11,000	3.0
Revolving credit	0.7	20,000	3.4
Withdrawal from offset account	0.3	8,000	0.6
Cannot say/other	0.5	6,000	0.6
Property transactors	*4.4*	*82,700*	*72.1*
Sold more properties than bought	2.7	125,900	54.1
Bought more properties than sold	0.9	18,300	10.7
Bought and sold equal number of properties	0.8	54,000	7.4
Downsized	0.4	53,600	4.3
Upsized	0.3	82,700	3.0

Notes: Components may not sum due to rounding. The "sold more properties than bought" category includes households that sold a property they inherited, and households that received a bequest funded by the sale of a deceased estate.

Table 7.5 Sales by withdrawers that sold more properties than they bought

Variable	*Owner-occupied property*	*Investment property*	*Second home/land*
Share (percent)	36.6	29.1	34.3
Median sale price ($)	274,000	258,000	160,000
Median time held (years)	5	6	6
Median debt at sale	110,000	104,000	—
Median LVR at sale (ratio)	0.50	0.58	—

Notes: Debt and LVR are only for properties that had debt outstanding at the time of sale. Medians are not reported where sample size is very small.

those that sold more properties than they bought, the median loan-to-valuation ratio (LVR) of owner-occupied properties sold was slightly lower than it was for investment properties (Table 7.5); this is not surprising given the tax advantages of interest deductibility for investment properties in Australia.[1] This is despite the fact that the typical investment property sold had been held for slightly longer than the typical owner-occupied property, allowing more time to accumulate capital gains and pay down debt. Owner-occupied properties also tended to sell for more than investment properties and second homes, consistent with investment property being generally more concentrated in cheaper housing stock such as units (see Table 7.1). Of the households that sold more properties than they bought, 36.6 percent sold their main residence. Of these households, around 40 percent moved into rental accommodation; most of the rest moved into a property which they already owned. A small number of these transactions appeared to reflect just one leg of a transaction, with households either moving into a property that had been purchased in 2003 or planning to purchase a property in 2005.

Investors selling more properties than they bought appear to have typically been experienced property investors, with a median holding period of six years for the properties that they sold. Despite the sales, these households finished the year with an average of 2.5 properties.

Of the nontransacting households that withdrew equity, by far the most common methods were to refinance an existing loan and increase the outstanding balance or to take out a new loan. Two other common methods were drawing upon previous excess principal payments or drawing on a revolving or home-equity type facility. Around 20 percent of nontransactor households that withdrew equity also undertook renovations. The methods these renovating households employed to increase their debt were in similar proportions to the overall group, though the median amount these households withdrew was slightly larger at $22,500.

7.3.2 Injections

In contrast to the results for households withdrawing equity, for households that made a net equity injection over 2004, the value of injections was split fairly equally

Table 7.6 Housing equity injection by method

	Share of all households (percent)	*Median value ($)*	*Share of value injected (percent)*
Nontransactors in property	*25.5*	*10,000*	*50.7*
Reducing debt on existing property	19.0	9,000	32.5
Scheduled repayments of principal	9.6	7,000	10.4
Regular repayments greater than minimum required	6.7	10,000	10.6
Irregular lump-sum payments	2.1	21,400	8.4
Refinanced loan	0.3	12,000	1.7
Cannot say/other	0.2	—	1.3
Renovations	6.5	14,000	18.3
Property transactions	*4.6*	*55,100*	*49.3*
Sold more properties than bought	0.4	52,400	2.0
Bought more properties than sold	3.6	58,800	41.0
Bought and sold equal number of properties	0.6	35,600	6.2
Downsized	0.0	—	0.4
Upsized	0.6	35,600	5.8

Notes: Components may not sum due to rounding. The "sold more properties than bought" category includes households that sold a property they inherited, and households that received a bequest funded by the sale of a deceased estate. Medians are not reported where sample size is very small.

between nontransactors and transactors. This reflected a large number of nontransacting households making small injections by paying down debt or renovating, balanced by a small number of households making large injections through property transactions (Table 7.6). Within the 19 percent of households that injected equity by *reducing debt on their existing property*, 9.6 percent reported that they simply made the regular scheduled repayments, while an additional 6.7 percent made regular repayments above those required by their lender. A further 2.1 percent indicated that they made irregular lump-sum repayments. These one-off lump-sum payments tended to be relatively large, so that they accounted for a disproportionately high share of the total equity injected.

Around 6.5 percent of households injected equity over 2004 through *renovations*, financed, at least partly, from their own savings. In total, this amounted to around 18 percent of the total amount of equity injected by households that made a net injection over 2004.

Within the 4.6 percent of households that injected equity and undertook a *property transaction*, most purchased more properties than they sold, accounting for the bulk of equity injected by property transactors. Over half the properties purchased by this subgroup were owner-occupied homes (Table 7.7), with around 40 percent of these purchased by first-home buyers. The owner-occupier purchases

Table 7.7 Purchases by injectors that bought more properties than they sold

Variable	*Owner-occupied property*	*Investment property*	*Second home/land*
Share (percent)	57.5	26.6	15.9
Median purchase price ($)	260,000	235,000	160,000
Median debt at purchase ($)	210,000	233,000	200,000
Median LVR at purchase (ratio)	0.84	0.99	0.97

Note: Debt and LVR are only for properties that had debt outstanding at the time of purchase.

tended to be associated with more expensive properties and lower debt levels compared to those for other properties. These results are consistent with investors' preferences for relatively cheaper property and higher gearing mentioned previously. It is worth noting that the LVRs on the purchased properties were significantly higher than the overall LVR of households undertaking these transactions (that is, these households often had other, less indebted, property holdings; these LVRs are also higher than previous estimates (Coleman et al. 2005).).

A comparison of the results regarding the methods of housing equity withdrawal and injection underscores the importance of transactions to overall flows of housing equity withdrawal. In particular, for the subgroups of property transactors most important for overall housing equity flows, sellers typically withdrew more equity than buyers injected, partly reflecting much higher debt levels among buyers. This is consistent with the influences of life-cycle factors and home price gains further explored earlier. It also follows that shifts in the level of aggregate transaction activity will likely be associated with changes in the value of aggregate housing equity withdrawal, as canvassed later in this chapter.

7.4 Characteristics of Households Withdrawing and Injecting Equity

Having identified the various methods through which households withdrew and injected equity during 2004, it is of interest to consider whether there are common characteristics across households that withdrew or injected equity.

7.4.1 Key bivariate relationships

The survey data confirm that age and income are key variables in distinguishing households that altered their housing equity from the rest of the population. The results are consistent with previous work that show age and income to be important determinants of the incidence of homeownership with debt (see Ellis et al. 2003). They also confirm that households that own property, particularly those with housing debt, are most readily able to withdraw or inject equity.

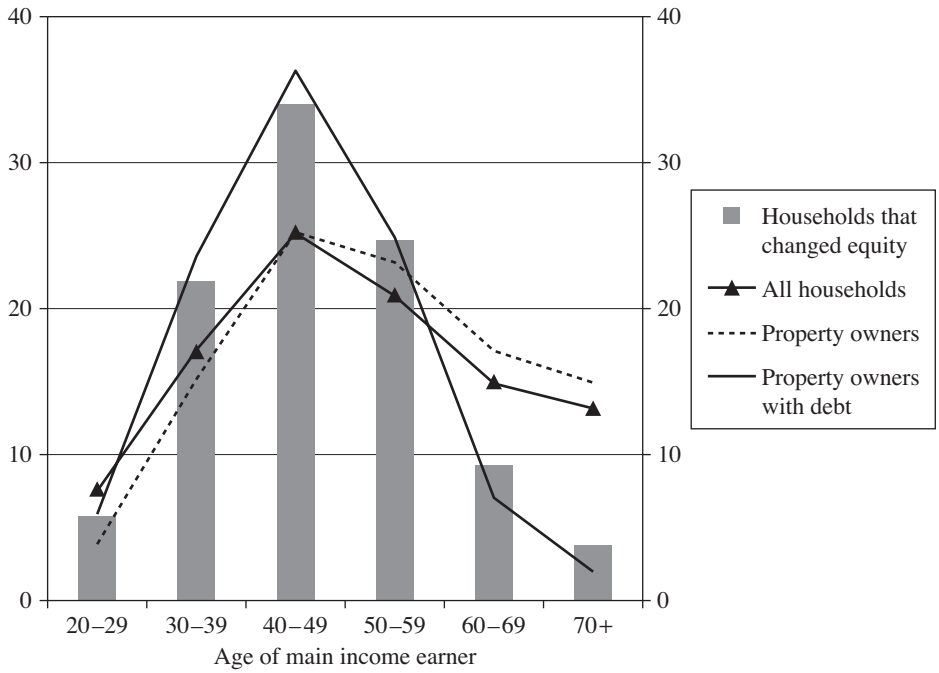

Figure 7.2 Age profile of surveyed households.
Note: Percent of households in each group. Households with main income earner under 20 years of age not shown.

Figure 7.2 shows the age profile of households in the survey – where age is determined by that of the household head, defined as the main income earner. Those aged between 40 and 49 accounted for the highest proportion of households that changed housing equity, and the highest proportion of property owners with housing debt. In comparison, the age profiles for all households and all property owners are much flatter. Also, withdrawers and injectors tended to have higher household incomes than the general population, as did property owners – particularly indebted property owners.

Age also differed notably between households that withdrew equity and those that injected, with withdrawer households typically older. The breakdown of average net housing equity flows from the survey data by age shows that, over 2004, households with a household head aged between 20 and 49 years were typically equity injectors (Figure 7.3). In contrast, older households were typically net withdrawers, with the size of the average net withdrawal increasing with age. This is consistent with the typical life-cycle pattern whereby younger households inject equity when they purchase their first home and trade up to more expensive housing in mid-life, before withdrawing equity when they sell property in their later years. Such a profile is also implied by the use of housing as an investment vehicle, given households will typically accumulate equity in their peak earning years. Indeed, of households that engaged in a property transaction and withdrew equity, just over half were 50 years of age or older, and they accounted for

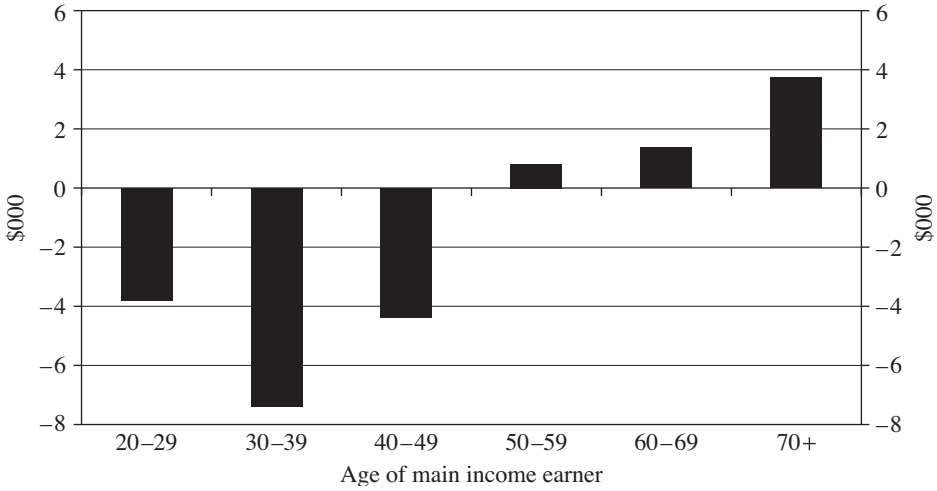

Figure 7.3 Average net housing equity withdrawal by age.
Note: Percent of households in each group. Households with main income earner under 20 years of age not shown.

61 percent of the value of equity withdrawn by property transactors. In comparison, the same age bracket accounted for less than 40 percent of total net injections.

7.4.2 Empirical modeling

In this section, we present some formal empirical results that help to further evaluate the relative influence of different household characteristics on their propensity to inject or withdraw housing equity and on the value of such flows. We aim to address three questions, which together build towards an understanding of the drivers of aggregate housing equity withdrawal. First, what characteristics influence a household's decision to alter their housing equity? Second, for households that did alter equity, what influenced whether they injected or withdrew? Third, what factors affect the average value of such adjustments? Throughout this section we separate households that transacted in property from those that did not (transactors and nontransactors). This treatment, supported by the data, reflects that the decision to alter equity through a property transaction is typically undertaken as part of a change in dwelling ownership, which involves a much larger set of considerations than the decision to alter equity without a property transaction.

Modeling transactor withdrawals and injections
Assessing the characteristics that influence whether transacting households adjust or maintain their housing equity turns out to be a trivial exercise, as no household in the survey that made a property transaction maintained a constant level of housing equity. Given this, we move directly to the second question of what characteristics influence whether such households inject or withdraw. (While it

is probable that households purchasing property inject and households selling property withdraw, and hence that our model partly captures factors influencing the decision to buy or sell property, there are a number of households for which this is not true.)

A logit model is an appropriate tool for modeling the discrete choices of property transactors. The random variable, y, is defined so that it is 0 if the household injected equity and undertook one or more transactions, and 1 if the household withdrew equity and transacted. The probability that a household withdrew equity, given it transacted property, is given by:

$$P(y = 1|\mathbf{x}) = \exp(\mathbf{x}\beta_j)/[1 + \exp(\mathbf{x}\beta)] \tag{7.1}$$

where $\boldsymbol{x}$ is a vector of household characteristics and $\boldsymbol{\beta}$ a vector of coefficients. (For details on the construction of variables used in the regressions, see Appendix D in Schwartz et al. (2006).) Results of this logit model are shown in Table 7.8. The model is able to identify which households injected and which households withdrew equity, with an overall accuracy rate of 77 percent.

Table 7.8 Propensity to withdraw rather than inject housing equity

Property transactors	*Coefficient*	*Marginal effect*	*Mean*	*Units*
Demographic characteristics				
Age	−0.125*	−0.05	47.7	5-year intervals
Age^2	0.001*			
Employed	−1.588**	−0.35	0.80	Dummy variable
Retired	−2.262***	−0.43	0.13	Dummy variable
Couple	−0.513*	−0.13	0.66	Dummy variable
University educated	−0.646**	−0.16	0.38	Dummy variable
Investor	−0.354	−0.09	0.29	Dummy variable
Financial characteristics				
Household income	0.020	0.09	$71,700	$10,000 intervals
Household income^2	0.000			
Housing equity	0.191***	0.43	9.02	Log dollars
Number of properties	0.693***	0.17	1.27	Number
In debt	−1.317***	−0.31	0.34	Dummy variable
LVR	−0.697	−0.07	0.18	Ratio
Constant	2.445			
Percent correctly predicted	77			
Pseudo-R^2	0.248			
Number of observations	386			

Notes: ***, ** and * represent significance at the 1, 5 and 10 percent levels. Marginal effects are calculated: for dummy variables as a change from 0 to 1; for the number of properties as a change from 1 to 2; and for age and income as 1 interval change from the mean. Age and income are both categorical variables that enter as the midpoint of each range (with income expressed in thousands). Marginal effects for other variables are calculated as elasticities ($\delta \ln x/\delta \ln y$). Housing equity, number of properties, presence of housing-secured debt (in debt) and LVR are defined as at 31 December 2003.

The role of the life-cycle is clearly evident, consistent with the bivariate analysis presented earlier. Households whose main income earner was in their 30s, 40s, or 50s predominantly injected equity following a property transaction, while households whose head was in their 60s or 70s predominantly withdrew equity.[2]

The results also suggest that portfolio rebalancing plays a part in determining the likelihood of withdrawal. For example, households with greater housing equity were more likely to withdraw equity following a transaction than those with less housing equity. Households with relatively easy access to housing equity as a source of funds were also found to be more likely to withdraw than inject, as evidenced by a positive coefficient on households with a larger number of properties (such that they were more readily able to liquidate part of their holdings). However, some surprising results are also evident; retirees that transacted in property were found to be *less* likely to withdraw than were other households, as were property-transacting couples.

To model the *value* of injections and withdrawals undertaken by property transactors, we use subsample ordinary least squares (OLS), with separate equations for injectors and withdrawers (the value of injections or withdrawals is specified in log terms). The decision to use subsample OLS rests on a desire to model *actual* decisions, rather than *possible* decisions. In other words, our approach is to estimate what factors influenced the value injected or withdrawn, given that a household had already decided to inject or withdraw (the conditional probabilities). This is preferable to estimating the unconditional probabilities if the decision to inject or withdraw was taken *prior* to the decision regarding the amount, as we assume. The results are shown in Table 7.9.

Table 7.9 Value of injections and withdrawals

Property transactors	*Withdrawers*	*Injectors*		*Withdrawers*	*Injectors*
Demographic characteristics			*Financial characteristics*		
Age	0.564**	0.042***	Number of properties	0.346**	
Age^2	−0.012**		Household income	0.000	0.007**
Age^3	0.000**		Housing assets	0.252***	
Professional		0.519**	Housing equity		−0.114***
Couple	−0.430*		In debt	−0.425*	0.390
Investor	−0.147	0.786**	LVR	−1.356***	0.166
Metropolitan	−0.384**		Constant	−0.203	8.498***
Adjusted R^2	0.472	0.172	Number of observations	184	201

Notes: ***, ** and * represent significance at the 1, 5 and 10 percent levels, calculated using robust standard errors. The dependent variable is defined as the log of the absolute value of injection or withdrawal. Age and income are both categorical variables that enter as the midpoint of each range (with income expressed in thousands). Housing assets, equity, number of properties, presence of housing-secured debt and LVR are defined as at 31 December 2003.

Age appears to play an important role in determining the average value of withdrawals, in addition to the role it plays in influencing the propensity to withdraw. The value of withdrawals tended to be higher for households whose head was in their mid- to late 30s, lower for those nearing retirement, and higher again for older households trading down or selling outright. In contrast, there is little variation in the value of injections as households aged. Diversification considerations seem to influence the values withdrawn and injected; households with large asset holdings tended to withdraw more, and those with more housing equity tended to inject less. Also, high levels of borrowing (measured by the LVR) tended to reduce the amount withdrawn, perhaps reflecting constraints against further borrowing or even that they had withdrawn substantial equity previously. (Capital gains was excluded as an explanatory variable as this information is only available for properties still owned at the end of 2004.)

Modeling non-transactor withdrawals and injections

The appropriate framework for modeling nontransactors' *propensity* to inject or withdraw equity is less clear than for transactors. It is theoretically desirable that the three choices facing nontransactors – to inject, withdraw, or maintain their equity – be modeled in a single framework to take account of the simultaneity of these decisions. However, estimates from a multinomial model that includes these three decisions indicate that there is little distinction between households that injected and households that withdrew.[3] Consequently, we first model the decision of households to adjust their housing equity or maintain it using the logit framework represented by equation (7.1) above. We restrict the sample to households that owned property at some time during the year, in order to abstract from households whose tenure choice precluded them from injecting or withdrawing equity. We then model the choice to either inject or withdraw equity for those households that made one of these choices, again using a logit framework. There is little loss of efficiency but a gain in clarity from this approach.

The fit of the model for the first regression is very good, with almost 90 percent of households correctly identified. This partly reflects the fact that most households with a loan are required to make principal repayments irrespective of their other activities. Nevertheless, over 70 percent of the households in the sample are still correctly identified in a model that removes all loan variables.[4] Table 7.10 (left-hand side) presents the results from this model.

The most notable influence on the decision to adjust equity, rather than maintain it, is the age of the household. Consistent with the results for transactors and those shown previously, middle-aged nontransacting households are found to be particularly likely to have adjusted their housing equity. In contrast, older households typically did not make such adjustments. The implied probability for households to adjust their housing equity peaks when the household head is aged 40–44 years, and remains above 50 percent until the household head is beyond retirement age.

Portfolio-rebalancing motives again appear to be important, as investors in housing and households with larger annualized capital gains were more likely to adjust their housing equity. Furthermore, households that were more easily able to access their funds – due to loan features such as an offset account – were also more likely to adjust their housing equity. One of the potential benefits of using these facilities

Table 7.10 Decision to adjust housing equity

Nontransactors	*Alter rather than maintain equity*			*Withdraw rather than inject equity*			*Units*
	Coefficient	*Marginal effect*	*Mean*	*Coefficient*	*Marginal effect*	*Mean*	
Demographic characteristics							
Age	0.067**	0.01	53.9				5-year intervals
Age^2	−0.001**						
Employed	0.421	0.10	0.69				Dummy
Retired	0.566	0.14	0.27	−0.783**	−0.11	0.08	Dummy
Investor	0.387*	0.10	0.16	−0.359	−0.06	0.21	Dummy
Number of incomes				−0.109	−0.02	1.6	Number
Financial characteristics							
Household income	0.003*	0.09	$61,100	−0.002	−0.12	$74,400	$10,000 intervals
Housing assets	−0.020	−0.07	12.8	−0.162	−0.35	12.8	Log dollars
Number of properties	−0.162	−0.04	1.21	0.187	0.03	1.27	Number
Capital gains	0.021***	0.01	10.4	0.013**	0.01	11.1	% p.a.
In debt	3.114***	0.65	0.51	−0.163	−0.03	0.88	Dummy
LVR	0.201	0.02	0.17	−0.139	−0.03	0.30	Ratio
Ahead of schedule	1.145***	0.27	0.24	−0.521***	−0.09	0.44	Dummy
Redraw account	0.247	0.06	0.31	0.510***	0.08	0.55	Dummy
Offset account	0.732**	0.18	0.07	−0.025	0.00	0.14	Dummy
Line of credit				0.591***	0.11	0.19	Dummy
Other characteristics							
Detached house	−0.467**	−0.12	0.10				Dummy
Metropolitan	0.309**	0.08	0.37				Dummy
Constant	−5.703***			−0.415			
Percent correctly predicted		88			78		
Pseudo-R^2		0.511			0.036		
Number of observations		2,861			1,443		

Notes: ***, ** and * represent significance at the 1, 5 and 10 percent levels. Marginal effects are calculated: for dummy variables as a change from 0 to 1; for the number of properties as a change from 1 to 2; and for age and income as 1 interval change from the mean. Age and income are both categorical variables that enter as the midpoint of each range (with income expressed in thousands). Marginal effects for other variables are calculated as elasticities ($\delta \ln x / \delta \ln y$). Housing assets, number of properties, presence of housing-secured debt and LVR are defined as at 31 December 2003.

(as opposed to selling other assets for example) to access funds is that the household retains ownership of the (property) asset, and hence the potential to benefit from any capital gains. Finally, and somewhat surprisingly, households with lower incomes were found to be more likely to adjust their equity than those with higher incomes.

In contrast to the high prediction rate for the first regression, the second model cannot correctly identify nontransactor households as either injectors or withdrawers, with all but five households estimated to have injected – suggesting caution in interpreting the results.[5] There are very few characteristics that are found to distinguish the two groups (Table 7.10, right-hand side), with many characteristics that were important in determining whether such households adjusted equity not found to be important in determining whether they injected or withdrew equity. Those households with easy access to funds (due to a line of credit or redraw facility) were more likely to withdraw housing equity, as were households that had experienced larger annualized capital gains on their property. This adds to evidence suggesting that an extended period of strong home price growth is likely to support aggregate housing equity withdrawal. In contrast, households that were ahead of schedule on their loan repayments were more likely to inject equity, perhaps indicating a pre-established preference towards investing in their homes. Retirees are also (counterintuitively) found to inject more often than withdraw, reflecting the high incidence of renovation spending by such households.

Our difficulty in modeling decisions regarding injecting versus withdrawing equity may reflect our inability to proxy what are likely to be significant distinguishing characteristics. For example, we have no proxy for households' tolerance for risk – those that are less risk averse are more likely to be willing to make withdrawals. Similarly, we do not have information on whether households suffered temporary shocks to their income during the year, with adverse shocks likely to encourage withdrawals and positive shocks encouraging injections. A second (potentially related) possibility is that middle-aged households tend to *both* inject and withdraw in regular succession, depending on their spending needs at the time. This would be consistent with the finding that households that can access their housing equity relatively cheaply (through loan features such as an offset account) are more likely to adjust their equity.

To model the *value* injected and withdrawn by nontransactor households we use the same methods as for transactors – that is, subsample OLS. This regression is better able to distinguish between injectors and withdrawers than the previous logit regression. For households injecting equity, the value of these injections tended to be largest for those in their middle years, while there was little effect of age on the value of withdrawals (Table 7.11). Injector households whose heads were employed full-time also tended to make larger injections, consistent with consumption-smoothing motives, although there is no evidence that larger withdrawals were made by those not working. Households with multiple incomes were found to inject less and withdraw more, perhaps reflecting the greater stability of their incomes. However, some surprising results are also evident; for example, households with high LVRs were found to adjust their equity by large amounts, regardless of whether injecting or withdrawing.

Looking at both the propensity and value of injections and withdrawals by nontransactors, it is clear that total nontransaction-based housing equity withdrawal

Table 7.11 Value of injections and withdrawals

Nontransactors	*Withdrawers*	*Injectors*		*Withdrawers*	*Injectors*
Demographic characteristics			*Financial characteristics*		
Age	−0.004	0.050**	Household income	0.003	0.002**
Age^2		−0.001**	Housing assets		0.630***
Employed full-time		0.318***	Housing equity	0.391***	
Number of incomes	0.278*	−0.274***	In debt	−0.873***	−0.921***
Couple, no children		0.258***	LVR	1.251**	1.100***
Investor	−0.060	0.042	Capital gains	0.000	0.009**
Number of properties	0.152**		Payments ahead of schedule	−0.443***	0.331***
NSW	0.169	0.040	Redraw account		0.038
Victoria	0.313*	0.158	Offset account		0.262**
Queensland	0.397**	0.193*	Line of credit		0.223**
Constant	4.360**	−0.830			
Adjusted R^2	0.193	0.217	Number of observations	319	1,111

Notes: ***, ** and * represent significance at the 1, 5 and 10 percent levels, calculated using robust standard errors. The dependent variable is defined as the log of the absolute value of injection or withdrawal. Age and income are both categorical variables that enter as the midpoint of each range (with income expressed in thousands). Housing assets, equity, number of properties, presence of housing-secured debt and LVR are all defined as at 31 December 2003.

was underpinned by households in their middle years. Such households were more likely to inject and withdraw, and, when they did inject, tended to inject larger amounts than other households. Given the similarity of both injectors and withdrawers, it is also not surprising that those with relatively cheap access to their funds were more likely to adjust (and particularly withdraw) housing equity. Portfolio-rebalancing motives appear to have had a smaller, but still important, influence on non-transaction-based housing equity withdrawal. However, it is difficult to distinguish households that injected from those that withdrew, although age, income stability, and gearing ratios do appear to have had different effects on the average value of injections and withdrawals.

7.5 Uses and Sources of Funds

7.5.1 Uses of funds by equity withdrawers

The survey asked all households that withdrew equity (in net terms) over 2004 what they did with the funds withdrawn. Respondents were prompted with a number of possible answers, including using the funds for various types of consumption, the purchase of various assets, and the repayment of nonhousing-related debt. Overall, the results suggest that, while a significant share (18 percent) of the equity they withdrew over the year was used mainly for consumption, the bulk (59 percent) was used mainly for asset accumulation, with an additional 8 percent used mainly to pay down other debt (Table 7.12).[6] Around 10 percent of funds withdrawn were associated with a respondent that could not (or would not) say how the funds had been used.

The largest category of assets accumulated with withdrawn funds was deposits, accounting for around one-third of all withdrawn funds. Over a half of these deposits (by value) were from households that intended to use these funds to either purchase or renovate residential property at a later date, with only 16 percent (by value) intended to be left on deposit during 2005. Other forms of asset accumulation included investing in household businesses (3 percent of withdrawn funds), commercial property (2 percent), superannuation (5 percent) and other nonproperty investments (16 percent) such as equities.

The results also show that the use of funds varied considerably with the method of equity withdrawal. Nontransacting households that withdrew equity were much more likely to mainly use the funds to finance consumption than were households that engaged in a property transaction and withdrew equity. Of nontransactors that withdrew equity and identified a specific use for the funds, over half indicated consumption spending, including home redecorations, holidays, consumer durables, and motor vehicles. A further 5 percent of these households cited consumption as one, but not the main, use of the withdrawn equity.

In contrast, only about one-fifth of transactors that withdrew equity and identified a specific use for the withdrawal indicated that the main use was to finance consumption. The more typical response was that the funds withdrawn were allocated to other assets. Households that withdrew larger amounts were more likely to specify a use of funds, probably reflecting the greater significance attached to larger expenditures.

Table 7.12 Households withdrawing equity: main use of funds (percent)

	Nontransactors		*Property transactors*		*All methods*	
	Share of all households	*Share of value withdrawn by this method*	*Share of all households*	*Share of value withdrawn by this method*	*Share of all households*	*Share of total value withdrawn*
Household expenditure	*3.4*	*29.7*	*0.7*	*13.0*	*4.0*	*17.6*
Of which:						
Redecorations/durables, etc.	1.5	13.0	0.3	6.9	1.8	8.6
Car	1.3	12.0	0.2	3.6	1.5	5.9
Holiday	0.5	2.9	0.2	1.3	0.6	1.7
Living expenses	0.1	1.8	0.1	1.2	0.2	1.4
Asset accumulation	*1.6*	*41.0*	*2.3*	*65.2*	*3.9*	*58.5*
Of which:						
Deposits	0.6	18.6	1.3	38.6	1.9	33.0
Superannuation	0.0	1.5	0.2	5.8	0.2	4.6
Household business	0.3	4.9	0.1	2.0	0.5	2.8
Commercial property	0.1	5.9	0.1	0.4	0.1	1.9
Other nonproperty investments	0.5	10.2	0.6	18.4	1.2	16.1
Repay other debt	*0.7*	*8.3*	*0.4*	*7.4*	*1.2*	*7.7*
Other	*0.6*	*4.6*	*0.4*	*7.1*	*1.0*	*6.4*
Cannot say	*1.1*	*16.4*	*0.6*	*7.3*	*1.7*	*9.8*
Total	*7.3*	*100.0*	*4.4*	*100.0*	*11.7*	*100.0*

Notes: Components may not sum due to rounding, and calculations involve some imputation. Also, for each household, the full value of withdrawn equity has been apportioned to the specified main use of funds.

Table 7.13 Alternate source of funds if not withdrawn housing equity

Percent of net withdrawers that would have:	*Nontransactors*	*Property transactors*	*Total*
Not raised funds at all	54.4	61.0	56.8
Other secured loan	19.5	11.9	16.7
Run down savings	9.9	10.5	10.1
Credit card	8.6	5.9	7.6
Other unsecured loan	8.7	2.4	6.3
Other property-secured loan	1.1	0.0	0.7
Other sources	6.6	8.3	7.2
Cannot say	1.1	3.6	2.0

Notes: Columns sum to more than 100 percent as some households provided multiple answers. Calculations involve some imputation.

7.5.2 Alternative sources of funds for equity withdrawers

Households that withdrew equity over 2004 were also asked what they would have done had they not been able to withdraw equity from their residential property. This provides some indication as to the role of housing equity in facilitating these transactions. Over half of those that withdrew equity during 2004 said that they would not have otherwise raised the funds; over a quarter said they would have applied for a loan or used their credit card; and around 10 percent said they would have run down their savings (Table 7.13).

Transactors were less likely than nontransactors to seek alternative sources of funds if they had not been able to access them via housing equity withdrawal – consistent with the earlier discussion that transactors' decisions to withdraw or inject equity may often be secondary to their decisions to undertake property transactions. Those households using the funds for consumption were slightly more likely than other withdrawers to say that they would have accessed the funds from other sources if housing equity withdrawal had not been available to them.

The large proportion of nontransactor households that would not have otherwise raised funds suggests that their withdrawal of equity was in large part supported by the ease and relatively low cost of obtaining funds in this way. For transacting households the implications are less clear – raising funds may have been a by-product of their decision to transact for other reasons.

7.5.3 Sources of funds for equity injectors

Just as the use of withdrawn funds has implications for household spending, so too may the source of injected funds, since these funds could otherwise have been used for consumption purposes. For the 16 percent of households that injected equity solely by making regular payments on their mortgage, income was presumably the main source of funds. Of the households making typically larger lump-sum

Table 7.14 Source of funds for lump-sum injectors

	Nontransactors (percent)	*Property transactors (percent)*	*Total (percent)*	*Median ($)*
Savings	34.8	22.9	30.4	19,000
Income	25.0	23.7	24.5	20,000
Sale of other assets	15.0	30.4	20.6	73,000
Inheritance	4.1	2.7	3.5	80,000
Loan from friends or family	0.5	2.7	1.3	—
Gift received	1.0	2.7	1.6	—
Other	19.6	15.0	17.9	20,900

Note: Medians are not reported where sample size is very small.

injections, around half reported that they financed those injections primarily through drawing on savings and other assets, and around a quarter reported that they financed them from their regular income, with the remainder coming from various other sources (Table 7.14).

7.6 Aggregate Implications of the Survey

Thus far, we have concentrated on the microeconomic results for 2004 arising from the survey. This section aims to draw some aggregate implications from these results. First, we consider what the survey results imply for aggregate flows of housing equity over 2004. Second, we consider factors contributing to movements in aggregate housing equity withdrawal over time. Finally, the implications of housing equity withdrawal for key uses such as consumption over time are considered in light of the survey. As the survey was only for 2004, inference on other periods assumes that the findings are broadly representative of how equity was withdrawn and used in other years.

7.6.1 Aggregate flows of housing equity in 2004

The sample results were aggregated to economy-wide flows by multiplying each household's net injection or withdrawal by the frequency weight attached to that household (that is, the number of Australian households the respondent household represents). Housing equity flows over 2004 based on aggregated survey responses suggest that:

- households that were net withdrawers of equity by increasing debt on already-owned property withdrew around $20 billion;
- households that were net injectors of equity by reducing debt injected around $28 billion;

- households that were net injectors of equity primarily through renovations injected around $16 billion;[7]
- households engaging in property transactions were responsible for the largest flows of equity – of these, net equity withdrawers extracted around $53 billion, while net equity injectors added around $43 billion.

Combining these, the survey findings suggest a net equity *injection* of around $13 billion in 2004. This contrasts with aggregate data, which show a net *withdrawal* of $17 billion. Given the vagaries of measuring the flows involved, both at a household and aggregate level, it is not unexpected that the measures do not line up, though it is a caveat to bear in mind. (The discrepancy between the survey and aggregate data is likely to partly reflect survey respondents reporting less debt than is suggested by aggregate figures, a feature also observed in household surveys in other countries (see Redwood and Tudela 2004).)

7.6.2 Housing equity flows over time

As previously shown, over 2004, the largest aggregate flows of housing equity came from households *transacting* in the housing market. The typical housing transaction gave rise to net equity withdrawal, with vendors tending to have less debt remaining than was taken on by buyers, a pattern likely to be exacerbated by a period of rising home prices.

These findings suggest that movements in turnover and home prices are important for movements in housing-secured credit and aggregate housing equity withdrawal, a point borne out by the data. Figure 7.4 shows that the turnover rate of the national housing stock rose consistently over the mid- to late 1990s, reaching a high level in 2002 and 2003 – a period in which housing equity withdrawal was also strong. Subsequently, both turnover and housing equity withdrawal have declined significantly. Similarly, nationwide home prices rose rapidly up to late 2003, but in the period since gains have been more moderate, with home prices leveling off in the 2004 to early 2005 period and in the first half of 2008.

Another relevant consideration for housing equity flows is the activity of property investors. The share of housing loan approvals made to investors rose from around 0.5 in 2000 to a peak of around 45 percent in 2003, followed by a subsequent decline. This may have contributed to rising housing equity withdrawal up to 2003 because, according to the survey results, investors tend to purchase with relatively higher LVRs.

The survey results suggest that flows of housing equity due to nontransactors are of less importance. Nonetheless, partial data on these flows, where available, are also consistent with developments in aggregate housing equity withdrawal in recent years. The survey identifies mortgage refinancing as one of the main methods of *withdrawing* equity by nontransacting households. Australian Bureau of Statistics (ABS) data on refinancing of owner-occupier mortgages show rapid growth in loan refinancing during 2002 and 2003. In addition, borrowing through home-equity line-of-credit products increased by more than 30 percent over 2003, before slowing. Movements over time in equity *injection* by nontransactors, however, are difficult

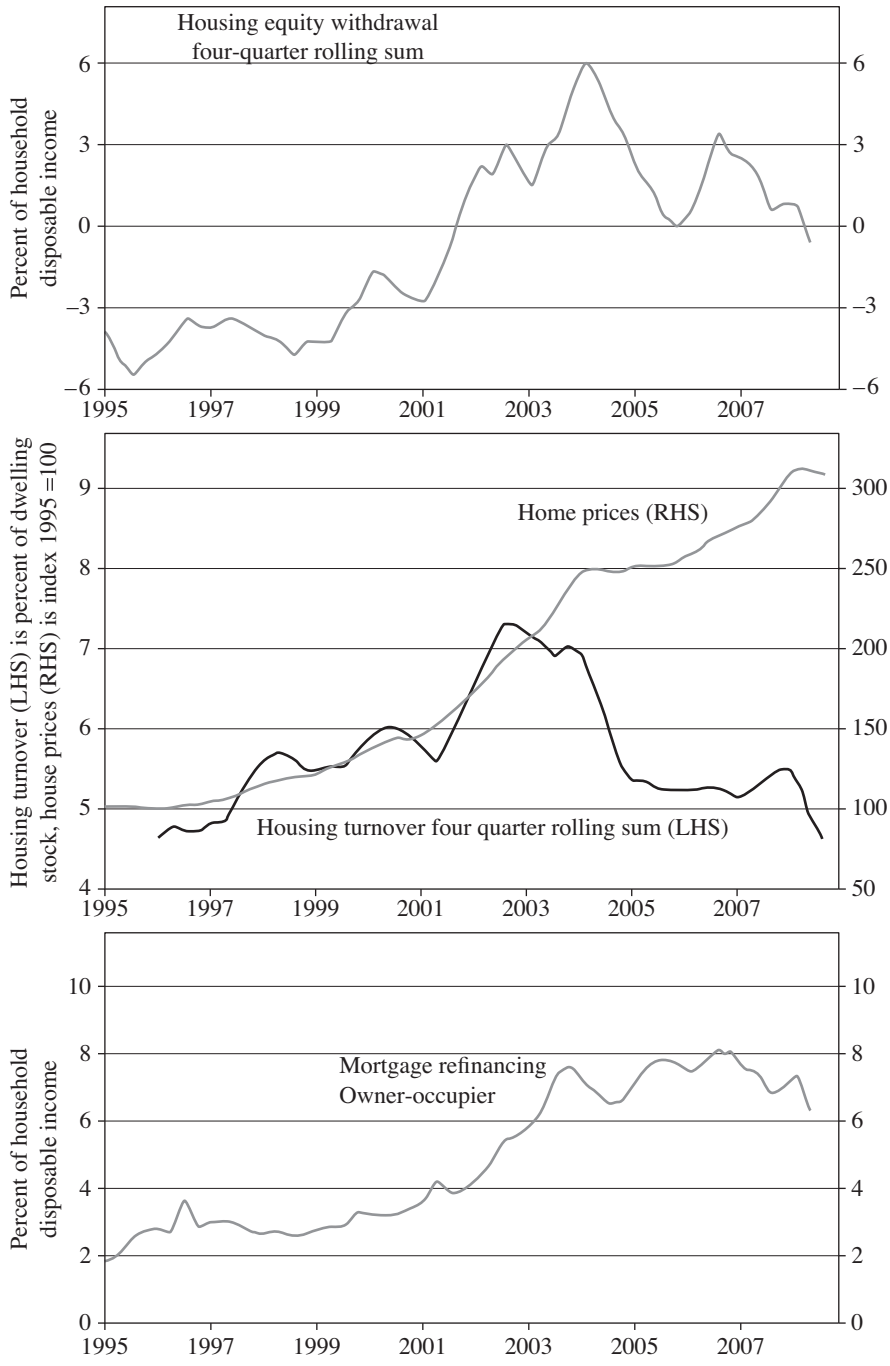

Figure 7.4 Drivers of housing equity withdrawal.
Note: Percent of household disposable income; percent of dwelling stock.
Source: Australian Bureau of Statistics; Australian Property Monitors; Australian Treasury; and Reserve Bank of Australia

to gauge, with various influences likely to have shaped any overall trend in principal repayments over recent years. These include ongoing growth in wealth and income, the increased share of interest-only loans, and flexibility of many mortgage products.

7.6.3 Housing equity flows and economic activity

The survey results suggest that changes in housing equity flows are likely to be only partly reflected in changes in consumption. This reflects that property transactions are a key driver of movements in net housing equity flows, and the bulk of equity extracted from transactions appears to be used to acquire nonhousing assets. Nevertheless, it remains likely that the move towards equity withdrawal evident for much of the past 10–15 years has been one of the factors supporting strong growth in consumption over that period. Moreover, housing equity withdrawal tends to move with household wealth, which has broader effects on consumption.

For 2004, the results suggest that around 18 percent of the aggregate equity withdrawn by net withdrawers was used for consumption, which represents around 2.5 percent of the level of aggregate household consumption. However, this estimate may understate the amount of gross withdrawals used for consumption (see above, Section 7.6.1).

The static nature of the survey means that it is not possible to assess contributions to growth from the survey data alone. Nonetheless, it seems likely that the strong growth in housing equity withdrawal over 2001–2003 contributed to strong growth in consumption relative to income (and a corresponding decline in the saving rate) over that period. The subsequent period of lower housing equity withdrawal and, more recently, a return to housing equity injection has coincided with a fall in the consumption-to-income ratio (Figure 7.5). Trends in aggregate financial variables are also broadly consistent with the survey findings on uses of withdrawn equity. Personal credit growth was well below that of housing credit in the early 2000s, consistent with households withdrawing housing equity as a substitute for other debts, but this trend has subsequently abated. Flows into financial assets also rose and fell with movements in housing equity withdrawal around its peak. (In recent years purchases of financial assets have picked up again, driven by flows into superannuation, consistent with changes to superannuation taxation arrangements.)

Another channel through which swings in household borrowing affect economic activity is spending on renovations. Borrowing to finance this form of spending does not necessarily lead to a withdrawal of equity, if the borrowed funds are used solely to increase the value of the household sector's housing assets. Nevertheless, the effect on overall activity can be significant. During the period of housing equity withdrawal, annual spending on renovations averaged around 4.5 percent of household disposable income, up from an average of around 3.5 percent between 1990 and 1998. The survey data suggest that, in many cases, renovations have been partly funded by drawing down on the equity built up as a result of the large home price increases since the mid-1990s. Around 11 percent of surveyed households spent money on renovations in 2004, with the median amount spent on the main home equal to $14,000. Around 40 percent of these households used housing debt

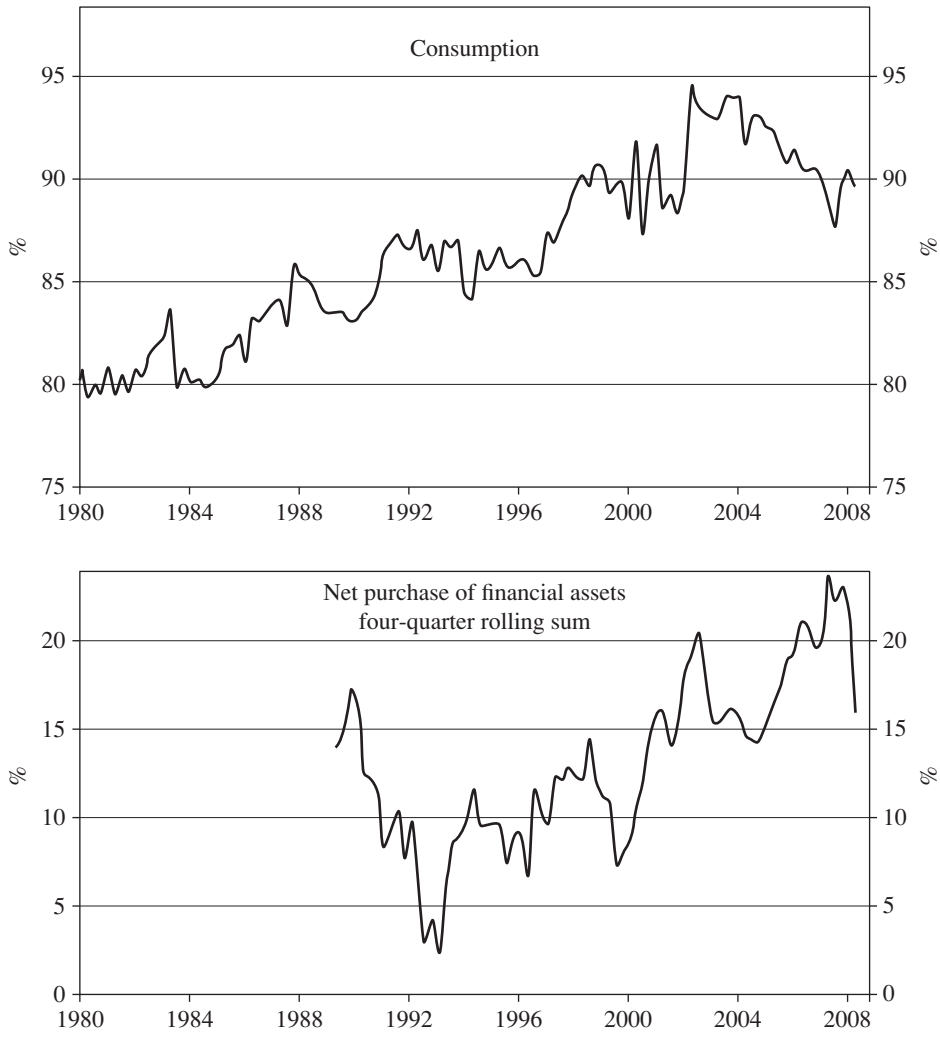

Figure 7.5 Selected uses of household funds.
Note: Percent of household disposable income.
Source: Reserve Bank of Australia

to at least partly finance their renovation expenditure, with debt finance being used more often for larger renovations.

7.7 Conclusion

The survey results provide a wide range of information relating to housing equity flows. In addition to being the first survey of its kind in Australia, the comprehensive

approach extends the more narrowly focused surveys conducted internationally on this topic. This survey captured flows of both housing equity withdrawal and injection by all households, including flows associated with deceased estates, nontransaction-related debt repayments, and nondebt-financed renovations. Another innovation is information gathered on the features of each household's mortgage, to help gauge the importance of new financial products to housing equity flows.

The results of the survey suggest that any aggregate series for net housing equity withdrawal or injection masks large aggregate withdrawals and injections by households. Over 2004, 30 percent of households made net equity injections, while 12 percent made net equity withdrawals. The values injected were, however, typically much less than those withdrawn.

The most common methods of withdrawing or injecting housing equity were through altering debt levels on already-owned property holdings. Households that were net withdrawers over 2004 tended to favour methods such as refinancing and increasing loan size, or drawing down home-equity loans. Net injections were most commonly made through regular principal repayments. In addition, a number of households injected equity into already-owned properties through renovations.

Though fewer in number, withdrawals and injections of housing equity associated with property transactions were typically significantly larger in value, accounting for the bulk of the value of housing equity flows. In turn, the most important property transactors by value were those changing the number of properties owned.

The survey data show a significant life-cycle influence on housing equity flows, particularly among property transactors. Over 2004, the bulk of equity withdrawal was undertaken by older households, while younger households typically injected through deposits for property purchase or mortgage repayments. To our knowledge this intuitive result – evident both in bivariate and logit analysis – has not previously been demonstrated empirically. Age aside, there were few differences in the characteristics of households that injected without transacting and those that withdrew without transacting, although access to flexible mortgage features appeared to play some role in explaining household behavior.

The use of equity withdrawn tended to vary with the method by which it was accessed. Withdrawals associated with property transactions were used significantly more for accumulation of nonproperty assets than consumption, a preference less evident for nontransaction-based withdrawals. Overall, around two-thirds of equity withdrawn by net withdrawer households in 2004 was mainly invested in other assets or used to pay down other loans. In contrast, only a relatively small proportion of equity withdrawn was mainly used to fund consumption in that year.

These results have some potentially important aggregate implications. Swings in housing equity withdrawal are likely to be heavily influenced by turnover in the property market, given the importance of such transactions to gross equity flows and the observation that the typical property transaction results in net equity withdrawal. This effect is likely to be amplified following a period of sustained home price growth, and is consistent with the large increase in aggregate housing equity withdrawal in Australia between 2001 and 2003, along with its subsequent decline. Second, the survey results also suggest that a significant number of households have used refinancing opportunities over recent years to increase the size of their debts, for purposes including consumption and renovation. Third, only a

relatively small portion of overall equity withdrawn from the housing stock in 2004 was used for consumption.

Notes

1. Valuations were provided by the household. However, we believe that our analysis is unlikely to be biased by subjective valuations for the same reasons described in Ellis et al. (2003). In addition, it may be that households' *perceptions* of their financial position are more relevant to our analysis than is their actual position.
2. The age variable is categorical, with an open-ended "70 years and older" bracket. The income variable is similarly constructed (with "$130,000 or more" the open-ended response). The results are relatively insensitive to the use of larger intervals or dummy variables for these variables, and to the exclusion of households in these categories, suggesting that the results would be robust to the use of better-measured age and income variables.
3. An alternate to the multinomial logit model is the ordered probit approach. However, this method suffers to an even greater extent from the similarity in character of injectors and withdrawers, given that it treats withdrawals as negative injections.
4. An alternate approach would be to exclude nonindebted households from the regression. However, it is possible for such households to have withdrawn equity by taking out a loan during 2004, or to have injected through renovations, so we feel it is better to include this variable as a control, rather than restrict our sample.
5. The model predicts most households to be injectors, rather than withdrawers, because the number of injectors by far exceeds the number of withdrawers. Excluding small withdrawals and injections (those under $20,000 in absolute value) modestly improves our ability to separate these two groups, with 33 percent of withdrawers correctly identified. Under this alternate specification, income, LVR and housing assets all become significant.
6. This analysis apportions the full value of equity withdrawn by each household to the main use. An alternate approach is to split the withdrawn funds evenly between the identified uses when multiple uses were identified, and to assume that all households that did not report a use used the funds for consumption. This suggests that around 30 percent of the funds withdrawn by all households withdrawing equity over 2004 were used for consumption.
7. These households accounted for around half of overall renovation spending identified in the survey. Remaining renovation spending was dominated by other equity actions, and is captured in other categories.

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Chapter 8

What do we Know about Equity Withdrawal by Households in New Zealand?*

Mark Smith

8.1 Introduction

Since the start of the decade sizeable increases in household asset values, driven primarily by rising property prices, have coincided with a rundown in saving by New Zealand households (see Klyuev and Mills Chapter 3, this volume, for evidence from other countries). One of the mechanisms through which households could be dissaving is via equity withdrawal.

Equity withdrawal by households is the difference between borrowing secured on household assets less investment by households in those assets. It generates a net positive cash payment to households, which is available for consumer spending and other uses. Housing equity withdrawal is the most common means for households to extract funds from property assets, but there are other forms of equity withdrawal available. Strong credit growth secured on nonresidential property holdings suggests that households may have also been withdrawing equity from these assets as well.

This chapter summarizes my analysis of equity withdrawal by households in New Zealand. Following an outline for how an economy-wide measure of housing equity withdrawal is constructed, some of the influences, types, and uses of housing equity withdrawal are discussed. The chapter then investigates other forms of equity withdrawal available to households, including farm equity withdrawal. Evidence on the link between equity withdrawal and consumer spending are examined, as well as the impact of equity withdrawal on household saving.

A conclusion follows. The incidence of equity withdrawal at the economy-wide level by New Zealand households is a relatively new phenomenon and has been substantial. Rising housing and farm equity withdrawal has been driven by increases in borrowing, although there are recent signs that this period of sizeable aggregate housing equity withdrawal is coming to an end.

* The views in this chapter are those of the author and do not necessarily reflect those of the RBNZ.

Evidence from macroeconomic data sources suggests a high portion of equity withdrawal by households (around two-thirds) is used to finance consumption. Evidence from New Zealand unit record data indicates a stronger responsiveness of expenditures of older-age homeowners to home price movements than to other groups. By contrast, survey evidence from overseas and the pick-up in deposits of financial assets by New Zealand households suggest the marginal propensity to consume is somewhat lower, at least over the short-run. Whatever the case may be, it is likely that the proceeds of equity withdrawal will eventually be consumed, with the deterioration in household saving occurring within New Zealand during a period of rising equity withdrawal.

8.2 Deriving a Measure of Housing Equity Withdrawal for New Zealand

8.2.1 What is housing equity withdrawal?

Housing equity withdrawal (HEW) is a measure of the net cash effects of transactions into and out of the housing market made by households. It occurs when the borrowing for housing exceeds new investment in housing:

$$\text{HEW} = \Delta\text{mortgage debt} - \text{funds injected into housing stock} \tag{8.1}$$

Aggregate measures of HEW mask injections and withdrawals made by individual households. At any point in time some households are withdrawing equity, other households are injecting equity, whereas others will be doing neither.

In putting together estimates of equity withdrawal a bottom-up approach is used. I use the following identity used by the Bank of England:

$$HEW = NL + CG - HI - NT - TC \tag{8.2}$$

Where *NL* is net lending to individuals secured on dwellings, *CG* is capital grants for housing paid to personal sector/housing associations, *HI* is household sector investment in dwellings, *NT* is net transfers of land to the household sector, and *TC* is household transfer costs and transfers of dwellings between sectors. (See http://www.bankofengland.co.uk/mfsd/iadb/notesiadb/mew_notes.htm. The UK measure is referred to as mortgage equity withdrawal (MEW), although conceptually this is the same as HEW.) The appendix briefly discusses how estimates of the various HEW components were derived. The following section presents recent estimates and examines some of the key influences behind the increase in aggregate housing equity withdrawal.

8.2.2 Aggregate HEW in New Zealand

Figure 8.1 shows aggregate estimates for HEW. The historical norm has been a net injection of funds by households (and is similar to Australia, see Berry,

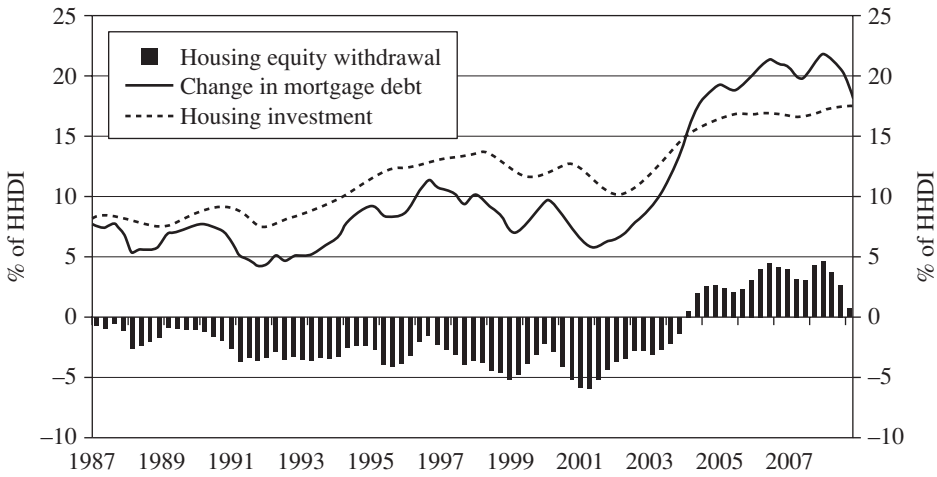

Figure 8.1 Housing equity withdrawal decomposition for New Zealand.
Source: Reserve Bank of New Zealand estimates

Table 8.1 HEW Summary table ($ billion)

March years	*(a) Increase in mortgage debt (NL)*	*Housing Investment (HI + TC + ND)*			*HEW*
		Household dwelling investment (HI + TC)	*Transfers ($NT_L + NT_D$)*	*(b) Total*	*(a) − (b)*
1990	3.4	3.4	0.5	3.9	−0.5
1995	4.1	5.1	0.9	6.0	−1.9
2000	5.4	6.5	1.6	8.1	−2.7
2003	7.8	7.7	1.6	9.3	−1.5
2004	13.6	9.5	2.2	11.7	1.9
2005	15.0	10.7	2.4	13.1	1.9
2006	16.7	11.0	2.5	13.5	3.2
2007	17.8	11.3	2.9	14.1	3.6
2008	15.8	12.3	2.9	15.2	0.6
1990Q2-present[a]	136.7			150.2	−13.6
1995Q2-	122.2			128.1	−5.9
2000Q2-	95.8			91.3	4.4
2003Q2-	78.9			67.8	11.2

[a] Up to (and including) March 2008 quarter.

Chapter 6, this volume). The recent trend towards aggregate housing equity withdrawal (black bars) has been driven by more mortgage borrowing (black line), with housing investment (dashed line) remaining at historically high levels. Since mid-2007, however, aggregate equity withdrawal has been declining, driven by slowing mortgage debt accumulation.

Table 8.1 summarizes the major components of aggregate HEW. Since the start of 2003 around $11 billion in equity has been withdrawn by households. Despite this, around $13.5 billion more has been injected into housing than withdrawn since 1990.

8.3 Influences, Types, and Uses of Housing Equity Withdrawal

The previous section showed that aggregate housing equity withdrawal has been taking place in New Zealand over the past few years. I now examine what might be behind this relatively recent occurrence.

8.3.1 Potential influences

Overseas literature (including several chapters in this volume) and our own research points to the following:

- *Rising property values*. This has boosted the equity of homeowners. Equity gains can be realized via property sales, trading down to a less expensive property, or mortgage refinancing.
- *Lower nominal interest rates*. This enables households to service more debt for a given nominal income.
- *Financial liberalization*. More flexible lending practices by financial institutions have enabled households to partly alleviate (previously binding) credit constraints and access cheaper forms of mortgage financing. The rolling out of new mortgage products (including revolving credit mortgages/reverse mortgages) has also made it easier for households to extract the rising equity of their home.
- *Better economic climate*. Increased job security may have contributed to reduced emphasis on precautionary savings and repayment of outstanding debt.
- *Other factors*. Demographic factors, and increasing use of mortgage debt to fund rental housing.

Given the interlinkages between these key drivers it is difficult to pinpoint any particular underlying factor. Nevertheless, the trend towards increasing aggregate HEW in New Zealand has largely been driven by an increase in mortgage debt levels rather than a fall in housing investment. Work at the Reserve Bank and elsewhere has highlighted a number of influences on mortgage debt levels, including:

1 *Increases in property prices*. Since the mid-1980s increases in aggregate mortgage debt levels have run in line with increases in the value of the housing stock, which in turn have largely been driven by rising property prices. Since 2001, up to the height of the recent housing cycle, the value of the private residential housing stock and mortgage debt has more than doubled.

   Following the analysis by Scobie and Van Zijll (2006) the relationship between equity withdrawal and housing equity is quantified by way of a reduced form equation. Housing equity withdrawal to household disposable income is regressed

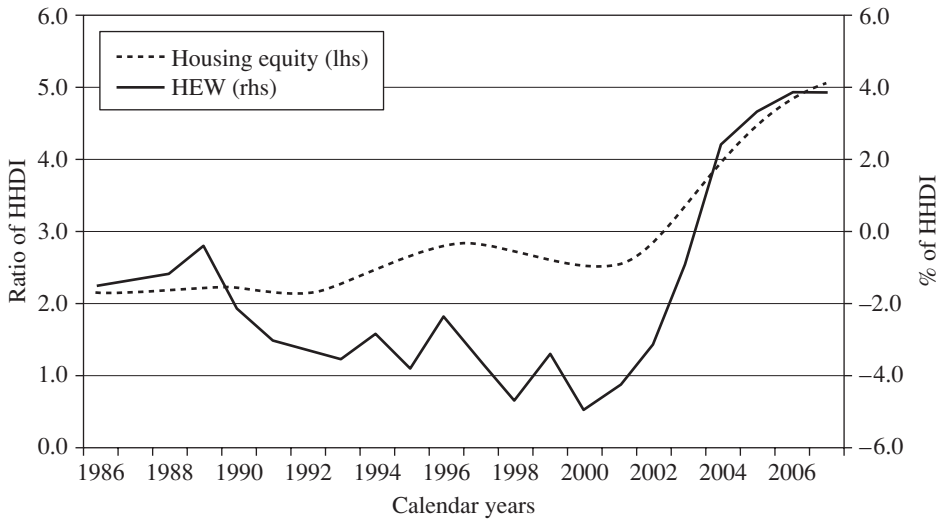

Figure 8.2 Rising property prices have coincided with housing equity withdrawal.
Note: lhs, left-hand scale; rhs, right-hand scale.
Source: Quotable Value Ltd, Reserve Bank of New Zealand estimates

on a constant and a measure of housing equity[1] to household disposable income over the 1988–2007 period. Results for New Zealand suggest that a 10 percentage point increase in the housing equity to income ratio boosted housing equity withdrawal by 0.7 percent of income in the following quarter. However, this result appears to have been driven by what has occurred over recent history rather than capturing a stable long-run relationship (see Figure 8.2).

2 *Dwelling transactions*. Increases in property prices are unlikely to have a significant impact on equity withdrawal unless they are realized. One of the mechanisms through which equity can be withdrawn is via the selling of property. When a property changes hands the impact on mortgage debt (and hence equity withdrawal) will depend on the debt and equity positions of both buyer and seller. If the deposit by the purchaser is lower than the proceeds received by the seller (after debt repayment) the transaction will result in an increase in mortgage debt (and hence equity withdrawal). Figure 8.3 shows that changes in mortgage debt in New Zealand (black line) tend to follow the value of house sales (grey bars) with a short lag.

8.3.2 Types and uses of HEW

Although the incidence of aggregate housing equity withdrawal in New Zealand is a relatively new phenomenon, different types of equity withdrawal and injection have occurred in particular households, at various points in time. Box 8.1 summarizes the various forms of housing equity withdrawals and injections by

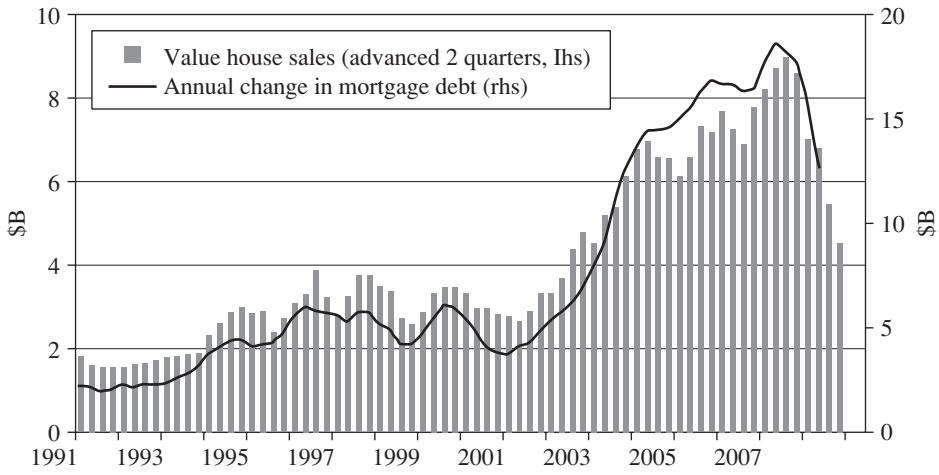

Figure 8.3 Dwelling turnover and changes in mortgage debt.
Note: lhs, left-hand scale; rhs, right-hand scale.
Source: Real Estate Institute of New Zealand, Reserve Bank of New Zealand estimates

Box 8.1 Types of Withdrawals and Injections into the Housing Stock

Withdrawals

Last-time sales:	A seller does not buy another property – the proceeds of the sale are released from the housing market.
Trading down:	A seller moves to a cheaper property but reduces the mortgage, leaving a cash sum.
Overmortgaging:	A moving owner-occupier increases their mortgage by more than the difference between the new and old home prices.
Remortgaging:	A borrower remortgages to a higher value than the previously held mortgage without moving properties.

Injections

First-time purchase:	Deposit paid by first time buyers.
Mortgage repayments:	Regular and irregular repayments of the principal (the amount borrowed).
Home improvements:	Home improvements paid for with nonsecured funds.
Undermortgaging:	A moving homeowner changes their mortgage by less than the difference between the old and new home prices.
Underremortgaging:	Borrower remortgages and reduces their debt without moving properties.

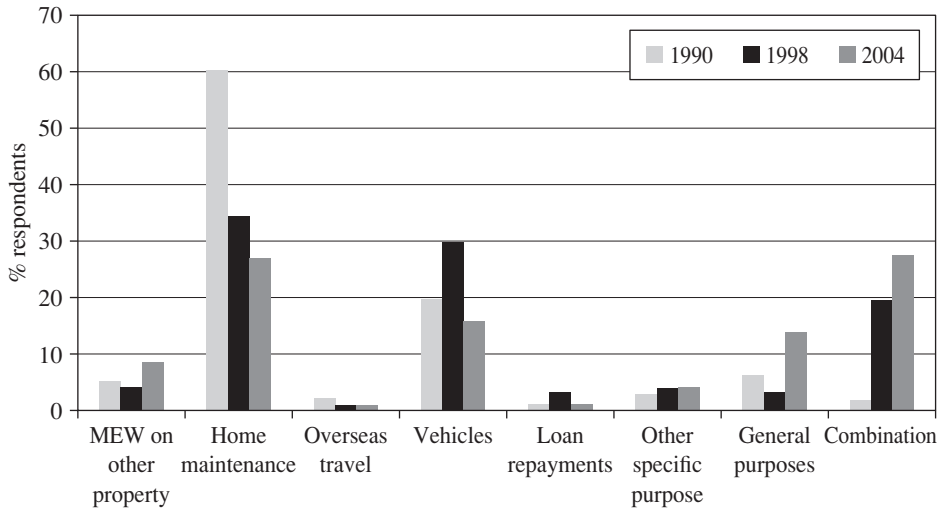

Figure 8.4 Purposes for refinancing and home equity borrowing in New Zealand.
Note: (By respondents identifying reasons for increasing mortgage principal): MEW, mortgage equity withdrawal.
Source: Household Economic Survey

individual households that can take place. Rather than rely on macroeconomic data sources it would be useful to examine household level data to see if they yield any insights on equity withdrawal.

New Zealand survey evidence
An analysis of the Household Economic Survey (HES), a 3-yearly survey of roughly 3,000 households, provides some limited information on what the proceeds from mortgage refinancing are used for in New Zealand. Figure 8.4 suggests the proceeds are mostly used to finance home improvements and to purchase consumer durables. However, as results from a number of specifically designed surveys on HEW overseas indicate, this is unlikely to be the whole story, with the uses of HEW depending on how the equity is injected or withdrawn.

Overseas survey evidence and active and passive HEW
Of particular relevance to New Zealand was a survey on equity withdrawal in Australia by the Reserve Bank of Australia (RBA; see Schwartz et al. Chapter 7, this volume). According to this survey, 42 percent of all households changed their housing equity over 2004; 12 percent of households made a net withdrawal of equity whereas 30 percent made a net injection.

An important distinction was that the uses of equity withdrawal depended on how it took place. The RBA study identifies two major forms of equity withdrawal.

1 *Equity withdrawal via refinancing on existing property – I term this active HEW*. This was the most common form of equity withdrawal in 2004. More than half

the value of equity withdrawal from this channel was used to finance consumer spending over the year.

2 *Equity withdrawal via property transactions – I term this passive HEW*. The median amount of equity withdrawn via this channel was much larger in 2004, accounting for almost three-quarters of the total value of HEW. Proceeds were mostly used to fund asset accumulation, with less than 20 percent spent over the year ahead.

The RBA study identified differences in demographic characteristics between those households that increased debt on existing property (active HEW) and those that withdrew equity through transactions in the property market (passive HEW). Older households (with little outstanding mortgage debt) selling to younger households are likely to have contributed to the strong pick-up in passive aggregate housing equity withdrawal.

Although the format of surveys in other countries differs slightly from the RBA survey, a similar picture emerges (Klyuev and Mills (Chapter 3, this volume) provide a useful summary). Much of the increase in mortgage debt (and hence HEW) occurs through housing transactions rather than mortgage refinancing, with households using the equity extracted to acquire financial assets or repay other debts. Usually less than 20 percent of total housing equity withdrawal by value was directly used to finance consumption.

Aggregate housing equity withdrawal has also been a common occurrence in many countries (see other country evidence in this volume). In New Zealand the property boom has not just been in residential property. The next section examines other potential forms of equity withdrawal available to households.

8.4 Other Forms of Equity Withdrawal by Households

Hodgetts et al. (2006) suggest there are other forms of equity withdrawal that can be used to fund spending by households. The 2001 Household Savings Survey indicated household holdings of unincorporated business and farm assets were in the region of $80 billion or 1.2 times total household disposable income. Increases in the value of property and other assets since then would have added to the net worth of households who have an ownership stake in these enterprises. It is possible that some households may also have been withdrawing equity from assets invested overseas.

Data limitations make it difficult to estimate the total value of nonhousing equity withdrawal that has taken place. However, one area where it is possible to construct estimates of equity withdrawal is for the farming sector. Given the importance of farming this is potentially a more important form of equity withdrawal for New Zealand than for other countries.

8.4.1 Farm equity withdrawal (FEW)

Sizeable increases in rural property values have considerably boosted the balance sheets of land owners in the rural sector. Higher rural property values have

Table 8.2 FEW summary table ($ billion)

March year	*Agricultural borrowing*		*Farm investment*		*Total FEW (a) − (b) − (c)*	*Combined HEW + FEW*
	Level	*(a) Change (RC)*	*(b) Fixed investment (FI)*	*(c) Net land purchases (LT)*		
1992	5.2	0.2	0.7	−0.2	−0.3	−1.6
1995	7.9	1.3	1.0	−0.4	0.7	−1.2
2000	12.2	0.6	0.9	−0.6	0.3	−2.5
2003	18.0	2.9	1.6	−0.8	2.0	0.5
2004	21.0	2.9	1.7	−1.0	2.2	4.0
2005	23.7	2.7	1.9	−1.1	1.9	3.7
2006	27.8	4.2	2.0	−1.2	3.4	6.6
2007	31.5	3.6	2.2	−1.3	2.7	6.5
2008	36.7	5.1	2.4	−1.4	4.2	4.8
1991–	*31.2*				*20.5*	*8.7*
2003–	*18.1*				*14.1*	*25.3*

* Up to (and including) March 2008 year.

coincided with higher rural borrowing suggesting that some of the proceeds of farm sales are being withdrawn. The rural sector has also received considerable funds from the sale of land to other sectors (including residential households).

Aggregate farm equity withdrawal is estimated using the following identity:[2]

$$FEW = RC - FI - LT \tag{8.3}$$

Where *FEW* is farm equity withdrawal, *RC* is annual increase in agricultural sector credit (Reserve Bank of New Zealand; RBNZ), *FI* is rural gross fixed capital investment (Statistics New Zealaind; SNZ), and *LT* is net purchases of land by the rural sector (RBNZ estimates). Table 8.2 summarizes components of farming equity withdrawal (see also Figure 8.5). The pick-up in aggregate FEW over the past few years (grey bars, Figure 8.5) largely reflects higher increases in agricultural credit (black line) rather than declining farming investment (dashed line). Land sales of farmland to households have also added to this withdrawal. Strong increases in farm values and high rural turnover suggest that a sizeable portion of recent FEW is transaction related (i.e. passive FEW).

Estimates of FEW are indicative. The boundaries between the rural and household sector are blurred, with some farms operating as corporate structures rather than as businesses run by households. It is also possible that the investment undertaken by the rural sector could be understated. Moreover, data limitations make it difficult to precisely estimate the value of land purchased (or sold) by farmers from other sectors. More work is needed to firm up these estimates.

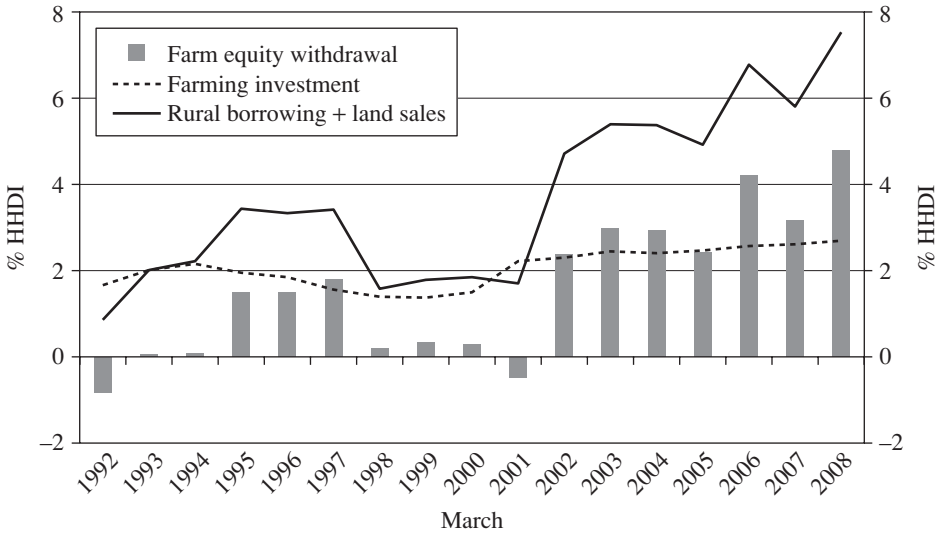

Figure 8.5 Farm equity withdrawal decomposition.
Source: Reserve Bank of New Zealand estimates

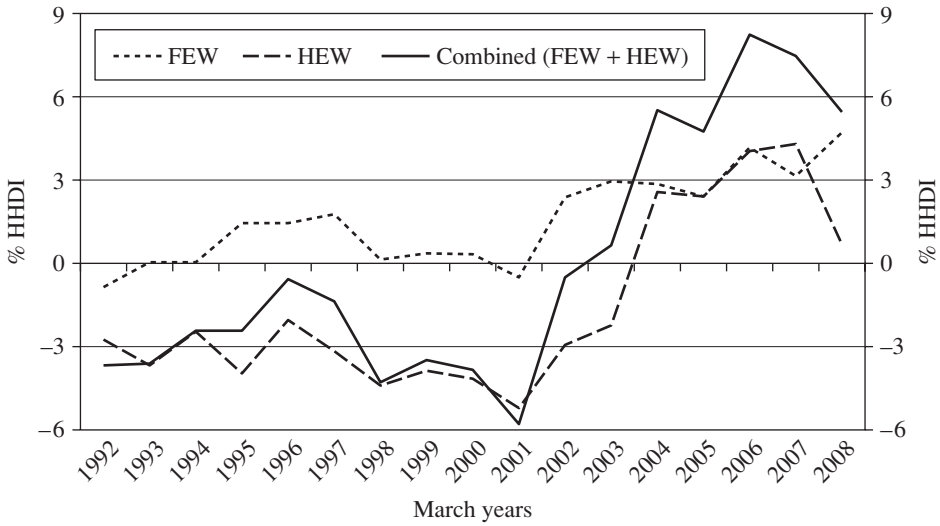

Figure 8.6 Combined equity withdrawal.
Source: Reserve Bank of New Zealand estimates

Figure 8.6 compares estimates of farm and housing equity withdrawal for New Zealand. Equity withdrawal from housing and farms (black line) has averaged around 6 percent of household disposable income per annum over the March 2003 to 2008 year period. The shift from a position of equity injection on this combined measure to one of equity withdrawal appears to have been largely driven by increasing housing equity withdrawal (dashed line).

The magnitude of combined equity withdrawal has been substantial. I now examine the extent to which the proceeds have been used to fund consumer spending as opposed to other uses.

8.5 Links Between Equity Withdrawal and Consumer Spending

Equity withdrawal can be used by households to finance consumer spending. By providing households with greater flexibility to arrange their balance sheets, it may contribute to a higher and less volatile propensity to consume from income. However, the proceeds from equity withdrawal may be saved rather than spent.

8.5.1 Overseas evidence using macroeconomic data

Overseas studies have concentrated on quantifying the link between housing equity withdrawal and consumer spending. Aside from findings from surveys, evidence using macroeconomic data sources report mixed results. Cross-country evidence from Andre et al. (2004) at the OECD find HEW dominates housing wealth as a driver of consumption, with about 90 percent of HEW consumed in the UK, and 60 percent in Australia. Klyuev and Mills (Chapter 3, this volume) explore the degree to which HEW affects household consumption and savings. In a panel regression of four countries (USA, UK, Australia, and Canada) the authors find that HEW has a small short-run effect, of around 20 cents in the dollar, but no long-run effect.

8.5.2 New Zealand evidence

In New Zealand, growth in private consumption tends to move synchronously with movements in home prices (see Figure 8.7). Using a range of approaches De Veirman and Dunstan (2008) find that a $1 increase in real housing wealth boosts consumption spending by between 0.9 cents and 2.4 cents in the short-run, and between 5.4 and 7.5 cents over the long-run. Estimates from Hull (2003) suggest the long-run marginal propensity to consume from various measures of housing wealth is in the region of 5–10 percent for New Zealand. There is also evidence of a positive short-run link.

Sizeable increases in residential and rural property values have significantly boosted the equity of households who have owned property over this period. For most households this increase in equity is notional as it has not been realized.

In the absence of a savings buffer one means for households to fund additional consumption spending is via equity withdrawal. If active equity withdrawal has been a key driver we would expect more of the proceeds to be spent on consumption, with the likelihood that a discernible linkage would be evident in the data if the proceeds are spent in a systematic manner. The counter to this is the evidence from surveys, which suggest that over the short term a considerable

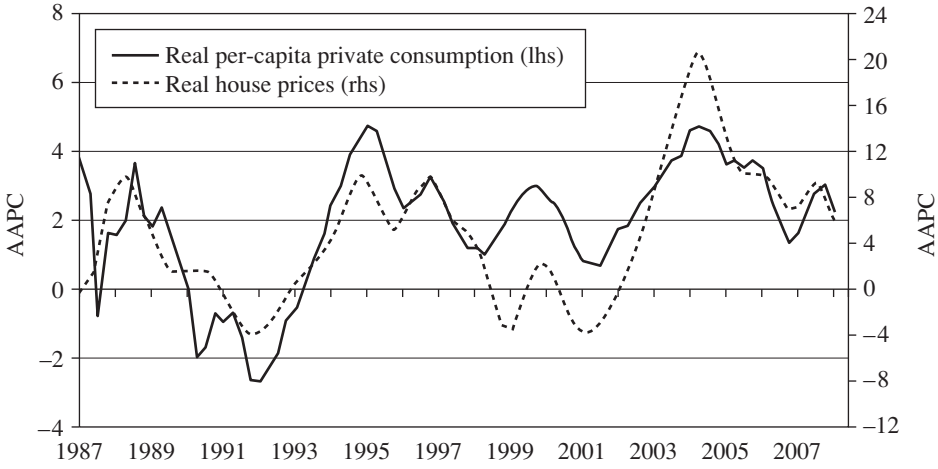

Figure 8.7 Home prices and consumer spending in New Zealand.
Note: AAPC, average annual percentage change; lhs, left-hand scale; rhs, right-hand scale.
Source: PropertyIQ; Statistics New Zealand (2002); Reserve Bank of New Zealand estimates

portion of the proceeds from equity withdrawal are passive and are not spent immediately. The impact on consumer spending of those households who have injected funds into houses and farms also needs to be taken into account – this includes first home buyers and those trading up. These groups may be lowering their spending.

8.5.3 Equity withdrawal by households and financial assets

If passive equity withdrawal by households has taken place, we would expect to see some evidence of this, including a lift in household purchases of financial assets as dwelling sale proceeds are banked.

Although data on household asset flows in New Zealand are not available it is possible to estimate the net value of financial asset purchases made by households each year from RBNZ data on household financial asset holdings (see table 4 in Hodgetts et al. 2006).

Figure 8.8 shows that in the past few years combined equity withdrawal (black line) has coincided with higher financial asset purchases by households (dashed line). This offsetting relation is not perfectly in synch over the full period and is likely to reflect other factors (including measurement issues).

Overall it seems that some, if not all, of the proceeds from equity withdrawal by households appear to have been used to acquire financial assets. This is generally consistent with survey findings overseas which show that not all of housing equity withdrawal is spent, at least in the short-term. However, that is not to say the proceeds will not be spent at a later date. I now use some econometric analysis to estimate the consumption propensities from equity withdrawal.

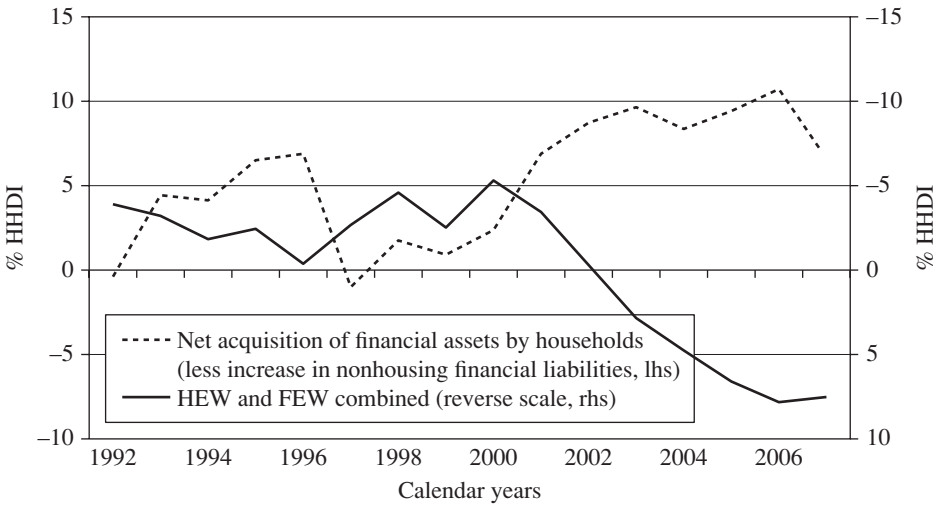

Figure 8.8 Financial asset purchases by households and equity withdrawal.
Note: lhs, left-hand scale; rhs, right-hand scale.
Source: Reserve Bank of New Zealand estimates

Quantifying the linkages

As consumption spending is driven by a range of influences other than equity withdrawal, its contribution would need to be assessed using an econometric approach. Due to complications with multicolinearity home price terms were not included in the equation specification. If home price terms are also included in an equation the statistical significance of the equity withdrawal term diminishes considerably. This points to caution in interpreting the equation findings below.

Figure 8.9 shows that the rise in the consumption to income ratio (black line) has tracked the climb in combined equity withdrawal (grey bars). This implies that the bulk of equity withdrawal is consumed and/or that the factors contributing to increasing withdrawal are boosting consumption spending by other means. Notice also that the gap of consumption over household disposable income (which mirrors the reported household saving rate) has widened considerably since the start of the decade. In the absence of measurement issues this implies that households have been partly funding consumption not out of current income, but from other means, including equity withdrawal and the selling of financial assets.

Combined equity withdrawal and consumption. I estimate the following specification:

$$NCP_t = \acute{\alpha} + \beta^*(HHDI_{t}) + \rho^* EW_{t-k} - \sigma^* REMR_{t-2} + \mu_t \tag{8.4}$$

where *NCP* is the level of nominal private consumption, *HHDI_* is nominal household disposable income (RBNZ estimates), EW_t is a measure of equity withdrawal (quarterly frequency, RBNZ estimates), and *REMR* is the real effective mortgage

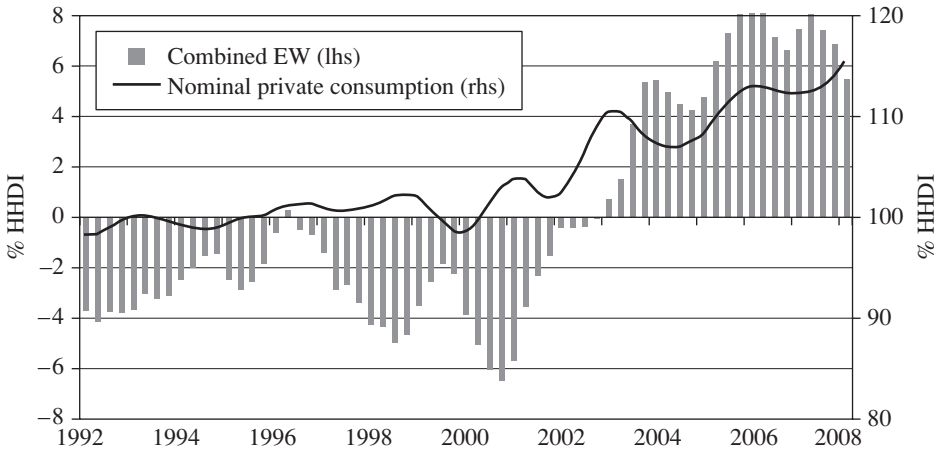

Figure 8.9 Combined equity withdrawal and consumption.
Note: lhs, left-hand scale; rhs, right-hand scale.
Source: Statistics New Zealand (2002), Reserve Bank of New Zealand estimates

interest rate (2 year RBNZ survey for CPI inflation deflator). Other equation specifications were trialled, including assessing the impact of variants of equity withdrawal on consumption growth.

Estimating the equation for aggregate nominal consumption yielded the following estimates:

$$NCP_t = \underset{(153.9)}{1.16}*(HHDI_{}_t) + \underset{(11.4)}{0.70}*FEWHEW_{t-k} - \underset{(9.0)}{1.43}*REMR_{t-2} + \mu_t, \qquad (8.5)$$

with $\acute{R}^2 = 0.99$, standard error = 295.6, Durbin–Watson test (1) = 0.7, $F(3,64) = 7342$, Sample 1991Q1-2007Q3 (67 observations); where *NCP* is the level of nominal private consumption, *HHDI_* is nominal household disposable income (RBNZ estimates), $FEWHEW_t$ is combined equity withdrawal (quarterly frequency, RBNZ estimates), and *REMR* is the real effective mortgage interest rate (2 year RBNZ survey for CPI inflation deflator). The equation does not include a constant but including one does not affect the *FEWHEW* coefficient estimates. For aggregate private consumption around 70 percent of housing equity withdrawal is spent on consumption. The standard errors around the equation are fairly narrow with the a 95 percent confidence interval around the equation estimates from 0.6 to 0.8, suggesting that more than half the proceeds of combined equity withdrawal are consumed over the near term. This is in contrast to overseas survey evidence, which suggests much lower short-term consumption propensities (Table 8.3).

Coefficient estimates of the combined equity withdrawal term tend to vary slightly. The coefficient increases to 0.76 if the sample is shortened to 1995 onwards or shrinks to 0.56 if the sample ends in 2002. While this may be cause for concern it may reflect changes in behavior by households and the impact of financial liberalization. As a result of these changes households may have been more able

Table 8.3 Combined equity coefficient estimates – levels equation

Consumption equation	*Coefficient (t-statistic)*	*95% confidence interval*	
		Low	*High*
Aggregate	0.70 (11.4)	0.57	0.80
Durables	0.13 (4.3)	0.07	0.20
Nondurables	0.30 (10.9)	0.24	0.35
Services	0.31 (7.7)	0.23	0.39

and willing to withdraw equity and use a greater portion of this to finance spending than beforehand.

The coefficient on disposable income is well above 1, which implies that increases in consumption have tended to outstrip increases in disposable income. This is not surprising considering the extent to which the household saving rate has deteriorated over the past decade or so (as shown later in Figure 8.12).

There are some grounds for caution with the equation, however. While the coefficient estimates on the equity withdrawal term are positive and statistically significant, the equation diagnostic terms suggest the presence of positive serial correlation. This is likely to bias the coefficient estimates in the equation upward. As such, the equity withdrawal coefficient is likely to be at the bottom end of the 0.57 to 0.8 range. Positive serial correlation indicates the presence of omitted variables; if a term for home prices is added to the equation, the equity withdrawal coefficient shrinks to 0.30 but is still statistically significant. Furthermore, coefficient estimates for the consumption subgroups are not as large, with between 10 and 30 percent of the equity withdrawal consumed. This is more consistent with overseas survey evidence, which suggests fairly low short-term consumption propensities.

If it is assumed that two-thirds of the proceeds of combined equity withdrawal are used to finance consumer spending, this would have boosted consumption spending by approximately $17 billion between the March 2003 and March 2008 period. This would account for approximately two-thirds of the increase in nominal private consumption over that period.

Evidence from New Zealand unit record data. The incidence of equity withdrawal will depend on the individual circumstances facing particular households. As such, household-level data sources provide an opportunity to analyze and compare trends in different groups, which are sometimes hidden in macroeconomic aggregates. Investigating the consumption patterns of certain household groups could shed more light onto what is contributing to increasing equity withdrawal.

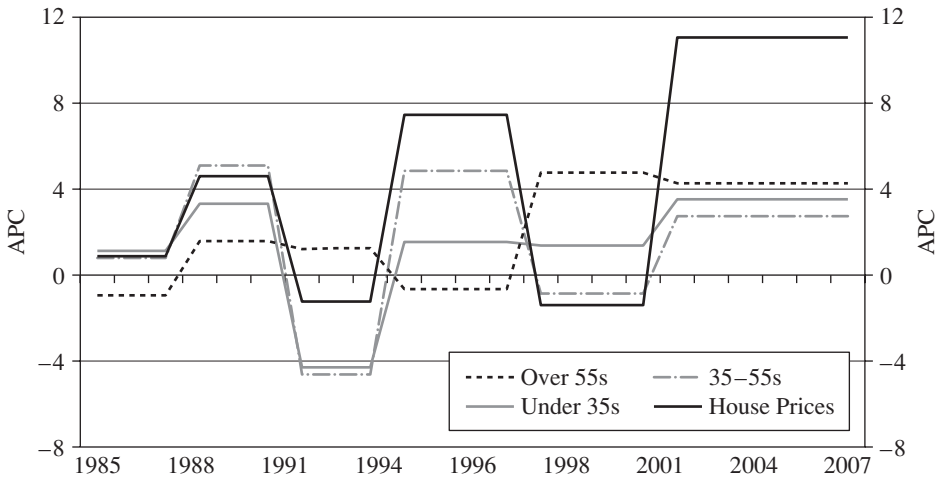

Figure 8.10 Real ex-housing expenditures by age cohort and real home prices.
Source: Household Economic Survey, Quotable Value Ltd, author's calculations

Recent research (Smith 2007) uses household level data from the Household Economic Survey (HES) to examine the consumption patterns of household groups over time.[3]

Figure 8.10 compares phases of high growth in real ex-housing expenditures with the corresponding average growth in real home prices over the 1985 to 2007 period for different age groups. Spending growth is positively correlated to home prices, particularly for mid-age households (main respondent aged 35–55). Expenditure growth for older-age households (56–75) appears the least correlated with home price movements. However, the rise in expenditures of older-age households since the late 1990s is particularly noticeable.

Why have expenditures of this age group risen so strongly over the past decade? This period has seen significant increases in home prices, so it is possible that older households could be converting improving balance sheet positions into spending, via withdrawing equity. However, there could be other reasons.

To investigate and identify the influences of household expenditures the following equation specification is used:

$$\ln(C_{i,t}) = \beta 0 + \beta 1 EMR_{i,t} + \beta 2 \ln(Y_{i,t}) + \beta 3(HP_{i,t}) + \beta 4 \mathbf{Z}_{i,t} + \varepsilon_{i,t}, \tag{8.6}$$

Where $\ln(C_{i,t})$ is the log of real nonhousing expenditure for each household, $EMR_{i,t}$ is the real effective mortgage interest rate at period t, $\ln(Y_{i,t})$ is the log of real disposable household income, $HP_{i,t}$ are various home price specifications, and $\mathbf{Z}_{i,t}$ is a vector of cohort characteristics, demographic variables, and seasonal dummies. Table 8.4 summarizes the equation coefficients of the home price terms of the equation for household expenditures. If shows that expenditures of households are positively related to increases in real home prices. The relation is stronger for home-owners than for households living in rented accommodation. A 1 percent increase

Table 8.4 Summary of home price terms in equations for household expenditures (dependent variable: level of real nonhousing expenditure)

	Age of main respondent in household			*Total*
	18–34	*35–55*	*56–75*	
Level of real house prices				
Owners	0.24*	0.34*	0.52*	0.40*
Renters	0.16*	0.23*	0.29*	0.19*
Total	0.19*	0.32*	0.49*	0.34*
Change in real home price since purchase				
Owners	−0.02	0.07*	0.16*	0.10*
All households	−0.11*	−0.01	0.10*	0.05*

Note: *Significant at 5 percent level. Repeat cross-sectional dataset of approximately 49,800 households over the 1983–84 to 2006–07 sample.
Source: Smith (2009)

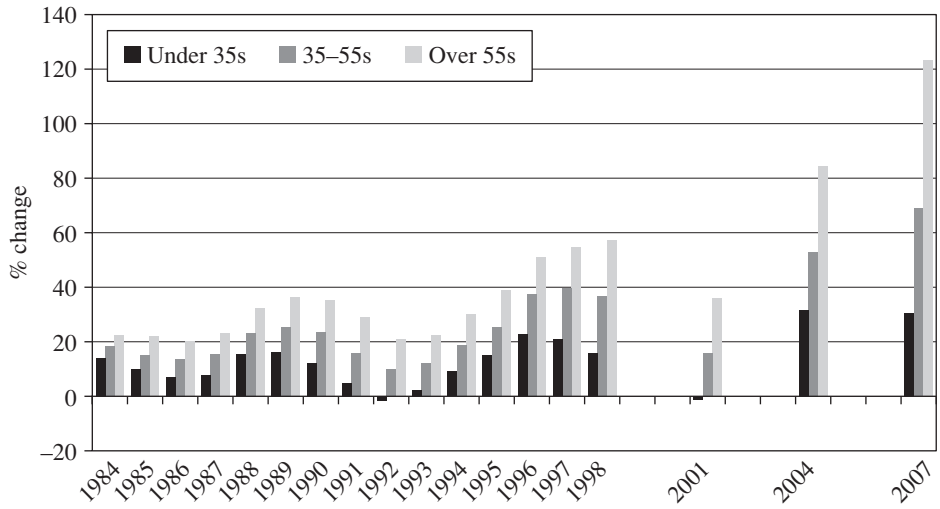

Figure 8.11 Change in real home price since purchase by age of home owner.
Source: Household Economic Survey, PropertyIQ, author's calculations

in real home prices boosts ex-housing expenditures by an average of 0.3 percentage points for all households. The responsiveness is typically larger for older-age homeowners.

The table also shows that expenditures of homeowners are positively related to the magnitude of capital gain, converting roughly 10 percent of the increase into additional spending. Not only have older households typically experienced more capital gain (by virtue of owning property for longer, see Figure 8.11), but their spending is more responsive to increases in home prices. Although housing equity of younger homeowners has also increased significantly, the impact on their

consumer spending is likely to be smaller as they face a long period of higher future housing costs.

Older-age households have a number of avenues of converting better balance sheet positions into spending, including selling of other assets and running down saving, but it seems likely that equity withdrawal would also be an option. This is particularly so considering older-age households typically have higher rates of home ownership, low levels of debt, and are more likely to trade down into smaller (and usually cheaper) housing with their next dwelling transaction (which will typically generate passive equity withdrawal). Financial liberalization has also made it easier for homeowners to convert their stronger balance sheet positions into spending, via equity withdrawal.

Summary of empirical findings. Empirical results suggest that the marginal propensity to consume from combined equity withdrawal is likely to be in the region of two-thirds. As such, this would have accounted for approximately two-thirds of the increase in nominal private consumption since 2003. However, there are reasons to believe that the consumption propensities of equity withdrawal may be slightly lower than this if equity withdrawal is correlated with other factors driving consumption.

Unit record evidence also suggests that spending by homeowners is more responsive to home price changes. Spending by older-age homeowners has risen considerably over the past decade, and it is likely that they have been "cashing in" and withdrawing equity.

The following section examines the extent to which New Zealand's poor recent saving history could be a consequence of the housing boom.

8.6 Links with Household Saving and Future Trends

8.6.1 Equity withdrawal and household saving in New Zealand

Reserve Bank's analyses suggest that rising home prices have a positive and enduring impact on consumer spending in New Zealand (Hull 2003; De Veirman and Dunstan 2008).

Figure 8.12 compares combined equity withdrawal from housing and farms (black line) in New Zealand with two measures of household saving. (To facilitate a more valid comparison I remove the hardware retail sales component from combined equity withdrawal and also remove non-cash items (i.e. depreciation) from both saving measures.) The housing boom has coincided with a trend decline in household saving, and is likely to have been facilitated by households withdrawing equity and consuming the proceeds.

Increasing combined equity withdrawal has coincided with the decline in official household saving (dashed line). However, my estimates of combined equity withdrawal do not appear to be sufficient to fully account for household dissaving. It seems likely that households have also been financing consumption through other means, including other forms of equity withdrawal and capital transfers.

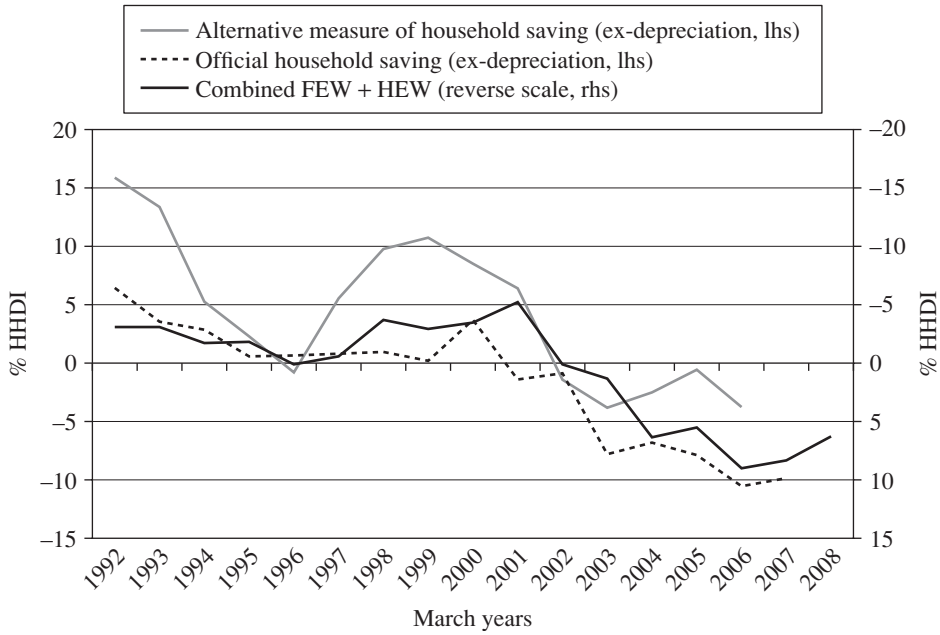

Figure 8.12 Equity withdrawal and household saving in New Zealand.
Note: lhs, left-hand scale; rhs, right-hand scale.
Source: Statistics New Zealand (2002), Reserve Bank of New Zealand estimates

Another possibility is that the official measure of household saving is too low.[4] An alternative experimental measure of aggregate household saving is derived by Hodgetts et al. (2006; grey line). It shows that the level of household saving is higher than suggested by the official saving rate (dashed line). Even on this alternate measure, however, the household sector appears to have been dissaving over much of the past 5 years.

8.6.2 How long will aggregate equity withdrawal continue for?

Aggregate housing and aggregate farming equity withdrawal has been considerable, although this remains minor in relation to potential capital gains from rural and residential property. The value of the private residential housing stock alone has doubled since early 2003, largely reflecting gains to property prices. This increase in equity is largely notional and is yet to be realized in most cases.

Will the process of aggregate equity withdrawal continue or is it coming to an end? It seems that mortgage debt levels can take some time to adjust following increases in property prices. Dwelling turnover will also affect the pace at which mortgage debt levels adjust to the higher level of property prices. If home prices level off and turnover rates are relatively "normal", mortgage debt levels will continue increasing for some time as housing transactions alter the mix of debt and equity.[5] A similar occurrence could also happen for farms.

At the time of writing (October 2008), conditions appear far from "normal" with the global credit squeeze occurring at a time when the New Zealand housing market was undergoing a period of readjustment. At present, housing turnover and mortgage debt accumulation is significantly below historical peaks.[6] Tightening credit conditions also appear to have constrained the desire (and ability) of households to convert housing assets into spending via mortgage refinancing. However, for the time being, growth in borrowing secured on rural properties remains strong.

8.6.3 Gaps and areas for future work

Despite learning something about equity withdrawal in New Zealand there is still much that we do not know. These uncertainties fall into the following areas.

- *Other forms of equity withdrawal*. While we have a rough idea of the magnitudes of HEW and FEW there are likely to be other forms of equity withdrawal that could fund household spending, which we do not yet have adequate information on.
- *Household trends*. Although we have looked closely at household level data, our understanding of equity withdrawal in New Zealand has been limited by the lack of a specifically designed survey. Examples of specially designed surveys can be found elsewhere in this volume.
- *Reconciling impact of housing wealth versus equity withdrawal on consumer spending*. Evidence quantifying the link between measures of housing wealth and consumption is more definitive than evidence investigating the impact of equity withdrawal. This partly reflects data constraints. Our suspicion is that although the proceeds of equity withdrawal are eventually spent, the speed at which this occurs will depend on the circumstances/preferences of the individual households involved and the form of equity withdrawal taking place.

Future work will look into addressing these uncertainties. This will include finding out more about nonhousing equity withdrawal and its potential economic impact on household spending. Initially we will concentrate on firming up our estimates of farming equity withdrawal before investigating whether other estimates of nonhousing equity withdrawal can be developed. A further step will be to assess the extent to which these measures affect household spending and saving behavior.

8.7 Conclusions

At the macroeconomic level the incidence of equity withdrawal by New Zealand households is a relatively new phenomenon, with approximately $25 billion of housing and farm equity withdrawal taking place in New Zealand over the March 2003 to March 2008 year period. Relative to the size of the New Zealand economy this has been substantial, equating to approximately 6 percent of household disposable income per annum.

The climb in equity withdrawal in New Zealand mostly reflects higher borrowing, which in turn is related to the sizeable climb in property prices. While some households are likely to have accessed the notional rise in their net worth via increasing their mortgage borrowing, much of the climb in borrowing is likely to be related to dwelling transactions. Elevated levels of property market activity in New Zealand suggest significant passive equity withdrawal had taken place between 2003 and 2007. More recently, however, reduced property market activity and tighter credit conditions have reduced the magnitude of equity extraction from housing assets. By contrast, sizeable equity withdrawal from farms appears to be continuing.

Efforts at quantifying the link between housing (and farming) equity withdrawal and consumer spending in New Zealand suggest that around two-thirds of the proceeds of equity withdrawal are used to finance consumption. This would account for approximately two-thirds of the increase in private consumption in New Zealand since 2003.

By contrast, survey evidence from overseas and the pick-up in deposits of financial assets by New Zealand households suggest that the marginal propensity to consume is somewhat lower, at least over the short-run. Whatever the case may be, it is likely that the proceeds of equity withdrawal will eventually be consumed, with the deterioration in household saving occurring during a period of rising equity withdrawal.

As yet the magnitude of aggregate equity withdrawal in New Zealand is considerably less than the increase in notional net worth experienced by the household sector. This implies considerable scope for further equity withdrawal. However, there are limits to this process, with tighter credit conditions and lower housing turnover already having a tangible impact on the pace of mortgage debt accumulation and housing equity withdrawal.

There are likely to have been other forms of equity withdrawal that have been used by New Zealand households, including equity withdrawal from nonfarm businesses and from overseas assets. Data limitations have made these difficult to quantify. Future work will look into developing estimates of these alternative forms of equity withdrawal and assessing their links with household spending and saving behavior.

Appendix 1: Estimating New Zealand housing equity withdrawal

The following identity is used (Source: Bank of England):

$$HEW = NL + CG - HI - NT - TC \tag{8.A1}$$

where *NL* is net lending to individuals secured on dwellings, *CG* is capital grants for housing paid to personal sector/housing associations, *HI* is household sector investment in dwellings, *NT* is net transfers of land to the household sector, and *TC* is household transfer costs and transfers of dwellings between sectors. Figure 8.A1 shows estimates of the various housing investment components. By far the largest contributor is housing sector investment in dwellings (dashed line). Land transfers (dotted line) account for a rising share of total housing investment, approaching one quarter of the total. As the government has been a net purchaser of dwellings from households in recent years this has acted to marginally reduce the net investment made by private households (black line).

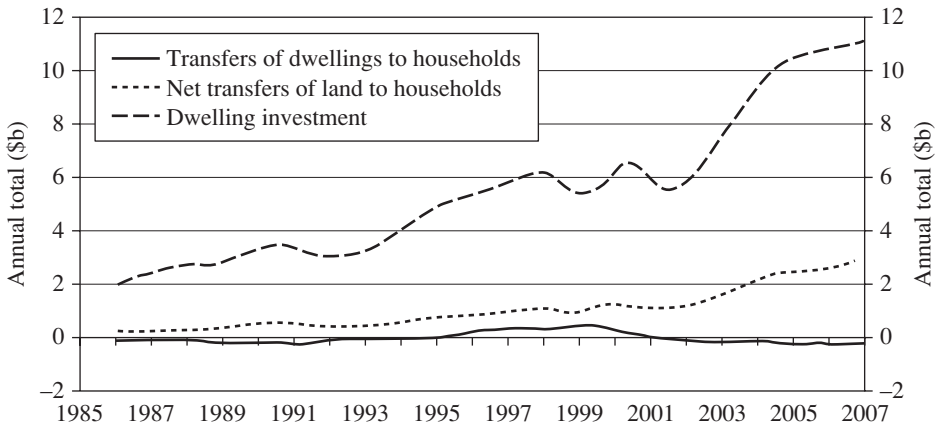

Figure 8.A1 Components of housing investment.
Source: Reserve Bank of New Zealand estimates.

Net lending to households (NL)
Reserve Bank data on total housing lending secured on residential mortgages in New Zealand is used. This includes mortgage lending by banks and nonbanks in New Zealand but excludes student loans and personal loans. As this is a debt stock figure it will implicitly capture repayment of mortgage principal by households, which is likely to be the most common form of equity injection.

Capital Grants for housing (CG)
I have not made any adjustments for capital grants, but note that the impact of KiwiSaver, which will be introduced in July 2007, has to be taken into account. KiwiSaver offers a deposit subsidy of up to $3,000 to first home buyers from 2010, increasing to $5,000 from 2012 (see http://www.ird.govt.nz/kiwisaver/summary/).

Household sector investment in dwellings (HI)
I use nominal private dwelling investment from the system of national accounts. It captures paid work and materials used in the maintenance and improvement in the housing stock. It also includes transaction costs (TC), consisting of legal and real estate agents fees associated with transfers of dwellings. I subtract the estimated value of building work on farms to derive an ex-farm measure of dwelling investment.

Reported residential investment is likely to undercount the actual work undertaken on improving the housing stock. Typically, nonconsent work and materials purchased by DIY households will not be captured. To proxy for this effect I assume half of the total sales from hardware stores in the retail trade survey are used to maintain or improve the quality of the housing stock. In the March 2007 year this was approximately 6 percent of the total value of housing sector investment in dwellings.

Net transfer of land to household sector (NT_L)
According to RBA research (see Schwartz et al. Chapter 7, this volume) the land content of a new dwelling is a significant portion of the purchase price (see also Grimes and Aitken (2006) for New Zealand evidence). If a dwelling is purchased by a household from another sector the transfer of land would add to the injection of equity made by households.

Land purchases in New Zealand households are likely to be increasingly important for the following reasons.

- *Relative price movements*. Faster increases in land prices imply that the land content represents a rising portion of the total purchase price of a new dwelling. In the early 1980s, a residential section accounted for about one-quarter of the cost of a new home. By 2005 this had risen to about 40 percent, more than offsetting the trend towards larger sizes for residential dwellings. (According to Statistics New Zealand figures the average size of new residential dwelling consent has increased from roughly 125 m^2 in 1980, 170 m^2 by 1995, 175 m^2 by 2000, and just over 190 m^2 by 2005.)
- *Purchases of land from other sectors*. Strong population growth has underpinned demand for residential land, with a proliferation of greenfield subdivisions on the periphery of urban areas. Demand for small landholdings in rural areas (referred to as lifestyle properties) has also been strong.[7]

To proxy for the value of land purchased by households from other sectors (including the farming sector) I apply a similar set of assumptions to the RBA (see Schwartz et al. Chapter 7, this volume) and assume the number of residential sections transferred to the household sector is equal to half the number of residential consents for new dwellings.[8] An alternative method, which uses information from the certificate of title and property sales, is also used as a cross-check. This also suggests that about half of all residential section sales by households are from other sectors.

These estimates suggest the value of land purchases by households from other sectors has been significant – around $20b between 1990 and 2005.

Transfers of dwellings to/from the household sector (NT_D)

Household sales and purchases of residential dwellings from other sectors (e.g., firms and government) affect housing equity withdrawal via their impacts on the value of the housing stock owned by the household sector and size of financial obligations by households. To proxy for this effect data on the tenure status of dwellings (from Statistics New Zealand), and data on the number of residential dwellings owned by Housing New Zealand (HNZ) and local authorities (obtained from annual reports) are used.

Potential gaps with the aggregate measure of HEW

Estimates of aggregate housing equity withdrawal have been constructed using a bottom-up approach and use a number of data sources. However, there are still likely to be gaps.

- *Housing investment*. These estimates treat a portion of hardware retail sales as a proxy for housing investment not captured in the national accounts. It is unclear to what extent this proxy captures investment (which you would count as an equity injection) as opposed to durables consumption (which is not an injection of equity).
- *Capturing overseas investment*. Purchases on New Zealand residential property that are funded directly from overseas are not captured in this measure. If these purchases are large and the sale proceeds spent domestically these estimates could significantly understate the magnitude of equity withdrawal taking place. Data constraints prevent us examining this possibility.

- *Boundary issues*. Classification boundaries for work on dwellings may not be entirely consistent with how loans are secured on them. Although adjustments were made to remove investment on farm dwellings there are likely to be other inconsistencies that we cannot easily remedy. A portion of mortgage funding is likely to be used for nonhousing purposes, including small business finance.

Notes

1. The difference between the value of the residential housing stock and mortgage debt. There is some evidence of dual causality between HEW and housing equity which makes interpreting results difficult.
2. I assume two-thirds of the value of lifestyle land sold to households from other sectors is received by farmers (with the remaining third assumed to go to other sectors (e.g., property developers)). I also assume one-third of the value of residential land sales to households from other sectors accrue to the rural sector. Proceeds of land sales are assumed to be banked by the rural sector when the residential/life-style property sale takes place.
3. The Household Economic Survey is a nonpanel dataset. However, using repeated cross sectional analysis it is possible to track the consumption patterns of various birth-year cohorts over the period covered by the various surveys. Ex-housing expenditures are used as they are more closely correlated with consumption from the national accounts.
4. Please note that in the absence of a full suite of institutional sector accounts in New Zealand, cross-sector transactions are unable to be fully confronted within the national income and outlay account framework. As a consequence, all data from the New Zealand household income and outlay account (including saving) should be considered experimental.
5. Recent experience overseas bears this out. For example, between the end of 2003 and June 2006 house prices in Australia increased by roughly 7 percent, whereas the reserve Bank of Australia estimates of Australian household debt climbed from 134 to 157 percent of disposable income.
6. If first home buyers or those trading up are unwilling (or unable) to continue taking on additional debt, the pace of mortgage debt accumulation is likely to fall. Lower mortgage debt accumulation is also likely to imply lower housing investment, which will moderate the impact on total equity withdrawal.
7. A lifestyle property is a rural property that is deemed to generate insufficient income to service its own mortgage. According to Quotable Value Limited the value of freehold lifestyle vacant section sales was just under half residential section sales in 2005, compared to around one-quarter in 2000, and 15 percent in 1995.
8. Anecdotal evidence suggests that the proportion of residential sections could be a bit higher in New Zealand, given the prevalence of Greenfield subdivisions. I assume that each new apartment has an intrinsic land content that is worth about one half of the value of the average residential section sales price.

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Chapter 9

What Happened to the Housing System?

Duncan Maclennan

9.1 Progress With A Purpose?

The role of housing starts and investment in business cycles has been a long-standing concern of macroeconomists (Burns and Mitchell, 1945; Cairncross, 1953). However, by the later 1980s, when the focus of research and policy shifted to fluctuations in housing prices and equity withdrawal, there was only a small stock of relevant research findings. Housing was a neglected sector of macro-economic thinking, though less so in the USA than elsewhere.

As the 1980s' UK housing boom ended in substantial bust a number of papers emerged that focused on the sharp increases in equity withdrawal that accompanied price rises and on the consequences of this for the wider economy (see Muellbauer 1990; Holmans 1991; Westaway 1994; Maclennan 1995). However, aside from the sustained, seminal work of Muellbauer (1990) and Meen (1995) there was no systematic attempt to model the interactions of the housing sector with the national economy (see Maclennan et al. 1997). A Rowntree Foundation seminar in 1993 could only draw on one (then) recent cross-national study (Diamond and Lea (1992) compare the efficiency of housing finance systems), diverse national case studies (that had a limited time series analysis) and disparate micro-economic evidence. Subsequent microeconomic work on housing wealth and withdrawal behavior, for instance Maclennan and Tu (1998) remained outside the mainstream "macro" discussion of housing sector roles in the UK.

Interest in the role of housing in the economy strengthened subsequently as the UK debated the conditions of entry to the European Monetary Union. But even by the end of the 1990s there were few published papers on housing markets and macroinstabilities in the EU economies let alone on the implications of property markets for convergence after currency union. The contributions of Muellbauer (2005) and Meen (2001) are the clear pinnacles of UK research.

In their eclectic and seminal papers Case et al. (2003, 2005) have drawn attention to a similar, but more widely based evolution of interest in the USA. There

were few direct studies of housing wealth and consumption effects prior to the mid-1980s. Then research on metropolitan housing markets identified local and regional, boom and bust patterns. Microresearch indicated that there were important new insights to be gleaned about housing and wealth behaviors. Studies drew attention to the similar paucity of research on the effects of home price change on consumption. Case and colleagues presented important new information on regional (State) and cross-national effects and synthesized their findings in their 2005 paper.

Since the start of the millennium, as the long housing boom surged, peaked, and bust across most of the OECD economies, there has been a burgeoning policy interest from finance ministries and central banks. This has supported major advances in understanding the interactions between changes in housing prices and investment, the overall macroeconomy and monetary policy. Literally hundreds of papers have been published in the broad topic area since 2000 and the pace of production has surged as the US economy reached its inevitable subprime mortgage default crisis. A raft of high-quality national, regional, and microeconomic studies have focused on home prices, wealth, and instability related issues. Scandinavian, Australian, Transition State, Asian, and other economists have added to the growing stock of knowledge emerging from the USA and the UK.

International economic agencies have contributed important new cross-national insights. Econometric studies, as illustrated in this volume, have been completed not only for different, single countries but also across sets of countries. Significant econometric studies exist for at least ten single countries and the Organization for Economic Co-operation and Development (OECD; OECD 2000; Catte et al. 2004; Girouard et al. 2006; and see Chapter 2, this volume), the International Monetary Fund (IMF; IMF 2008; Klyuev and Mills Chapter 3, this volume) and Bank for International Settlements (BIS; Tsatsaronis and Zhu 2004; Balazs and Dubravko 2007) have all contributed cross-country insights on home price change, cyclical relationships, financial liberalization, mortgage market change, and the extent and significance of housing equity withdrawal (HEW). Major cross-national studies exist for the main Asian economies (Tsatsaronis and Zhu, 2004) and the Transition States (Balazs and Dubravko, 2007). Arguably the proceedings of the major symposium sponsored by the Federal Reserve Board of Kansas in the fall of 2007 represent a highpoint of understanding in this topic area.

Progress in modeling the relationships between the business cycle, home prices, and private residential investment has been substantial. While recognizing these advances, and without any intent to be curmudgeonly about the evolving theoretical and empirical understandings, there are some causes for concern in the ways in which this knowledge has accumulated and how it dominates housing as well as monetary policy debates. This paper poses challenges to the emerging conventional wisdom and suggests additional research and policy questions for the future.

These questions are posed because the real nature of housing systems has almost disappeared in the reductionism of cross-national modeling and important omissions need to be addressed. Where is the housing system in the OECD and IMF analyses? At the same time policy discussions about housing system instability have focused upon monetary system and policy effects and have largely ignored the substantial variations in housing policy effort and design across the

countries studied. What lessons were there from Kansas about the design and funding of housing policies? Would more flexible housing systems make monetary policy easier to design and could policy not pose better options for risk reduction by lenders and borrowers? Good, integrated policy-making needs to include housing policy effects on the economy.

What follows is an attempt to build on the chapters in Part I of the book, as well as drawing from a wider literature, to link housing system perspectives to the macroeconomic discussions of recent years. The next section sets out and reviews the cross-national evidence underpinning the emerging story of housing-market–economy interactions across the advanced economies. The third section of the chapter then briefly considers whether the reductionism of the understanding developed is too great for many modeling and policy purposes. It suggests ways to progress a better stylized synopsis of housing systems for cross-country modeling, so that housing systems design actually plays some role in explaining housing market outcomes. The fourth section of the paper considers some of the policy implications of the evidence to date but from the perspective of housing rather than monetary policies and notes emerging future challenges.

9.2 Cross-National Patterns and Explanations

9.2.1 Patterns of price change

A number of papers in this volume describe in detail how real and nominal home prices have risen, cyclically, over time and how patterns of change relate to overall GDP. Since 2000 the Economics division of OECD has had a major effect on shaping international understanding of these cyclical patterns and the links between the economy and the housing sector. The most recent paper (Girouard et al. 2006; and see Chapter 2, this volume) established, for the decade 1996 to 2005, that real home prices had risen strongly (with Japan, Germany, and Switzerland as exceptions).The scale and duration of the upswing was unprecedented in most countries and significantly more so than the typical cyclical pattern. (Girouard et al. (2006) note that the typical cyclical pattern of the past had been of a 6 year upswing, associated with a 45 percent real price increase, followed by a 4 year downswing, involving a 25 percent real price fall.) The frequency, duration, and amplitude of past cycles had varied from country to country; for instance, the USA had relatively fewer and lower amplitude real home price cycles: the UK in contrast had more frequent and larger cyclical swings in home prices. They noted that the countries with the highest rates of price appreciation have also had the highest cyclical volatility in home prices (The Netherlands, Spain, and the UK). However, over the period since 1990 there has been growing synchronicity in the patterns of home price change across quite diverse economies in the OECD.

OECD research also established that the residential property markets tend to lag income cycle turning points, though lags have varied across countries and changed over time: in the early 2000s' downswing home prices continued to rise in USA, UK, Australia, Ireland, and Spain. Home price changes have, on average, become less tightly connected to the business cycle since 2000 and they follow the

business cycle more slowly than equity values. Not all share price booms lead to home price booms but many do. In a context where the general business cycle was flatter than in the past (before the sharp downturns of 2008) these researchers also note that residential investment has decreased in cyclical amplitude in many countries since the 1980s and especially in the UK and USA. (A major omission in work in this area is any systematic consideration of the restructuring and reduction of housing policies across the OECD that must have had a significant negative impact on low-income housing supply, see further below.) Housing investment is a lead indicator in the USA and the UK but not in major euro-area economies.

Subsequent cross-national studies have expanded, and largely confirmed the work of Girouard et al. (2006; and see Chapter 2, this volume). The IMF (2008) updated and expanded cross coverage, with broadly similar conclusions on patterns and uncoupling, and Asian and Transition State studies were referred to above. Some individual governments reviewed patterns and reformed policies; see for instance Barker (2005) for the UK and the House Prices Unit (2008) for New Zealand. Mishkin (2007) also described and classified change patterns. There is now an unprecedented cross-national literature on cyclical patterns of home price changes.

Within the OECD economies, which are the focus of discussion below, for the decade from the mid-1990s all countries except three (Japan, Germany, and Switzerland; in Switzerland and Germany the tax and subsidy system is relatively pro-renting and in Japan real price deflation of the late 1980s' boom continued into this millennium.) experienced at least a 25 percent increase in real values and most more than 50 percent. (Transition economies of eastern Europe had a similar, later, but somewhat smaller set of booms.) Some nations experienced fast growth: the UK, Australia, and Spain are all significant-scale systems that manifest high rates of price growth and instability. Home prices in the UK and Australia more than doubled between 1999 and 2004. New Zealand had a later, 2001–6, boom with a similar doubling of real prices. North American national experiences were relatively moderate by comparison. United States home prices, at the heart of global concerns by 2006, actually rose more modestly than in many of the advanced economies and increased by a half in the decade 1995 to 2005. In Canada, prices were flat for much of the first half of that decade and then rose by a quarter by 2005. In contrast to earlier post-1960 home price fluctuations, moreover, real home price adjustments over the past two cycles have had to unfold in a context of relatively low inflation rates. This has meant that real price falls, say in the UK in 1990–92 and 2007–8, have been reflected in falling nominal home prices with obvious implications for mortgage debt and default.

9.2.2 Emerging stylized stories of change

The emerging understanding of home price cycles, their economic causes, and consequences for the economy now comprise a substantial stylized story of cross-national change. The evolving "story" involves blending an understanding of long-established drivers of housing demand and supply (income and household growth) with a new set of reinforcers to change processes that produce new cyclical patterns, and that largely stem from financial market changes.

The logic flow of the "story" can be summarized as follows. Housing demand increases have been driven by key elements of global economic change including rising productivity and incomes, reduced real and nominal interest rates and household growth, including rising immigration. Housing demand responds quickly to these drivers. Market outcomes are then mediated by tax and subsidy structures to shape potential housing and tenure demands. Broadly, governments provide net support to housing demand and have shifted support towards ownership and markets and away from renting and social provision. Tax arrangements usually minimize tax on housing capital gains so that in periods of rising prices there is a boost to demand, especially for owner-occupied, housing as an asset. Tax structures and housing tenure policy goals in most countries encourage housing systems to become conduits for inflationary surges in monetary policies.

Financial deregulation and mortgage market reform have created a new context for transforming potential into actual housing demands. First, mortgage finance is less strictly quantity rationed than in the past, with higher loan to value ratios and more generous interpretations of borrowers incomes allowed, so that housing demand now peaks at higher levels (see Debelle 2004; Ong 2005; Dynan and Kohn 2007). For instance, when the supply of mortgage funds was largely based on national or regional retail savings deposits there would be limits to funding growth in any upswing. Such constraints are irrelevant when lenders can access wholesale global money markets. Housing capital markets by 2007 had become faster, more complete, and more directly linked to national and international markets than in the era of specialized, domestic lending circuits. The closer connections across capital markets and between housing finance and capital markets sectors explains much of the increased synchronicity of home price cycles across nations. But it is an increased connectivity that has also lain at the basis of the increased instabilities within housing markets.

Growing housing demands, supported by more "first-best" finance arrangements, impact upon markets for housing that are localized and have considerable inflexibilities and lagged responses as key operational features. Sluggish supply inelasticities, associated with low rates of technological progress, and frequent shortages in land, infrastructure, and construction labor markets, induce significant real price increases as demand growth unfolds. Even if financial markets were fully efficient (see further below), the real problem facing housing analysts and policy makers is that the housing market is typically far from a fast efficient adjustment system and that reality has been too long ignored in much housing economics and policy.

As new supply comes on stream, increased employment in the design, planning, construction, and finance sectors can add significantly to the cyclical rise in employment and incomes (see Maclennan 1995, 2008). At the same time, with as much as 90 percent of market activity driven by in-market moves, rising prices encourage increases in turnover supply and the demand for the white goods, furniture, and fittings that are associated with house purchase. There are important endogenous, recursive effects within housing systems.

Turnover invariably unlocks housing gains into household consumption but, again another post-1980s' feature of capital markets, nonmoving households increasingly borrow against their past housing wealth gains. Deregulation has also made it

easier for households to withdraw housing equity and reinject it into other asset purchases and household consumption (see Greenspan and Kennedy 2007; Klyuev and Mills Chapter 3, this volume; Searle and Smith Chapter 15, this volume). Housing equity withdrawal shifts consumption and aggregate demand in a cyclically reinforcing way and thus complicates the setting and implementation of interest rate policies for macroeconomic policies.

Some commentators also argue that pro-housing, and gain-favouring tax arrangements allied to elastic mortgage funds encourages elastic expectations regarding upswing home prices and household speculation in housing. Case et al. (2003) have reviewed literature on such influences and they do seem to have significance in some markets. Girouard et al. (2006) also argue that in some countries home prices lie above the price levels that "fundamentals" warrant. There is sustained debate both about the range of causalities in econometric models and the estimation of "fundamental" versus "bubble" effects, which is discussed further below.

The available literature has largely been concerned with the long price boom. Current research and much policy effort are focused on the processes and effects of the sharp downturn in housing markets, prices, and GDP since 2007. The reversal of fortunes has been sudden, sharp, and substantial. The causes and immediate consequences of the downswing are discussed in detail throughout this volume. But there is already a summary downswing story.

After 2007 there have been significant increases in the default rates for subprime variable rate mortgages in the USA (by mid-2008 running at a rate of 7 percent of loans per annum, or roughly seven time as fast as for fixed-rate subprimes and prime variable rates). That default rate, under almost any market finance regime, would have meant major negative effects for the US housing market and economy, and reductions in US consumption and imports would have had immediate and significant effects on major trading partners such as Canada and the UK. However, in this case the international effects have been more severe because of financial system changes in the 1980s and 1990s. Deregulation has connected and integrated national and international financial systems. Financial product innovation within that connected system has allowed large increases in credit multipliers within banking systems as loan securitization, and derivatives trading have layered credit upon credit. However, that expansion has not been well regulated, credit risk assessment of mortgage-backed securities has been exposed as ill informed, and underlying lending was subject to perverse incentives that put originator growth and profitability interests well ahead of investor and borrower security.

United States mortgage-backed securities sold into international financial markets have spread patterns of subprime investor loss to financial institutions, including UK, French, Belgian, Dutch, and some Canadian and Asian banks. Bank losses, the freezing of mortgage-backed securities (MBS) markets for all nations, and falling bank stock prices promoted a credit crunch that has led to trillion dollar intervention and bank recapitalization measures in the USA, the UK, and the remainder of the EU. The face of financial markets has changed in the USA and the UK within six months. Across the OECD falling interest rates and massive reflationary (and debt financed) fiscal stances have been adopted as the financial sector effects cut deeply into the real economy.

These events have challenged the salience of the working assumption of efficient financial markets that has underpinned so much policy making (de Grauwe 2008). Within the mortgage market, the past decade clearly left significant numbers of households in numerous countries particularly exposed to an interest rate shock and that raises questions about the efficacy of lending behavior. The source of that shock stemmed from market and regulatory failures attributable to perverse incentives, poor credit rating performance, and possibly poor regulation within national and international mortgage and financial markets. As economies, say by 2009–10, begin to move towards recovery, will nations and international agencies have adequately modified their policy frameworks for housing finance that have so demonstrably contributed to the present mess?

Downswing will mean feedback effects on wealth patterns, savings, incentives, and indeed consumer and investor expectations for the future (Muellbauer 2005). There are grounds for challenging the efficacy of efficient markets frameworks that have shaped policies, not just mortgage lending but housing policies too. What policy systems do we need to address unstable and sticky systems? We return to these policy questions below. Before doing so it is useful to review the strengths and the limits of the evidence to date, not just from cross-national econometric studies but from more detailed national modeling, sector studies, and more micro-economic analysis for cities and households.

9.2.3 Evidence: Fundamentals driving change?

There is clear, consistent evidence from the work of Girouard (Chapter 2, this volume) for the OECD (and see Tsatsaronis and Zhu (2004), for Asia) that fundamentals, such as real income growth, household formation (and immigration), and interest rates (or more generally the real user cost of housing capital), are important drivers of real home price changes. Girouard et al. (2006), like the IMF (2008), also suggest that there may be significant gaps between observed prices and those supported by the "fundamentals," and this issue is analysed further below.

Balazs and Dubravko (2007) contrast real home price changes across the OECD economies and the Transition States of eastern Europe. They identify different groups of countries on the basis of price histories and then model the effects of income growth, population, interest rates, and credit availability. They highlight how real income growth and financial sector change impacted through significant price booms in housing after 2000. They also stress that the broad patterns of change they observe across economies appears, through 2006, to have been driven by fundamentals rather than expectational bubbles. That emphasis differs from the OECD and IMF but all agree that fundamentals do matter.

Both IMF and OECD studies argue for significant overvaluation of prices on "nonfundamentals" for some economies, especially the UK, and moderate overvaluation in others, for instance the USA. A difficulty for highly aggregative, cross-national models is that they miss a variety of significant, if small, influences on real home prices. And some of these influences may be enduring and non-expectational. For instance, it is argued in the next section that OECD and IMF studies assume away any effects from housing policies on housing outcomes and

have underspecified supply systems in a sector with distinctively sluggish and complex supply considerations. National and regional models of home price change are less likely to suffer from such difficulties.

The "bubble/overvaluation" supporters gain some support from some areas of research. A cross-country study by Sutton (2002) suggests that homes were overvalued in relation to fundamentals in all the countries studied from 1995 to 2002 (except for Canada). A cross-national panel study of prices by Otrok and Terrones (2005) also suggested US homes were slightly overvalued in 1997–2003, but by less than 10 percent. Girouard et al. (2006), even-handedly, note these studies but also several single-country econometric analyses for the USA that de-emphasize bubble effects.

National level econometric models, which are carefully specified, tend to give less emphasis to bubble effects. In relation to the UK, a detailed, rigorous national to metropolitan regional model of home price change has been utilized in two recent papers, (see Aron and Muellbauer, 2006). They make clear the limitations of simple statistical contrasts across countries and the split of effects into fundamentals and overvaluations where the explanators omit important potential housing market influences. In the context of the UK, Muellbauer et al. (2007) construct detailed regional-level models of home prices and allow interactions between regions to occur and they include supply as well as demand and credit effects. They use such models to show that 2005–6 home prices in the UK were at levels the model would predict, rather than, as suggested by OECD, overvalued by some 30 percent.

In the context of the USA three recent studies of some significance are Iacoviello (2006), and Del Negro and Otrok (2005) for the national scale and Himmelberg et al. (2005) for regional levels. Iacoviello (2006) argues that the long-run fundamentals of the housing market are that increased incomes and population drive up demands that then play out in a system within which technological change is slow, production is labor intensive and there is land market sluggishness. That sluggishness reflects not just planning constraints and infrastructure shortages but also market failures and inherent short-run shortages of developable land in some fast-growth locations.

Furthermore, developing in a different direction from Muellbauer et al. (2007) he tries to identify broad consumer beliefs about housing investment. He proxies beliefs for mid-decade price changes in the USA by looking at "Google hits" for reputed causalities. The notion that the present context is a bubble is supported by 243,000 bubble hits and 144,000 hits were recorded for low interest rates as the cause. The proposition that higher prices arose from a strong economy received minor support, at 15,600 hits and the idea that household preferences for dwellings as an investment had attracted a scant 62 hits. His own econometric estimates suggest that over the past 25 years just under half of real home price changes had been driven by real productivity and income and interest rate shocks and 25 percent was attributable to preference shifts, with the latter effect growing in importance after the events of 9/11.

These results are important, they leave space for a macromodeling of the kinds of irrationalities and herd behaviors that microresearch (Case et al. 2005; CSQ from hereon) identifies as recurrent (or even fundamental)[1] aspects of housing choices

in inflating markets. The evidence that bubbles have existed in local systems over the past decade is quite compelling. The notion of "bubble free" and fundamentals-driven housing markets is less evident when the scale for research falls to metropolitan levels. The CQS approach reviews key papers on price dynamics at local, metropolitan, and regional scales. This is important as it provides links to a range of change explanations plus potentially wide policy issues. It is an upward sifting rather than downward reductionist methodology. It allows for speculative behavior and inefficiencies in housing markets and for beliefs to matter in the long-term as well as in cyclical shifts. The CQS results ring true for the long-run results of microhousing economics research in the USA. It is apparent from the work of CQS that fundamental-driver-based models (income and employment and household growth plus supply side effects) are always relevant and sometimes enough, but there are also "process" fundamentals in some markets or places that repeatedly get out of line.

They produce evidence on differences in the stability of regional markets that suggests while the bulk of metropolitan and regional markets in the USA have slow and steady evolution of real home prices there are a number of regional and metropolitan markets with very different time profiles of prices, notably Hawaii, California, New England, and New York. These markets, as OECD found for nations, tend to have higher instabilities where the overall real price rise is highest. Within a nation regional markets converge and diverge over time. Volatility across metropolitan and regional housing markets they conclude is not a random walk but a long swing.

The work of Case et al. (2005), as noted above, also extends to the local and metropolitan dimension and suggests that cycle dynamics involving emotion, speculation, and ratchets all operate in market processes so that, in specific localities, the prices observed can be a long way from those that "fundamentals" models would predict. Similar regional/metropolitan patterns have been established in the UK over the past 40 years with the leading and lagging regions well defined (Maclennan 1995; Maclennan et al. 1997; Maclennan and Tu 1998). Different contexts, time-periods, and scales of research, even by the same author, can suggest different interpretations of fundamental versus expectational effects. This should encourage academic analysts not to be conservative in their research methods. But it would also caution international agencies, such as the IMF, to be careful in their pronouncements on bubbles and value gaps when they have limited information and modeling to hand. Such academic speculations could have serious costs for poorer households in fragile markets.

9.2.4 Evidence: Financial deregulation and mortgage debt

Over the past two decades the co-movement of home prices and mortgage lending has become more synchronized with financial deregulation (see OECD, 2000; IMF, 2008). Mortgage debt has increased faster than overall borrowing in the OECD. In consequence, housing mortgages in 2004 comprised 85 percent of household debt in Australia, 75 percent in the USA and the UK, and 60 percent in France and Germany. Debelle (2004), noting the extent to which growth in debt has

outpaced income growth, considers that these outcomes have worsened the downside cycle risks for nations as well as borrowers (recent experience confirms his view). The key financial changes of the period to 2007 have been the much reduced level of nominal and real interest rates (and this allows households to service larger debts from any given level of income) and the ways in which deregulation has reduced liquidity and borrowing constraints on households. The household sector has now become more sensitive to changes in both interest rates and asset prices.

However, Debelle (2004) argues that conventional measures of debt exposure such as debt to income ratios are no longer appropriate measures of household vulnerability. The ratio of debt to assets held and debt-servicing cost to income ratios are more precise measures. Leverage, the ratio debt to assets values, has increased only marginally. Further, there is no clear upward trend in the burden of debt service costs for the household sector. That is, if the quality of loans made had replicated the past then overall lending would not have become riskier, unless there were to be a particularly large fall in housing asset values or rise in interest rates. Of course the recent evidence from subprime markets suggests that loan quality in the USA did depreciate. But in some other countries, Canada for instance, there is no *ex ante* measure that suggests that deregulation of the mortgage finance system has made it riskier.

It is important to recognize that many households have very small or no housing debts. In the USA, for instance, only 45 percent of households actually have mortgage debt. However, Debelle (2004) does emphasize the need to minimize the likely effects of downswing on the system, including giving greater roles to fixed rate mortgages, and the UK Treasury are currently promoting reforms facilitating long-term fixed rate loans.

Countries have differed in the forms, extent, and timing of financial deregulation. The IMF, using a deregulation index, show that mortgage growth and HEW have effects on real price growth and instability feedbacks. Lall et al. (2006) highlight the variety of systems now prevailing across different advanced economies. They argue that this diversity impacts the ability of households to borrow and save, and to innovate (they cite home equity loans as one of the 1990s' innovations of significance, along with credit card debt). And on the lender or supply side, it conditions the ability of banks to move from retail to wholesale funds and from relationship to "arms length banking" (ALB).

The main changes have been bank disintermediation and increased use of financial markets (the switch from deposit taking to wholesale sources of funds). They also argue that ALB systems are more likely to smooth consumption in the face of unexpected income changes but are more sensitive to household assets and their price changes. (Arguably ALB approaches will be more likely to reinforce upswings, but the notion that ALB banks will be more generous than a relationship-based system in lending against collect in the downswing needs evidence.) Smoothing arises because when institutions price the collateral accurately then securitization of the claims means that they are dealing with a larger and more diverse set of borrowers. So a sudden reduction in income or increased unemployment for an individual means that the household can use their equity and institutions diversify their risks.

However, it could be argued that if rising unemployment and falling asset values move together, as happened in the UK downswing of 1989–93, housing collateral will provide little comfort to households. Indeed there may be households who cannot move locations to regain employment because local home price falls will damage their wealth even further. Arguably, in an ALB system, unless risk assessments are very accurate or conservative, then the increased dependence of credit availability on housing values could exacerbate the impact of adverse home price developments. This area of work needs more thought.

Lall et al. (2006) then asses the extent to which there is "excess sensitivity" of consumption to income/asset value changes (that is whether there are positive effects on the marginal propensity to consume from short-run change in incomes) and how it relates to financial system attributes. The important and interesting aspect of their work is their use of indexes of financial sector change and deregulation within each country. The USA, Canada, Australia, The Netherlands, and UK are the systems that have most shifted away from traditional to arms length banking systems and their differences from the other advanced economies have diverged rather than narrowed in the period 1995 to 2004. These finance and mortgage systems have become more integrated with capital markets. Banks in these systems progress on the basis of their capacity to sell financial claims in the capital markets rather than manage known, local depositors. In these arms length systems loans go-off balance sheet, borrowers gets higher leverage, repayment periods are longer, and access to mortgage equity is easier.

Many authors appear to regard such changes as unambiguously good. They implicitly assume that US style mortgage systems are cheaper and more efficient than others. Past work on cost of mortgage funds is now somewhat dated (Diamond and Lea 1992) but it did not confirm a prior expectation that US style systems were better. They also have to be set in context to assess their efficiency. Recent work (Bucks and Pence 2006) indicates that a worryingly high proportion of US borrowers do not understand the terms of the mortgages they hold. At the same time absence of quality rental options and limited rental housing subsidies are driving a larger proportion of lower decile households with higher unemployment probabilities into home ownership and mortgage borrowing. A "first best" financial system will not always produce first best policy outcomes if there are other market failures and distortions to consider.

Lall et al.'s (2006) work is important because it spells out how financial systems have changed and the broad associations of ALB with four of the main HEW nations is telling (see also Catte et al. 2004; IMF, 2008). But questions remain. Why is Canada different as it has modernized finance but has had relatively stable national prices and housing equity injection rather than withdrawal. What about Spain and Ireland with home price booms but unmodernized financial systems? In essence the lesson is that finance sector change is only part of a wider set of explanations. In that regard Lall et al.'s (2006) approach is important because it highlights the absence of similar descriptive indexes for other possible causes, including housing markets, housing policies, and other key aspects of this debate.

The important contribution of Klyuev and Mills (Chapter 3, this volume; see also Klyuev and Mills 2006) noted above looks at the issues raised by Lall et al. (2006),

but in the context of more formal econometric models of HEW. Both approaches maintain that financial sector changes shift the ability of households to undertake buffer-stock saving from housing and other assets. Klyuev and Mills (Chapter 3, this volume) place great significance on the switch to mortgage-backed securities (although there are other routes to access wholesale funds for lending) as a core of the financial system, and this ranges in share from 60 percent in the USA, 22 percent in Australia (from 3 percent in 1995), 16 percent in Canada (up from 4 percent in 1995), and 12 percent in the UK (This figure had reached 31 percent for lending in 2007). They note that the impacts of this change have been competition, securitization, risk diversification, and better credit scoring (data on pools of borrowers reducing risk premia) and reduced mortgage search costs. These effects in turn impact the housing market because they increase the access of marginally creditworthy borrowers to loans and reduce the need for large deposits, lower transaction and search costs, and make borrowing against housing collateral cheaper than other uncollateralized borrowing.

Klyuev and Mills (Chapter 3, this volume) maintain that if credit constraints are relaxed then there is likely to be an increase in both home prices and portfolio rebalancing through HEW. Enhanced access to housing wealth for consumption smoothing should lead to a higher and less volatile average propensity to consume from household income. There is also likely to be an increase in the asset value of housing as an investment good as its liquidity increases. Econometric studies confirm that the marginal propensity to consume has risen in Canada, UK, and USA post-deregulation. They also confirm, for the USA in particular, but also for the other countries, that deregulation has led to an observable HEW effect in arms length financial systems. Looking across this whole field of research Alexander and Torsten (2005) concluded that the long-run responsiveness of consumption to permanent changes in stock prices is higher in arms length rather than bank-based financial systems. They confirm that the relation between changes in consumption and home prices is positive across all the systems they examined and that the relationships became more mutually sensitive through the 1990s.

In moving into and beyond the downswing the important change to this modeling approach will be to recognize that it assumed too much about the efficacy of official institutions, for instance credit rating agencies, and did not probe enough the incentive structures facing lending institutions and the possibilities for real market failures. Some of the gains that Klyuev and others identified above on the upswing have turned out to be significant costs in the downswing.

9.2.5 Evidence: Housing wealth and HEW impact the economy and the cycle

Housing prices impact on the wealth positions of households. In New Zealand, for example, half of the rise in household wealth over the past three decades has come from the rise in real home prices; wealth per capita doubled between 1980 and 2001 and doubled again from 2001 to 2006 as a result of the property boom (House Prices Unit, 2008). Rising home prices have therefore been associated with a large increase in the net worth of a large proportion of people in New Zealand.

The same holds true in Australia, UK, Ireland, and Spain, and to a more limited extent the USA and Canada. Typically housing wealth forms 40–60 percent of the net worth of households (Mishkin 2007; see also Smith and Searle Chapter 3, this volume).

There are several a priori arguments as to why rising home prices raise individual and aggregate consumption (so that gains by one group are not simply offset by losses of another). Some effects are direct, for instance when homeowners assess real home price rises as more than transient, they may believe that their wealth has risen and therefore spend more. Case et al. (2005) provide a useful discussion that sets housing wealth and consumption effects in the framework of life-cycle models of consumption and investment. Similarly if households are subject to credit rationing at the margin then increases in readily observable collateral may allow households to borrow and spend. Other consumption effects arise from housing adjustments consequent to rising prices. Existing owners may be induced to move as prices rise and to increase consumption spending to equip larger homes as they withdraw equity when they move. And, existing owners may feel encouraged to borrow to upgrade their homes (or for other forms of consumption, see Searle and Smith Chapter 3, this volume).

While rising home prices may induce consumption increases by some owners, owners expecting to trade-up market and nonowners expecting to buy in the future (at now higher prices) may increase their savings (and reduce consumption) as home prices rise. Younger owners expecting to trade-up over the life-cycle will face higher future buying costs (see Maclennan, 1997). Renters could be expected to raise savings, at least until rents follow any home price rise, to accumulate a rising required deposit. The evidence on this point is mixed: Case et al. (2005) cite two early studies for Japan and Canada that suggest renters reduced their savings as home prices rose.

However housing wealth is such a significant magnitude for households that other areas of adjustment are possible. Householders may wish to adjust their loan/asset portfolios and undertake HEW to reroute resources into other assets. Or rising housing wealth could also lead to a reduction in labor market effort, not least by prompting early retirement from the labor force; this potentially significant, growth limiting, effect of HEW is not explored in the international literature.

Case et al. (2005) assessed the extent to which increases in housing wealth translate into increases in consumption. They reject the conventional assumption that the marginal propensity to consume (MPC) out of all wealth classes will be the same because consumers see gains and wealth in different assets as having different transience and they have different regular information about different classes of assets. They then probe the housing wealth and consumption relationships with different kinds of data and conclude that early estimates, around 1980, in the USA suggest little effect and that the micro-evidence of consumption effect of home price changes was very mixed.

Results from other survey data suggest very different magnitudes of effects, and this reflects variety in data and analytical approach, as well as context. For instance, Catte et al. (2004) suggests that 90 percent of HEW in the UK is consumed and this proportion is 63 percent for Canada and 20 percent in the USA. Individual survey estimates in the UK (see Maclennan and Tu 1998) tend to

suggest a similarly diverse pattern akin to recent estimates for Australia. There, for the period 2002–2004, some 70 percent of HEW was related to home moves. Two-thirds of total HEW was used to pay off debts and rearrange assets, the main form of expenditure supported was on housing improvement (and price indexes may understate quality gain and overstate real price gain in consequence!) and less than a fifth of HEW leaked into consumption. Clearly it is important to recognize HEW effects on consumption, but also important not to exaggerate them.

Case et al. (2005) conclude from their analysis of national aggregates that since the mid-1980s the MPC for housing wealth has come to exceed the MPC for other household assets. Girouard et al. (2006) updated the OECD analysis and reported results generally supportive of the Case et al. findings. They observed that it was in the USA, UK, Australia, The Netherlands, and Canada where changes in housing wealth have major impacts, via HEW, on consumption that exceed the effects from changes in the value of financial assets. Debate continues, however, about the precise channels by which home price rises impact consumption. Recent work by Varvares et al. (2006) for the USA (up to mid-2006) challenges the notion that HEW rather than housing wealth is the key consumption driver. They estimate a series of models based on assumptions that all lie within a reasonable interpretation of stylized facts and known relationships. In this suite of plausible models the range of HEW effects run from significant to nonexistent. In their cross-national work Klyuev and Mills (Chapter 3, this volume) address the wealth/HEW issue directly, not least because the large HEW effects model is likely to imply a serious downswing effect for the economy from housing market slowdown. They conclude that econometric tests support less strong and less clear findings than the OECD position noted above and that at most HEW explains a quarter of the fall in US savings rates in the study period. Similarly mixed results are reported for the UK, Canada, and Australia. They also note that HEW has a negative effect on saving rates in the short run but is less important in shaping long-run rates and that HEW would have to fall dramatically to actually raise long-run rates.

The key debates in this area of work are really no longer whether housing and housing wealth change matters in the economy. Nor is there doubt of the significance of the effects of financial deregulation in impacting housing market cycles and the ability to extract housing equity gains. It is widely accepted that they are significant shapers of macrochange. The main issue now, to be faced in falling markets, is the transmission of effects between changing home prices, HEW (and if HEW whether it is move or mortgaging related), and consumption.

Evidence on the significance of home price change effects has strengthened since the OECD, in 2000, claimed that between 1996 and 1999 the rise in housing wealth ahead of income contributed 0.4 of the 2.4 percent drop in the savings rate in the USA (and 2 percentage points of the UK reduction in the same period). Debelle (2004) notes that static home prices contributed to the sluggishness of the Dutch economy between 2002 and 2005. The Australian Reserve Bank estimated that housing wealth effects and HEW boosted consumption by 1 percent per annum in each of the four years 2000 to 2003. By 2000 HEW was adding 2 percent per annum to US and UK consumption, and these rates subsequently doubled. The IMF (2008) stresses the importance and continuance of these effects into 2007.

Rising home prices may have positive effects on consumption, and these effects may or may not be welcome additions to the overall cycle in demand. The wider econometric evidence of the past decade is that high and volatile home prices have increased macroeconomic instability (see Dvornak and Kohler 2003; Alexander and Torsten 2005; Case et al. 2005; Aron and Muellbauer 2006; Carroll et al. 2006). There is some limited evidence that volatility in home prices is detrimental to longer term growth performance and research needs to give a new focus not to housing in the cycle but housing in long-term productivity growth. We return to this issue below.

9.3 Limits to the Story: What About the Housing System?

The previous section makes clear the sea change in understanding of the importance of interactions between the housing sector and the business cycle. It is also apparent that there is still an imperative for more evidence and debate around some key themes. This section looks at the limits of what is known in a different fashion. The development of macromodels is inevitably a reductionist process and heroic assumptions may often be needed to make some bigger system understandings. However, theoretical heroism can turn into policy folly if the models and debates developed ignore some of the fundamental functional (or process) features of the systems involved. From the mid-1970s onwards the work of Phelps et al. (year?) provided some firm, if abstract, microeconomic basis for the better modeling of labor and financial markets within macroeconomic frameworks. Models were revised and tweaked to allow for key aspects of these microsystems.

With some important exceptions, most obviously the work of Muellbauer (2005), much of the modeling and empirical estimation reported above pays scant regard to key aspects of how housing systems operate, and indeed why they may be prone to real price rises, instabilities, booms, and busts. Cross-national studies seem to have minimized the role of housing systems and household behaviors, while emphasizing financial and labor market influences. Analysts refer to, even defer to, the CQS synthesis but there is little sign of many of their central ideas influencing what is measured and how stable these measures are in cross-national work. That emphasis seems odd where housing market instability sits at the core of the problem. It is sometimes difficult to see what has happened to the housing system in the models built and estimates made. The housing baby may have been ditched with the bathwater of macroassumptions. This raises issues about data used, model specifications, and the relevance of policy conclusions.

9.3.1 Housing markets and prices

In cross-national research the nation is the unit of observation. This has the obvious merit that national autonomies in policy choices and the systems that develop from them can be allowed for. For instance the development of the financial deregulation indexes across nations referred to above. However, the obvious difficulty is that housing markets are, as a consequence of the nature of the good

(property), largely localized. Supply responses have to be *in situ* and local movement and household formation are dominant demand drivers. In consequence, a nation may be one dominated by a single functional housing system but more likely it will contain a number of metropolitan and regional markets with only partly correlated home price changes; for instance the correlation coefficient for home price changes in Vancouver and Montreal over the past 20 years is around 0.55.

Even where similar sized countries with structurally similar housing systems exist they may have quite different policy autonomies in pertinent areas. For instance, Ireland and New Zealand have similar national scale, but Ireland has the euro as currency whereas the NZ dollar is sovereign. Many of the metropolitan regions and states that exist in the USA are significantly larger and more diverse than the small nations that exist within the single currency area of the European Union. Arguably not enough attention has been given to the diversity effects of scale in cross-national analysis.

Examination of the data presented by the IMF and the OECD indicates that smaller economies have had less stable patterns of price expansion. Larger systems such as the USA, the EU area (taken as a whole), and Canada, all show price growth patterns with steadier upward shift. The relationship between system scale and price instability is likely to reflect the fact that shocks to demand, in large systems, apply at different time intervals to different metropolitan and regional economies. There are then a series of overlapping supply and price effects, with larger systems more diversified and smoother in the pattern of price appreciation. This is not just a matter of aggregation but recognition that the spatial/structural pattern of a national housing system may influence the processes of adjustment involved and the overall national price level and stability outcomes.

Obviously macromodels have to get above this level of analysis. Muellbauer and others (Muellbauer 2005) have shown how well constructed national models can allow for national to regional recursive effects. Until there is a well established suite of such models across the majority of nations, cross-national work will have to develop some synoptic measure for national market complexity (and if that can be done for financial system structure why not housing system structure?) or frame analysis within comparable sets of countries. There needs to be more attention to comparing like with like.

The same observation can be made even more strongly in relation to price data used in cross-national studies. Price changes are a critical indicator of how housing markets are changing. A cautious approach to cross-national home price analysis is always essential, if rarely practiced. First, not all nations collect price data in the same way. Some countries have statistics that derive from national land registry and transfer records, such as the UK, and others, such as Canada, have data that is supplied from the financial sector, based on lending, or from developers, related to dwelling completions. Second, observed "total" housing prices are a product of the set of attributes traded and their implicit hedonic prices. This means that at a single point in time cross-regional or cross-national price studies need to adjust for dwelling quality to identify true price differences. Over time, quality standardization of total prices becomes even more essential as the mix of homes traded within a market usually shifts systematically over that cycle and of, course, new construction may add different kinds of stock.

Without standardization for the changing composition of housing attributes then true changes or differences in the underlying price of housing are not revealed. There is a high probability that "real" home prices increases have been overstated: the size and quality of housing, including new energy technologies, has increased in most OECD countries over the past two decades. As energy costs rise and accessibility becomes a more pressing concern in the decades ahead a crucial adjustment is likely to be a sharp reduction in dwelling sizes and increased densities (reducing land per dwelling). Quality standardization across nations will remain essential for better research on international housing markets. There is a real danger that we overestimate real home price gains by failing to index for improvements in property quality over time.

A further complication is that restrictions in the growth of public revenues have greatly stimulated the use of inclusionary zoning policies and gain capture policies to provide local infrastructure and subsidized affordable housing. Where landowners incur this cost through reduced land values the home price effects will be neutral, but not where consumers pay some or all of the infrastructure charges embedded in dwelling costs. Such charges then inflate home prices. This policy change as well as size and quality change is likely to have raised "total" home prices leading to upward bias in unstandardized price rise measures. And it will have done so to very different extents. Australian State governments have made wide use of these techniques, whereas the techniques are used minimally in Canada.

9.3.2 Ownership, markets, housing systems, and supply

The previous paragraphs highlighted the complex nature of housing as a commodity and how more or less complex housing market geographies can influence development trajectories as well as national outcomes. Within any national or regional or metropolitan market the housing system also has complex tenure and provision systems. Most of the literature above, and again this particularly applies to the more heroic cross-national studies, conflate and confuse the ideas of housing system and home-ownership. Home price, wealth, and equity withdrawal work focuses on the homeowner sector. In some nations, such as Germany and France, that sector provides not much more than half of homes. The rental sector is still of great significance, not least in the major metropolitan cores. So the housing market is home-owning and market renting. In addition there are in many of the OECD countries significant, if falling, shares of nonmarket or social rental provision. In The Netherlands that sector provides one in three homes, and in the UK one in five.

Why does this matter? Precisely because market price outcomes and the stability and sustainability of the owner-occupied sector are influenced by the rental choices open to marginal consumers and investors. This can be illustrated quite directly.

Rising real home prices with falling real user costs of housing capital (as characterized the early part of this millennium) encourage households to own more housing assets. This both stimulates first-time buyer demands and helps existing homeowners to trade-up to larger homes. However, some owners choose not to trade-up to more valuable homes as they may already be at peak housing

consumption. Instead these households maximize their housing returns, often leveraging borrowing on existing housing assets, by purchasing units to rent.

The most recent global boom has seen an international spread of above-average-income households buying homes to let. Recent work in New Zealand suggest that these demands from higher income and already well-housed households then raise prices for homes and that further displaces new first-time buyers from owning options. Declining home ownership has been widely matched by a rise in the number of people renting and the number of houses owned by investors with small portfolios.

Booms may now change the nature of the rental market. Buy-to-let investors are arguably more drawn by capital gain rates rather than, as in more traditional long-term rental systems, rental yields. At the same time the scale economies in financing and management that exist in more centralized systems of rental ownership can become fragmented. This raises important issues about the future quality, stability, and efficiency of rental systems.

Social sector provision also impacts market stability. Sustained rising home prices encourage social renters with regular or rising incomes to get into home-ownership even at very high ratios of mortgage outgoings to disposable incomes. Otherwise their relative wealth position will be eroded over time. That incentive, allied to reported growing shortages of social rental units in most OECD countries, means that a growing proportion of households with low and uncertain incomes and minimal wealth are constrained by lack of rental alternatives to take-up risky positions in home-ownership markets. The subprime mortgage market may have been the entry point for such households in the USA, for example, but it is the relentless emphasis on home ownership and its vastly favorable fiscal treatment that drive the underlying imperatives to own when it is obvious that it is not sustainable to do so.

Home-ownership is the majority preferred tenure in most nations and markets but governments who push the sector so hard have to take some of the responsibility for leading, or misleading, millions of citizens into fundamentally flawed housing decisions. Housing policy, by curtailing rental choices for lower income households for much of the past two decades, has had its role too in raising market instability.

Neither the IMF nor the OECD venture close to any of these arguments. They should, both for analytical completeness and better model specification. In consequence their models are uneven in the extent to which there is precise modeling of the different sectors of causality. Models are often partially specified in a context where there are multiple, connected causal factors. Paradoxically international studies of housing markets now have relatively well specified labor market and finance sectors and statistics, but have no well defined set of housing, land, and planning sector indicators (see for instance Ahearne et al. 2005).

This odd emphasis in analysis is best illustrated by how models deal with the supply side of the housing system. Interestingly when the IMF (2008) noted the inflexibility of local housing supply systems they mentioned not land and planning processes but difficulties in supply flexibility for construction labor. A good dose of land economics, embracing land markets, housing, real property, infrastructure, and the environment would not go amiss in the intellectual armouries of national

finance ministries and the training of young economists. For the housing system is one of the key localized transmission mechanisms lying between global demand impulses and aggregative policies and local price and investment outcomes. Economies have truly localized response systems in some sectors. Conjoining a new first best global finance to a sluggish localized response system and then disregarding the latter is neither a sound basis for the development of good applied economics nor for good macroeconomic and housing policies.

With spatial separation of markets, the important endogenous drivers of turnover supply and the stickiness of new construction, real housing markets will often be out of equilibrium. When they are they provide ample opportunities for the complex imitative and herd behaviors that are likely to drive price outcomes that are not supported by long-run equilibrium values of incomes and other demand drivers. Irrational exuberance is always a possibility in housing markets but it will usually be local rather than national in scope.

9.3.3 Synoptic indicators for cross-national work

The international agencies, such as OECD, have done fundamental work in persuading governments to address the issues involved. The aim for more solid policymaking must be to extend the rigorous approach of Muellbauer and others across the OECD and related economies. But as they do so, is it possible to develop synoptic measures of national housing systems?

The answer has to be yes. The late Steve Mayo argued (1995) long and hard for the World Bank not only to fund his work on housing indicators but to use the results and to move from a cross-section approach to a sustained, synoptic, cross-national audit of national housing economy and policy effects indicators. Intellectual short-termism in the international agencies left us devoid of sector understanding just as we came to need it most.

In their most recent work on OECD trends, Girouard et al. (2006; and see Girouard Chapter 2, this volume) stress that there are structural/policy aspects of housing markets that matter in price change and variability. Their cross-national study concludes that the price elasticity of supply (often planning and policy influenced) is negatively correlated with price variability, higher mortgage interest tax relief is, in EU countries, associated with higher instability of prices, and that higher transaction costs are associated with lower instability.

Given these conclusions there is a case for rebalancing intellectual effort towards more understanding of housing sector and policy influences but they are not apparent in the important work of the IMF. A more comprehensive cross-national inventory is required. That would include synoptic measures of the nature of rental markets and nonmarket provision, spatial imbalances in prices, supply elasticities, estimated infrastructure deficits, significant policy measures (the share of public spending on housing as a percent of GDP, turnover tax rates, the user cost of capital including housing tax effects), measures of overall and spatial inequalities, and even an environmental footprint estimate for new development. Housing is a big economic system, but it is complex and sticky, and convincing comparative work needs to allow more for the real nature of the systems involved.

It is clear from these comments that better modeling needs to include a number of measures of key housing policy influences and the next section briefly touches upon policy questions.

9.4 Policy Influences and Future Policy Contexts

The cross-national studies referred to in this chapter tend to seek solutions only in terms of monetary and finance policies. However, the previous section makes clear that the design of national housing policies and monetary policies are not isolated. Poor housing policy may negate good monetary policy (say fashioning price rather than outcome effects), and poorly managed monetary policy may have significant effects on the outcomes of housing policies. Where has housing system policy gone in the new international conventional wisdoms emerging? It is important to ensure that in the present policy surge to reform international finance arrangements and reflate domestic economies that sight is not lost of the role that the fixed, local stick systems have played in global instability. National governments have to keep the economics of housing systems at the forefront of policy thinking.

The case for including assessment of policy influences in econometric and statistical research is self-evident. However there also needs to be some rethinking of what housing policies are and what they are for in the world of housing–economy interactions that now exists. This set of issues is dealt with at length elsewhere (Maclennan 2008), but two key issues need to be considered.

The first is that many nations have now developed an oversimplified understanding of what housing policy is and that has reduced the potential benefits from policies. The recent era of housing policy, in the period of growing prices and instabilities, has tended to focus on consequences rather than causes. That is, the core of housing policy debate is concerned with reducing affordability difficulties in the upswing and dealing with defaults in the downswing. The first of these policy themes has largely been the domain of social policy ministries, lobbies, and academic researchers, with a focus on "affordability" (the inadequacy of the characterization of affordability issues over the past decade is discussed in Maclennan (2008)). The second has been the "instability" interest of the macroeconomic policy community, involving central banks, finance ministries, and financial institutions as well as academic economists (see Case et al. 2003; Maclennan 2008). (William Poole (2004) notes that in the US there is an obvious division of the housing research and policy world that most US economists work with; first, a stream of concerns about housing investment, mortgage markets and macroeconomic stability and, second and separately, another stream of work on the affordability of housing for low income groups.)

Affordability and stability have not been the only housing policy debates of recent times but they have been the issues that have dominated the interests of the public sector and the general public. They are often discussed as if they are unrelated issues, not just in the press but also within policymaking processes. That separation of interests, and the implication that the causes and policy solutions are unrelated, emerges from the fragmented nature of housing thinking within modern governments. Given, as emphasized throughout this paper, the importance of housing

supply and development and exchange systems in shaping economic, social, and environmental policy outcomes, it is imperative that nations put the housing system as a whole back at the centre of housing policies. Affordability and instability perspectives will not address the supply and development measures that might actually reduce these problems.

The second major set of housing policy issues arise because globalization changes the opportunity set for policy design as well as the problem mix. This chapter commenced with a review of the stylized understanding of what had happened to home prices globally. But globalization has meant more than growing world trade, capital market deregulation, and overall economic growth. It has also brought increased income inequalities within many of the OECD countries and they have, in the main, been reflected by increased spatial polarization of the poor within housing markets. The negative consequences of concentrated neighborhood poverty are becoming a more pervasive aspect not of city decline but of metropolitan growth management. At the same time rising home prices and housing wealth have increased wealth inequalities. Economies that stress the importance of entrepreneurship and productivity growth have, to a significant extent, become increasingly buoyed up by rentier wellbeing from unearned gains in land and home values, and much of productivity gains are being used to pay for existing land, bricks, and mortar.

This calls for a new policy agenda that, albeit that it will have less than sharp teeth until the next upswing, emphasizes public action to capture unearned economic rents. The problems of paying for housing that younger citizens now face, in a similar vein, perhaps need to be resolved by their parents and grandparents with now substantial housing assets rather than tax payments by current workers. Arguably it requires governments to put the efficiency and effectiveness of the housing system at the core of policy rather than an obsession with home ownership. In balancing, social, economic, and environmental aims, governments have to think harder about how housing outcomes impact not just instability but growth and productivity in the long term. The OECD and the IMF are right to be concerned with housing market instability but over this past cycle continuing growth and suburbanization, particularly in North America, have given economies a spatial structure that will be problematic as energy costs continue to rise and as greenhouse gas emissions rise past critical levels. Home prices reflect and shape how we choose to live and we need to understand how they shape growth and fairness outcomes as well as instability. That requires the housing system back at the centre of analysis and modeling.

Note

1. Discussion of "fundamentals" usually focuses on demand and supply shifters. That emphasis is unsurprising in approaches that assume well informed, rational households with independent preferences in markets that adjust quickly. The real point being made here, discussed in the next section, is that the fundamental nature of housing may facilitate such behaviors. There are "fundamentals" in process as well as change drivers and they need to be explored.

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Part II

Housing Wealth As A Financial Buffer

Editorial

Susan J. Smith and Beverley A. Searle

From Macroeconomy to Microstructures

Wrangles over the salience of the different channels between housing wealth and the wider economy are sure to continue. But if the macroeconomic significance of housing's wealth and collateral effects is debatable, few dispute the growing importance of home assets and mortgage debt for households' balance sheets. So while the essays comprising Part One of this book provide a wide ranging account of the links between housing and the macroeconomy, the authors writing for Part Two tell a more singular story. It concerns the microeconomic impacts of housing and mortgage markets, and the significance of these assets and debts for the social and financial well-being of individuals and communities.

These micro- and macroeconomic effects are, of course, linked; and these links are particularly acute in "home ownership" nations where the relationships between housing wealth, mortgage debt and consumption are in large part a product of the beliefs and behaviors of home occupiers. In view of this, it is surprising how little researchers know about the way households conceptualise and experience either housing wealth or mortgage debt. Decision-making in the mortgage market is perhaps the one exception. Following a challenge issued by Follain (1990), the determinants of mortgage choice have received considerable attention from the perspective of classical as well as behavioral economics (Leece 2004; Essene and Apgar 2007). This literature, however, is concerned primarily with how households select appropriate mortgages to fit their needs, given the uncertainties and information asymmetries in the marketplace (Cook et al. 2009, provide a somewhat broader view).

In contrast, the essays that follow are pre-occupied as much with the way people view and use their housing-linked assets and debts, as with how they choose their mortgages. In particular this section of the book considers how mortgage market innovation (when viewed in the context of wider shifts in economic and social policy) impacts on the extent to which households look to housing wealth and mortgage borrowings to manage their wider financial affairs. Picking up on ideas aired

by Bridges et al. (2006) and Muellbauer (2006) the essays are concerned with how people position home assets and mortgage borrowings in their wealth, debt and consumption "portfolios." The authors consider, too, how this changes across the life course and in response to financial shocks or biographical disruption.

To this end, the authors adopt an eclectic mix of methods. These include conventional modeling techniques, which take advantage of the substantial survey resources now available for the housing markets of the English speaking world. But the questions in many of these surveys – whether longitudinal or cross-sectional – tend to lag behind key shifts in housing and mortgage markets. Standard response categories are often blunt instruments for capturing the housing economy, and where housing finance is concerned, missing data can be problematic (Smith and Searle 2008). To address this, some authors adopt complementary approaches including historiography, qualitative interviews, focus groups, life history techniques, participatory and mixed media research.

These qualitative, interpretative strategies are useful in understanding the housing economy for at least three reasons. They provide insight into the stylized facts of conventional economics, some of which are, arguably, overdue for reform, at least where housing is concerned. They also offer new leads for that growing pool of analysts attempting to apply behavioral economics to housing and mortgage finance. Most radically, these qualitative tools provide new insights into the housing economy from an inter-disciplinary perspective – from positions which complement and so enlarge existing understandings of how housing and mortgage markets work. Taken together this mix of methods and approaches sheds new light on the way people conceptualise their housing wealth; on how they handle the changing properties of that iconic financial instrument – the mortgage; and on the imaginative strategies they employ to balance home assets against mortgage debt across the life course.

From Banking on Housing to Spending the Home?

In the three world regions embraced by this collection, a common theme is the extent to which personal wealth is concentrated into housing. This reflects the fact that owner occupation is the dominant tenure sector in these societies; it underscores the high cost of housing (which absorbs the majority of most households' disposable incomes); it testifies to the substantial financial returns on home ownership that have accrued in recent years; and it reflects the indivisible character of housing investments (property can only be bought as a single lumpy, usually leveraged, purchase; it is, for the most part, an "all or nothing" commitment). This latter situation may be set to change (a point taken up in Part Three). In the meantime, however, given this mix, it is hardly surprising that housing's wealth effects are so marked. Spending from home equity is a logical response to holding a high proportion of financial assets as housing, especially at times when housing markets are highly liquid or when housing wealth is, with a mortgage at the interface, so very fungible.

More significantly, the option to use mortgages not just as a lever into home ownership but also as a means of spending from housing wealth, radically changes

the way such wealth can, theoretically, be used both during people's working life and into older age. Traditionally, buying into home ownership works financially as an income-smoothing device. Households bear high housing outlays as young, employed, mortgagors, in exchange for lower housing costs as older, outright owners, whose income streams are reduced (as they come to rely on pensions and/or benefits). The associated investment gains have historically tended to be rolled over to the next generation. This is evident in the fact that by far the widest channel for housing equity withdrawal is, even today, the euphemistically labelled "last time sales."

The de-regulated, highly flexible lending regime that tided housing markets into the twenty-first century, however, changed this equation. Falling interest rates and easy credit meant that housing wealth was no longer an asset that worked like a pension: something that could only realistically be accessed later in life (e.g. by selling up or trading down – a practice which Turner and Yang (2006) credit with funding a wave of early retirements in Europe). Instead refinancing, or remortgaging, became cost-effective and common in the early 2000s; and a growing volume of this market included an element of equity withdrawal. At the same time it became possible with some mortgage contracts (especially in Australia and the UK) to treat home equity like a savings account: something stored up for a rainy day, and – when required – released cheaply and easily (to limits that are generally pre-agreed). In some jurisdictions it is (still) as much a matter of routine to draw from housing wealth via what we shall call "equity borrowing" as it is to inject funds into a mortgage account.

Although mortgage equity withdrawal is by no means peculiar to the current housing cycle, the rapid price appreciation that greeted the new millennium, the advent of historically low interest rates, the pace of product innovation, the ease of equity extraction, and the behavioral and cultural shifts that went with all this, made equity borrowing a distinctive financial feature of the twenty-first century. As the twenty-first century dawned, it had become easy to spend from home assets as it was to save into mortgages. Housing wealth was in a position to feature more than ever before in the everyday management of savings, spending and debt.

The chapters in Part Two pick up on these themes, shedding new light on the way households in the USA, UK and Australia weighed up their borrowing options in the upswing of the housing cycle. Most authors also reflect on the implications of the subsequent downswing for current and future plans. Together, the essays address three pressing questions. A first key issue, especially in aging societies, is whether older outright homeowners (those who hold by far the majority of unmortgaged housing equity) have the incentive or inclination to use their housing wealth to fund (some part of) their retirement. A second concern is with what motivates existing mortgagors to borrow up (or trade down) in order to spend from housing wealth: who does this, when, why and what do they spend the money on? Finally, and crucially, authors question the extent to which mortgage market innovations are sustainable at the margins; why has extending home ownership into underserved markets – a move that some thought would put an end to financial exclusion – generally failed to work as a financial strategy?

Asset Rich and Income Poor: Housing Wealth and Older Age

The first three papers in this section consider the role and relevance of housing wealth in older age. The empirical focus is on Australia (where housing assets have always been regarded as a resource for retirement) and Spain (where high home prices may be encouraging a shift away from family-centred to housing-centred welfare). These case studies epitomize the situation in a spectrum of other jurisdictions, and the arguments thus have wider currency. The essential question is whether housing assets can and should be used to fund the costs of older age.

To an extent, in the "home ownership societies" of the more developed world, housing wealth generally does have this role in supporting older age, if only because tax advantages ensure that outright ownership is cost-effective relative to renting. However, the fact remains that the majority of older outright owners, even if they are otherwise impoverished, do not voluntarily spend from their housing assets. The popular "life cycle" hypothesis which Ando and Modigliano (1963) so elegantly invoked to account for the way wealth and assets accumulate and decumulate across the life course has never really worked for housing. Could and should this change?

The opening paper by Mike Berry and Tony Dalton considers this question in relation to the "Australian (housing) dream" of outright home ownership. These authors point out that – notwithstanding this national ideal – the concentration of wealth into housing and the widespread ownership of this resource makes it inevitable that governments and homeowners will turn to home assets in order to service the growing spending and support needs of an aging population. This may, indeed, seem like a logical way to manage demographic change in the "post-welfare" states. However, Berry and Dalton's important scene-setting paper draws attention to the political (as well as social and financial) risks this tactic might incur. They argue that there is an electoral risk to governments who are seen to be "appropriating" housing wealth (e.g. where older owners exchange the title of their home for a range of services and support); that there are financial and reputational risks associated with the design and delivery of effective equity release products; and that relying on housing wealth for welfare may reproduce existing socio-economic inequalities. In short, the role of housing wealth as an asset base for welfare may be appealing in theory, but it is in practice fraught with difficulty.

On the other hand, whilst governments and scholars may deliberate the merits or otherwise of harvesting housing wealth in this way, a second paper in this section – by Gavin Wood and Christian Nygaard – shows that the home owning public is already taking a position. Wood and Nygaard use the panel survey of Housing, Income and Labour Dynamics in Australia (HILDA) to examine the plans home-occupiers have to cash-out some or all of their housing wealth to fund retirement. Amongst other things, this carefully-crafted paper reveals the astonishing extent to which retiring Australians expect to depend on the wealth in their homes. (It also shows the growing exposure such households have to investment or price risk in the property market – a theme we return to later).

A similar set of questions concerning the role of housing wealth in older age is raised by Joan Costa-Font and colleagues, who look at the situation in Southern Europe, drawing from their original survey work in Spain. This is a country whose sustained high rates of home ownership mask a shift away from depending on

family wealth, and towards a growing reliance on mortgage debt to finance both housing and welfare needs. Focussing on this changing role of home assets in the management of older age, these authors weigh up the relative merits (and limitations) of two contrasting strategies. They consider on the one hand, the practice of using home equity to fund a (potentially disruptive) move into residential care; and they examine, on the other hand, the (potentially costly but otherwise appealing) possibility of extracting it *in situ* through a new generation of reverse mortgage or equity release schemes.

All of these papers chime in with the indications of a wider evidence-base which suggest that the role of housing wealth in older age is changing. This is partly due to changing attitudes to inheritance (Rowlingson and McKay 2005). The evidence here is that successively younger cohorts are increasingly planning to spend some, or all, of their housing wealth well before they die (J. Smith 2004; Smith et al. 2009). When, how and to what ends they do that is both an empirical question and a policy choice. *Whether* or not it will happen, however, may be less a question of people's dispositions (the preference, it seems, is clear) and more a function of the liquidity of the housing market and the availability or otherwise of cost-effective instruments for equity release, especially in a new era of credit constraints.

From Housing Wealth to Welfare: Across the Life Course

Concluding a round-up of the risks of using housing wealth to fund older age, Berry and Dalton suggest that – given the balance of costs and needs involved – many Australian homeowners will exhaust those assets well before they die. The possibility that home assets might be mined early in the life course and only replenished if home prices perform particularly well, is also raised by Smith (2006). Four papers in this section of the book testify to the salience of this idea. They point to a suite of attitudinal and behavioral changes with respect to housing wealth which obtain not just in older age, but across the entire life course.

Three of the four papers focus on Europe (including the UK) and Australia. It may be that there is a drive to convergence in the world's mortgage markets, but lending in European and Australian jurisdictions is still less heavily securitised than in the USA and Canada, and product ranges are dominated not by long-term fixes, but by flexible and variable rate loans. There are historical differences in the development of housing finance markets that may help explain this, though there is no space to explore them here. Suffice it to note that whereas in North America, and parts of mainland Europe, home equity withdrawal is mainly about either selling on or remortgaging, in the UK, certain other European jurisdications and Australia, mortgage contracts additionally facilitate a much more flexible approach to equity borrowing. It is this flexibility that in large measure accounts for the way housing wealth has infused the everyday financial affairs of both middle-aged and younger age cohorts.

The first of these papers, by Deborah Quilgars and Anwen Jones has a pan-European focus. Although levels of home ownership vary markedly across the European jurisdictions, only Germany significantly bucks the trend towards housing systems dominated by this tenure type. Quilgars and Jones report the

findings of a study of the origins of security and insecurity (OSIS) in eight of these European countries. OSIS is by far the most ambitious attempt yet to examine the role of housing as a financial resource among European home-occupiers. It identifies the strong sense of security attached by respondents across all jurisdictions to the experience of home ownership. At the time the research was completed (prior to the financial crisis of 2007) this sense of security far outweighed any concerns about the financial and other risks associated with this owner occupation (see Jones et al. 2007).

Quilgars and Jones' paper for this collection considers the related question of whether and to what extent home ownership generally, and housing assets in particular, are viewed and used by European households as a method of, or resource for, risk-management. The picture they paint is complex. Home buyers certainly regard owner occupation as a stepping stone to further wealth accumulation; they position housing wealth as a resource for home improvements; and (where this facility is available) they turn to mortgage equity withdrawal as a means of funding consumption, as well as to secure seed money for business ventures. But there are several European countries where the opportunities for home equity extraction remain limited. Reflecting that fact, this cross-nation survey also reports a strong inclination to position housing as the financial "nest-egg" of last resort: a safety-net too precious, or too awkward, to use unless all else fails.

The next two chapters amplify these arguments, spotlighting Australia and the UK, respectively. There has been some convergence in the mortgage markets of these jurisdictions over recent years; and there is evidence, too, of behavioral similarities, despite rather different cultural and financial histories (Parkinson et al. in press). Australian borrowers, for example, have had relatively flexible mortgage contracts for many years. But the "Australian (housing) dream" has been anchored on the ideal of outright ownership. As a result, housing policy, mortgage product marketing and household practices were – for the last quarter of the twentieth century – inclined to regard this flexibility as a way of encouraging overpayments. The aim was to clear debts early, in the interests of low housing outlays and a high store of savings in later years. This all changed in the early 2000s. In the meantime, although flexible mortgage features came later to British borrowers, the UK took a lead role among OECD countries in implementing a regulatory framework which put UK borrowers ahead of the game where mortgage equity withdrawal was concerned (H. M. Treasury 2003).

In a chapter profiling Australia, Val Colic-Peisker and colleagues use a series of focus group interviews to help account for the attitudes and practices adopted by Australian households today in relation to both housing assets and mortgage debt. This analysis shows: how the value of housing wealth is linked to and enhanced by its fungibility; how equity borrowing has become a matter of routine; and how important this is for people's sense of financial and family security. Ironically, the current recession – which has significantly eroded many Australians' pension wealth – may be reinforcing rather than undermining the relevance of home equity, while enhancing the attractiveness of home purchase for investment as well as consumption.

Our own contribution to this section focuses specifically on the changing significance of equity borrowing in the UK. Mortgage equity withdrawal is the only

way of spending from housing wealth across the life course, without trading down or selling up. It is the only real option for people with a relatively small store of housing wealth, and who plan to consolidate their position as owner occupiers rather than switch to renting. In this paper, we use a mix of quantitative evidence (from the British Household Panel Survey) and qualitative data (from a series of UK studies, including the project "Banking on Housing; Spending the Home") to explore this phenomenon. The argument builds from Benito's (2007) suggestion that equity borrowing is used to manage financial hardship as well as to celebrate success, and from our own findings on the way home buyers experience housing's financial risks (Smith et al. 2009). Like some of the other papers in this section of the book, we find that, by the early 2000s, equity borrowing had come to function less as a "feel good" factor boosting high street spending and more as a "feel safe" resource, and a flexible financial buffer. Because of this, we argue that a new round of credit constraints may be problematic for social wellbeing; just as a round of over- and miss-selling of mortgage finance has led to hardship in other contexts.

One of these "other contexts," the USA, is the subject of Helen Jarvis' analysis. She draws from the US component of a cross-national, inter-city comparison exploring the interweaving of housing and welfare trajectories. The context is the "dot.com" bust at the turn of the millennium rather than the credit crisis of 2006–7, but the findings are applicable to both financial shocks. Working with a set of "composite vignettes" Jarvis highlights the interdependence of housing consumption with other resources, and links this mélange with households' capacities to manage debt and family care in a climate of privatized welfare. Amongst other things, this paper highlights the innovative strategies home buyers engage in, in order to harness the use-value of their properties to help them service their loans and remain on the housing ladder. This contribution is a reminder that home ownership is packaged with legal entitlements as well as financial incentives. It also shows how – far from being "duped debtors" or passive victims – households caught in a cycle of debt or deprivation can (against all the odds) be highly inventive and quite effective.

These four papers make a single key argument by providing a glimpse into the nexus of housing wealth and mortgage debt that challenges the status quo. It is tempting to regard a surge of equity borrowing in the early 2000s as the resource for a massive and indulgent spending spree. The dominant ideas is that maturing baby-boomers have turned themselves into a "ski" ("spending the kids inheritance") generation, thanks to a housing finance "bonanza" which has propelled the middle classes into a frenzy of high days and holidays. In truth, however, this image has little empirical substance. Hitherto, surprisingly little has been known about why people spend from housing wealth or what they spend the proceeds on. In an attempt to fill this gap in the literature the essays collected here make a rather sobering discovery.

For some time policy makers have been attracted by the possibility of harvesting housing wealth as an asset base for welfare. The evidence, however, is that, notwithstanding the formal outcome of such deliberations, for many borrowers, home equity has *de facto* become a significant financial buffer. Equity borrowing is not so much the stuff of "champagne moments" as a style of safety net that might

in other times and places be delivered through social policy (or via some other kind of insurance). In short, far from fuelling fun and festivity, the wealth accumulating into housing has become a touchstone of financial and social security. This is a striking finding, which raises some far-reaching questions about the welfare, as well as economic, consequences of these volatile financial times.

The Mortgage Finance Revolution: From Miracle to Misery?

If experiences in the UK and Australia epitomize the possibility to position housing wealth as an asset base for welfare, those in the USA rather starkly expose the limits of this strategy. There are, to be sure, risks as well as rewards in every style of lending and borrowing. And it may be naïve to ignore the benefits for consumers than can flow from the links between mortgage and capital markets that contributed to an era of relaxed credit constraints and limited mortgage rationing. But the example of the USA shows how easily things can go wrong. It is tempting to attribute this solely to the facts of securitization and the advent of subprime; and, certainly, these are themes that US mortgage markets took to their extreme. However, the remaining essays in Part two suggest there is a more complex story behind the landscapes of despair that scar the US housing system today.

Elvin Wyly takes a close look at the innovations that turned neighborhoods that were historically under-served by mortgage finance into communities to whom mortgage borrowing was massively oversold. These were the fruits of a flourishing subprime mortgage market which extended home ownership at the margins, and encouraged a wave of refinancing and loan consolidation among more established borrowers. The idea of rolling expensive unsecured loans into mortgages where – even at premium rates – repayments would be lower, proved irresistible to many Americans. But as Wyly shows, what seemed like a financial miracle not only rocked the world economy but added a new layer of financial insecurity and inequality to millions of American lives. Wyly makes a further, crucial, point. Using data secured under the Home Mortgage Disclosure Act, he argues that these insecurities and inequalities are not just about the creation or consolidation of an economic "underclass". Rather, the subprime débacle is a deeply racialized catastrophe, which adds another chapter to the tale of discrimination which occupies the heart of American urban history.

In the USA, as in many of the jurisdictions under consideration in this book, home ownership has been promoted as the tenure to aspire to, both as a symbol of success and as a practical financial asset (a store of wealth and an appreciating investment). Wyly's work, like that of other analysts, shows that in the USA, the mortgage market that gave access to this sought-after resource had two distinctive characteristics: it was heavily securitised, and lightly regulated. In the final chapter of Part two, Richard Green and Susan Wachter begin to weigh up the impact of these and other features on the future of owner occupation and the fortunes of home occupiers.

In their wide-ranging essay, Green and Wachter identify the parameters of a mortgage finance "revolution" that – prior to 2007 – seemed set to roll-out across the globe. This revolution linked mortgage markets with capital markets, by one of

several channels (depositaries, covered bonds and securitization). The nuances of this link are often overlooked at a time when any such attachment is cast as problematic. However, it is precisely such subtleties which help explain the variability in mortgage markets that is so important when accounting for the diverse links between housing wealth and the wider economy. Understanding the way mortgage and capital markets are integrated, for example, is one way of appreciating why the liquidity of housing wealth is so context-dependent. There may well be other explanations to consider. Warnock and Warnock (2008), for example, note the importance of inter-jurisdictional variations in property rights and legal infrastructures. Green and Wachter, however, concentrate on the role and relevance of capital markets, helpfully situating developments in the USA into an international context.

Loan securitization is, as several authors note, the means of attaching mortgage markets with capital markets that was pioneered in the USA. It was a move which, through the medium of mortgage-backed securities, enabled lenders to sell off their loan books into the capital markets, almost as fast as they compiled them. At the same time, however, and more controversially, limited regulation in the US mortgage market paved the way for widespread mis-selling, to the extent that mainstream as well as marginal home-buyers bought into subprime loans with unprecedented exposure to interest rate risks and punitive penalties in the event of default. By setting the US example in a more global context, Green and Wachter show that the subprime "crisis" in the USA is by no means a simple problem (badly managed financial markets) with a simple solution (return to an older way of going on). In fact, they argue that the problem for the housing economy lies as much in poor or non-existent underwriting as it does in the principle of linking mortgage finance with capital markets. It is as much about local regulation as internationalization. This is an important point, since it makes space for the argument that financial markets can bring (and have brought) solutions as well as problems to the housing economy. It suggests that the future has as much to do with managing, regulating and shaping such markets, as with designing them out of the housing equation. These on-going dilemmas concerning the merits as well as limitations of integrating housing, mortgage and financial markets, are taken up in Part three.

Conclusion

The papers comprising Part Two of this collection open a debate on the micro-economic implications of housing wealth and mortgage debt, and advance the arguments around them in several important ways.

Crucially, the authors in this section bring a range of new empirical data and analysis into the equation. It is intriguing that, aside from the works collected here (and the literature that inspires them) there is almost no evidence from the direct testimony of borrowers concerning when, where, how and why people save into, or spend from, housing wealth. In an attempt to fill this gap, the essays in this section make three contributions. First, they show that attitudes to the inheritance of housing wealth are changing; they indicate that home assets will play a growing role in funding the costs of older age. Second, they suggest that – thanks to the

advent of equity borrowing – the collateral effects of housing wealth have acquired an important income- and consumption-smoothing role across the life-course. Finally, they show that the possibility to spend more readily from housing wealth has created a new style of financial buffer which, in some jurisdictions at least, has welfare implications.

Another key theme connects with the way the changing role and relevance of housing wealth impacts on the mix of financial risks that home occupiers, as well as whole economies experience. Credit risks are underlined, of course; if equity borrowing is used for income smoothing, there is always the risk that the loan will default in the face of further economic or biographical shocks. But investment risks are also in the frame; much more so now than in the past. This is not just because the home values that form an asset-base for welfare can fall, but also because of the risk of asset-exhaustion among those who most need income support. There are as yet few methods of effectively managing or mitigating this distinctive mix of risks. However, this important theme is a focus of attention in Part three.

Finally this set of papers provides a commentary on the way that a key route from home prices into all scales of economy – mortgage finance – has changed out of all recognition in the last quarter century. They all embrace, in their different ways, the implications of a mortgage finance "revolution." Collectively, therefore, they begin to explain why, in some places, it was possible to extend mortgage lending into previously underserved markets, while, in other circumstances, existing homeowners were encouraged (by low interest-rates, high prices and cheap credit) to "borrow-up" against their properties. Commenting on this, authors in this section point to the risks (which are increasingly being realized) as well as the rewards (which are not insignificant) of the steady but uneven integration of housing, mortgage and financial markets.

The story of housing wealth and its many effects differs between the different jurisdictions – Europe, Australia and the USA – that are profiled in this volume. But there are two common themes. First, governments and households are increasingly interested and inclined to use housing as an asset-base for welfare. Notwithstanding the scale of price depreciation in some jurisdictions, this tactic is likely to be more common in the future than it has been in the past. Second, this is a risky tactic. The question of how best to manage the costs, maximize the benefits and mitigate the risks associated with the strategies of both "banking on housing" and "spending the home" is the challenge taken up in Part Three.

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Chapter 10

Trading on Housing Wealth: Political Risk in an Aging Society

Mike Berry and Tony Dalton

10.1 Introduction

The proportion of the aged population in Australia, like many western industrialized countries, is growing significantly. In this context the stock of housing wealth of older Australian's is emerging as a key issue in the context of two developments. The first concerns the increase in the demand for health and aged care services. This includes high-care residential facilities, which are already in short supply and with many below standard. Potentially, owner-occupied housing could be a source of capital for adding to and recapitalizing devalued aged housing and accommodation facilities. Second, there are the income needs and expectations of aging owner-occupiers. Some entering retirement, especially single women, have to rely largely on the aged pension and little or no superannuation savings. Others, accustomed to a rising standard of living through their working lives, will seek to maintain their level of consumption in retirement. Potentially, owner-occupied housing could be a source of income for these older people through reverse mortgages or other equity withdrawal strategies (see Costa-Font Chapter 12, this volume; Wood and Nygaard Chapter 11, this volume).

Both uses of owner-occupied housing wealth pose political risks, especially in a policy environment dominated by neo-liberal ideas which encourage, on one hand, lower levels of taxation and public expenditure and, on the other, greater reliance on user pays. In recent decades there have been a number of attempts by policy makers to include owner-occupied housing wealth into calculations about welfare state entitlements and personal responsibility for individual welfare. Most recently there has been a focus on how owner-occupied housing wealth might be used to recapitalize high-care aged residential facilities. Each attempt to include owner-occupied housing wealth into the welfare state calculus has led to considerable controversy and failed totally. More recently, the growth in reverse mortgages has raised a number of potential risks including, the difficulty of providing consumer protection, stability of financial institutions moving into an underdeveloped market, the needs of those who use up all their housing wealth before end of life and

the response of those who are excluded from this market because of their residential geography.

This chapter presents a discussion of the political risks associated with alternative strategies for capturing owner-occupied housing wealth. Three initial sections briefly establish the context for the discussion of political risk associated with aging and owner-occupied housing wealth. First, a brief outline of the changing age structure of the population is presented. Second, a brief account is provided of the extent and distribution of housing wealth in Australia. Third, we look at the way in which the "aging society policy problem" has been presented and the case made for decisive policy initiatives that resets the responsibilities of governments and citizens. The discussion then moves to consider two areas of state policy making. The first focuses on three attempts since 1984 to include owner-occupied housing wealth in government rules used to determine entitlements in the aged care system. In each case, policy to extend the calculus has been defeated. The second focuses on the development of reverse mortgages. Reverse mortgages represent a finance market response. However, market operations always carry risk for policy makers. This section of the chapter presents an initial assessment of evidence of this risk.

The broad argument that we seek to make is that a combination of aging, the uneven intra- and intergenerational distribution of wealth and deeply embedded attitudes of Australians to the "sanctity" of the family home pose very significant political risks for governments in attempting to deal with the fiscal implications of an aging society from within a neo-liberal perspective.

10.2 From Pyramid to Coffin

The age structure of the Australian population is in the process of changing from a pyramid-shape to a coffin-shape. The bulge of people born after World War Two will move from under 40 to over 65 years of age. At the beginning of the twentieth century, less than one in twenty-five Australians were over 65; by 2045, one-in-four will be in this group, totaling around 7 million people (Productivity Commission 2005, p. xx). This trend will unwind across all states and territories of the Commonwealth. The current decade is witnessing the accelerating phase of this long-term process, evident in Figure 10.1. Following this, the forecast is for a deceleration resulting in a stable proportion of the population aged 65 and older by mid-twenty-first century (ABS 2005).

Of critical economic significance is the fact that the changing age structure reflects more than an increase in the numbers of old people. It also signals a slowing in the growth of young people in coming decades as a result of declining fertility levels, a long run trend that stretches back to the 1960s but is intensifying. Failing a robust future policy favoring young immigrants, this heralds a progressively declining labor force base with which to support the growing aged population. On realistic assumptions, provided by the Australian Bureau of Statistics, the *Intergenerational Report 2002–03* (see below) forecasts a 25 percent decline in the aged dependency ratio by 2044–45 (Costello 2002). Further, modeling suggests that even a large-scale immigration program would delay rather than prevent

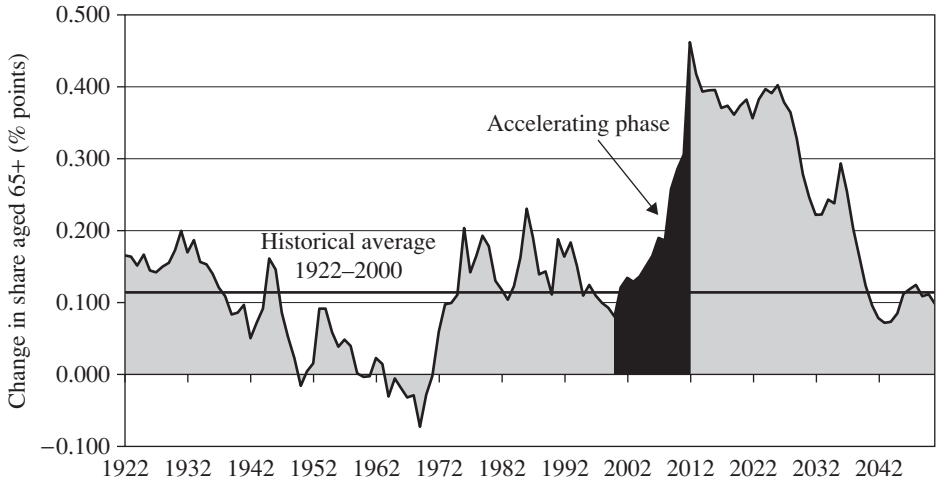

Figure 10.1 Annual change in the share of people aged 65+ in the population: 1922–20.
Source: Productivity Commission (2005, p. xv)

a substantial decline in the dependency rate. This ratio will fall even further to the extent that longevity increases and fertility falls more than assumed in the base case scenario.

> . . . under quite feasible alternative assumptions about future fertility and longevity, the share of the oldest old [85 years and over] increases from 1.4 percent of the population in 2001–02 to 9 percent by 2044–45. In raw numbers, this would be an increase from 277,000 to 2.3 million" (Costello 2002, p. xxii).

Such a massive increase in over-84 year olds would place extreme demands on health services and infrastructure. Given the fact that, on average, women live longer than men most of the increase in the oldest old will be single women who, as a group, have lower levels of wealth than men and, hence, a more limited capacity to meet the rising costs of care as they age.

Although the Australian population is aging it is important to note that compared to other OECD countries, Australia is in the mid-range on the key demographic indicators. These global comparisons are particularly important in a context where the "aging policy problem" is sometimes presented without reference to other comparable countries experiencing similar demands for services, labor shortages, and so on. Out of 30 countries with developed economies the forecast for 2050 is that Australia will be the 13th lowest ranked for the percentage of population aged 65+ indicator; 14th lowest ranked of inactive persons 50+ for the percentage of the labor force indicator; and 14th lowest ranked of percentage of total population out of the labor force indicator (OECD 2006, chap. 1). Using these indicators it is reasonable to suggest that the "aging policy problem" in Australia, although pressing, is not as great as many other comparable nations.

10.3 The Composition of Wealth – And the Importance of Housing

Around half of household wealth in Australia is held in the form of housing. In year 2000, total gross housing wealth was A$1.2 trillion; the total value of superannuation savings, the next largest asset class, was around half this amount (see Figure 10.2). Both housing wealth and (especially) superannuation savings have grown rapidly over the past six years, the former driven by the pronounced and long-lived housing boom and the latter reflecting the accumulating impact of the compulsory, universal superannuation guarantee scheme (see below).

Average (mean) household wealth in 2003–04 was $536,500 (ABS 2006). Figure 10.3 presents a breakdown of the "average" wealth portfolio. However,

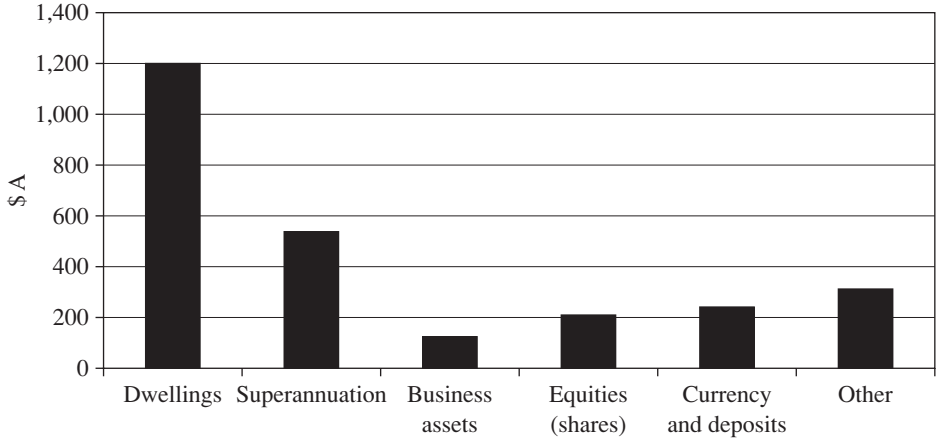

Figure 10.2 Composition of Australian household wealth in 2000.
Source: Northwood et al. (2002, p. 27; derived from table 4.1.1)

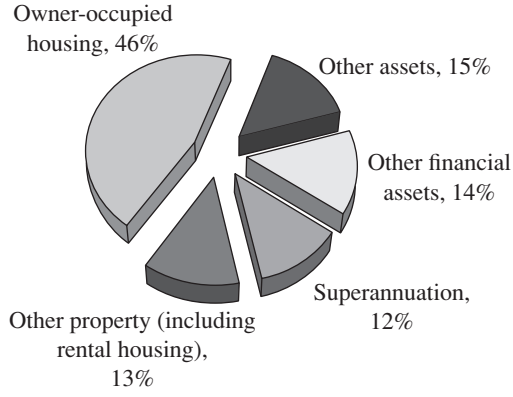

Figure 10.3 Average mean wealth in Australia 2003–04.
Source: Australian Bureau of Statistics (2006, p. 153; derived from table "Mean household assets – 2003–04")

simple averages can be misleading. Average net worth is concentrated among over 45 year olds and is highest in the 55–64 age cohort (the core of the baby boom generation). Housing wealth is even more strongly concentrated among boomer and older households. Superannuation savings, on the other hand, are concentrated primarily in the baby boomer cohort; over 60 year olds have low superannuation savings.

More to the point, wealth is highly unevenly distributed. A study by the National Centre for Social and Economic modeling found that the Gini coefficient for net wealth distribution in Australia in 1998 was 0.64, and 0.70 excluding superannuation savings (Kelly 2001). The wealthiest 5 percent of the population held 30 percent of the wealth. A later study found that the wealthiest quintile held 63 percent of net wealth, while the poorest 60 percent held 15 percent of wealth (Kelly 2005). A study by the Australian Bureau of Statistics (Northwood et al. 2002) likewise found that wealth is very unevenly held across the income distribution; e.g. the average net worth of households in the top income decile is around $850,000, compared to less than $200,000 for those in the bottom four income deciles. For the baby boomers, Kelly and Harding (2006) found that average (median) superannuation savings was only $30,700 for men and a tiny $8,000 for women.

This suggests that many of today's aged and many baby boomers moving towards retirement have only low to moderate levels of accumulated wealth on which to navigate the final years of life. For most older Australians, outright ownership of their houses represents the major asset base on which to plan and live out their retirements. Increasing longevity and rising health and care costs will loom large in these plans. The owner-occupied dwelling is likely to become an increasingly important source of retirement income for those older households who are "asset rich but income poor." This situation applies in particular to aging homeowners located in the capital cities and major tourist and retirement regions where property values have risen sharply during the recent boom. For these households the family house is an increasing store of wealth that can be progressively drawn down through the use of financial instruments like reverse mortgages and by "trading down" to cheaper housing.

The situation for (the minority of) aging households who are both asset and income poor is much grimmer. These households will be largely dependent on accessing the old age pension, a universal age-related entitlement to over-65 year old Australians that is income and asset means tested. This pension is (currently) also available to homeowners who otherwise meet the asset/income test – i.e. "the family home" is exempt from the pension asset test. This fact has significant fiscal implications for future governments. Pension costs are likely to continue to rise as eligible aged households – both homeowners and tenants – organize their affairs to maximize their access to the pension while also, in the former case, trading on their wealth. Once a household's housing wealth is exhausted that household is thrown back entirely on family, charitable organizations, or government for continuing support. This is likely to occur towards the end of life when health and related costs escalate.

The fact that today's over-65 year olds are living longer and more inclined to consume their wealth also has dampening implications for the future wealth prospects of baby boomers. Traditional patterns of family inheritance whereby

children inherit their parents' remaining wealth in middle age may be changing significantly due to a series of factors (Kelly 2005):

- unequal distribution of wealth
- "generation skipping" – wealth left to grandchildren
- changing bequest ethic
- "SKI-ing" – spending the kids' inheritance on "lifestyle" and health care costs.

Kelly (2005) suggests that these alternative inheritance routes may be reflecting a slowly changing "bequest ethic." In the past, parents may have had greater intergenerational altruism and believed that their children had a greater need than themselves or may have derived pleasure from anticipated giving. Inheritance may also have been used to encourage desired behavior among children, especially where continuity of the family business was concerned – "how do you keep them down on the farm"? Now, he suggests, many baby boomers are better educated than their parents, have higher incomes and dual incomes, live independently, and are less likely to be in the family business. This means that boomers cannot automatically "rely on the old folks money." Indeed, Kelly and Harding (2006, p. 1) argue that those households with the least need have the greatest chance of inheriting large amounts, while "the majority of baby boomers have made a mistake if they are relying on inheritance to fund their retirement."

Beyond these already emerging intergenerational dynamics there will of course be new and as yet unforeseen dynamics emerge. Future political processes will include the aspirations and demands of households in different age cohorts that will be imbricated in diverse housing markets that will continue changing. For example, a change yet to impact on Australian suburban housing markets concerns the effects of climate change and the pricing of carbon emissions. The identities and interests of households of different ages will also shape how this plays out.

In a similar vein, future taxation reforms may shift the emphasis and incidence away from earned to unearned incomes, in order to reduce labor supply disincentives in economies with high dependency ratios and labor shortages. This would both increase pressures on retirement incomes and reinforce dependence on accessing housing wealth during retirement; it would also have implications for an increasing dependence on the age pension in those societies, placing future fiscal demands on government.

10.4 The Policy Context

There has been recognition for some time that the Australian population has been aging. For example, it was a factor in the development of the Aged Care Reform Strategy in 1984–85 (Healy 2002, p. 3). It was clearly evident in the reintroduction in 1984, by the Hawke Labor Government, of an income and assets test used to determine eligibility for the aged pension (Panel of Review of the Proposed Income and Assets Test (Australia) 1984). However, the changing age profile has taken on a new policy salience since 2003 following the speech by the Commonwealth Treasurer, in the Howard Conservative Government, when delivering the annual

Budget to Parliament. In the papers accompanying the Budget the Federal Treasurer tabled the *Intergenerational Report 2002–03* (Costello 2002) that pointed to population aging as one of the key demographic drivers of social and economic change over the coming decades and sought to identify the main implications for future government policy – particularly with respect to the likely future *fiscal* burden on the Commonwealth. Another report followed in 2007 which confirms the problem of the fiscal burden (Costello 2007). At the time of writing it is not clear whether the Rudd Labor Government, elected at the end of 2007, will present a different analysis.

The construction of this fiscal policy problem centered on the idea that an aging population would lead to an increasing dependency ratio, both boosting the demand for a range of age-related services, especially health, while reducing the capacity of the economy to fund these services. This reflected a shared concern across the advanced economies evident in the OECD report *Maintaining Prosperity in an Ageing Society*, signaled by its opening statement "Fewer workers to support more retirees raises fiscal issues and issues of inter-generational equity" (OECD 1998, p. 9). Governments, in this view, will face burgeoning liabilities for age pensions and health services.

In Australia the Federal Treasurer forecast that during the first 40 years of this century government spending on health would double from 3.8 to 7.3 percent of GDP, with the demand from older people for aged care services as one of the main drivers of growth (Costello 2007). The Federal Treasurer also forecast that the federal budget position under current policy settings would move from a current surplus of around 1 percent of GDP to a deficit of almost 3.5 percent by 2046. The statement that follows is "Governments will need to take action to prevent a sustained deterioration in government finances" (Costello 2007, p. 83). At the macroeconomic level, an aging society may herald a falling national savings rate, placing limits on future economic growth and accentuating the public finance crisis. Emerging labor shortages and bottlenecks also threaten the future rate of economic growth. Arguably there are other ways that the policy implications of a changing age profile can be framed. For example, Doughney and King (2006) suggest that the government's analysis and policy prescription is largely designed to fulfill a neoliberal low-tax agenda. They suggest other policy settings should be considered.

Consequently, the Australian Government, like many others, has been seeking to limit present and future commitments in a number of ways. A major thrust has been to look for ways to reduce the national government's future liability by encouraging people to work longer (reversing the 1990s trend towards early retirement), reforming eligibility for and delivery of age pensions and related entitlements, and encouraging individuals to accumulate sufficient wealth through their working lives to fund adequate retirement incomes. A national Labor Government during the 1980s laid a major plank. In a deal with the Australian Council of Trade Unions, the government introduced a compulsory general superannuation savings scheme – the Superannuation Guarantee Scheme (SGS) – requiring all employers to contribute towards the private superannuation accounts of their employees. However, for today's "Baby Boom" generation – those Australians born between the end of World War Two and the early 1960s – many of whom did not have other superannuation assets, the SGS by itself will generate inadequate savings to

support retirement. Baby boomers who do not have *other* assets will be thrown onto the state for support after they retire. This casts light on the critical role of housing and housing wealth for this cohort.

10.5 Extending the Welfare State Calculus

In 1984, 1997, and 2006 the federal government sought to include owner-occupied housing wealth in assets tests used to determine eligibility for aged care benefits and services. On each occasion the proposal was dropped after considerable controversy.

In 1984 the Hawke Labor Government made access to the aged pension subject to an income and assets test. A review panel recommended that owner-occupied housing wealth be included in asset calculations (Panel of Review of the Proposed Income and Assets Test (Australia) 1984). The assets test was implemented, however, owner-occupied housing wealth was dropped from the list of assets to be included in the assessment (Australian Financial Review 1984).

In the 1996–1997 budget the conservative Howard Coalition Government announced a requirement for up-front bonds, subject to an asset test, to be paid by new entrants to high-care aged residential facilities, otherwise known in Australia as nursing homes (Costello et al. 1996). Owner-occupied housing wealth was included in the list of assets and the bond scheme was implemented. However, following considerable controversy the accommodation bond scheme was terminated shortly after start-up (Canberra Times 1997a).

In late 2006 the accommodation bond scheme, based on an assets test including owner-occupied housing wealth, was again put on the policy agenda through an Aged Care Price Review Taskforce (Australia) (2004) recommendation, only to be rejected by the government (Franklin 2006). This decision was taken against the background of a continuing broad consensus in the aged care policy community that there is a capital crisis facing the providers of high-care aged residential facilities (National Aged Care Alliance 2004).

Together these three policy making episodes show how difficult it is to incorporate owner-occupied housing wealth into the calculus of the Australian welfare state. In these three episodes policy makers met with considerable political opposition that ultimately prevented its inclusion in calculations. These episodes can be reviewed briefly by focusing on the nature of the policy problems the proposal sought to solve, the nature of the consequential controversy, and the participants in the policy debate. Table 10.1 presents a summary of these elements.

In the 1984 the Labor Government sought to extend the targeting of benefits that has underpinned much, but not all, of the income support payment system in Australia. It had become clear that many aged people were structuring their asset holding arrangements in order to minimize cash income, which would be counted in the income test, in order to receive the aged pension. The review committee, led by a social liberal academic economist, Professor Fred Gruen from the Australian National University, perhaps went further than the government expected when it included owner-occupied housing assets in the proposed asset calculation. It recommended all assets over a threshold be counted and that pension payments

Table 10.1 Housing wealth and policy making 1984–2006

Policy episode	*Policy problems*	*Elements of controversy*	*Prominent participants*
1984 Aged pension income and assets test	Fiscal constraint Strengthening targeting Behavior of aged seeking to minimize income from assets	Fundamental right of home ownership The right to inherit the family home Forcing old people to move Locational variation in home prices	Australian Council of Trade Unions Government backbenchers from Sydney Real Estate Institute of Australia Pensioner organizations
1997 Nursing home "accommodation bonds"	Fiscal constraint and need for capital outside budget sector Shortage and poor state of existing nursing homes Forecast increased demand for high-care beds	Fundamental right of home ownership The right to inherit the family home Greed of private nursing home proprietors Hostels provide housing whereas nursing homes provide health care Potential exclusion of those without assets Administration and protection of rights of entrants including exclusion of those without assets	Government backbenchers Nongovernment nursing home proprietors Private nursing home proprietors
2006 Nursing home "accommodation bonds"	As above with shortage and poor state of nursing homes assuming the status of a "wicked problem"	Media recall of 1997 controversy Accommodation bonds ruled out Full package to be announced early 2007	National Aged Care Alliance (formed 2000)

decline in proportion to assets over the threshold. Where pensioners experienced the problem of illiquid assets that did not produce income and therefore had insufficient income they would be "eligible for pension-level payments to be made as a loan" against the estate. The rationale for including owner-occupied assets was that "home owners are substantially advantaged over renters" (Panel of Review of the Proposed Income and Assets Test (Australia) 1984).

Much of the opposition in the controversy that followed centered on the inclusion of owner-occupied housing in the assets test. The Australian Financial Review (1984), in the aftermath of the government decision to adopt an asset test, but without owner-occupied housing wealth, summed up:

> . . . it is doubtful whether much can be done about the various subsidies which are offered for home occupation and ownership. There is too deeply ingrained a social feeling that the family home is inviolable.

Backbench federal government parliamentarians, especially government parliamentarians from Sydney, were prominent in the controversy. By then Sydney had the highest average home prices in the country. These backbenchers opposed including owner-occupied housing wealth and put the case to cabinet. They expressed concern that "the panel's proposal would discriminate against pensioners in their constituencies as average home prices in the city are double those in some other capital cities" (Higgins 1984).

More recently the provision of adequate residential care for the very old and frail has been identified as a policy priority. While attempting to encourage the elderly to "stay at home" as long as possible, the demand for institutional care has risen quickly. Traditionally, this care has been provided by charitable and commercial organizations subsidized by the Commonwealth Government. Successive governments have been criticized due to the uneven quality and shortage of high-care aged residential facilities. Scandals involving elder neglect and abuse at such institutions have focused political attention on the issue of inadequate standards and ineffective regulation. It has also been recognized that many facilities are substantially undercapitalized and need major upgrading. However, because of the dominance of the neo-liberal frame of reference, funding this capital from the budget became increasingly unacceptable.

The growing size of the capital requirement was confirmed in an inquiry undertaken for the Federal Labor Government (Department of Health Housing Local Government and Community Services 1994). This finding was acknowledged by the conservative Coalition Government in the 1996–1997 budget and the policy solution outlined (Costello et al. 1996, p. 17):

> Nursing home and hostel providers have faced inadequate funding for dementia care, a crisis in capital investment and an inefficient and inflexible funding system . . . These facilities will improve dramatically with the extension of hostel-style resident entry contributions to nursing homes, linked to minimum building standards.

At the same time the government reduced its capital funding to residential facilities (Howe 2000). This is the context for the Commonwealth considering the accumulated wealth in the family home as source of capital outside the budget and the finance market. The policy solution proposed was to extend the provision, already applying to hostel providers, to nursing home providers and allow them to require an "accommodation bond" from entrants if they held assets of more than $22,500. The providers would then be able to draw down a set amount each year for five years on the bond in addition to receiving the interest.

The controversy that followed the accommodation bond decision ran from early August to early November in 1997, with lines of argument about owner-occupied housing similar to 1984. For example, the *Canberra Times* (1997b) speculated on the type of advertisement that the Labor Opposition would run at the next

election as it tapped into the sentiment evident in constituent representations and talk back radio. It was little different to the above 1984 Australian Financial Review quote.

> You can visualise the stark black and white ads: our senior citizens have been through a World War and maybe the Depression, they were encouraged to be thrifty and put savings into a home, and they hoped to leave their children an inheritance. Instead they are being ordered to sell the family home to pay an expensive bond at a most vulnerable time.

However, there were differences in the associated political processes. First, because the issue ran for three months before the Federal Government backed down and opted for an additional annual "accommodation charge" there was time for a new group politics. There were supporters, principally private providers, such as the Australian Nursing Home and Extended Care Association, Retirement Village Association of Victoria, and the National Association of Nursing Homes and Private Hospitals, who exhorted the Federal Government to stay the course and implement the bond. They ran the case about the need for investment. However, the nongovernment not-for-profit sector through groups such as Australian Catholic Health Care Association, Aged Services Association, and Australian Pensioners and Superannuants' Federation came out in opposition. They focused on accompanying cuts to government capital for high-care facilities, the absence of consumer protection provisions and confusion about bond scheme governance arrangements. Further, the point was made that high-care residential facilities should be seen as an extension of acute health care provision not housing. Health care, it was argued, was a government responsibility (*Canberra Times* 1997c). In early November 1997 the Federal Government decided not to proceed with the "accommodation bond" as polling indicated that the issue was damaging its election prospects (*Sydney Morning Herald* 1997). The issue also had a damaging afterlife as the government sought to return the bonds to all those who had paid.

An indication of the nervousness that the 1997 policy focus on the assets of the elderly had engendered within the government became evident in the Federal Treasurer's *Intergenerational Report 2002–03* (Costello 2002). As noted above, it was the definitive policy document seeking to define the "aging policy problem" and associated fiscal problem. What is extraordinary about this 100 page document is that it does not refer at all to the housing circumstances and assets of older people in Australian society. Indeed, the word house or dwelling does not appear in the text. As indicated in Figure 10.2 housing wealth is the largest component of household wealth for Australian households. This silence is made more noticeable by the extended discussion of superannuation, the second largest component of household wealth. The same lacunae was evident in the second *Intergenerational Report* (Costello 2007).

The issue about the adequacy of high-care residential facilities did not go away. It was acknowledged as a continuing issue by the government and the aged care policy community. The result was the setting up of another inquiry in early 2003, *Review of Pricing Arrangements in Residential Care*, to address this issue and the economics of residential care for the aged more broadly. The review endorsed the

underlying neo-liberal tax agenda (Aged Care Price Review Taskforce (Australia) 2004, p. xi).

> In a tax-funded system, larger co-payments must be sought from those older people with the means to contribute to their care costs.

The provision for capital payments could either be through a fully refundable lump sum bond or a daily rental charge. Again, assessment of assets would include owner-occupied housing. Although this recommendation was supported by detailed recommendations about how to assess assets and administer the bond system, the government decided against bonds. "Federal Minister For Ageing Santo Santoro said yesterday that Canberra would not introduce nursing home bonds, which would have meant elderly people being asked to put up about $140,000 to get into a home" (Stafford 2006, p. 14).

The Liberal National Party coalition government responded this way even though the politics of residential aged care changed markedly. During the 1997 episode there was division in the aged care policy community. Nongovernment providers opposed accommodation bonds while private providers supported them. However, in April 2000 these two sectors came together along with professional bodies and unions within a new peak organization, the National Aged Care Alliance (NACA). Financing of aged care was one of the issues considered by NACA (Webster 2002; National Aged Care Alliance 2004; Bruen 2006). The outcome was support for accommodation bonds (Horin 2004, p. 3).

> A coalition of 23 aged-care operators and consumer groups reached agreement . . . that bonds be part of the solution to the shortage of capital in the industry. After the storm of protest that forced a Howard Government backdown last time amid claims that pensioners would have to sell their homes to enter nursing homes, industry groups have softened their language.

Even with this new found support the Federal Government, in the lead up to the 2007 general election, made the judgment that the political risk associated with implementing accommodation bonds was too great. All that the minister could offer was to search for "an alternative approach to funding high-care capital that will more effectively meet the needs of both providers and consumers" (Macdonald 2006, p. 8). Subsequently both the conservative Liberal–National Party Coalition Government and the Australian Labor Party contested an election in late 2007. Although the aged-care industry continued to call for reinvestment (National Aged Care Alliance 2007) both parties avoided making commitments. Since being elected the new Labor Federal Government has remained silent on the issue.

10.6 Reverse Mortgages and Policy Risk

A second area where there is policy risk for government associated with owner-occupied housing wealth is in the development and uptake by older owner-occupiers of equity release products offered by financial intermediaries. There are a number

of equity release products through which older owner-occupiers can realize some of the wealth in their dwellings. However, the most common product is the reverse mortgage where the owner-occupier borrows money, either by receiving regular payments from a financial institution or by receiving a lump sum, against the equity in their dwelling and the principal or interest is not repaid until the home is vacated and sold. The size of the market is small but growing rapidly. In late 2006 an industry survey reported: "The market has more than doubled in the past 18 months with the sector's outstanding loan book of $1.1b at 30 June 2006 increasing from $459m at the end of 2004, and $848m at the end of 2005" (SEQUAL and Trowbridge Deloitte 2006). By the December 2007 it had increased to $2.02bn representing a 34 percent growth rate for 2007 (Hickey et al. 2007). The industry also has high expectations as they study the demographic forecasts, as suggested in the comment of one industry representative: "You won't see the rump of those baby boomers hitting retirement and then spending their superannuation for another ten years. So it's going from a small base but it is growing very fast" (Munro 2006, p. 9).

The context for the presence of government policy risk stems directly from the nature of the market and the groups and agencies that are taking an interest in how this market develops.

First, there are the financial intermediaries that are creating this market. In 2006 that there were 18 intermediaries offering reverse mortgages (Wasiliev 2006) and in 2007 this had reportedly risen to a total of 26 intermediaries (Manning 2007). Many are backed by, or are subsidiaries of, three of the four large Australian banks (Barrett 2007). Closely associated with these intermediaries are financial planners and mortgage brokers who retail the reverse mortgage products. At an industry-wide level a peak organization, Senior Australians Equity Release Association of Lenders (SEQUAL), has been formed to promote a voluntary code of conduct and represent the industry in discussion with consumers and government (SEQUAL 2008).

Second, there are the owner-occupiers who are purchasing these products. One observer (Hanley 2006) suggests there are three groups: those paying for "life needs" such as carers' renovations associated with a disability; "lifestyle customers" who want to consume more; and "smart money customers" who want to invest. Recent industry data indicate that the average age of borrowers is 74 and 44 percent of loans are taken out by couples, 40 percent are taken out by single women and 16 percent by single males (Hickey et al. 2007). There is also evidence that a significant proportion of retirees are predisposed to spending some of their accumulated housing wealth in later years (Olsberg and Winters 2005).

Third, there are the consumer advocacy organizations, in particular the Australian Consumers' Association (ACA), that review developments and advocate for regulation change (Australian Consumers' Association 2008). Finally, there are the regulators. In the Australian federal system this responsibility is distributed between federal and state governments. Further, it is now clear that the existing regulatory system "was not designed to address the issues raised by equity release products" (Australian Securities and Investment Commission 2005, p. 8). However, it is the Commonwealth Government that continues to review developments in this market and frame the policy and regulatory debate (Australian Securities and Investment Commission 2007).

In this emerging market four policy risks for government can be identified: consumer risk; finance intermediary viability risk; asset exhaustion risk; geographic inequality and opportunity risk.

10.6.1 Consumer risk

Consumer risk is already a well-acknowledged risk for all interests associated with the industry. The Australian Securities and Investment Commission (2005, p. 5) suggests the risk stems from "many who are vulnerable to making poor decisions" and the "complex legal structure" of equity release products. They also point to the difficulty they face in being able to act decisively to reduce the level of consumer risk because "the existing regulatory system was not designed to address the issues raised by equity release products, which take the form of a credit arrangement but nevertheless have some of the attributes of an investment product" (The Australian Securities and Investment Commission 2005, p. 8). The regulatory system such as it exists is spread across the Uniform Consumer Credit Code (which is a nationally agreed code enforced by state government consumer affairs agencies) and the national *Corporations Act 2001*. In this context the main response by government, especially the Australian Securities and Investment Commission (ASIC), and consumer organizations, especially the ACA, is to provide consumer advice and some aids to potential customers through web-based reverse mortgage calculators.

On the industry side the financial intermediaries have sought to instill consumer confidence through a system of voluntary regulation run by SEQUAL, their industry body. The presence of consumer risk and a need for addressing it has from time to time been given some impetus through press coverage of consumer misfortune. An example is the headline *Equity brings bankruptcy* in a national newspaper followed by an account of a elderly couple who faced the prospect of losing their home "in Sydney's east after they were talked into withdrawing $960,000 from the property they originally paid off in 1986" (Klan 2006, p. 2). It is the type of story that energizes consumer advocates and makes the managers of intermediaries selling equity release products wince. It is also the type of story that reminds policy makers that consumers and their representatives will ultimately call upon government to be responsible for and take action to reduce consumer risk through regulation and law enforcement.

10.6.2 Finance intermediary viability risk

Finance intermediary viability risk is about whether the firm supplying the financial product can return a profit in the long term. An organization advising the industry sums it up in these terms for this new market and the long term nature of its product (Trowbridge Deloitte 2004).

> The risk associated with offering any new product or service in a market can be substantial. Costs have to be recovered from revenue and a required level of

sales achieved to turn a profit. For Reverse Mortgages, however, additional risks are inherent because the contract may last for anywhere up to 30 years or more.

Factors that need to be considered by intermediaries when they assess their viability over time are interest rate variations, home price variations, longevity of customers, bad publicity, fraud, and accuracy of customer advice.

Finance intermediary viability is not only a risk factor for shareholders and owners but also a risk for government, demonstrated globally during 2008 as governments have sought to manage the fall out of the collapse of the US sub-prime mortgage market. The growth of reverse mortgages will inevitably result in increased system complexity and potential growth in the risk of intermediary viability. As noted above, the amount of lending through reverse mortgages is small but it is growing rapidly. Further, those in the industry have expectations of long-term growth and the emergence of a very large market. For example, Trowbridge Deloitte (2004) note: "the potential market for this product in Australia is significant. Current estimates of the amount of equity held by over 60s in houses range from $340 to $450bn." Further, system complexity is likely to increase as reverse mortgage portfolios are securitized similar to residential mortgages. As another advisory group (Minter Ellison 2007) notes: "The securitisation of reverse mortgages receivables is viable with careful modeling and structuring/sizing of the credit facility."

This process then brings into play other interests who again make assessments of the risks and enter into contractual relationships with each other. Government policy makers particularly through central agencies, such as treasuries, central banks, and first minister departments already devote considerable policy energy to maintaining system confidence and stability. The growth of reverse mortgage portfolios will add further complexity to the policy judgments they have to make and will place further demands on the regulatory apparatus.

10.6.3 Asset exhaustion risk

Asset exhaustion risk refers to a situation where older people have used up all their assets, including their housing wealth, and they have nothing left. Reverse mortgages and other equity release products will contribute to asset exhaustion. The risk for government in asset exhaustion is that government has to step in with additional income support and resources for services, such as high-care residential services, for the remaining years. This is most likely to be the case when independent living in the dwelling against which a reverse mortgage has been drawn is no longer possible. If a person moves to either a low-care or high-care residential facility they will move out of their dwelling with considerably less than the sale price. The risk, as the Australian Securities and Investment Commission (2007, p. 6) notes, is that the homeowner will have "too little equity down the track to move into supported accommodation."

Beyond this, there is a broader issue about the housing security for younger households that can follow from intergenerational transfers. There is considerable evidence that intergenerational transfers from parents to children and grandchildren

have supported younger households achieve housing security through home-ownership (Badcock and Beer 2000; Olsberg and Winters 2005). Olsberg and Winters (2005, p. 58) found in their survey that more than one-third of respondents (homeowners over 50 years of age) "had given their children or other younger family members assistance to purchase a home." However, beyond this gifts or loans bequests and inheritances have also been important. The availability of reverse mortgages and their increased uptake, if they are not used to provide gifts and loans to children and grandchildren but consumption, may change the patterns of intergenerational transfer, resulting in increased housing affordability and security problems for the next generation. This has implications for broader housing policy.

10.6.4 Geographic equity and opportunity risk

Geographic equity and opportunity risk starts with the observation that housing wealth is unequally distributed. This inequality is within cities, between cities, and between cities and country. Because finance intermediaries include current and expected home prices into their calculations of risk this will result in them establishing a definite geographic profile in their lending practices through reverse mortgages. Preliminary evidence of this is presented in modeling by Ong (2008) that estimates that older people in Tasmania and South Australia, states with lower average home prices than other states, have less capacity to draw down their housing wealth through reverse mortgages. There is preliminary evidence available that this uneven uptake of reverse mortgages is occurring. Hickey et al. (2007, p. 15) show that 43 percent of reverse mortgage business is in New South Wales, 20 percent in both Victoria and Queensland, Western Australia 9 percent, South Australia 5 percent, and Tasmania 3 percent. In other words the state with the greatest volume of reverse mortgage business is in the state with the highest home prices. This has implications for the geographic distribution of opportunities that come with the additional income provided through reverse mortgages. The difference between regions is potentially significant given the extensive wealth held in housing by those over 60 noted above and its uneven geographic distribution. Regional inequality is a well established policy issue and the uneven availability and use of reverse mortgages has the potential to increase the salience of this issue for governments at the three levels in the Australian federation.

10.7 Conclusion

We have argued in this chapter that housing wealth holds a central place in emerging Australian debates over the policy implications and tensions of an aging population. Given the existing patterns of (intra- and intergenerational) wealth distribution, and the concentration of wealth in the form of housing, both house owners and governments can be expected to try to tap housing wealth to support and service the growing needs of an increasing number of older Australians.

Governments, however, face a range of barriers and risks in doing this. First and foremost, deep-seated attitudes to the "sanctity" of "the family home." among

the majority home-owning population (and their beneficiaries), make any attempt to appropriate housing wealth fraught with electoral danger for government. The three episodes briefly discussed in this chapter attest to both the political difficulties and the readiness of governments to back away from this approach. The seeming inviolability of owner-occupied housing is likely to stem from both emotional attachment and material interests in maintaining unfettered access to wealth accumulation.

Second, the emerging market for reverse mortgages and similar financial products throws new responsibilities on the regulatory system to protect consumers against unfair practices and exorbitant costs. In the latter context, the newness of the market and the uncertainty attaching to the pricing of many of the risks to lenders is likely to lead to high costs for consumers, at least until the market matures. Due to the political sensitivity of both home ownership and the welfare of the aged, governments are likely to be blamed if existing regulatory and self-regulatory measures prove inadequate, especially if a series of well-publicized cases of financial distress occurs.

Third, the potential for systemic crisis is enhanced if the new financial markets add to complexity (in the technical sense) of the financial system, threatening the stability of the overall economy. Once again, the electorate will hold government, particularly at the federal level, accountable.

Fourth, with increasing longevity and inadequate nonhousing wealth, many older Australian homeowners will exhaust their housing wealth before they die and before they require expensive health and residential care, placing a growing fiscal burden on government.

Finally, the geographic impact of these risks varies significantly across and within regions. Homeowners (and landlord investors) in some locations will have lower average housing wealth and will exhaust that wealth more quickly than in other regions, creating varying fiscal demands on local governments, with implications for the spatial focus of activity by agencies at higher levels of government.

The risks addressed here are particularly salient and problematic for governments pursuing a neo-liberal agenda – and thus apply to a number of other OECD countries, particularly in the Anglo world. By seeking to wind back direct provision of services to the expanding aged population in favor of "individual responsibility" and market provision, they invite homeowners to draw down their housing wealth. However, in doing so, they crystalize the risks that threaten electoral backlash, financial system instability, and fiscal blow-out. For governments, in particular, the concentration of wealth in the family home is a mixed blessing.

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Chapter 11

Housing Equity Withdrawal and Retirement: Evidence from the Household, Income, and Labor Dynamics in Australia Survey (HILDA)

Gavin Wood and Christian A. Nygaard

11.1 Introduction

Despite recent home price declines Australian home prices have more than doubled since 1996, and are more than three times the level they reached at the peak of the previous home price cycle in 1990. The typical homeowner has then reaped substantial capital gains and accumulated large amounts of housing equity. Back in 1990–91 Australian homeowners held a mean $117,646 in housing equity; by 2002/03 this had increased to $200,405, a 27 percent increase in real terms.[1] Housing equity is then a substantial source of unlocked spending power. It is also the major asset in the typical wealth portfolio held by Australians (Wood 1999).

With deregulation of housing finance markets new and more flexible mortgage products make it easier for Australian homeowners to release housing equity and reduce the substantial transactions costs associated with the sale and purchase of housing. These new products and the recent home price boom (1996–2003) have increased interest in how much housing equity is being withdrawn, and what it is being spent on (see Schwartz et al. Chapter 7, this volume). The monetary authorities are particularly interested in whether it is being spent on consumption (RBA 2003). Asset price inflation might be deemed an appropriate target of monetary policy if it could be shown that wealth effects are pronounced.

But there is also a growing interest in the role that releasing housing equity may play as insurance to smooth income fluctuations, or in meeting unanticipated and anticipated cost outlays that result from discrete life course events such as redundancy, pregnancy and child birth, bereavement and divorce, episodes of ill health and disability, age care or retirement (on the latter see Berry and Dalton Chapter 10, this volume). Indeed Rohe et al. (2000) draw attention in the US context to evidence that housing equity is withdrawn to meet unanticipated health-care costs. More generally, homeownership may promote "ontological security." A general sense of well being and the role of housing wealth as insurance is one aspect of this

security. With the welfare state in retreat and self reliance in relation to traditional areas of welfare support being encouraged, the drive for asset-based welfare to manage risk through the life course may strengthen.

This chapter focuses on housing equity withdrawal and retirement, which is a life course event typically associated with an abrupt drop in income. Our particular interest is in whether Australian baby boomer homeowners plan to release housing wealth to help finance retirement plans. In addition, we ask if particular socio-economic, demographic, and financial variables correlate with plans to release housing equity. The motivation prompting such research questions is straightforward in the Australian context. Home ownership has long been regarded by Australians as "insurance for old age" because outright ownership relieves the retiree of the financial obligation to meet mortgage or rent payments (Bradbury et al. 1987). However, housing assets have not been thought of as a vehicle for the accumulation of wealth that can be drawn down during retirement years, an attitude that is also evident in other countries. In the USA, for example, there is evidence that the elderly have been reluctant to release housing equity by either trading down or making use of mortgage products such as reverse mortgages, and are observed to keep their wealth intact (Cappozza and Megbolugbe 1994; Mayer and Simons 1994; VanderHart 1994).

There is, however, evidence that housing wealth and the decision to retire are linked. Knox (2003) finds that among Australians born between 1946 and 1964 those owning their own home expect to retire at age 60.2 years compared to 62.4 years among renters. Plans to part finance retirement through housing equity withdrawal might help explain these homeowners' earlier intended retirement. Early retirement is facilitated by the large capital gains reaped by homeowners in recent years and the emergence of new financial instruments for the release of housing equity, that encourage homeowners to "spend their own home" (Hurst and Stafford 2004; Smith 2005; Benito 2007). Borrowing using innovative mortgage products can "bring forward" a pension lump sum, for example. Australian homeowners also receive encouragement from the tax exempt status of housing capital gains, and exclusion of the family home from the asset means test governing eligibility for the Commonwealth age pension (see Berry and Dalton Chapter 10, this volume). Recent evidence offered in Olsberg and Winters (2006) indicates a significant shift in the values and priorities of older Australians with independence, flexibility, and life-style choices increasingly prominent. A significant finding is that the bequest motive appears to be less strong, and so elderly Australian homeowners are often sitting on large amounts of housing wealth that they may be prepared to unlock if needed.

Evidence of changing attitudes toward housing wealth and its potential welfare-role takes on a particular significance in view of recent developments in housing markets. Middle-aged homeowners banking on housing wealth in retirement may find that their plans are severely disrupted by collapsing house values. Thus far in the home price cycle (third quarter 2008), Australia has experienced mild home price declines compared to the USA, UK, Ireland, and Spain. There are few signs of the steep increase in foreclosures to levels that would exert the kind of downward pressure on home prices that US housing markets have suffered (see Case and Quigley Chapter 19, this volume).

But the macroeconomy is deteriorating at an alarming rate, and so fears of a slump in house values cannot be dismissed. In the empirical work reported below we find that one-quarter of middle-aged homeowners expect to sell up or trade-down to help finance retirement plans. These homeowners are in a potentially precarious financial predicament, as retirement plans would abruptly unravel if house values collapse. Who these homeowners are and what might be prompting plans to use housing wealth in this way, are key questions addressed in our empirical study.

The research approach exploits the Household, Income and Labour Dynamics in Australia Survey (HILDA) survey question that asks baby boomer homeowners whether they intend to sell up or move to cheaper accommodation in order to help finance retirement. The chapter is organized as follows. In the next section we review the literature with the emphasis on economic models of consumption and saving, and their implications for how and when housing wealth is accumulated and released. We then describe data sources and variable measures and profile the personal characteristics of those planning to "roll out" housing equity as part of their retirement plans. The third section presents results from regression models that test various hypotheses about what motivates plans to release housing wealth to help finance retirement. A concluding section summarizes and outlines future directions for research.

11.2 Background

There is a substantial body of literature investigating the impact of homeowners' imputed rents (from housing assets) on the distribution of income (Burkhauser et al. 1985; Steuerle 1985; Lerman and Lerman 1986; Smith 1990; Rendall and Speare 1993; Travers and Richardson 1993; Yates 1994). There is a related stream of research measuring the impact of housing wealth on poverty status (Newman and Struyk 1983; Bradbury et al. 1987; Wolff 1990). The contribution of in-kind benefits and net worth to a household's potential consumption motivates these studies. They have demonstrated how cash income measures that ignore the contribution of housing equity can distort measures of income inequality and poverty status.

In recent years we have witnessed a growing interest in the role of housing wealth as a buffer to smooth income fluctuations, and as insurance with respect to non-financial shocks such as divorce (see, e.g., Smith et al. 2009; Parkinson et al. in press). The early literature focused on the market potential of reverse mortgages among elderly homeowners. Studies such as Venti and Wise (1991) and Mayer and Simons (1994) in the USA and Hancock (1998) in the UK were somewhat pessimistic, concluding that the typical homeowner does not want to release housing equity, or finds reverse mortgages financially unattractive.

The reluctance of the elderly to "release" housing equity has been documented by VanderHart (1994). If elderly homeowners wish to release housing equity surely they would trade down, but VanderHart finds moves are infrequent, while Mayer and Simons (1994) discover that elderly homeowners are just as likely to trade up as trade down. The evidence on moves and trading down is puzzling in view of those economic models of consumption and saving which predict that homeowners will draw down housing equity in old age when people are "short of cash"

because they no longer work. Life-cycle models, for instance, assume that individual consumption is based around expectations of lifetime earnings. Young households borrow against their future earnings to sustain consumption when incomes are relatively low, and leverage the acquisition of assets that are typically dominated by housing. In middle age households take advantage of typically higher earnings to repay the debts taken on when young, and accumulate wealth in assets that will be run down in old age.

Skinner (1996) shows that a life-cycle model with no moving costs and foresight, predicts that a rational life-cycle homeowner dies with zero housing equity having progressively released their equity during retirement. In the life-cycle model, housing wealth is only ever left unrealized if moving costs are large and financial markets do not offer reverse mortgages (Skinner 1996). With prohibitively large moving costs elderly homeowners store less of their savings in housing equity, having accumulated savings in liquid assets that are run down in retirement. In these circumstances home price gains that boost housing equity leave homeowner's wellbeing unaffected. As Shoven (1996, p. 269) explains "owning a house is a bit like having a lifetime subscription to a magazine or a lifetime membership in a golf club. If you own one of these lifetime claims and do not intend to sell it, then changes in the price of lifetime memberships do not affect your welfare."

The bequest motive is an alternative explanation for the reluctance of homeowner retirees to "cash in" their equity. In the life-cycle model with a bequest motive home owning parents will only release windfall gains that boost housing equity if they experience severe financial distress (Skinner 1996). The bequest model does of course predict that childless homeowners will progressively liquidate housing equity as in the life-cycle model without bequests.[2]

Recent developments shed some doubt on the importance of the bequest motive and moving costs as explanations for the reluctance of older homeowners to release housing wealth during retirement. Firstly, there is a belief that growing numbers of baby boomer parents are gifting some of their housing wealth to children (Olsberg and Winters 2005). With increasing longevity bequests are of limited benefit to children that have already established housing and labor market careers. Transfers that make a timely contribution to a child's education and first transition into homeownership must typically occur before retirement. Secondly, most homeowners have reaped extremely large windfall gains in the past decade. For Australian homeowners approaching retirement housing equity is by far and away the most important component of wealth portfolios. In 2002 average net wealth of those aged 50–64 was A$240,000 of which A$127,000 was held in the family home and only A$56,000 was held in superannuation (Hamilton and Hamilton 2006; see also Berry and Dalton Chapter 10, this volume). If moving costs have increased in line with general inflation they will eat into a progressively smaller slice of housing equity that is realized on trading down. Finally, though inflated house values have been the source of large windfall gains for middle aged and older homeowners, the rise in house values leaves renters who aspire to homeownership, and young owners planning to trade up, worse off. Home price booms could then bring forward the preferred timing of intergenerational wealth transfers to aid children in the early years of housing careers.

There is also an expectation that some if not many baby boomer homeowners will release housing equity in retirement to pay off mortgage debt. New flexible

mortgage products give homeowners the freedom to release housing equity as a routine matter without moving. There is speculation that baby boomers are withdrawing housing equity and banking on rising home prices that facilitate a "painless" repayment of debt on transition into retirement. However, trading-down to pay off mortgage debt may be unnecessary if retirement pension plans contain ample stocks of accumulated wealth.

Skinner (1996) argues that the precautionary savings model offers better insights into the timing of housing equity injections and withdrawals. The precautionary savings model considers how uncertainty about retirement income or medical expenses shapes the impact that housing wealth has on consumption and saving. Owner-occupied housing is used as a form of insurance or more precisely self-insurance. Using the US Panel Survey of Income Dynamics, Skinner (1996) examines the release of housing equity by the elderly between 1984 and 1989; 8.4 percent of the elderly move to a cheaper house, and such homeowners typically experienced an income downturn, and even more importantly unexpected shocks such as episodes of ill health, divorce, and bereavement. On comparing income relative to income in the year of moves he finds that movers releasing housing equity have steeper declines in income as compared to those keeping housing equity intact.

Benito (2007) draws on the precautionary savings literature and observations that housing wealth is more liquid following innovation in mortgage markets. He puts forward the view that housing equity plays the role of a financial buffer that is retained in normal times but is drawn upon when a temporary financial or non-financial shock has been experienced. Qualitative evidence gathered by Smith et al. (2009) indicates that British homeowners locate feelings of financial security in their housing wealth. Study participants herald their housing investment as a feel safe resource that homeowners can rely on as a safety net. The propensity to withdraw housing equity is then higher for those suffering adverse shocks such as marital breakdown. Portfolio considerations lead us to expect a higher propensity among homeowners with higher levels of housing equity, but few or no liquid assets to fall back on in emergencies (see also Hurst and Stafford 2004).

Our empirical analysis is of intentions to release housing equity on retirement. In testing these hypotheses we are examining whether homeowners with few other liquid assets and experiencing shocks in their middle years, are more likely to plan release of equity on transitions into retirement that could be many years "down the track." Would shocks prompt delayed intentions to release housing equity? Hurst and Stafford (2004) acknowledge that such lagged responses may eventuate. Adverse shocks can leave permanent as well as temporary "scars." For example, while shocks experienced in middle age can prompt an immediate increase in labor supply, permanent "scaring" may require equity release following retirement when a labor supply response is no longer feasible. These ideas are explored in the empirical sections of the chapter that begin with a description of methods.

11.3 Sample Design and Variable Construction

The data in this study are sampled from waves two and three of the Household, Income and Labour Dynamics in Australia Survey (HILDA). HILDA is an annual household panel survey that consists of a series of core questions relating to income

Table 11.1 Variable definition[a]

Sell	Do you expect to sell up or move to help finance retirement?
W vector:	
Age	Year
Disability	Respondent long-term ill or disabled
Children	1 = has children, dependent or nondependent; 0 otherwise
Gender	1 = Female; 0 otherwise
Married	Married
Separated	Separated
Divorced	Divorced
De facto	*De facto*
Single	Single, never married
X vector:	
Employment history	Per cent of time in employment since completing fulltime education
Unemployment history	Per cent of time unemployed since completing fulltime education
NILF[b]	Per cent of time "not in labor force" since leaving fulltime education
Permanent income	Sum of head and partner annual permanent income $, wages and salaries
Transitory income	Sum of head and partner annual transitory income $
Total transfers	Sum of head and partner total benefits and pensions, including family tax credits and maternity payments $
Y vector:	
Total debt	Total debt ($) secured against the principal residence
Capital gain	Per annum rate of real capital gain expressed with respect to an average of the (inflation adjusted) purchase price and the self assessed current value of the home
Housing equity	Difference between self assessed value of the principal residence and secured debt
Moved in last 12 months?	1 = income units that moved; 0 otherwise
Year owned	Years since income unit purchased current home
Z vector:	
Pension wealth	Sum of head and partner's total superannuation funds in $
Net other assets	Sum of head and partner's net other assets[c]
Save	Do not regularly save from income

[a] Variables are measured in either 2002 (*Y* and *Z*) or 2003 (*W* and *X*) depending on year of availability, and with respect to income unit head, unless otherwise stated.

[b] NILF, not in labour force.

[c] Net other assets includes the following components: head and partner's bank account or joint account, less credit cards, Higher Education Contribution Scheme (HECS) liabilities and other debts; the following components are derived from household variables by computing on a per person (excluding dependents) basis: net other property, cash investments, trusts, redeemable insurance, net business, vehicle, and collectibles.

and labor force participation. In addition the survey includes a special module each year. The questions in the special modules are not repeated in every year. In 2002 and 2003 the special modules were household wealth and retirement, respectively. Data entries from both waves are included since a number of variables of interest are available in only one or other of the two waves (see Table 11.1).

This study draws on a sample of 875 homeowners in 2003 to investigate their strategies with respect to accumulated housing wealth in retirement. HILDA wave three asks all heads of income units aged 45 and over, but not yet retired, whether they "intend to sell up or move to cheaper accommodation in order to help finance retirement."[3] To estimate the significance of factors shaping this propensity to release housing equity in retirement, we estimate a logit model with the specification:

$$\Gamma_i = f(W_i, X_i, Y_i, Z_i, + \varepsilon_i) \tag{11.1}$$

where $\Gamma = 1$ if respondent i plans to release housing equity, zero otherwise; W is a vector of control variables including age, whether head of income unit has any children (dependent or otherwise), marital status, and whether a person has a disability; X is a vector of labor market and income variables; Y is a vector of housing finance related variables; Z is a vector of asset and savings variables; ε is the error term. Table 11.1 defines the variable measures comprising each of these vectors. The W vector includes variables capturing expectations that nonfinancial shocks favor plans to release housing equity, though the presence of children may dissuade parents who wish to conserve housing wealth to meet bequest motives. Nonfinancial shocks such as health and marital breakdowns may permanently "scar" so that victims expect to release housing equity in retirement.

The X vector of variables test hypotheses that housing wealth is a buffer used to smooth income fluctuations consequent upon financial shocks. Random and transitory factors cause unpredictable variations around peoples' normal or permanent incomes. Resilience to withstand these shocks will be stronger the higher is permanent income. Conversely, the more volatile is the variation around permanent income the more reliant are homeowners on housing wealth as a buffer. These unpredictable variations in income (transitory incomes) are estimated by computing the difference between a person's reported income and a measure of permanent income.[4] Large negative transitory incomes are expected to trigger the rollout of housing equity after retirement. The capacity to "ride out" financial shocks in the longer term is expected to be weaker if there are hysteresis effects due to work career interruptions (as measured by the percentage of time unemployed or not in the labor force since leaving fulltime education). Hysteresis effects are said to exist when negative (positive) shocks have long-lasting effects so that even when the shock has subsided the affected person(s) does not return to their *ex ante* position or level. Hysteresis effects have typically been studied by economists in the context of models of unemployment. The transfer income variable completes the **W** vector and is included because pensions, benefits, and allowances are a "safety net" that will strengthen the capacity of homeowners to withstand financial shocks.

The use of housing equity to help finance retirement is conditional on its accumulation. The Y vector of housing related variables includes a self-assessed measure of housing equity. It also includes a measure of capital gains, since large windfall

gains may result in greater than optimal concentrations of housing equity in wealth portfolios. (See Table 11.1 for calculation of capital gain. Wave three (2003) of HILDA does not record the original purchase price, hence we have based the analysis on the wave two (2002) housing finance variables.) Housing equity release at retirement is a timely way of securing portfolio adjustment to address imbalance. Benito (2007), Canner et al. (2002), Davey and Early (2001), cited in Scwartz et al. (Chapter 7, this volume), and Hurst and Stafford (2004) find that homeowners benefiting from large capital gains, or living in areas experiencing rapid capital growth are more likely to withdraw housing equity. The withdrawal of housing equity earlier in the life-cycle can result in large secured mortgages as retirement approaches. In view of the uncertainties surrounding income and medical expenses following retirement, we expect debt secured against the principal residence to positively shape plans to sell up or move to cheaper housing following retirement. The housing variables vector also includes a dummy variable to identify recent movers and a variable measuring the number of years that the homeowner has been resident in their current home. Recent movers may deliberately increase leverage and withdraw equity in this pre-retirement stage of the life-cycle; this is more likely if they expect lump sum pension payouts on retirement that can be used to retire debt without trading-down or selling-up. Inertia will negatively impact propensities to sell up or move to cheaper accommodation on retirement, and the years of ownership variable will reflect inertia.

Homeowners are less likely to fall back on housing equity to help finance retirement if they have accumulated stocks of wealth in alternative assets. The *Z* vector includes reported measures of pension wealth, as well as a net other assets variable that includes property (other than the principal residence), the value of savings held in bank accounts and financial assets. We subtract debts including loans secured against other property, but excluding loans secured against the principal residence, which is used to compute housing equity. A diversified portfolio gives homeowners options, and so we expect these variables to negatively impact on plans to release housing equity following retirement. Pension wealth and other net assets might be low in a homeowner's middle years, but can be replenished if he/she is able to save. A final variable measures whether homeowners report a capacity to regularly save from income.

Table 11.2 shows that around a quarter of homeowners expect to sell their home or trade down in retirement in order to help financially. This suggests that there is a potentially important role for housing- or asset-based welfare in retirement; and it also implies that life-cycle models of consumption might have a contemporary relevance. Could the rapid growth of housing wealth following Australian home price booms in the late 1980s and in the early years of the new millennium, encourage homeowners to think of their homes as a pension plan that can be rolled out on retirement?

Table 11.2 shows that it is *female headed* income units that are more likely to plan the roll out of housing equity, with almost one-third banking on such a plan. Since many of these female headed income units are formed as a result of household dissolution, it is unsurprising to find that of all income unit types the divorced are most likely to plan housing equity withdrawal. The under 55s are also more inclined to express such intentions, an observation of potential importance as this

Table 11.2 The proportion of homeowners planning to release housing equity on retirement by demographic characteristics

Group	*All*		*Men*		*Women*[a]	
	Total	*% releasing housing equity*	*Total*	*% releasing housing equity*	*Total*	*% releasing housing equity*
All	875	24.7	702	22.8	173	32.4**
45–49*	305	31.5	254	30.7	51	35.3
50–54	234	25.2	179	19.6	55	43.6**
5559	176	21.0	138	18.8	38	28.9
60–64	106	17.0	87	17.2	19	15.8
65+	54	11.1	44	13.6	10	—
Married	563	22.4	562	22.4	1	0.0
Separated	50	24.0	25	24.0	25	24.0
Divorced	146	31.5	64	23.4	82	37.8*
Widowed	42	26.2	8	25.0	34	26.5
De facto (never married)	18	22.2	16	25.0	2	0.0
Single (never married)	56	30.4	27	25.9	29	34.5
Have children[b]	763	24.5	625	22.6	138	33.3**

[a] The intentions data is reported by income unit heads. In couple income units head status is self-selected; in practice most couple income units report a male head. Most female heads are therefore single either because they never married or because of household dissolution.
[b] Income unit heads that are parents.
* $p < 0.10$, ** $p < 0.05$ statistically different from male sample.

age cohort belongs to the baby boomer generation. The older cohorts born during or before the Second World War are more conservatively inclined, a finding consistent with the qualitative evidence reported by Olsberg and Winters (2005). The same authors believe that bequest motives are no longer important among baby boomers, and in the total sample we can confirm that income unit heads with children are just as likely to plan release of housing equity as those without children.

Table 11.3 compares the mean values of current and past labor market status, income, and housing and wealth variables by intention to cash out housing equity on retirement. There is little evidence of pre-retirement financial or labor market shocks causing the permanent "scarring" that might prompt post-retirement reliance on housing wealth. Temporary dips in income, as indicated by negative transitory incomes, are in fact higher among the group of homeowners planning to retain housing equity. Furthermore, post-retirement reliance on housing wealth is not associated with the "income poor" as permanent income measures are very similar, and unemployment and not in the labor force (NILF) history is not statistically significantly different between the two groups. But the average time spent not in the labor force masks important gender differences. Since completing full time

Table 11.3 Mean value of labor market, housing, and wealth variables by intention to release housing equity

Variable	*All*		*Retaining housing equity*		*Releasing housing equity*	
	Average	*Std Dev*	*Average*	*Std Dev*	*Average*	*Std Dev*
Time employed (%)	92.2	13.5	92.8	13.5	90.7	13.1
Time unemployed (%)	1.3	4.2	1.0	3.7	1.9	5.2
Time NILF (%)	6.5	12.9	6.2	13.0	7.4	12.4
IU permanent Income	63,300	33,250	63,625	33,536	62,308	32,418
IU transitory Income	−7,427	30,308	−8,628	29,999	−3,760	31,016
IU total transfers	2,512	4,862	2,448	4,923	2,704	4,678
Total secure debt	52,233	83,010	46,983	82,333	68,248	83,205
Capital gain	5.2	7.3	4.8	7.0	6.2	8.0
Housing equity	259,193	216,635	248,741	207,734	291,079	239,487
Years since last moved	12.7	9.8	13.4	10.4	10.3	7.4
IU total superannuation	146,500	200,946	159,440	206,412	107,018	177,968
IU net assets	246,206	623,954	275,114	690,611	158,009	35,532
Do not save %	20.7	NA	18.2	NA	28.2	NA
Net wealth	*651,899*		*683,295*		*556,106*	
Housing as % of wealth portfolio	*39.8*		*36.4*		*52.3*	

Note: The total sample size is 875. There are 659 planning to retain housing equity and 216 planning to release housing equity.
NILF, not in labour force; IU, income unit; NA, not applicable.

education male heads have been working almost their entire careers, but the typical female head has spent long periods of time (18.2 percent) not in the labor force; these female heads of income units will accumulate fewer nonhousing assets and are then more dependent on releasing housing assets in retirement.

The important story begins to unfold when we look at the financial and housing wealth related variables in Table 11.3. Those planning post-retirement releases of housing equity have higher levels of debt secured against their principal residence; they have also accumulated much lower levels of savings in other assets, including pensions. On the other hand, they have higher levels of housing equity. It seems that those intending to cash out housing equity on retirement have wealth portfolios that are concentrated in housing assets whose value has also been boosted by relatively high rates of capital gain. Table 11.3 reveals that homeowners intending to release housing equity post-retirement have just over 50 percent of their wealth in housing assets, while those planning to retain housing equity have more diversified portfolios such that housing equity accounts for only 36 percent of net wealth. Post-retirement intentions to release housing equity could be associated with equity release in middle age, as signaled by their higher levels of secured debt ($68,000 as compared to the $47,000 secured debt serviced by those planning to retain housing equity). Homeowners intending to release housing equity

are on average only two years younger and have insignificantly different permanent incomes as compared to those planning to retain housing equity. The higher debt is not therefore due to different stages in housing career or slower repayment because of lower earnings capacity. The plans to release housing equity could then be prompted by a fear that outstanding mortgage debt will remain to be paid off in retirement. In fact among homeowners that are within five years of retirement age, the average outstanding debt of those planning to roll out housing equity is (A$38,222), more than twice that (A$17,949) of those expecting to retain housing equity. It is also evident from Table 11.3 that homeowners intending to release housing equity are less likely to be able to regularly save from income.

These observations on debt and saving behavior introduce a note of caution in relation to the contemporary relevance of life-cycle models. They suggest that some homeowners secure borrowing against housing wealth during their middle years to finance spending that is repaid from inflated housing values during retirement. This income smoothing motive exposes homeowners to price and liquidity risks as they "bank" on appreciating house values that can be drawn on post-retirement.

11.4 Modeling

Table 11.4 reports the findings from a logit modeling strategy where the *X*, *Y* and *Z* vectors of variables are progressively added to a demographic model (model 1 in Table 11.4) that only includes the *W* vector of variables. In this demographic model the only significant variable is age, with baby boomers more likely to plan release of housing equity on retirement. Despite the higher share of female headed households planning to release housing equity (see Table 11.2), gender is insignificant. Children are irrelevant to homeowner intentions, and this suggests that the bequest motive does not deter plans to cash out housing equity in retirement.

In model 2 the labor and income related vector of variables is added. The income poor are no more likely to rely on equity withdrawals, and negative income shocks leave no permanent scars that might prompt equity withdrawals in retirement. However, unemployment history does appear to positively influence post-retirement intentions. A person who has spent 10 per cent of his or her economically active life unemployed is 7–9 percentage points more likely to cash in housing equity following retirement.

As hinted at in the descriptive statistics our analysis begins to reveal more important insights when we add the housing and financial wealth vectors of variables. Model 3 in Table 11.4 reports findings when the housing wealth related variables augment the model specification. Coefficient estimates confirm the importance of housing equity and secured debt, but windfall gains in the form of high rates of capital growth prove insignificant. Adding A$10,000 to secured debt leaves homeowners 0.6 percentage points more likely to sell or trade down. Homeowners with A$10,000 additional equity are 0.4 percentage points more likely to sell or trade down. But inertia curbs such intentions as those who move less frequently are less likely to plan equity release post-retirement. Each year of residence in the same home reduces the probability of post-retirement equity release by 0.4 percentage points.

Table 11.4 Logit and marginal effects[a], model estimates

Variable	*Model 1*		*Model 2*		*Model 3*		*Model 4*	
	Coeff.	*Marginal effects*	*Coeff.*	*Marginal effects*	*Coeff.*	*Marginal effects*	*Coeff.*	*Marginal effects*
Age (years)	**−0.057**	−1.03%	**−0.048**	**−0.87%**	**−0.041**	**−0.72%**	−0.023	−0.39%
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.14)	(0.14)
Disability (1 = yes)	0.055	1.01%	0.022	0.40%	0.061	1.08%	0.022	0.38%
	(0.78)	(0.78)	(0.91)	(0.91)	(0.77)	(0.77)	(0.92)	(0.92)
Children (1 = yes)	0.151	2.67%	0.136	2.40%	0.100	1.71%	−0.100	−1.72%
	(0.62)	(0.61)	(0.66)	(0.65)	(0.75)	(0.74)	(0.75)	(0.76)
Separated (1 = yes)	−0.195	−3.38%	−0.204	−3.51%	−0.262	−4.32%	−0.265	−4.18%
	(0.61)	(0.59)	(0.60)	(0.58)	(0.51)	(0.48)	(0.52)	(0.49)
Divorced (1 = yes)	0.214	4.03%	0.228	4.28%	0.217	3.97%	0.271	4.80%
	(0.42)	(0.43)	(0.41)	(0.42)	(0.44)	(0.45)	(0.34)	(0.37)
Widowed (1 = yes)	0.04	0.74%	0.015	0.26%	0.094	1.68%	0.056	0.95%
	(0.93)	(0.93)	(0.97)	(0.97)	(0.84)	(0.84)	(0.91)	(0.91)
De facto (1 = yes)	−0.183	−3.17%	−0.255	−4.30%	−0.359	−5.72%	−0.309	−4.78%
	(0.76)	(0.75)	(0.68)	(0.66)	(0.57)	(0.53)	(0.62)	(0.59)
Single (1 = yes)	0.197	3.74%	0.211	4.00%	0.138	2.51%	0.03	0.51%
	(0.64)	(0.65)	(0.62)	(0.64)	(0.75)	(0.76)	(0.95)	(0.95)
Female (1 = yes)	0.424	8.19%	0.495	9.63%	0.415	7.79%	0.453	8.23%
	(0.12)	(0.14)	(0.09)	(0.11)	(0.16)	(0.19)	(0.14)	(0.17)
Unemployment history (%)			**0.042**	**0.76%**	**0.049**	**0.87%**	**0.041**	**0.69%**
			(0.02)	(0.02)	(0.01)	(0.01)	(0.03)	(0.03)
NILF history (%)			−0.0004	−0.01%	−0.001	−0.02%	−0.005	−0.09%
			(0.95)	(0.95)	(0.85)	(0.85)	(0.48)	(0.48)
Permanent income ($10,000)			0.018	0.32%	−0.025	−0.44%	0.021	0.35%
			(0.57)	(0.57)	(0.45)	(0.45)	(0.57)	(0.57)
Transitory income ($10,000)			−0.035	−0.63%	−0.022	−0.39%	−0.047	−0.78%
			(0.20)	(0.20)	(0.42)	(0.42)	(0.13)	(0.12)

Total public transfers ($10,000)		0.072	1.29%	0.128	2.25%	0.038	0.65%
		(0.68)	(0.68)	(0.47)	(0.47)	(0.83)	(0.83)
Moved in last 12 months (1 = yes)				0.215	3.98%	0.218	3.87%
				(0.50)	(0.51)	(0.50)	(0.52)
Total secured debt ($10,000)				**0.029**	**0.51%**	**0.036**	**0.61%**
				(0.00)	(0.00)	(0.00)	(0.00)
Housing equity ($10,000)				**0.018**	**0.31%**	**0.026**	**0.44%**
				(0.00)	(0.00)	(0.00)	(0.00)
Capital gain (% per annum)				−0.004	−0.08%	−0.006	−0.10%
				(0.72)	(0.72)	(0.62)	(0.62)
Year owned (years)				**−0.029**	**−0.51%**	**−0.026**	**−0.44%**
				(0.01)	(0.01)	(0.02)	(0.02)
Pension wealth ($10,000)						**−0.022**	**−0.38%**
						(0.00)	(0.00)
Net other assets ($10,000)						**−0.007**	**−0.12%**
						(0.01)	(0.01)
Do not save (1 = yes)						**0.398**	7.16%
						(0.05)	(0.06)
Constant	1.6		0.99		0.603		−0.326
	(0.036)		(0.264)		(0.508)		(0.728)
Number	875		875		875		875
Log likelihood	−475		−472		−456		−440
chi^2	27.2		34.3		66.1		97.2
Pseudo r^2	0.03		0.04		0.07		0.1
Schwarz's information criterion	1019		1045		1047		1037
Akaike's information criterion	971		974		952		927

[a] Marginal effect estimates for the dummy variables are obtained by comparing the probability that results when the dummy variable takes one value with the probability that is the consequence of it taking the other value. Marginal effect estimates for the continuous variables measure the percentage point impact that a one percentage point increase in the explanatory variable would have on the probability of housing equity release. Marginal effects are estimated with the values of the other variables held constant at their mean values.

Bold indicates $p < 0.05$. *P* values in parentheses. Omitted categories "Married" and "Employment history." The coefficient for "Divorced" is significant at the 5% level and 10% level in "Model 1" and "Models 3 and 4", respectively, if Female is omitted. The coefficient ranges between 0.44 and 0.46.

NILF, not in labour force.

The addition of pension wealth, savings in other assets, and current capacity to save results in a much improved model performance, and confirms the importance of the financial wealth vector of variables (see model 4, Table 11.4). As expected homeowners that have accumulated healthy savings in other assets that can be drawn down post-retirement, are less reliant on "spending the home" to help finance retirement. A $10,000 increment in pension wealth (or other net assets) reduces the probability of plans to cash out housing equity by 0.4 (0.1) percentage points. If a homeowner is able to save they are 7.2 percentage points less likely to express intentions to sell up or trade down on retirement.

The addition of these financial variables improves the capacity of our model to successfully predict homeowners' intentions. The demographic model (model 1) successfully predicts the intentions of 0 percent (75.3 percent) of our sample of homeowners who intend to release equity (retain equity). This rises to 1.9 percent (75.2 percent) in model 2, 7.4 percent (75.2 percent) in model 3 and finally 14.4 percent (76.7 percent) in model 4. However, the addition of financial wealth variables does adversely affect the significance of the age variable. This suggests that homeowners closer to retirement are not inherently averse to realization of housing equity; their reluctance has more to do with accumulation of wealth holdings in pensions and other net assets. Homeowners in the 55–64 (45–54) age brackets have an average pension wealth of $178,744 ($134,630), and in the same age brackets the net value of other assets is $277,398 ($188,308).

These modeling estimates offer some interesting insights into the factors shaping home owner's post-retirement plans with respect to housing wealth. Inferior labor market outcomes and low incomes are not key drivers of these plans (though they may have indirect effects via accumulation of pension wealth and other assets). It is the composition of wealth portfolios and whether the homeowner is highly geared that matters. Those that are highly geared could be reliant on trading down or even selling up to clear their outstanding mortgages; others that have few if any nonhousing assets (including pensions) are perhaps "banking" on housing wealth that can be drawn down to help finance retirement; and then there are those that hold wealth portfolios dominated by housing assets that are highly geared. According to the findings reported in Table 11.4 this last group of homeowners are most likely to plan release of housing equity post-retirement. Their personal investment strategy is one that exposes them to housing market risks. Australian house values have ballooned following the long home price boom that began in 1996. But as UK and US housing markets demonstrate, a soft landing following booms is not guaranteed. These homeowners might be well advised to hedge their risks, an issue that we address in our concluding section.

A puzzling aspect of the logit model estimates is the insignificance of the gender variable. This is despite a considerable 42 percent (or 9 percentage points) difference in reported intentions by gender (see Table 11.2). The model estimates suggest that if female and male headed households have identical demographic characteristics, wealth portfolios, housing equity, and unemployment and housing mobility history, much of the gender gap in post-retirement intentions might be closed. Identification of the principal drivers of this gender gap has a wider significance. Table 11.2 descriptives suggest that female heads have lower savings in housing, pension wealth, and other net assets, but savings are more concentrated in housing

equity as compared to their male counterparts. These patterns are expected when a woman's labor market participation is interrupted by child rearing responsibilities. But Table 11.2 suggests another reason; 78 percent of female headed units are divorced or separated, and so the effects of gender and marital breakdown are likely confounded. Furthermore, the composition of their wealth portfolios will reflect divorce settlements that typically leave housing wealth (superannuation) with female (male) ex-partners (Sheehan and Hughes 2001). Reliance on housing wealth to help finance these retirement plans is not so much a chosen financial strategy, but a product of institutional and legislative context that can leave these women exposed to home price and liquidity risk.

To explore these questions we execute a decomposition technique described in Fairlie (2003). The approach partitions the 42 percent (or 9 percentage point) gender intentions gap reported in Table 11.2 into two components. The first represents that part of the intentions gap due to group differences in distributions of the W, X, Y, Z vectors on the right-hand side of equation (11.1). It captures the effect on intentions of differences in the amount and composition of wealth holdings, labor market histories, and so on. This is commonly referred to as the endowment component. The second component captures differences in group processes determining intentions to release housing equity, as well as group differences in unmeasurable or unobserved endowments. It reflects behavioral differences (e.g. attitudes to risk) between male and female heads that cause heterogeneity in retirement plans. It is commonly referred to as the residual. This latter "unexplained" portion is generally not focused on in most studies because interpretation is difficult in the presence of omitted variables.

It turns out that the endowment component makes the more important contribution at a little over 60 percent of the intentions gap. But which of the variables comprising the W, X, Y and Z vectors is making the most individual contribution? Using a procedure described in Fairlie (2003) Table 11.5 lists individual variable contributions to the gender intentions gap.[5] Table 11.5 demonstrates that the variables both strongly statistically significant and most important in widening the gender intention gap are pension wealth and years of continuous residence. The higher share of divorcees among female heads and current capacity to save are both important determinants of the gender gap, but only significant at the 10 percent level. Of the strongly significant variables pension wealth is by far the most important; it widens the intentions gap by 25 percent, reflecting the large difference in average pension wealth of around $80,000 (see Table 11.2). It seems likely that separation and divorce are demographic shocks that have long-term scarring effects that are particularly important for female heads who live longer, and might not expect to re-partner given their age (45 years and over).

11.5 Conclusion

There are around one in four *middle aged* Australian homeowners that are planning to cash out some or all of their housing equity to help finance retirement. These homeowners are putting their faith in housing markets to help sustain well-being in old age. But falling home prices that are widespread in UK and US

Table 11.5 Decomposition of gender intentions gap

Variable	*Model 1*		*Model 2*		*Model 3*		*Model 4*	
	Coeff.	*Explained difference*	*Coeff.*	*Explained difference*	*Coeff.*	*Explained difference*	*Coeff.*	*Explained difference*
Age	0.001	−0.52%	0.000	0.03%	−0.001	1.53%	0.001	−0.69%
	0.68		0.98		0.30		0.58	
Disability	0.0003	−0.30%	−0.00002	0.02%	0.0002	−0.23%	−0.00004	0.04%
	0.86		0.99		0.89		0.98	
Children	0.003	−2.71%	0.002	−2.23%	0.002	−1.58%	−0.002	1.71%
	0.59		0.65		0.74		0.76	
Separated	−0.0004	0.43%	0.00001	−0.01%	0.001	−1.36%	0.001	−1.20%
	0.95		1.00		0.81		0.83	
Divorced[a]	**−0.033**	**34.65%**	−0.032	33.02%	−0.028	28.99%	−0.032	33.32%
	0.04		0.09		0.12		0.08	
Widowed	−0.013	13.51%	−0.010	10.93%	−0.011	11.12%	−0.010	10.28%
	0.33		0.45		0.42		0.44	
De facto	−0.0003	0.31%	−0.0005	0.47%	−0.001	0.83%	−0.001	0.75%
	0.86		0.79		0.67		0.72	
Single	−0.010	10.09%	−0.010	10.20%	−0.007	7.60%	−0.006	5.83%
	0.28		0.30		0.43		0.58	
Unemployment history			**0.006**	**−6.17%**	**0.006**	**−6.70%**	0.006	−6.02%
			0.04		0.02		0.06	
NILF history			−0.008	8.79%	−0.004	4.06%	0.005	−4.94%
			0.65		0.82		0.78	
IU transitory income			0.005	−5.42%	−0.025	26.59%	0.006	−6.19%
			0.82		0.26		0.81	

IU permanent income		−0.005	5.38%	−0.004	3.96%	−0.007	7.70%
		0.17		0.39		0.12	
IU total transfers		0.000	0.41%	−0.001	1.01%	0.000	0.03%
		0.81		0.61		0.99	
Moved in last 12 months?				0.000	0.23%	−0.001	0.77%
				0.86		0.62	
Total debt				**0.006**	**−6.61%**	**0.005**	**−5.43%**
				0.03		0.04	
Housing equity				**0.012**	**−12.76%**	**0.010**	**−10.54%**
				0.00		0.00	
Capital gain				0.001	−0.62%	0.001	−0.95%
				0.78		0.69	
Year owned				**−0.008**	**8.84%**	**−0.009**	**9.35%**
				0.01		0.02	
Pension wealth						**−0.024**	**24.66%**
						0.00	
Net other assets						0.003	−3.53%
						0.08	
Do not save						−0.007	7.65%
						0.06	
Explained difference	55.1%		55.7%		64.0%		63.1%

[a] The technique is applied by estimating a pooled logit model without the gender variable, and in its absence divorce becomes significant. Including the interactive term Female and divorced in the decomposition increases the explained difference to 96.8 per cent, the percent difference explained by the interactive term is 76.2 per cent (importantly, the interactive term includes the discriminator "Female" and thus residual effect). The Stata ado file for this procedure is Jann (2006).

Bold indicates $p < 0.05$. Omitted categories "Married" and "Employment history".

NILF, not in labour force; IU, income unit.

housing markets indicate that these Australian homeowners should be cautious. Mortgage market innovation made it easier than ever before to cash in housing wealth, and as we now fear, easier than it might ever be again. Their housing wealth is now a precarious investment in the current economic environment, which cannot be relied on to provide asset-based welfare in old age.

Our Australian findings suggest that there are at least two distinct groups banking on housing equity release in retirement. There are those with relatively high levels of both housing equity and mortgage debt. It seems probable that many in this group have already used innovative mortgage products to cash in some of the large capital gains that have accrued over the past decade or so. They are not "income poor," or at relatively early stages of housing careers. But they are homeowners that are relying on being able to accumulate or hang on to healthy levels of housing equity that can be rolled out to pay off any outstanding mortgage debts on retirement. Innovative financial products that allow insurance of housing equity might appeal to this group of homeowners, as their use of housing wealth appears to be part of a deliberate financial strategy that would be more secure if "hedged."

The second group are females that head income units and also plan to release housing equity to help finance retirement, but have relatively low levels of housing equity and mortgage debt. These plans are less likely to be part of a preferred financial strategy; the evidence indicates that this group's greater reliance on housing wealth is the consequence of interruptions to work careers and life-cycle events that may be compounded by institutional factors determining household break-up settlements. Female heads have spent more time "unwaged" since leaving full time education (18 percent as compared to 4 percent for male heads), and 62 percent are divorced or separated as compared to 13 percent among their male counterparts. It is then unsurprising to find that female heads have around one half the pension wealth of male heads, and their inferior labor market experience and qualifications mean that permanent incomes are less than one half those of male heads. Regular saving (in other assets) from income is understandably difficult.

This second group are even more vulnerable to home price and liquidity risk. If Australian housing markets experience a severe downturn before their retirement, female heads are more exposed to such risks because they do not have large amounts of pension wealth to fall back on, and are unlikely to be able to accumulate savings in other assets given their relatively low earnings potential. Even if financial products to insure housing equity were available, this group might find these products unaffordable. With historically high rates of divorce and relatively low re-partnering rates among female divorcees we can expect this group to grow in number. Their predicament could become a serious public policy concern if housing wealth proves to be an unreliable source of welfare in old age.

Governments can reduce the risks that these female headed households are exposed to by augmenting the pension wealth of those who interrupt careers because of childbirth. An interesting dimension of several Scandinavian pension systems (often of a National Insurance type coupled with earnings contributions) is their compensation to individuals for loss of accumulated pension wealth due to child rearing or care duties. In the case of Norway a policy motive is reduction in gender income inequality in old age (DKAI 2006). In 2004 some 6.6 per cent of the population qualified for this pension adjustment of which 98 per cent were women

(DKAI 2006).[6] With respect to child rearing, individuals (men or women) can obtain this pension adjustment for up to 4 years per child. Pension adjustments can also be obtained for other care duties (illness, disability or old age), in which case a person's care duties must exceed a minimum of 22 hours per week and last for at least 6 months of the year.

Australia does not have a universal national insurance funded old age pension, but a means tested state pension that is a safety net for those who have not accumulated wealth in employer based pension schemes. The equivalent policy intervention in an Australian context would involve government responsibility for employer and employee pension contributions during career interruptions prompted by child rearing duties. A policy innovation along these lines might seem unlikely in an Australian context, where policy on maternity leave has lagged behind Scandinavian countries. But concerns about falling fertility rates have prompted introduction of "baby bonuses," a lump sum payment to qualifying parents on child birth. The introduction of a pension contribution adjustment to parent carers who interrupt their careers might prove an effective policy, as it is targeted on those who lose most financially (the employed), while also addressing the concerns we have expressed about gender income inequality and insecurity in old age.

Notes

1. Estimates come from the authors' own calculations from the confidentialized unit record files of the 1990–91 and 2002–03 Australian Bureau of Statistics (ABS) Survey of Income and Housing Costs. The real increase in housing equity has been calculated by deflating the mean housing equity values using the ABS All Groups Consumer Price Index. In the third quarter of 1990 the index value was 103.3, rising to 138.5 in third quarter 2002 (www.rba.gov.au).
2. Hurd (1990) favors the high moving cost explanation for the lack of residential turnover among elderly homeowners. He argues that because moving is less frequent among elderly homeowners than elderly renters – in the two year period (1976–77), the American Housing Survey reveals a mobility rate of 5.1 per cent for owners and 25.2 percent for renters – moving costs must be preventing release of housing wealth.
3. An income unit is defined as one or more individual persons whose command over income is assumed to be shared between the persons comprising the unit (ABS 1997). Income sharing is assumed to take place within married and *de facto* couples, and between parents and dependent children. Income unit is our preferred measurement unit because our imputed measure of transfer payments invokes mean test rules that are themselves based on income units. The key wealth measures in wave two of HILDA are reported on a household basis, where a household is a group of people who typically reside and eat together, and therefore contains one or more income units. For example, an employed 24 year old living with parents is a household containing two income units. To avoid arbitrary assignment of ownership and division of wealth, we have excluded multiple income unit households. This exclusion is unlikely to affect findings as only 26 income unit heads are discarded.
4. We impute permanent income by regressing male and female earnings in 2003 on a set of socio-economic, educational, occupation, and labor market history variables in HILDA wave three. The results are available from the authors on request. Imputed values for couple income units were generated by adding the predicted permanent

earnings of heads and their partners. Transitory income is then the difference between actual earnings in 2003 and predicted permanent earnings in 2003.

5. Fairlie shows that individual variable contributions in the endowment component can be obtained by ranking the observations in each gender group according to their predicted probabilities, so that the highest ranked individual in the female and male groups has the highest predicted probability of planning housing equity release. Using matched female and male observations according to this ranking, the female distribution of the variable in question (say housing equity) is replaced by the male distribution of the same variable, and the endowment contribution calculated using estimates from a logit regression based on the pooled sample. When the number of female and male observations is not equal this is not possible, as in the present sample where the number of male headed income units exceeds females. In this case the pooled coefficient estimates are used to rank each individual female and male observation, and a random sub sample of the male group is drawn such that it is equal in size to the female group.
6. Individuals with no or reduced income during this period will qualify for a pension adjustment equivalent to 4.5G (DKAI 2006), equivalent to the approximate average gross annual earned income for all employees in 2004 (SSB 2006). In order to raise the pension above minimum pension an individual who has never been employed would require 27 years of care duty adjustment (DKAI 2006). For individuals with earnings above this level during child rearing or care duties earned income will continue to be the basis for pension accumulation.

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Chapter 12

Housing Market, Wealth, and "Self-Insurance" in Spain

Joan Costa-Font, Joan Gil, and Oscar Mascarilla

12.1 Introduction

This chapter considers the changing role and relevance of housing wealth in Spain. Spain experienced one of the fastest rates of home price inflation in the OECD during the recent housing cycle, with prices appreciating at an average of 15 percent per year between 1999 and 2006. By then housing wealth formed the centerpiece of the average households' wealth portfolio, to the extent that many middle and older-aged homeowners could be classed as both asset-rich and income poor. This paper considers the options available to an aging Spanish population to make the most of their housing wealth. In particular the discussion focuses on the challenge of "trading down" and/or moving into residential care for those households who may prefer to "age in place;" and on people's understandings of and interest in an under-used alternative – the reverse mortgage.

The paper proceeds as follows. First there is an overview of home price trends, their drivers, and the stylized facts underpinning the dynamics of the Spanish housing market. In particular we draw attention to the growing significance of the investment, alongside consumption, role of owner-occupation as a determinant of tenure preference. Next there is an account of the character and distribution of housing wealth, and an overview of its significance for older age. Third we draw from a review and from original survey evidence to consider whether instruments such as reverse mortgages have sufficient reach and appeal to meet the financial and ontological needs of older home owners. A brief conclusion considers the implications of this for policy, as the Spanish housing market dips and the economy slips toward recession (a state it reached in February 2009).

12.2 Housing Dynamics in Spain

Spain is among a handful of OECD countries at the top of the league table for home price increases over more than 30 years; the Spanish housing market is one

of the most volatile in Europe (Catte et al. 2004). The most recent real estate boom began in the mid-1990s and culminated in 2007; for at least 10 years home prices increased at a greater rate than the general price index.

The interplay of a large set of factors underpins this real-estate boom in Spain, including low interest rates, the favorable situation of household incomes, unprecedented rates of job creation and correspondingly low unemployment. Demographic change accounts for much of the expansion of demand for main residences, especially among those between 25 and 64 years of age (who make up the demand in this sector, particularly those aged 35–44, the so-called baby boom generation). Along with this, the heavy flow of immigrants in Spain is also a notable factor. In January 2005, non-nationals living in Spain amounted to 3,700,000, twice that of 2002. The low purchasing power of part of this group (made up mainly of young people) initially directed them to rental housing but there is no doubt that as time went on they were a source of demand driving the owner-occupier market. Other factors that affected demand for housing in this period include increases in life expectancies along with the delay in the age at which offspring leave home and the expansion of single-person households. The effect of all these factors adds up to the observed trend toward a decrease in the number of persons per household, which in 2006 stood below 3, in contrast to an average of close to 4.5 persons recorded at the beginning of the 1960s. Altogether, the demographic changes and the socio-cultural factors mentioned in recent years have pushed up the formation of new households, the net growth of which today is close to 550,000, some 100,000 more than five years ago, thus creating a very solid base for housing demand.

To complete the demand-side picture, it is also worth highlighting that demand for holiday homes is a trend very much linked to those aged 45–64 years, namely those enjoying relatively higher incomes and savings rate. In the past 10 years, this population segment has increased by more than 1.5 million persons. Another aspect of special importance is the increase in the number of non-nationals who reside temporarily in their own homes when holidaying in Spain. Some estimates put this number today at around two million persons, a figure well above that some years ago. In some Spanish regions such as País Valencià (València), immigrants account for as much as 16 per cent of the population.

On the supply side, the number of housing units has expanded along with prices,[1] though this has not always meant the supply of main residences has kept up with demand. From 1999 to 2006 Spain's total housing stock increased by nearly four million units. Toward the end of the period, the rate of increase tended to stabilize above 700,000 housing units a year, that is to say, at practically twice the historical average recorded since the beginning of the 1970s. But according to the information supplied by the census of population and housing by the National Institute of Statistics (INE), the percentage of occupied properties in the past three decades has declined (79.8 percent in 1970; 67.7 percent in 2001) whereas holiday homes have doubled (7.5 percent and 16.0 percent in the years mentioned) and to a lesser extent that of unoccupied housing units has increased (12.7 percent and 16.2 percent). The latter group is more opaque as it covers a great range of situations which run from undeclared rental housing to housing units occasionally empty (Figure 12.1).

As a result, the financial effort required of an average household to buy a property increased across the housing cycle. This is illustrated in Figure 12.2 which

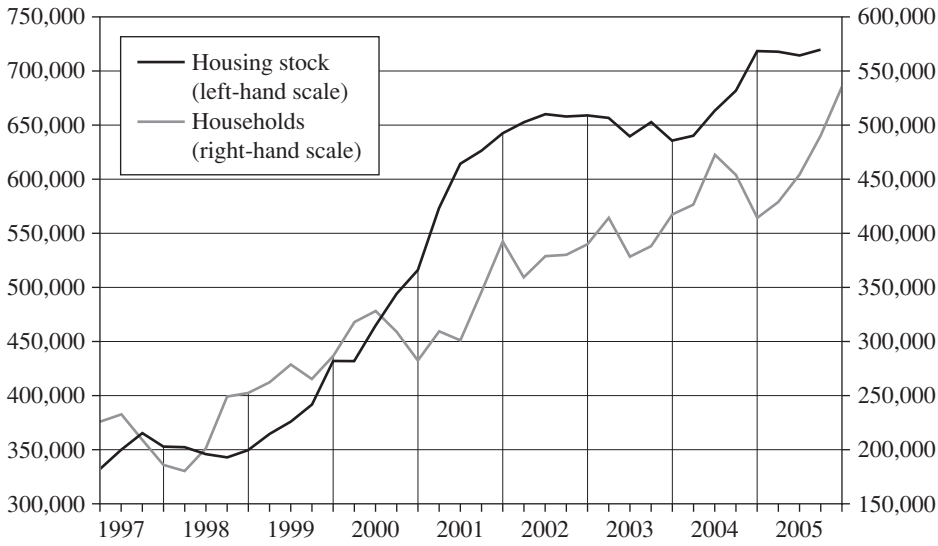

Figure 12.1 Formation of new households has boosted the housing market in Spain.
Note: Annual change is in absolute figures.
Source: La Caixa: Ministry of Housing and Bank of Spain

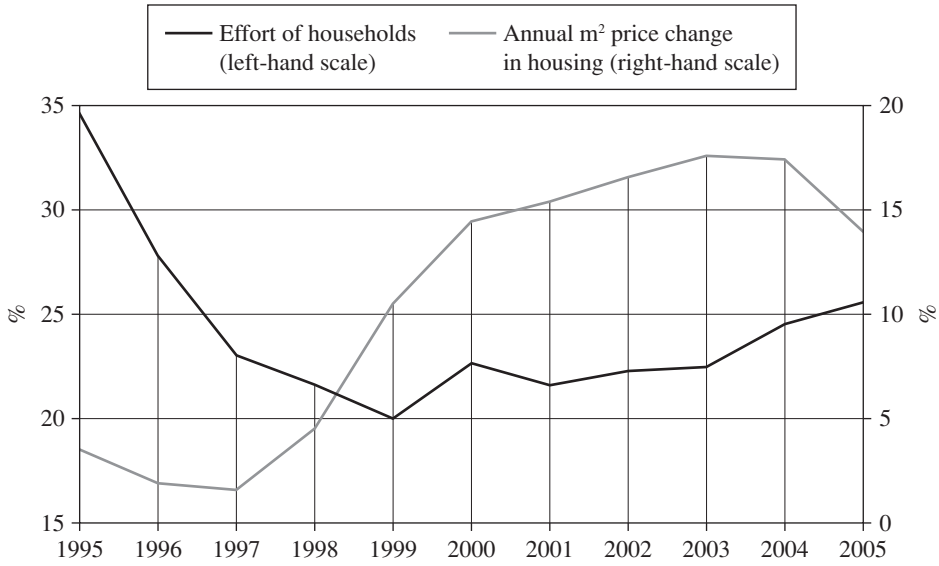

Figure 12.2 Effort of households has shown a moderate increase due to improved borrowing terms.
Note: Effort of households is defined as amount of instalments, net of tax deductions, to be paid in first year by an average household, as a percentage of annual household disposable income.
Source: La Caixa: Ministry of Housing and Bank of Spain

plots the financial effort required to service the first year of home purchase (as a proportion of disposable income) against square meter price change in housing. Interestingly, from 1998 to 2003 there was a significant divergence suggesting prices expanded partly due to the ease of borrowing. This was facilitated by the transparency of mortgage markets following the expansion of European integration, as well as a period of macroeconomic stability that produced a sharp reduction in interest rates. By 2006 we observe a convergence process suggesting a moderation in prices and the start of a downturn which resulted in prices falling during 2008.

There is a link between home prices and consumption in Spain (of the type discussed in Part I of this book), signaling that one function of rising home prices has been to increase the collateral for loans. On average, however, levels of indebtedness in Spain seem modest. Data from the Spanish Survey of Household Finances (EFF) shows the mean income in 2001 was €28,400, with a median of €22,000; the median mortgage debt was €31,000 in 2004–5 (Bank of Spain 2005). Because a relatively small proportion of the owner-occupied stock is mortgaged (just over one in five (21.5 percent) owner-occupiers have a mortgage), this might mask pockets of mortgage stress which other studies could explore. Rates of mortgage-holding are higher for example among those who are under 35 (47.4 percent), dependent employees (34.7 percent), and households with two employed members (36.4 percent). The median volume of mortgage debt increases with income, holds relatively constant with wealth, is greater for households where the head is under 35 and when two household members are working, but is similar for indebted workers and inactive (not retired) people (Bank of Spain 2005).

In summary, to an extent the recent housing cycle in Spain reflects the usual range of economic fundamentals. However, as the next section shows, it may also reflect changes in behavior and aspirations – and in particular an orientation to the investment as well as consumption role of owner-occupation – prompted by the character and availability of housing wealth itself.

12.3 Housing and the Wealth Portfolio

On a world scale, Spain has very high rates of home ownership: fully 82 percent of households own or are buying their homes. As Table 12.1 shows, there is an income and age gradient; but even amongst the lowest income quintile, as many as 74 percent of households are owners, as are over two-thirds of under-35 year olds. This partly reflects a "southern European" model, in which a high proportion of the stock is owned outright, in a tenure sector supported by family wealth (as noted previously just over one in five owner-occupying households in Spain has a mortgage). But it underscores, too, the centrality of housing wealth to the wider wealth portfolio of Spanish households (Bover 2004).

After all, by 2007, the value of the Spanish housing stock amounted to about seven times the country's GDP. Its expansion is what accounted for much of the 50 per cent increase in the total wealth of Spanish households across the five years to 2006. This is illustrated in Figure 12.3 which shows how, against a background of stable levels of financial wealth, rising home prices bolstered households' gross wealth-holdings.

Table 12.1 Holdings of real assets by type of asset and household characteristics. Year 2002 (percent)

	Main residence	*Other real state properties**	*Businesses related to self-employment*	*Jewellery, works of art, antiques*	*Some type of real asset*	*Some type of asset*
Percentage of households owning asset						
All Households	81.9	30.1	12.4	18.2	87.3	99.4
Income Percentile						
Less than 20	73.7	18.5	4.0	12.0	78.8	97.8
20–40	79.0	22.9	8.5	13.5	83.6	99.7
40–60	80.8	27.4	12.8	16.4	86.8	99.8
60–80	85.1	33.5	15.3	20.7	90.7	100
80–90	89.6	42.7	19.9	26.8	95.7	100
90–100	92.3	53.7	22.6	30.0	97.8	99.9
Age of Household Head						
Under 35	68.3	16.6	13.0	14.8	73.4	99.3
35–44	78.9	26.0	16.5	19.5	85.9	99.3
45–54	83.2	36.3	16.8	22.9	90.0	99.2
55–64	88.4	40.9	15.8	19.7	93.4	99.4
65–74	87.9	32.8	5.1	16.2	91.2	99.7
75 and over	84.1	23.8	1.3	11.9	88.1	100

Note: (*) Other real state properties include dwellings, plots of land and states, garages, industrial buildings, stores, premises, offices and hotels.
Source: EFF-2002 – Bank of Spain (2005)

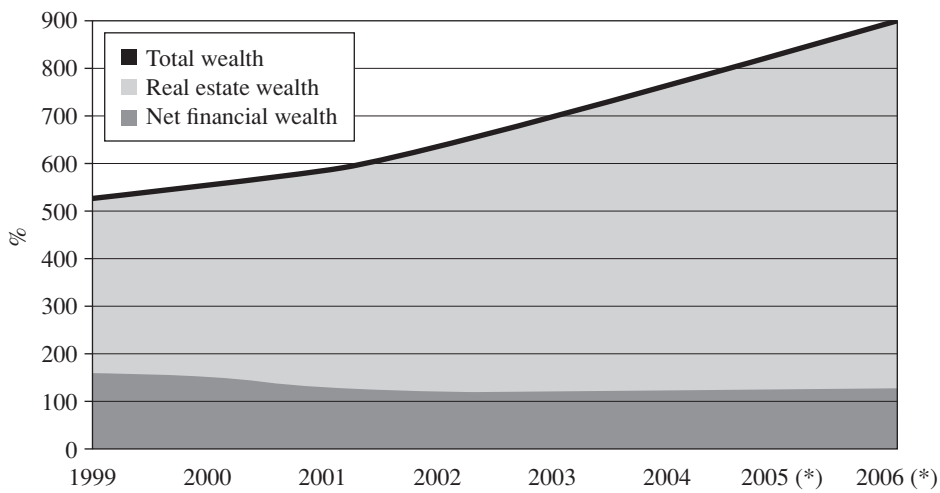

Figure 12.3 Household wealth in relation to corrected gross disposable income.
Note: *Authors' estimates.
Source: Bank of Spain

The importance of this store of wealth is hinted at in Table 12.1 which shows that no other real asset is as widely owned in any age or income group as owned housing, and that no gradient in asset-ownership is less steep than that pertaining to housing wealth. Overall there is marked asymmetry in the distribution of net wealth in a country like Spain. (Net wealth is defined at the total value of assets (real and financial) minus outstanding debt. The value of vehicles is not included.) This is apparent for example in the difference between the median and mean net worth, viz. €96,300 and €153,400. Net wealth rises with income but more steeply, and is a function too of age and education (Bank of Spain 2005). However, in Spain, a wider trend in "home ownership societies" of the more developed world is epitomized: it is the only asset that is so widely owned, and it is less unequally distributed than any other (Bover 2004).

This picture is amplified in Table 12.2 which – like Table 12.1 – is based on the EFF survey for 2002.[2] Real assets in Spain make up 87.4 percent of the value

Table 12.2 Value of households' real assets by type of asset and household characteristics. Year 2002 (percent)

	Main residence	*Other real state properties**	*Businesses related to self-employment*	*Jewellery, works of art, antiques*	*Total*	*Memorandum: Real assets as % of total assets*
All Households	66.5	24.1	8.8	0.6	100	87.4
Income Percentile						
Less than 20	79.8	17.4	2.6	0.2	100	91.9
20–40	78.7	16.9	4.0	0.3	100	91.1
40–60	71.6	21.5	6.6	0.3	100	90.9
60–80	66.1	25.1	8.4	0.4	100	89.1
80–90	63.4	25.0	11.0	0.7	100	87.5
90–100	53.2	31.0	14.6	1.2	100	80.4
Age of Household Head						
Under 35	72.9	14.0	12.6	0.4	100	92.1
35–44	69.4	19.0	11.1	0.4	100	89.6
45–54	65.7	23.8	9.7	0.8	100	85.0
55–64	56.6	31.3	11.4	0.6	100	85.8
65–74	69.7	27.5	2.3	0.6	100	87.9
75 and over	75.0	23.6	1.0	0.4	100	87.5
Labor Market Situation of the Household Head						
Employee	76.8	21.1	1.5	0.6	100	88.0
Self-employee	41.4	26.1	31.9	0.6	100	84.8
Retired	69.1	28.5	1.7	0.7	100	87.8
Inactive or unemployed	76.0	21.2	2.3	0.5	100	90.6

Note: (*) Other real state properties include dwellings, plots of land and states, garages, industrial buildings, stores, premises, offices and hotels.
Source: EFF-2002, Bank of Spain (2005)

of total household assets. This proportion holds approximately constant as income rises, and only diminishes noticeably in the top income decile. However, even for the relatively higher income levels, they continue to account for a large portion of the value of total household assets (80.4 percent).

This table also underlines the extent to which primary residences are households' most important real asset, accounting for over two-thirds (66.5 percent) of the total. Other real estate (including other dwellings) accounts for a further quarter (24.1 percent) of all real wealth-holding. Other asset-holdings are far less prominent. What is most striking from this table is that whereas the relative contribution of assets other than owned homes increases with income, housing is of greater significance for those in the lower half of the income distribution. Housing accounts for nearly 80 percent of real assets for those in the lower income quintile, and for little over half (53 percent) for households in the top income decile. Housing wealth is also especially central to the wealth-holdings of those at the younger and older ends of the age distribution. The implications of this positioning of housing wealth for the welfare of an aging population is considered next.

12.4 From Housing Wealth to Welfare: Managing Older Age in Spain

Behind rising prices and accumulating housing wealth in Spain are the various social and psychological drivers that propel households to invest heavily in owner-occupation. Investment motives are one of many reasons – though increasingly a dominant one – why people purchase a home. Once they do buy, even if the motive hinges on reasons only marginally linked to investment and wealth accumulation, homeowners can borrow against home equity to find new ways to expand their wealth. This creates a basis for old age saving as well as for consumption. There are a number of ways in which economists conceptualize the decisions that are made to accumulate and decumulate housing wealth, but one that is pertinent to this chapter is known as the "life-cycle hypothesis" (LCH).

The life-cycle hypothesis, credited to Ando and Modigliani (1963) together with the classical permanent income hypothesis developed by Milton Friedman, suggest that consumption is largely determined by income together with the capital gains each individual hopes to obtain during a life time, thus emphasizing the time factor as part of the nature of the consumption or investment decision. This influential set of ideas still drives much of the empirical work on wealth and consumption. It recognizes that households adjust their patterns of consumption and inclination to save relative to one another and from one period to the next. This provides a way of understanding how consumption can become independent of current incomes (and income fluctuations) and can be used to smooth incomes across permanent and unexpected changes.

The LCH predicts that in the face of variations in income over the life-course, consumers will either borrow against future earnings, or spend out of accumulated wealth to smooth out consumption levels. For example, LCH implies that younger individuals will tend to borrow against expected rising future incomes.

As incomes rise during mid-life, this model expects individuals to become net savers, accumulating the wealth they need to maintain spending in later life. Of course, the pace of drawing down assets in later life will depend on life expectancy, on whether or not they would like to make a bequest upon death, as well as on how rapidly current income is projected to decline with retirement. Overall, then, the LCH implies that consumption spending will vary not only according to changes in individual and family wealth levels, but also depending on the age of the household, desired level of bequests, projected earnings, and life expectancy.

This is a useful way of thinking about the way housing assets can be drawn into households budgeting across the life-course, as several of the chapters in this Part of the book suggest. It is also a useful way of considering the role of housing wealth in older age, which is what the remainder of this paper aims to do.

12.4.1 Home ownership in older age

Across the recent housing cycle, rising prices, falling savings rates, and the concentration of wealth into owned housing was paralleled by a growing preference among older Spanish households for "aging in place" (Costa-Font et al. 2008). That is there is a preference not only to avoid having to move – i.e. trade down – to meet the costs and needs of aging, but also to avoid residential care – reflecting a trend in many countries of the OECD (OECD 2002) – despite growing dependency, as long as is absolutely necessary (Houben 2001). "Aging in place" for owner-occupiers carries many benefits, not least of which are the health gains that often go with that tenure sector (Costa-Font 2008; Kind et al. 1998; Macintyre et al. 2003): including environmental stability, low stress, better conditions (Dietz and Haurin 2003), and lower costs (Haurin et al. 2002).

By 2030, it is estimated that 24 percent of the Spanish population will be over 65, and 6.5 percent will be over 80. By 2050, the number of people over 65 is expected to have increased to 31 percent and the proportion of individuals over 80 is estimated at about 10 percent. Moreover, Spanish society – whose average family size, at three, is still the highest in western Europe – relies heavily on families for caring purposes; as is also the tradition in other southern European countries. Government services traditionally play a subsidiary role (see e.g., Costa-Font and Patxot 2004; Costa-Font et al. 2006, 2007, 2008), only assuming responsibility in the event of lack of economic means or family support. This implies that, compared to other countries, a relatively larger share of older people may wish to (or be forced to) "age in place." The Population and Housing Census of 2001 (INE 2004) indicates that the most typical living arrangements among the older population (aged 65 and over) are: living only with the partner (33.2 percent), living alone (19.9 percent), and living with partner and children (14.6 percent). There is a gender dimension to this, with women two and a half times as likely as men to be living alone (11 percent and 28 percent). At the same time according to INE (2004) approximately 9 out of 10 older individuals (87.2 percent) were home-owners in 2001 and a vast majority were outright owners. Following Eurostat (2004), and in sharp contrast to some EU countries (e.g., Denmark, France, Germany, Italy, Portugal, or UK) around 84 percent of the older population in Spain who lived

alone were also homeowners, compared to 89 percent in the case of old people living in a couple household.

Hitherto, the life-cycle hypothesis of wealth accumulation appeared poorly prepared to explain the management of housing wealth. Rather than drawing from the wealth stored in property (often built up over years of mortgage repayments) older outright owners seemed content to enjoy the cheaper housing costs of ownership (relative to renting) and to leave their housing wealth to the next generation. This tradition has been especially strong in Spain, where family wealth has been the foundation for high rates of ownership. However, times are changing and those reluctant to move – either into cheaper properties or into residential care – now have another option in the shape of a variety of home reversion instruments.

Home reversion schemes and reverse mortgages are one means by which older outright owners can release equity from their homes in order to fund their personal care. Such schemes effectively provide income today in return for payment tomorrow. That is they are either loans in which the interest rolls-up, or part-purchase schemes in which a proportion of the home is sold for a lump sum – which is used to buy an annuity to yield an income. In this sense such schemes can – for a while – provide a direct alternative to residential care (Costa-Font et al. 2007). Indeed it could be argued that home reversion is a relatively efficient form of "self-insurance" using personal housing wealth rather than buying into expensive private schemes. Neither types of "insurance" may be ideal as an alternative to, for example, a well developed welfare state (Barr 2001). However, at a time of welfare retrenchment, and in the wake of the slow growth and, in some places, disappearance of long-term care insurance products (including in the USA and the UK) tapping into housing wealth may be an appealing alternative. This is particularly true in a country like Spain, where although public sector support for personal care is growing, it is largely means tested. At the same time older households right across the income distribution have significant wealth holdings: many, then, are "income poor" but "(housing) asset-rich." Strangely, however, older Spaniards' demands and preference for housing based financial "insurance" instruments of the type commonly called "reverse mortgages" have received little attention by the empirical literature.

12.4.2 Reverse mortgages: general themes

Generally speaking, a reverse mortgage is a special home loan that allows homeowners to cash their property while continuing to live in the home. Hence, the equity built up after some years of home mortgage payments can be repaid to the individual. The homeowner does not need to repay the principal as long as he/she (or the spouse) continues to live in the house. After death, the heirs must repay just the amount of the loan received. The amount of money borrowed from a reverse mortgage depends on the age of the borrower, the appraised value of the home, and the current interest rate, and can be paid basically in a single lump-sum or as a regular monthly payment. To be elegible for a reverse mortgage the borrower must own his/her home and be preferably 70 years of age or older (62 or older in the USA). Since the loan has a limited duration (usually 10–15 years), financial

institutions use to recommend clients to contract the reverse mortgage jointly with an annuity (Chian and Tsui 2005).

Reverse mortgages have had some exposure in the USA. Redfoot et al. (2007) explore the US evidence, drawing from a survey of reverse mortgage borrowers and of homeowners who had considered these loans but decided against them. In this study the authors asked respondents why they looked into a reverse mortgage; they also asked borrowers what they had used the money they received for. There are five findings of note. First, they found that people were more likely to identify "necessities" than "extras" as a reason for looking into a reverse mortgage, by a margin of 48 percent to 38 percent. Accordingly, the main reasons for looking into a reverse mortgage are all about supplementing income: paying for everyday expenses (47 percent of respondents); improving the quality of life or being able to afford some extras (71 percent); and having more money for emergencies or other unexpected expenses (75 percent). Second, having money to deal with emergencies and to improve the quality of life were the most frequently mentioned reasons for considering a reverse mortgage. Third, when asked to name the "main reason" for looking into a reverse mortgage and the "main use" for the proceeds of the loan, borrowers most frequently mentioned paying off existing mortgages. Fourth, one-quarter (26 percent) of respondents said that they looked into a reverse mortgage to help pay for expenses related to health care or disability needs, most frequently to deal with prescription drug costs. Finally, nearly three in five (28 percent) of respondents identified the desire to pay off nonmortgage debts – most frequently for credit card debts – as a reason for looking into a reverse mortgage.

Respondents to the AARP Survey who mentioned homeowner-related expenses were looking into a reverse mortgage to pay for: home repairs or improvements (46 percent); property taxes or homeowners insurance (27 percent); and household chores and maintenance (18 percent). Despite the high costs involved, 14 percent of respondents indicated that they had looked into a reverse mortgage to make investments or purchase annuities or long-term care insurance; 9 percent of borrowers reported that their lenders had recommended specific financial services products; and 4 percent of borrowers said they had used their loans for such purposes. Overall, however, the dominant message is that reverse mortgages are for essentials rather then luxuries, they are about meeting needs not indulging wants, and they seem, therefore, to work as a kind of "self insurance" – much as the life-cycle hypothesis would predict.

12.4.3 Spanish attitudes to reverse mortgages

This section draws from original research to cast light on attitudes to reverse mortgages in Spain. Since there is so little evidence on this, a key first step is to explore the current degree of knowledge about reverse mortgages by the Spanish population. To that end, the authors conducted an empirical investigation based on a random telephone survey (Computer Assisted Telephone Interview) of 500 interviews – with an estimated error margin of ±5 percent. The survey, conducted in April 2006, was targeted towards persons aged 50 years and over who were the

owners of their main residence. The sample is national in scope, but clustered according to geography (Costa-Font et al. 2007). To ensure clarity, the questions were piloted among a similar group of older population in Madrid and Barcelona.

There is a growing literature on reverse mortgages aimed at measuring the potential dimensions of the market, tracking its impact on consumption or income during old-age, and considering its relevance to the financing of long-term care needs (Venti and Wise 1991; Mayer and Simons 1994; Merill et al. 1994; Rasmussen et al. 1995; Kutty 1998; Hancock 1998; Mitchell and Piggott 2004; Chian and Tsui 2005). However, to the best of our knowledge the report by Redfoot et al. (2007) on reverse mortgages shoppers in the USA is the closest empirical analysis to the one performed by the authors for the case of Spain.

To explore the basic knowledge of the potential consumers of reverse mortgages contracted jointly with an annuity, we asked people whether they had ever heard of such schemes, offering additionally this description of: "if you are 70 years old and own a home, a financial institution pays you a monthly amount of money until your death and your heirs can recover the property if they repay the amount just borrowed." Perhaps surprisingly, given the small size of the existing market, our data indicates that 43.2 percent of the overall reference population stated they knew of such financial products (Table 12.3). Perhaps as *many* as two in five know about these products because the older population (65 years and over) is – as other works consistently show – most concerned about pension benefits and related financial matters; far more so than other typical concerns such as health, monotony, or solitude (VidaCaixa 2003). Perhaps the figure is as *few* as two in five precisely because these are new financial instruments for Spain, with limited distribution and no established tradition; and because the older population has limited interest in, or trust for, financial innovation.

Knowledge about reverse mortgages is also higher among older men (48.5 percent) than older women (38.7 percent) and this finding probably reflects the traditional division of domestic roles by gender in the Spanish society, at least for this subgroup of the population. Table 12.3 also reveals the existence of a regional disparity in the level of reverse mortgage awareness: regions with a relatively high level of basic knowledge are the Nielson area 1 (50.5 percent) which covers basically the Autonomous Community (AC) of Catalonia, the Nielsen area 6 (50 percent) headed by the AC's of the Basque Country and Navarre and the Nielsen area

Table 12.3 Degree of knowledge of reverse mortgages (contracted with an annuity) by gender and Nielsen area

	Overall	*Men*	*Women*	*Nielsen area # 1*	*Nielsen area # 2*	*Nielsen area # 3*	*Nielsen area # 4*	*Nielsen area # 5*	*Nielsen area # 6*	*Nielsen area # 7*
YES	43.2%	48.5%	38.7%	50.5%	31.4%	34.5%	47.2%	44.1%	50.0%	42.1%
NO	56.8%	51.5%	61.3%	49.5%	68.6%	65.5%	52.8%	55.9%	50.0%	57.9%

Note: Nielsen areas are: # 1 (Balearic I., Catalonia, Huesca and Zaragoza); # 2 (Albacete, Comunidad Valenciana and Murcia); # 3 (Badajoz and Andalucia); # 4 (Avila, Salamanca, Segovia, Soria, Valladolid, Zamora, Caceres, Ciudad Real, Cuenca, Guadalajara, Toledo, Madrid and Teruel); # 5 (Galicia, Leon and Asturias), # 6 (the Bask Country, La Rioja, Navarre, Burgos, Palencia and Cantabria) and # 7 (Canary I.).
Source: Costa-Font, Gil and Mascarilla (2007)

Table 12.4 Degree of knowledge of reverse mortgages (contracted with an annuity) by level of education and age

	Primary and lower education	*Secondary education*	*University education*	*Age group 50–59*	*Age group 60–69*	*Age group 70–79*	*Age group 80+*
YES	38.2%	46.7%	65.2%	39.6%	53.8%	38.2%	27.0%
NO	61.8%	53.3%	34.8%	60.4%	46.2%	61.8%	73.0%

Source: Costa-Font, Gil and Mascarilla (2007)

4 (47.2 percent) dominated by the AC of Madrid; in sharp contrast with those regions with the lowest figures, such as the Nielsen area 2 (31.4 percent) headed by the AC of Valencia and the Nielsen area 3 (34.5 percent) formed basically by Andalucia. This result mirrors other evidence of a comparatively higher penetration of asset conversion products in the AC of Catalonia, Madrid, the Basque Country and the Balearic Islands (VidaCaixa 2003).

As expected, Table 12.4 reports that knowledge of reverse mortgages varies according to the level of education, ranging from a high awareness level shown by those with university education (65.2 percent) to a low level stated by those with primary or less than primary studies (38.2 percent). Similarly, basic awareness seems to have an inverted U-shape across age groups: knowledge widens across the age range until a peak is reached (54 percent in the 60–69 year-old group), around the normal retirement age in Spain, levels of awareness then fall to a low among the oldest age groups, less than one in three (27 percent) of whom have heard about these asset conversion products.

The questionnaire also identifies the circumstances in which individuals may enter a contract for equity conversion products with a financial institution. Figure 12.4 presents the results. Apart from those interviewees who do not know or did not answer this question (11 percent), the data indicate a strong polarization of responses.

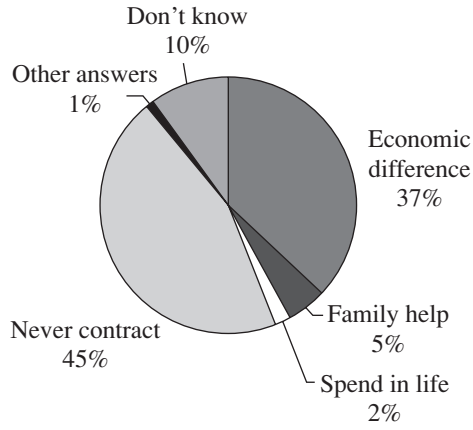

Figure 12.4 Reasons for contracting reverse mortgages (jointly with an annuity).
Source: Costa-Font et al. (2007)

So approximately the same proportion of the sample (44 percent) states that they would be willing to contract reverse mortgages jointly with an annuity, as declares (45 percent) that they would never consider contracting such products. Interestingly, among the former group the most likely reason by far for taking out such a product is the prospect of having future difficulties in financing basic needs (37 percent). Much less relevant is the need to help other family members (5 percent) or the desire to finance higher levels of consumption (2 percent). In that response, the insurance role of reverse mortgages in Spain seems in line with that noted earlier for the USA.

An indirect interpretation of this piece of evidence might suggest the existence in Spain of a deep and strong culture of leaving bequests in favour of heirs. If individuals are not subject to future economic difficulties or exceptional circumstances forcing them to opt for alternatives (i.e., selling or renting the house or other properties, reverse mortgages, etc.), then they will prefer in general to retain the assets as a "reserve value" and leave them to their descendents. It is worth noting, however, that this bequest motive may be weakening with successive age cohorts. For example, among households aged 65 and over, exactly half (50 percent) say they would never enter a contract for a reverse mortgage; but this proportion diminishes to 38 percent for those aged 50–64.

12.5 Conclusion

Housing is a durable good with a dual consumption and investment/insurance character. Across the recent housing cycle in Spain, the investment imperative has prevailed as a driver of tenure preferences and prices paid. This has underscored the central role of housing wealth in the average households' wealth portfolio where it forms a financial buffer against which homeowners periodically adjust their wider assets and debts. In view of this "self-insurance" role we may expect to see housing wealth work increasingly in line with the predictions of the life-cycle model of asset accumulation and decumulation across the life course.

This is borne out in the evidence presented above, which suggests that older homeowners are becoming increasingly aware of the option to use new mortgage instruments to free up their housing wealth in older age. This can allow those who are asset-rich but income-poor to "age in place," avoiding the disruption of residential relocation, and the indignity of residential care, and continue to enjoy the health and other benefits of home ownership. Survey results point to a demand for reverse mortgages when individuals are in economic need, and this suggests that the development of instruments to finance care at old age that are anchored to housing assets is appropriate. This is underscored by the fact that, notwithstanding the abrupt downturn in the Spanish housing market in 2008–9, housing wealth is likely to continue to be the cornerstone of wealth accumulation for Spanish households, as the "baby boomers" enter their retirement years. The homeownership rate headed by the over-65s is expected to rise, as will their rates of outright ownership.

There are, however, two caveats. The first concerns the practicalities of delivering instruments like reverse mortgages effectively. The second concerns the sustainability of individualized asset-based welfare.

On the first point, there is the question of how best to design policies to promote financial instruments to help older homeowners who are in financial need to purchase personal care. Particular challenges include improving information and affordability, building consumer confidence, and encouraging product innovations to meet the diversity of consumer needs. There is also the question of how to extend the benefits of such financial innovation to renters. Rather than condemn home occupants in this minority tenure to a life of limited wealth accumulation, it may be possible to create new financial instruments that will support savings and investments linked to home prices (a theme taken up in Part III of the book). Alternatively, it would be possible to create a class of reasonably secure corporate equities that could be purchased on margin (i.e., with a loan from a broker, to obtain leverage) and that would provide a nonhousing alternative to the currently available highly leveraged opportunity to purchase a first home. With proper insurance to reduce whatever risk exists in these investments, along with subsidies that reward thrift, it would be possible to help renters accumulate financial assets just as the current housing finance system makes it relatively easy to invest in real estate.

Concerning the second point, a number of issues are underlined by the current recession. In particular, it provides a reminder that housing wealth does not always replenish itself in the medium term, and may not – especially in an era of credit constraints – fulfill all demands made on it. This is true even of demands that refer to essentials. As older people live longer, there may be a switch from bequest behavior to greater gifting, to grandchildren as well as children. And this may influence behaviors around reverse mortgages and other wealth management tactics in unpredictable ways. This suggests that better models of whole family, as opposed to individual or even household, decision-taking will be needed. Furthermore, the current recession reminds us that positioning housing wealth as an individual asset-base for welfare is no substitute for a comprehensive set of housing and income support policies designed to enable all households – rich and poor alike – to "age in place" with a proper infrastructure of personal care. Enhanced coordination of income assistance and housing assistance efforts is essential if governments are to meet successfully the challenge of enabling all current and future generations to live out their retirement years with dignity.

Notes

1. The housing boom in Spain produced a shift of resources to the construction industry which, on the one hand, generated new employment opportunities (further supporting demand) but on the other hand increased land prices for other economic (industrial and commercial) activity. This distorts the costs of business, perhaps forcing relocation, and potentially reducing competitiveness.
2. The Bank of Spain launched the Spanish Survey of Household Finances (EFF) following the footsteps of other countries that have been compiling this type of survey for some years. The Spanish survey is specifically based on that of the Banca d'Italia ("Indagine sui Balanci delle Familie", IBF, cf. Banca d'Italia 2000) and above all on that of the US Federal Reserve's Survey of Consumer Finances (SCF) (Aizcorbe et al. 2003). Interestingly, it contains a wide range of questions on assets, debt, incomes, spending, and socio-economic variables relating to the household sector. The availability of

information on these variables for each reporting household unit will help to shape future financial and macroeconomic analyses of the Spanish economy.

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Chapter 13

Housing Wealth: A Safety Net of Last Resort? Findings from a European Study

Deborah Quilgars and Anwen Jones

13.1 Introduction

Home ownership sectors in most European countries have experienced a strong growth in recent decades. Countries such as Belgium, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, and the UK experienced growth in the home ownership rate of more than 15 percentage points during the second half of the twentieth century (Atterhog 2006). More recently, home ownership has also expanded in some of the post-communist countries (some of which are now part of the enlarged European Union (EU25)) as their land and housing sectors have been opened up to market forces and state housing privatized (Lowe and Tsenkova 2003; Stephens 2003). In 1945 home ownership was a minority tenure in each of the EU25 countries, but by 2003 home ownership was the majority tenure in every country except Germany. The home ownership rate across the EU25 countries reached 63.9 percent (68.4 percent if Germany is excluded), leading some commentators to refer to a "Union of Home Owners" (Doling and Ford 2007, p. 113). Notwithstanding one or two countries where in recent decades the relative size of the sector has been more or less static and in some – Finland and Ireland for example – has actually declined, the general picture is one of an inexorable rise of home ownership (Doling 2006a). There is, however, considerable variation across Europe, with national rates of owner-occupation ranging from about 40 percent in Germany to 90 percent in Hungary and there is little evidence of convergence in levels of home ownership, either in the sense that they are moving in the same direction or that they are converging towards similar levels (Stephens 2006). Nevertheless, the majority of EU households are now homeowners.

Explanations of the trend in the growth in home ownership across Europe have largely focused on particular economic and political developments at the macro-level, including the impact of rising incomes and affluence; rising demand and the hedge against inflation provided by property ownership (Doling and Ford 2007) and economic liberalization following the collapse of socialist regimes (Lux 2006). Frequently, national governments have been active in promoting home

ownership, for example the sale of state housing (often at below-market prices) in former communist countries and the UK and/or through favorable fiscal treatment (including tax benefits) (Boelhouwer *et al*. 2005). In addition, the growth in home ownership can be attributed to falling interest rates and increased access to mortgage finance (Scanlon and Whitehead 2004).

While home ownership levels in many countries now seem to be maturing and stabilizing (Scanlon and Whitehead 2004), there are a number of potentially important implications of increased levels of ownership, not least the potential divide between homeowners and renters in terms of assets that are available to them through the life-course (Doling and Ford 2003). The shifting balance within each member state of owners to renters, generally toward the former, is associated with the long-term trends in home prices. As the Origins of Security and Insecurity (OSIS) research showed, of those member states for which data are available, with the exception of Sweden, average home prices have increased in real terms (Doling and Horsewood, undated). Although in all countries there may have been regional and house type as well as cyclical variations in price movements, not least as seen in the last year particularly in the UK, households who have gained access to home ownership have, on average, acquired an appreciating investment and there is considerable wealth held by European households in the form of their homes (Doling 2006b). The net value of home owned properties in Europe, that is the gross value less outstanding loans or equity, has been estimated at around 13 trillion euros in the old member states, and almost 2 trillion euros in the new member states (Doling 2006a). Overall, this equity is some 40 percent higher than the total GDP of all the member states so that the financial potential of Europe's homeowners is enormous. Increasingly, financial institutions have developed products that allow homeowners to take out loans for nonhousing purposes against the collateral of the equity in their house, or even to realize equity directly. In this respect the position still varies greatly across member states, but one recent estimate is that in the EU, around 10 percent of borrowing is not intended to contribute to the purchase of the principal residence of the borrower (European Mortgage Federation 2006). Yet, very little is known about how individual households, and households across different countries, think about or utilize this considerable resource. This chapter draws on the first known qualitative, European cross-national study (the OSIS project) on how housing might be providing security (as well as insecurity) for homeowners. This research involved qualitative interviews with 160 homeowners across eight European member states in 2005, to explore how housing positions are providing households with material security and insecurity. The ways in which housing resources have been perceived and used to date are examined, as well as the ways in which households think about the possible use of housing resources in the future for welfare and other uses. The extent to which considerations of intergenerational transfers impact on households' intention to use housing resources in the future is also explored.

Housing provides a substantive area through which wider processes affecting the restructuring of social rights – and the meaning of citizenship – across Europe can be examined. While the precise impact of globalization has been debated, it is generally agreed that European states have had to react to increasing economic uncertainty arising from global challenges of increasing mobility of capital and the development of new markets internationally. This has been more than amply

demonstrated in 2008 with the crisis in the global banking sector. It is argued that such changes have produced new social risks and insecurities both for nation states and individuals (Taylor-Gooby 2004), including the growth of flexible labor markets as well as contributing to demographic changes. Changes in national borrowing requirements to cope with the recent crisis mean that mortgagors may be at increased risk from unemployment, reduced earnings, rises in interest rates and relationship breakdown. Trends towards shorter-term fixed interest rates and higher levels of borrowing across Europe may also increase potential risks (Scanlon and Whitehead 2004). The role of the nation state should also not be forgotten: despite recent agreements across Europe on the treatment of banking debts, Governments most often respond to pressures differently depending on existing social, economic, political, and historical structures and norms; a "weak globalization" position (Doling and Ford 2003) can be argued where global processes place "relative" constraints on governments and individuals.

At the same time as increasing risks, the same economic uncertainties have also placed pressures on welfare systems across Europe, leading to reforms in social protection systems in some form in most European countries (Jaeger and Kvist 2003; Taylor-Gooby 2004). In particular there has been a tendency to scale back (as public spending has grown less rapidly than private spending) on universal public services funded via taxation towards placing greater responsibility and choice onto individual consumers. The growth of home ownership has been one aspect of this with decreased support for public housing (Doling and Ford 2007). Asset-based welfare policies, first proposed in the USA (Sherraden 1991), have also begun to receive more attention, particularly by prominent "think-tanks" and academics but also by some governments especially in the UK (Regan and Paxton 2001; Paxton 2003) whereby state provision is substituted, or at least in part, by individual-based insurance and financial arrangements (with housing equity as one potential resource). It is recognized that assets can allow people to access a range of opportunities and can also have positive effects on social outcomes, including health (Regan and Paxton 2001), although such policies also have the ability to exacerbate inequalities depending on their formulation.

Within this shifting context, home ownership is becoming increasingly important in the policy arena (although as Maclennan notes (Chapter 9, this volume) is often lacking from (economic) policy analysis). The benefit of imputed rent has long been associated with home ownership, whereby the owner benefits from the stream of housing services received simply from living in the house. However, the store of resources within the home, usually termed "equity" (achieved both via paying off the mortgage and gains achieved through rising home prices), can also potentially be used to offset risks, and purchase welfare, over the life-course. There are three possible uses of these resources that may be related to the provision of a "safety net;" first, householders could withdraw resources during their working lifetime to smooth over periods of unemployment, ill-health, and so on; second, they could keep the wealth stored until deciding to release it to meet the income and care needs of later life; or third, they may wish to pass it on to their children or others to provide security for their family.

In theory, accessing housing wealth during a person's lifetime can be achieved via a variety of methods, including the sale of the house (e.g. through downsizing) or borrowing against the house and releasing or withdrawing equity while still

living in the property. (Equity release is the term usually used when the monies borrowed are repaid on death/sale of property; equity withdrawal is the common term for loans taken out but repaid over the lifetime of the mortgage.) Selling of the house, or withdrawing equity on moving house, is potentially a route available to most (although transaction costs vary considerably across Europe). However, there are considerable differences in mortgage products across Europe (Mercer Oliver Wyman 2003) and access to "flexible" mortgages (where equity can relatively easily be "drawn down") vary and house equity release products for those wishing to access stored wealth in retirement is relatively poorly developed through Europe. The UK probably leads in the availability of equity release products, with the take-up of lifetime mortgages (which allow older homeowners to borrow against their property with the capital and interest being paid back on death or sale of property) increasing year-on-year from 1991 to 2004 (with a slight dip in 2005 with the introduction of regulation), but still remaining relatively small at £5.3 billion in 2005 (Baxter and Bennett 2006).

Obviously the availability of appropriate products and related information is crucial to support the withdrawal or release of equity, however, this form of financial planning also requires householders to conceive of their home in a certain way. Chapter 15 in this volume by Searle and Smith illustrates how in the UK householders are thinking (carefully) about the possibilities, and increasingly acting on these thoughts, in terms of "spending the home" (see also Smith *et al*. 2007a,b). Part of this new way of thinking includes reflections on the extent to which housing equity can act as a form of insurance or safety net. This chapter explores this same issue for homeowners across eight countries in Europe. The research study is outlined before the chapter poses four linked research questions:

- To what extent is housing viewed as a financial resource (including as a safety net)?
- In what ways have housing resources been perceived and used to date?
- In what ways would households consider the use of housing resources in the future?
- How important are inter-generational transfers in household decisions?

13.2 The Research Study

The chapter draws on the qualitative results of a 30-month, multimethod research project, Origins of Security and Insecurity (OSIS), funded by the European Union under its Citizens and Governance in a Knowledge Based Society (Sixth Framework) Programme. The project had two main objectives: the first was to analyze the factors and processes – involving labor markets, financial markets, and social provision – that have impacted upon individual households and have consequences for their position as homeowners (and tenants); the second objective was to establish how households perceive the patterns of security and insecurity, advantage and disadvantage associated with different housing positions, and how these perceptions have molded their personal strategies in relation not only to

housing but also to employment, family size, education, and pensions; and how those positions have provided them with material security and insecurity.

Quantitative analysis of key secondary sources of data (European Household Community Panel and the Hungarian Household Panel) explored evidence of statistical relationships between aspects of home ownership and attributes of individual countries as well as at the household level – including the current pattern of utilization of housing equity and loan repayment difficulties (Turner and Yang 2006; Horsewood and Neuteboom 2007; Neuteboom et al. 2007). This analysis confirmed that equity release seldom happens across Europe, rather that security through home ownership seems to be mitigated through low housing expenditures in older age, with debts paid off at an earlier age.

The second stage of the study, reported here, involved both the collection of further information about the institutional arrangements in each country as well as 30 in-depth household interviews (20 homeowners and 10 renters) in eight countries: Belgium, Finland, Germany, Hungary, The Netherlands, Portugal, Sweden, and the UK. The interviews were designed to explore perceptions, attitudes, and the extent to which housing is a resource which individuals and households recognize as a repository of "wealth" in the sense that it can be implicated in plans to manage both future needs (for education/pensions/care, etc.) and to cushion insecurities.

The interviewees were sought from a single labor/housing market. The areas were chosen to represent "typical" or "average" housing and labor markets but it should be stressed that these urban areas were not intended to be representative of each country. The findings might well have been very different had the research focused on rural areas rather than urban ones. Interviewees were selected to include a mix of ages, gender, and household composition, as well as employment status and occupation in order to ensure the inclusion of marginal and nonmarginal owners. While statistical weight cannot be assigned to qualitative findings as with quantitative work, this purposive sampling means that the perspectives of groups of households can be explored. The interviews were conducted using a semi-structured schedule and respondents were also presented with a series of vignettes or hypothetical situations on which they were asked to comment. Piloting of the topic guide revealed that many respondents did not understand the term "housing equity," therefore the guide asked about their views on "financial resources stored in the home." Further details on the methodology are presented in Elsinga *et al*. (2007).

The eight countries were selected to reflect key variations in social, economic, and political contexts as well as different welfare systems and regime types (Esping-Anderson 1990; Leibfried 1993) and more specific differences in housing markets. There is a separate report for each country, which may be cited in the text as a source document. Table 13.1 shows some of the main elements pertinent to understanding the role of home ownership that may also influence the way that homeowners think about their housing and issues of security and insecurity. Countries varied in terms of their home ownership rates from a high of 92 percent in Hungary to a low of 42 percent in Germany. The availability of alternative tenures also differed substantially across countries. The private rented sector dominates in Germany (53 percent of stock) and also accounts for around one-fifth of housing in Belgium, Sweden, Finland, and Portugal. The social rented sector is

Table 13.1 Countries in the study: Key dimensions relating to home ownership

Country	*% home ownership rates, 2003 (and private sector + social sector)*	*% un-employment, 2005*	*Social welfare system*	*Overall home price development*	*Home price change 1992–2002 (1992 = 100)*	*House equity release products available and/or permissible*
Belgium	70 (24 + 6)	8.5	Strong	Prolonged boom	146	No
Finland	63 (17 + 16)	9.1	Strong	Crash early 1990s	150	Yes
Germany	42 (53 + 5)	11.2	Strong but restructuring	Stable, slight decrease	—	Yes
Hungary	92 (4 + 4)	7.1	Weak	2000–2003, home prices boom	—	—
The Netherlands	54 (11 + 35)	5.3	Strong	Crash early 1980s, price explosion late 1990s	202	Yes
Portugal	76 (17 + 3)	7.5	Weak	Late 1990s strong growth	105	Legally permissible, but not marketed
Sweden	55 (20 + 25)	6.8	Strong	Crash early 1990s	184	Yes
UK	70 (10 + 20)	4.6	Moderate	Partial crash early 1990s but boom since	203	Yes

Sources: Elsinga et al. (2006); European Central Bank (2003); Hypostat statistics reproduced in Elsinga et al. (2006).

most prominent in The Netherlands (at 35 percent of stock) and also accounts for around a fifth of the market in Sweden, the UK, and Finland, but only provides housing for about one in twenty householders in Hungary, Portugal, Belgium, and Germany.

In terms of present welfare provisions, The Netherlands, UK, Germany, and Finland have well-developed welfare states but all these countries have sought to contain spending in recent years. There is now more emphasis on personal responsibility, and on encouraging (a return to) employment. Although Sweden continues to have a strong welfare system with extensive and comprehensive protection it is widely expected that reform is likely and that the system will be less generous than in the past. Belgium, on the other hand, has a relatively generous and stable social security system. In Portugal there is still a strong adherence to the ideology that the family should be the main provider of care, and a correspondingly low investment in state social protection. In Hungary, which has one of the lowest rates of expenditure on social protection in the EU, the extended socialist welfare state has been curtailed although new social policies have been introduced and spending has increased over recent years.

Table 13.1 shows that, at the time of the research, none of the eight countries had experienced a recent home price crash although a number of countries (UK, Finland, Sweden) did experience one in the early 1990s. The home price index shows that home price increases since 1992 were very high in the UK and The Netherlands, and more modest in Portugal, Belgium, and Germany. In a booming market, people may feel wealthier in terms of housing, while home price crashes can exacerbate feelings of insecurity, as well as lead to real risks of negative equity and difficulties in servicing loans.

The final column shows that house equity release products were available in six of the eight countries, however their profile and availability differed considerably. For example, specific schemes to release equity had never been advertised in most countries. The UK was the exception to this, while the first advertising campaigns in Finland and Sweden occurred in the mid-2000s around the time of the study. In addition, the proportion of homeowners with a mortgage varied from 15 percent in Hungary to 88 percent in The Netherlands. The value of the mortgage compared to the market value of the house for recent buyers also differed from 70 percent in Germany to 110 percent in The Netherlands. Nonetheless, the more generous fiscal treatment of mortgagors in The Netherlands, combined with the higher rate of interest-only – and longer-term – loans meant the expenses to income ratio of recent Dutch homeowners was much lower than in Germany.

13.3 Housing as a Financial Resource

Across the countries, housing was first and foremost conceived of as a home, with consumption being the main purpose for the purchase of a dwelling. However, there were also similarities in the extent to which housing was viewed as an important financial investment, including as a form of long-term saving that provided householders with a "nest-egg" (Jones *et al.* 2007). Most respondents held a belief that the purchase of housing was a good investment. This belief appeared to hold despite

fluctuating home prices in some countries (e.g., in Germany). Similarly, housing market crashes in the past in Finland and the UK did not seem to tarnish the view that housing was a safe investment.

A number of factors were important in explaining respondents' views of housing as a financial resource; first, householders pointed out that housing was an appreciating *asset* in terms of a mortgage reducing/being paid off over time, irrespective of home price inflation; second, housing represented an investment in comparison to renting – there was a pervasive view across countries that renting was "dead money;" third, households took a long-term view of housing over the life-course; last, the permanency of bricks and mortar appeared to enhance householder views of housing as a secure resource. Some beliefs seemed to be ingrained within cultures – for example, German respondents described housing as a "pension in stone," highlighting its significance for later life. Other influences included the media and how hearing about others' positive experiences of housing wealth also shored up their beliefs. In Hungary, it was observed that owners were overvaluing their housing, possibly reflecting the high level of interest in property in the post-transition period. Taxation and fiscal policy was also seen as exerting an influence on the value of housing, for example, via tax reductions on housing loan interest in Finland.

Despite overriding similarities, the view of housing as a financial resource was stronger in some countries than others. In most countries, many respondents explained that the decision to buy a home was not primarily motivated by financial reasons, but there was a realization that their housing did now represent a financial asset. In Finland, a number of respondents appeared to feel quite proud about making wise investments in housing (even, in one case, despite experiencing repayment problems). However, a few respondents in the UK and The Netherlands explained that they had seen the purchase of their property as an investment from the start. In these two countries in particular, a change appeared to have occurred from householders who purchased some time ago describing their good luck of buying at the right time to a position where some were planning for financial gains from housing. The very high home price rises in these two countries in the five years preceding the research seemed to be exerting a direct influence upon borrower behavior.

In Portugal, respondents identified buying property as profitable but separated this from the purchase and ownership of their housing – which was clearly a home, not an investment.

In some countries, householders described their housing as a potential financial investment but did not extend this to considering investing more widely in other properties. For example, in Sweden, no respondents had thought about buying a second property to rent out, with the investment idea of housing stopping with the current home. In a number of countries, respondents with more than one house had arrived at this situation through inheritance and deciding to hold onto a second property. The strongest tendency towards investing in other properties was probably in the UK, again possibly representing a possible conceptual shift in how housing was viewed.

Importantly, home ownership was seen as an asset that contributed to householder's financial "security" in all eight countries, with few associating home ownership

with insecurity (Jones *et al*. 2007). Many regarded home ownership as a form of long-term saving and referred to their home as a "nest egg." This "nest-egg" was not designated to be used for any particular events, rather it was there for an unspecified future time if and when needed. In this way, the financial resource of housing contributed to a feeling of safety and a welcome "buffer" from the world, alongside the physical and "homely" properties of the house providing a private refuge from the wider world (Elsinga *et al*. 2006).

> When you have been paying to yourself – in small amounts – but anyway, you have built up yourself a kind of "nest egg." One day perhaps, if you have an urgent need to sell your property, there is the "nest egg" you can collect back. (Homeowner, 29, Finland)

> It is always an added value. In a few years we may want to sell. It is common knowledge that the housing business is one of the best businesses in Portugal. It is always increasing in value. It is always sellable, whether it takes more or less time. It is like a guarantee . . . a safety . . . yes, it can be considered as a safety. (Homeowner, 30, Portugal)

13.4 Use of Housing Equity to Date

Although most respondents recognized that their home represented a resource, most also struggled to find the language with which to talk about this resource. In part because of absence of a conceptual framework, the use of housing equity across countries appeared relatively rare on first analysis.

> The only possibility to release money, it's to move and sell. (Home owner, Female, 59, Sweden)

On a closer analysis, households did seem to mention the use of housing resources a little more than first assumed, however, the examples given were almost exclusively related to the use of housing resources for housing-related activities. Table 13.2 presents the ways in which respondents in the eight countries had used, or would consider using, housing equity. Housing resources had been used in the following ways to date.

13.4.1 Moving up the property ladder

In most countries, some respondents explained they had utilized monies from their previous homes to move up the property ladder to a bigger or more appropriate house or flat. Even in countries where mobility was relatively uncommon (e.g., Germany), this was a favored option for the use of housing resources. In a couple of countries, the potential to increase the mortgage/loan at the point of moving was mentioned by some respondents (Portugal, UK, The Netherlands); here, people obtained a loan at a lower interest rate and could spend this on home improvement, household goods, occasionally other consumption goods (e.g., cars). There were

Table 13.2 Ways to use home ownership as a financial resource and for what purposes mentioned in interviews

Country	*Reduced housing expenses*	*Selling*	*Equity withdrawal*	*Letting*
Belgium	Old age	New house Intergenerational transfer	Business start up	Emergencies Business start up
Finland		New house Emergencies Intergenerational transfer	Home improvement Emergencies	
Germany	Unemployment Old age	New house Emergencies	Home improvement Care needs Children's education	Emergencies
Hungary		New house Emergencies (both self and family) Intergenerational transfer		Emergencies
The Netherlands	Old age	New house Intergenerational transfer Income Emergencies Old age	Camera Cars Caravan Pension fund Old age Home improvement Buy out partner Emergencies	Emergencies Make living Old age
Portugal	Old age Education of child	New house Emergencies Intergenerational transfer	Health care Old age Emergencies	Emergencies
Sweden	Old age	New house Old age Intergenerational transfer	Home improvement Stop working Working part-time Cars Furniture Caravan	
UK	Old age	New house Home improvements Pay off other debts Intergenerational transfer	Home improvement Training Career break Leisure and holiday Deposit for a rainy day Old age Care needs Buy second property Business start up Children's education	

Source: Elsinga *et al*. (2007).

also a couple of cases of householders using housing equity to help children buy a house in The Netherlands and Hungary. In Belgium, a difference was observed by age, with older households only making one major housing purchase, but younger households more willing to move around (though it was suggested that some of this may have been influenced by the urban setting of the study). In Hungary, housing resources were usually reinvested in housing both because this was seen as the safest investment and also for institutional reasons (e.g., taxing of real estate transactions).

13.4.2 Home improvements

Apart from the purchase of a subsequent property, a common way of utilizing housing resources was on home improvement. For example, in Germany, this tended to take the form of a modest remortgage, whereas in Sweden it was remarked that quite considerable sums may be utilized. However, in most countries, home improvement was seen as a very justifiable way of spending housing resources and one that would add value to the home – so in effect, this was perceived as a reinvestment rather than diverting equity to other uses.

13.4.3 Renting (part of) property

This was seen as a convenient way to utilize property to provide an income where a second house/flat had been inherited (Germany). The policy of renting out a room or rooms of a home to other people appeared to be a more favored option in some countries than others (e.g., mentioned in The Netherlands and Belgium, but not in Germany). In the UK, there were a couple of examples where previous homeowners who had experienced relationship breakdown had used the resources from the sale of the house to access and sustain private renting (where resources were not great enough to buy another property but a high quality rented dwelling could be secured with the extra funds available).

13.4.4 A second property

A few respondents had purchased a second property for the investment potential (e.g. Belgium, UK, Hungary). One UK respondent had established himself as a private landlord through using equity from his own home directly to purchase two further properties (and was in the process of buying a third).

13.4.5 Consumption goods

Remortgaging (without moving) occurred in some countries, but particularly in The Netherlands and the UK. In The Netherlands, many respondents had renegotiated their loan or remortgaged and in the past had spent this on a range of consumer

purchases (e.g. cameras, cars, caravans) as well other activities. However, while tax was deductible on consumer purchases in the past, in 2001 the law changed so that tax was only deductible on money invested in the home. From this point, people reported that they then utilized housing resources only for housing expenditures. Cars or caravans were sometimes purchased in other countries with housing resources (e.g. Sweden).

13.4.6 Wider activities

In Hungary, a number of households had utilized housing resources for business formation – this was perceived as risky but was often the only way to raise money for private economic activities; there were also isolated examples of this in other countries. Again, a couple of Dutch respondents had utilized resources on other activities before the tax change and, in the UK, three households had accessed their equity on a number of occasions and for different uses, including funding career breaks, to start a family, undertake training, holidays, keeping money aside just for a "rainy day," as well as home improvements. One person had in fact used all of their equity (nearly £200,000). For some UK respondents there appeared to be a "learning curve" with respect to accessing equity, with it being seen as easier to access on subsequent occasions especially given encouragement by financial institutions (here and elsewhere the letter I indicates the interviewer, whereas other letters (here F and M) indicate the respondents).

F: When you have a £260,000 house, and you only owe, in our case, £35,000 on the mortgage, they fall over you, "Would you like more? Is there anything else you'd like to do? Is there anything else you'd like to buy? You can go on holiday . . ."
I: Were they actually encouraging you to take out more?
F: Yes.
M: Yes, that's the worst thing about it . . . they just keep sending you mail, "You can borrow so many thousand pounds, you know." (Homeowners, 56 and 51, UK)

13.4.7 Use as a "safety net?"

Overall, there were only a few examples of householders using housing equity as a "safety net" for unexpected, negative events such as unemployment, ill-health, and relationship breakdown. Housing was utilized on some occasions to assist one or both parties to start again following relationship breakdown (see above) but this usually necessitated the sale of the former joint home. There were also instances of householders in the UK and Finland using resources (via the sale of the house or remortgaging) to pay off debts. Finally, a couple of householders had used resources to help them during a period of ill-health (again, mainly the UK). However, in the majority of cases, householders had relied on other resources to tide them over a bad economic or health period, most prominently relying on a partner's earnings, savings, and/or employment or welfare benefits. The typical picture was of

householders only using housing resources when they moved and/or for housing-related activities. However, a possible generational change in attitude was observed in some countries (e.g. Sweden), with older households feeling that loans should simply be paid off, whereas younger households had a more open attitude to spending housing equity.

13.5 Use of Housing Resources in the Future

The responses of respondents across eight countries concerning the use of housing resources in the future were characterized by a lack of awareness and understanding of the possibilities in this area. This was not surprising as the concept of using equity for nonhousing purposes was largely unknown in most countries and any schemes that existed tended not to be heavily promoted. Nonetheless, people were willing to reflect on the issues, learn about new concepts, and offer their views on the opportunities and possible limitations of the use of housing resources. A number of themes across the countries were evident.

13.5.1 Willingness to use equity on housing related purposes

As demonstrated above, some respondents in many countries were familiar with using equity for home improvement purposes and this struck most people as a possible use of future equity. In addition, the purchase of holiday/second homes was seen as a reasonable option by some.

13.5.2 Retirement, pensions, and "later life" welfare needs

The possible use of housing resources in later life was mentioned in over half the countries (Germany; Portugal; The Netherlands; UK; Belgium; Sweden). Both income maintenance, usually in the form of pensions, and more specific care needs were considered as possible reasons for using housing equity. Respondents did not, for the most part, support the use of equity for these needs, rather many felt that they would have little choice but to do so. The main reason given by respondents related to fears over both the lack of state social security in older age and private pension arrangements. In some countries, such as Portugal, older people are an extremely vulnerable group and responses recognized that pension and wider social security arrangements were often inadequate. In other countries, such as Germany and the UK, there was a general concern of decreasing welfare entitlement and a lack of private pensions to maintain a good quality of life. UK research has shown that younger cohorts are more likely to consider the use of housing for their retirement than older cohorts (see Smith 2005).

> It is a way of guaranteeing some quality of life. Social security systems are becoming increasingly fragile. So, people should use the resources they have though an

> independent surveyor must evaluate it, so that banks do not perpetrate big financial atrocities. I hope I do not have to resort to it so that I can leave my home to my son but it is good to know we can count on this kind of resource. (Homeowners, 30 and 29, Portugal)

> You need to be able to provide for yourself more, I don't think you can rely on the welfare state as much as previous generations could, and 10, 20, 30 years hence, who knows what the welfare state is going to look like, so I think it is important to have something that you can use, either for yourself or your family, or for your wider family . . . (Homeowner, 39, UK)

Respondents in other countries were less willing to consider the use of housing equity for pensions and wider welfare needs in older age. For example, in Finland, most were sceptical about the value of equity release schemes. As well as revealing a distrust of banks and noting the loss of inheritance, the Finnish respondents also felt that the state should provide for those who had inadequate cover in retirement. A similar response was evident in Belgium.

Despite this scepticism, the desire to retain independence in older age was offered as an important reason for using housing resources in some countries, notably Germany and Finland. More generally, a number of respondents could envisage downsizing in retirement to allow them to access more suitable accommodation as well as enhance their income and quality of life (as long as some funds were remaining to bequeath to family members). However, not all respondents believed that selling their property and downsizing would be straightforward, particularly if they lived in a relatively cheap property. A number of interviewees in the UK and Portugal pointed to the fact that home prices had increased everywhere and that they would find it difficult to find a suitable cheaper property in the same area, while respondents in Germany remarked that, due to demographic changes, there was far less demand for property. Others were attached to their home and did not wish to move but rather it was the benefit of imputed rent that offered them security for old age.

Interestingly, respondents in some countries tended to be much more positive about the use of housing equity for pensions when commenting on a hypothetical situation via a vignette than when thinking about their own personal situation (Portugal, Sweden, Hungary). A distrust of private solutions, however, was evident across a number of countries.

> I agree. It is a good idea. If someone has a low pension and this way may have a better end of life, with a better standard and doing things dreamed of during their working life, if people think that is a solution, then I agree with that. (Homeowner, 29, Portugal)

13.5.3 Wider uses as minority response

Some households postulated the use of housing resources for a much wider range of activities, however, they tended to be a minority of responses in any one country. For example, the use of resources for business formation was not greatly favored

by respondents but a few respondents in Belgium and the UK mentioned this as a possibility. In Sweden, a few respondents mentioned using equity to stop working or go part-time but again this was not a common response across respondents (more of a saying that it was a good idea for the future when prompted).

13.5.4 Use of housing equity as a "last resort"

Overall, respondents were generally hesitant at the prospect of using housing equity, indicating a strong desire to continue to "save" rather than "spend" any nest-egg. Generally, householders felt that the resource was too precious to use for any activity.

> The own home is a safety with which you do not play. (Homeowner, 62, Sweden)
>
> The house is too important. (Homeowner, 45, Belgium)

Some of the reasons for their carefulness in spending the home included:

- an unwillingness to take on further debts (e.g., Germany);
- a desire to pay off the mortgage as soon as possible (e.g., Portugal);
- the desire to pass on property/money to children (present in many countries but particularly strong in Portugal and Hungary) (see next section).

In consequence, many spoke of only considering the use of equity where there were no other options, most prominently in the above case of health-care needs and/or as a pension supplement, although downsizing options were more generally seen as a positive choice in later life. Most identified a "hierarchy of risks" (Quilgars and Abbott 2000) whereby they would be more willing to draw on their equity for some eventualities than others. Households did not generally see housing resources as something to draw on in times of unemployment, rather identifying other safety nets including finding another job, partner's income, and welfare benefits. However, a few single people did feel that if everything went wrong there was a final option of selling the house and living on the proceeds – although they certainly did not plan to use it like this and hoped it would be an unlikely scenario.

> We have more security because house prices have gone up so much, if everything went wrong you could sell up and still have some capital, it does make you feel secure. (Homeowner, 34, UK)
>
> Only if it was something very urgent and something very serious. A disease. (Homeowner, 57, Portugal)
>
> I: Are you considering using your home in the future as a means of raising finance?
> F: No.
> I: And perhaps later for healthcare?
> F: Hmm, maybe I am. If that's what it comes to, but not definitely by any means. (Homeowner, 42, Netherlands)

13.6 Intergenerational Transfers as a Spending Constraint?

Intergenerational transfers were mentioned as a consideration by respondents in all countries when considering whether they would be willing to utilize their housing resources in their own lifetime, however the importance of this, and the overall value attached to them varied quite considerably between respondents and across countries.

13.6.1 Intergenerational transfers as expected and crucial resources

Intergenerational transfers were seen as centrally important to respondents in two countries: Hungary and Portugal. In Portugal, few people had experience of transfers to date, and partly because of this, most respondents felt that it was important to leave (a share of) property to their children as they wanted to provide a better start for the next generation, also identifying that not to do so would be selfish to the next generation. In some cases, people felt it was important simply to ensure a roof over their children's head:

> Parents always think about helping, about giving the best to their children, so that their situation is better than ours. I hope that I can give more to my daughter than what my parents gave me. (Homeowner, 47, Portugal)

> For me, the house is important. This way my son will have a roof over his head. (Homeowner, 48, Portugal)

In Hungary, intergenerational transfers were seen as crucial to accessing adequate housing, with an absence of transfers seen as really weakening someone's position in the housing market. In Hungary, however, intergenerational transfers appeared to occur earlier than in Portugal, as many parents made housing decisions to enable children to get onto the housing ladder while they were still alive. However, family decisions were quite binding between generations, with parents retaining control over housing decisions. The Hungarian researchers explained that parents felt obliged to do this, and children counted on this arrangement, producing a moral imperative:

> . . . a moral component has a double influence: on the one hand, the attitude to bestow housing wealth is seen as morally necessary, and on the other hand, it is binding to use the inherited wealth, i.e. for upward mobility. (Country report, Hungary)

13.6.2 Pragmatism and ambiguity in intergenerational transfers

In the remaining countries, a much wider range of views on intergenerational transfers was identified, overall characterized by a greater degree of pragmatism, ambiguity, and relative absence of moral certainty in this area.

Overall, many respondents felt that it would be nice to leave something to their children on their death, but quite a number of respondents across the other countries felt it was more important, or simply more useful, to attempt to help children while they were still alive (as often children were already established and middle aged when parents died). There were a few cases of parents actually downsizing their housing so children had money to buy their first property (sometimes there was also a tax incentive to do this), but mainly parents tried to gift money when their children needed it.

> It is different nowadays so to speak. In former times it was more like a condition or a possibility for children if you inherited from your parents, but nowadays they have their lives and their apartments already. So the connection is no longer there as I see it between somehow. What we try, the money we have, we try to share while we are alive, already now. When we sold in Uppsala they got some money for example and like that, we take the opportunity now. (Homeowner, 56, Sweden)

Some respondents explained that they might also need to use some of their housing resources in the future – either to enhance their retirement income or simply to enjoy their retirement. A dual approach to transfers was therefore often expounded – leaving some to the children and using some for themselves.

13.7 Conclusion

Few respondents in our study had bought their homes as an investment and while many were aware that it represented a financial resource or "asset," this was very much secondary to consuming the house as a home. For most people the large amount of equity they had accrued was regarded as largely an element of luck or chance rather than planning, in particular where home price rises had risen sharply in recent years, e.g. in the Netherlands and the UK. Only in a few cases were people now actively planning to purchase more property (particularly the UK). However, for most respondents, in most countries, housing was seen as a secure, long-term, investment even despite some recent price fluctuations. Homeownership was perceived by many respondents as a way of saving, providing a "nest-egg" that gave them a general feeling of security into the future. While it can be argued that home price gains are not real gains until people trade down or release the stored wealth, these paper gains alone appeared to make people feel more secure. In addition, in comparison to renting, buying a home was a means of securing somewhere to live rent free in their old age.

The use of housing equity in the past was relatively rare across all countries, although UK respondents were more likely to have accessed resources in this way. Overall, the level of knowledge, and interest, in utilizing specialist equity release schemes, or even more simply equity withdrawal through downsizing and so on, was quite low. In Germany, the expression of the home as a "pension in stone" highlighted the perceived illiquidity of the asset. Where housing equity had been used this was most commonly for housing-related activity including moving home and home improvement. Only a small number of respondents had used equity for

other purposes such as funding a career break, starting up a business, or buying consumables.

Although many respondents had not thought about using equity or how they might access it (until prompted by the research interview), there was a general willingness to see housing equity as a "last resort" safety net, particularly for later life and/or for urgent health and care needs. The use of housing resources were appraised as particularly important where welfare states were weaker or restructuring, and the use of housing for welfare needs was resisted the most where state safety nets had come under least threat in recent years. The desire to pass on at least some resources from the property (or the property itself) to the next generation was in the minds of many respondents across the countries, but this was much more of an imperative in Hungary and Portugal (producing potential dilemmas given that welfare systems were also the weakest). There was much less support for using the resources to meet unexpected eventualities during the working lifetime – unless in an emergency – although there were instances where equity had been used following relationship breakdown in a couple of countries. Rather, housing equity was perceived as one of a range of "safety nets" on which people could draw, including savings, their own resources in terms of finding alternative employment, insurances (in some instances), state benefits, and informal strategies such as assistance from family – with the others usually being turned to in the first instance.

In terms of the promotion of asset-based welfare in the future, the study raises some possibilities but also a series of practical issues and ideological concerns. The study indicates that people are willing to consider the utilization of their housing resources for certain needs and at certain times but that they would prefer not to have to do this and remain in support of broader social assistance particularly in later life. To some extent, the very functioning of housing equity as an effective "safety net" in people's minds was dependent on not spending the home – so that the equity remained in place to provide feelings of security, with respondents realizing that withdrawing equity left them less of a resource for the future.

Some of the reluctance to use equity may also partly reflect the fact that options for releasing equity are poorly developed and understood across most countries (householders in the UK were the possible exception). Quantitative analyses in the same study confirmed that equity release in any form seldom happens at present, rather homeowners benefit from reduced debt in later life (Turner and Yang 2006). The qualitative interviews revealed how housing was perceived as an invaluable resource in later life, particularly in maintaining a good quality of life and independence for the (wider) family, leaving renters in a much unenvied position. But the study also suggested that a lack of knowledge may also be coupled with some mistrust of possible private options. This signals a challenge for the financial sector to overcome reticence across Europe, particularly following the recent banking crisis. UK studies have shown that equity release schemes may have an appeal in theory alongside concerns about complexity and value for money (Rowlingson 2005).

A learning effect was observed in the UK suggesting that, once introduced to the concept, some people will withdraw equity more than once – and for a wider range of activities including general consumption. Smith et al.'s (2007a,b) study also showed that people often used it for more expensive consumption items, purchased at an earlier point, than otherwise might have been the case, although overall highlighted

that householders were generally rational and competent planners. Nonetheless, any increase in spending the home also raises concerns over the extent to which present security (and consumption) may be obtained at the risk of debt and insecurity in retirement (Ford 2006).

Any promotion of asset-based welfare in the future must take account of how housing wealth produces inequalities between homeowners and renters. Recent studies have indicated that governments should be concentrating their attention on building a broader assets ladder (to focus on savings and other wealth resources) rather than further promoting a housing ladder (Maxwell and Sodha 2006). Importantly, at the time of the research, there was a remarkable degree of optimism about future developments in the housing markets in all countries apart from Germany, and respondents tended not to refer to the possibility of soaring interest rates or a slump in home prices. As Stephens (2003) has suggested, borrowers assumed that interest rates would remain low and that price rises were permanent (and even that they will continue to rise indefinitely). Economic conditions, and most European countries' fiscal systems, have been very supportive of the growth of home ownership; these conditions, as well as the apparent inexorable rise in home prices, enhanced feelings of security for home-owners. However, huge changes have occurred since the research was undertaken that may change homeowners' perspectives – particularly increasing unemployment rates and the shoring up of the major banks across Europe (and globally). Despite continuing low interest rates, feelings of insecurity are likely to be heightened, although possibly only in the short-term as the research also suggests that householders are quite good at taking a longer-term view of their housing investments. Nonetheless, policy makers would do well to listen to the tentativeness evident in the accounts of European respondents before setting up housing wealth as *the* "safety net" of the future, as well as appraising the impact of the present global economic climate on future options in this important policy area.

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Chapter 14

"Pots of Gold": Housing Wealth and Economic Wellbeing in Australia

Val Colic-Peisker, Guy Johnson, and Susan J. Smith

14.1 Introduction

Home ownership has formed the center-piece of an "Australian dream" for over 100 years. In the early twentieth century as many as half the households in Australia were owner-occupiers – matching those in the USA, and five times more (as a proportion) than in the UK (Badcock 1993, p. 256). This "dream" consisted of an owned house on a quarter-acre suburban block, home to a conventional Australian family: a cheerful housewife, a hardworking permanently employed husband, several well behaved, healthy children, a dog, a Holden (car), and a hills hoist in the backyard. Flourishing in the uneventful and prosperous 1950s, this ownership ideal received a boost from the Commonwealth State Housing Agreement of 1956 when a large proportion of what public sector housing there was, was sold to its tenants (Murphy 1995). By 1960, around 70 percent of Australians owned or were buying their homes, and this high rate of ownership has fluctuated little since (ABS 2004a).

This has occurred not least because government policies encourage a home-ownership mindset: owning a home is the only tax-free investment for Australian households. A tax policy known as "negative gearing" further encourages small investors to buy one or two properties for rent (Dalton 2002, p. 7). One result is that over 50 percent of the total assets owned by Australian households are tied up in housing (Saunders 2005, p. 5) and at least 10 percent of Australians own an investment property. This orientation to the financial returns on residential real estate has been massively underlined by the performance of home prices over more than a decade. As a result some analysts have raised the possibility that a mix of economic, social, and political changes forming the neo-liberal landscape of the past 30 years has turned home buyers into "investor figures" who see owner-occupation as a safe, secure, wise, and responsible vehicle for managing their money (Smith 2008).

In contrast to Australia's stable and relatively high rates of owner-occupation, many other economic and social indicators have changed dramatically since the 1960s. For example, the structure of Australian households has been transformed.

Married women and mothers are less likely now to be full-time homemakers, fathers are less likely to be in a stable job for life, while falling birth rates have made children optional and families on average smaller. Between 1991 and 2001 Australian censuses nuclear families (two parents with children) decreased as a proportion of all families from 54 percent to 47 percent, while couples without children increased by 30 percent and one-parent families by 38 percent (ABS 2006). Households are shrinking, with the average number of people per household projected to decline from 2.61 people per household in 2001 to 2.44 in 2016. Lone-person households have been growing the fastest of all and are projected to increase from 25 percent in 2001 to 34 percent of all households in 2026 (ABS 2004b). The aging of the population, increases in separation and divorce, and the delay of marriage are just some of the factors contributing to the growth in lone-person households (ABS 2006).

These trends, together with sustained immigration, all add to pressures on the housing stock, and these are compounded by economic and environmental challenges. Experts warn that low-density suburban sprawl on which the Australian dream is based is becoming environmentally unsustainable, while soaring housing prices in the early 2000s took owner-occupation out of reach for many, especially in the large cities where up to 85 percent of Australians live and where most immigrants seek to settle. Ironically, the less accessible home ownership has become, the more prized it is, not just as a cultural goal, but also as a financial resource: after all, owning a home is the only significant wealth-holding for many Australian households. In an era when collective provision is waning, homeownership can – in Australia, as in the other jurisdictions reported on in this Part of the book – be seen as a *de-facto* asset-base for welfare.

This chapter considers what recent economic, socio-cultural, and political shifts might mean for the way Australian households conceptualize, accumulate, and use their housing wealth, and for their expectations of that wealth in the future. To this end we draw from data collected by a project on "Home as a commodity" conducted in Melbourne in the second half of 2007. The next section describes the methods and approach. The remainder of the paper examines three core ideas. First, it asks why Australian households still aspire to own rather than rent their homes, despite their changing needs and growing debt. This part of the paper concentrates particularly on the way people regard their housing wealth, and on the importance they attach to it. Next attention turns to home-buyers' attitudes to, and practices around, mortgage debt at a time when secured borrowing provides both a lever into owner-occupation and a loan to spend on other things. Finally the discussion turns to future plans. Towards the end of a period characterized by the growing fungibility of housing wealth, it is important to consider whether, and to what extent, homeowners plan to spend from that wealth across their life-course, rather than leave it as a legacy for future generations.

14.2 Research Design

There has been an explosion of interest in the "stylized facts" of the housing economy in recent years. This reflects the extent to which housing – a topic once

marginal to mainstream economics – has moved to the center of a highly multi-disciplinary stage. However, notwithstanding a growing body of empirical material on home price dynamics, on the location of home assets in a wider wealth portfolio, and on the route from housing wealth to the wider economy, surprisingly little is known about the beliefs and decisions that underpin the behavior of home occupiers in relation to these themes. As Case and Shiller (2003) note "Economists rarely ask people what they are thinking when they are making economic decisions and some economists have argued that we should never do so" (p. 4). Case, Shiller, and a variety of other neo-classical and behavioral economists have begun to address this gap by using extensive questionnaire surveys; but the growing interest in such issues among anthropologists, sociologists, and geographers means that a variety of qualitative techniques have recently been brought into play. The research underpinning this chapter is firmly in that vein, although we also present some quantitative data on our sample of participants in Table 14.1.

Qualitative sampling is never "representative" and key findings do not take the form of general tendencies or even typical profiles. Nevertheless, Melbourne does capture something of the Australian urban majority. It is a large capital city; one of very few major urban centers which together accommodate over two-thirds of the Australian population. In 2007, Melbourne became the fastest-growing capital city in Australia, and with this came unprecedented home price appreciation: in real terms (adjusted for inflation) median housing prices in Melbourne grew by 169 percent between 1995 and 2007 (REIA 2008). These price trends are especially noticeable in the medium-density inner city areas that attract better-off population groups such as "empty nesters" (dual earners whose children have left home) and young professionals. Consistent high demand, together with low vacancy rates, also makes inner city areas attractive to small housing investors, whose demand reinforces the upward price spiral. In 2008, due to a series of interest rates increases, housing prices cooled off somewhat, mainly in the outer suburbs while the inner city areas continued to grow, albeit at a slower pace (Australian Broadcasting Corporation 2008). In late 2008–2009, a global financial crisis contributed to further restraint in an overheated housing market, but signals are mixed, with Fujitsu's most recent (April 2009) mortgage stress report showing a decline in the risk of default, albeit against a gloomy financial outlook (North 2009). In all, however, home prices in Melbourne – as in Australia more generally – have, as yet, only experienced a marginal fall.

As part of our project, we conducted eight focus groups from August to November 2007. The number of people in the focus groups varied from five to fourteen; the mean was seven. Of the 73 participants, 60 percent were women. Participants were mainly recruited from the Royal Melbourne Institute of Technology (RMIT) University, although about one-third came from outside. Accordingly, the sample largely consists of people with university degrees, in professional (80 percent) and paraprofessional (20 percent) jobs. Forty-five participants were Australian-born, sixteen were immigrants from English-speaking countries (mainly the UK), and twelve were born in non-English speaking countries. Ages varied from 25 to 65, with a mean of 45 years (and a standard deviation of 11). Most participants lived in the inner city suburbs of Melbourne where a middle-class lifestyle includes proximity to work (mostly in the city), good access to public transport,

and a "sense of community" provided by the trappings of inner-urban lifestyle such as cafes, restaurants, galleries, theatres, and sporting venues. Nearly three-quarters of participants assessed their social position to be above average (they scored it as 7 or more on an ascending 10-point scale), and judging by their position in the income distribution, this was an accurate view. The average income of all participants was reported to be in the A$80,000–94,000 bracket (more detail in Table 14.1), and this is considerably higher than the Australian average full-time annual adult income, which was A$57,580 at the time we conducted focus groups (ABS 2008).

In order to elicit a wide variety of views and experiences, the focus groups were recruited from seven different areas of the housing market, identified with reference to an imagined housing trajectory from renting through to mortgaged, and then outright, owner-occupation (a trajectory which, of course, largely coincides with age cohorts and financial status – see Table 14.1). The focus groups thus coalesced around: renters in the process of buying a home (FG4); recent owner-occupiers (first-time buyers who had recently entered the housing market, FG1); people in "mortgage stress" (FG5; defined as a situation where households' mortgage repayments represent more than 30 percent of total household income); established homeowners who have considerable equity stored in their homes (FG2 and FG3); people on high incomes (over A$100,000 p.a., FG6); outright owners (people who own their homes and have no mortgage, FG7); and owners in the process of selling their properties (among whom there was a number of small real-estate investors, FG8). The financially better-off focus groups (e.g. high-income, outright owners, and home-sellers) were male-dominated, whereas the groups consisting of renters, recent owners, and people in mortgage stress had a female majority (Table 14.1). In practice, the eight focus groups could be considered as forming three broad categories: the first embraces those who are at the margins of home ownership, i.e. renters seeking to buy, recent buyers, and people in mortgage stress; the second includes two groups of established homeowners; and the third consists of mature and end-stage housing market participants – those who are outright homeowners, have high incomes (over A$100,000), or who are seeking to sell their homes to cash in on their gains. This threefold distinction between the "marginal", "mainstream," and "mature" homeowners is used to structure the discussion. However, it is important to bear in mind that these categories are revealed, during discussion, to be broad and overlapping, as is so often the case with qualitative work.

The focus groups were each conducted by one or more of the three authors, and most discussions lasted between one and a half and two hours. After the focus group sessions, participants were also asked to fill in a one-page questionnaire covering their demographic and socio-economic characteristics and information about their housing wealth and financial portfolios in general. The main strength of in-depth data-collection of this kind is its open-ended style: participants have the option to question the researcher's assumptions, qualify received wisdoms, and redefine conventional categories. They also have the opportunity to speak to themes that closed questionnaires tend to silence, and to make connections between ideas which the literature treats in isolation. Furthermore, the texture, richness, diversity, and coverage of the resulting data depend in part on the conversational dynamic of the focus group. This has to be moderated by researchers, not least to manage the

Table 14.1 Comparative statistics on "marginal," "mainstream," and mature homeowners ($N = 73$)

	Marginal (n = 25)	*Mainstream (n = 19)*	*Mature (n = 29)*
Average age	38	46	51
Gender (%):			
female	68	63	52
male	32	37	48
Average income (AU$) (%):			
0–49,000	20	26	7
50,000–79,999	24	37	27
80,000 plus	52	31	66
no information	4	6	0
Unmortgaged home equity (%)			
0–25	67	16	11
26–50	12	21	21
51–75	4	26	21
76–100	17	37	47
Wealth portfolios (%)			
mainly in housing	69	55	52
evenly spread	12	39	31
mainly other	19	6	17

tendency for members invested with more social power – males, older people, more educated people, for example – to lead the conversation and potentially, albeit inadvertently, silence others. In this particular project, the tendency towards domination, stifling, and skewing the discussion was nearly absent; participants in each group shared similar socio-economic backgrounds and education levels, and many had previous exposure to focus group participation or similar forms of group discussion.

The checklists guiding the focus groups were organized around three themes: engaging with the housing market; choosing and using mortgage finance; and speculating on housing futures. Our analysis of the focus groups' transcripts follows more or less the same logic. In the next section of this chapter we focus on how people conceptualize their housing wealth, especially in relation to the idea of home as an investment. The analysis draws attention in particular to differences in perspectives between the three groups of participants: marginal, mainstream (established), and mature homeowners. Next the discussion turns to how comfortable people feel about their mortgages as active financial instruments rather than primarily as a burden of debt. The final section of the analysis considers how people plan to use their housing wealth, weighing up its use in boosting consumption (before or after retirement), and its role as a future financial buffer or store of "precautionary savings."

The interviews were recorded with participants' consent, fully transcribed, coded by theme, and analyzed using the qualitative software package NVivo. Direct quotes

from focus group participants are used to illustrate the way people talk about, imagine, and behave around housing wealth and mortgage debt. The spread of the data is captured from time to time by a snapshot of opinion across the three groups of participants (marginal, mainstream, and mature homeowners). Finally, some illustrative comparative statistics on the three groups are presented in Table 14.1. They are based on quantitative data collected through a one-page survey of focus-group participants and analyzed using the Statistical Package for Social Sciences (SPSS)

Table 14.1 simply sets the scene for our analysis of the focus groups' discussions. It shows that the majority of study participants – between half and two-thirds – hold most of their wealth as housing. This is especially true among marginal homeowners who, paradoxically, do not have much home equity at all. A higher proportion (but not the majority) of mainstream and mature owner-occupiers have more diverse wealth portfolios (including pensions).

14.3 Home Values: Pots of Gold?

The term "home" is laden with cultural values, and it is impossible to think about owner-occupation without recognizing that it is about meanings as well as about money and materials. So it is not surprising that the symbolic, as well as utility (service) aspects of housing were a topic of conversation in the focus groups. Equally, however, it is impossible to write about property without recognizing that buying into home ownership is also and inextricably about securing an investment vehicle.

This financial aspect certainly came to the fore during the recent upswing of the housing cycle in Australia. This idea is easy to trace into the focus group discussions, where much emphasis, especially from early entrants to the housing market, is on the tactics they need to climb the housing ladder. Here for example are some words typical of new owners who see their first property as a stepping stone, sometimes acquired by making compromises on its use value – in the location and the style of housing they purchased, for example – in order to maximize returns. A usual plan was to quickly build up their housing wealth through additional repayments and then use that accumulated wealth to purchase a better property at a later date:

> I think of mine [house] very definitely as the base to go onto the next house, that's already in my head. (Female, 35, early home owner, FG1)

> [. . .] it is my first house and I will fix it up, I will rent it out or sell it and I will borrow against the equity and buy something else and eventually I will climb the property ladder and end up in Fitzroy. (Male, 30, early home owner, FG1)

Established and mature owners report much the same strategy of investing to improve the quality and location of their accommodation in order, in the end, to increase their housing wealth.

> We have sort of bought and gradually moved and each time we sold we bought something a bit better. (A woman in her 50s, outright owner, FG7)

Further light is shed on this by focus group participants as they discuss, first, their inclination to buy into owner-occupation, and second, their view of the wealth thereby accumulated.

The inclination to enter the housing market was strong across the board, as is the consensus that renting is (only) appropriate and desirable for young people who have the freedom, mobility, and incentive to explore the world. Study participants are also unanimous in identifying family commitments, and especially the arrival of children, as being the point in the life-cycle when one should, if possible, make a transition to home ownership. The following quote from a marginal homeowner epitomizes such a view:

> [. . .] but when we were looking [to buy our first home] we already had a child, my daughter is seven next week actually. She was maybe one when we sort of went . . . we've got to buy a house . . . like . . . we just can't keep renting. (A 40 year-old woman, early home owner, FG1)

Other drivers into ownership vary considerably across the three groups of marginal, mainstream, and mature owner-occupiers. Younger people who comprise the majority of marginal homeowners seem considerably focused on investment returns. This is one of the reasons they use to distance themselves from renting, which they conceive of as "dead money," "money down the drain" and a way of "paying off someone else's mortgage." Renting may suit for a while, as a lifestyle choice for example, but it is clearly seen as an unfavorable financial option in the long run:

> It's just that feeling that you're investing in someone else's future by paying rent. (A woman, 28, recent homeowner, FG1)

> [. . .] I mean you are slowly paying it [mortgage] off so you feel like you're actually paying off something whereas when you're renting you feel like you're . . . well . . . not throwing money away but you're not get anything back for it. (A family man, 35, recent homeowner, FG1)

Closely connected to the financial awareness of these younger participants is a fear of being "left behind" as home prices appreciate, as expressed in the following quote:

> I've noticed around my suburb too, the prices are just skyrocketing so in a way I think I was lucky to get our apartment when we did because the prices are just crazy at the moment. (A female, recent home owner, FG1)

This tendency to "buy early, pay high" is noted for the USA and UK by Banks et al. (2004) who argue that buying into owner-occupation serves an "insurance" as well as an investment and consumption function. In that event, the pressure on rising prices might be interpreted less as a burst of irrational exuberance than a gesture of desperation at the prospect of being locked out of the sector by a market that is "scary, scary, very scary" (female, renter in her 30s, FG4). In a setting whose emotional complexity is often underestimated by conventional, and even

behavioral, economics (a point elaborated in Christie et al. (2008) and Munro and Smith (2008)), price volatility is compounded by panic buying, in a market where, as one participant put it, "I was really intimidated by the whole process, I was just fearful and scared that I was going to get ripped off by someone" (recent home buyer in his 30s, FG1). An early move into home ownership is seen by this group as a way of reducing the uncertainties associated with future prices, as well as those associated with renting:

> [. . .] It is the uncertainty of it [renting], you don't know if someone is going to sell the property from underneath you and then you're out and looking again. (A woman, 37, recent home owner, FG1)

> [. . .] I wanted a home, cause I'm forty-three now and at sixty I didn't wanna be at the mercy of a landlord who suddenly decided to sell, so I thought I'd better start looking now. (A woman, renter looking to buy, FG4)

In short, and not surprisingly, younger people and the less affluent (largely overlapping groups of "marginal" homeowners) are focused, as home buyers, on the long-term gains that might be made from their home, on the opportunity this contains to secure better control over present circumstances and future plans, and on the "security in knowing it's going to be mine." With relatively little housing equity (Table 14.1) their principle focus is on building up their housing wealth to provide a "pot of gold at the end of the rainbow." So this group see their move into home ownership, as one participant put it, like opening a "savings account" – a step that forces them to pay into their mortgage with a view to reaping the benefits of financial security in the future (a point we return to later).

Mainstream and mature homeowners, in contrast – those who bought into the housing market early in the recent cycle – attribute the demonstrable investment returns on their tenure choice and property selection more to accident than design. They argue that the investment imperative associated with homeownership is a product of generational shift. As one of them puts it, "I do not think I've ever heard one of my contemporaries – I am a baby boomer – who used the word 'investment property' [. . .] ten years ago, and now I hear it all the time." The motivations for buying among this group therefore hinged more around the functionality and appeal of their living space than around the expectation of future return. In fact there is a tendency to distinguish decisions around owner-occupation from decisions around investment properties: "living in it adds a few extra criteria" (female, 40, established home owner, FG2). Some were worried at first that their purchase might not hold its value, but in retrospect they feel that whatever they bought was destined to make money in the rapidly appreciating market of the past decade.

Mature owner-occupiers spoke less of how they got into their current position, and more about their plans for handling it. Recognizing the importance of managing the large windfalls reaped over the past decade, they expressed an inclination to diversify their financial portfolios through investing in shares and superannuation (a move which has recently proved problematic, as share prices collapsed and people have experienced large losses on their superannuation funds). The following quotes come from two professional men in their late 40s:

> I've had various investment properties, sometimes with other people, and in the end I just got sick of tenants and paperwork and all sorts of things and pretty much by 1990s [I] had converted to really only fooling with shares rather than fooling with property. (High income, FG6)

> I support that, I have never had tenants but I really have no interest in having tenants in a property and having to manage that even through an agent and I'd much rather put the money in the share market, much rather. (High income, FG6)

It is not surprising to find that the three groups of study participants, whose motivations for home purchase seem so varied, also evince differences in how they view the wealth they have invested into, and accumulated through, homeownership. To examine this we used a series of visual images, developed as part of the UK study *Banking on Housing; Spending the Home* (Smith et al. 2007), to promote discussion about the role and relevance of unmortgaged housing equity. Four images were offered (though only after people had been invited to conjure up their own): pots of gold at the end of a rainbow; an oasis in a desert; a safe; and a money tree. In the UK study (reported in Searle and Smith, Chapter 15, this volume) the first two images were chosen by home buyers who recognized the role of home equity in bolstering their financial and wider wellbeing. The second two were more appealing to those who valued the growing fungibility of housing wealth – its availability (through equity borrowing) as a store of cash to spend on other things. In Australia, the view is somewhat different.

The metaphors favored in the Australian focus groups vary with housing trajectories and household biographies. Some marginal homeowners speak of their home equity mainly as a "pot of gold" or a "safe" – metaphors they use to signal that the wealth in housing has yet to be realized. Renters looking to buy are particularly sensitive to the fact that home equity has to be stored up, searched out and waited for:

> You're not going to own it outright for how many years, twenty or thirty years or whatever, so it really, in that sense, it seems [pots of gold] at the end of the rainbow to me. (Male renter, FG4)

> [. . .] Mine would be I guess the safe, yeah a way of saving and having something. (Female renter, 38, FG4)

Those actually on the housing ladder more often opt for the oasis metaphor, which they use to contrast their feelings about home ownership with the insecurities they experienced as renters. This – the oasis – is the image that most conjures a sense of "home," but even with emotional drivers at the forefront, views are underpinned by more rational calculations around financial reward:

> I would probably pick the oasis as well but what I probably see is similar to what quite a few people have said that in the short term I really see that [partner] and I will have to use the equity in the property to look at purchasing another house or use it for other investments. (Male, 43, early home owner, FG1)

Mainstream homeowners generally (almost two-thirds of those we spoke to) own more than they owe (see Table 14.1). Not surprisingly, this gives them something

to work with in a financial sense, and the money tree – an image of something dynamic, that sheds some leaves but also grows new ones – is the vision that most of them chose. This attitude is reflected in a following quote:

> I guess conceptually, the tree for me because . . . [with] the rainbow with the gold at the . . . you are only looking to the future [whereas] I can do things with it now, so yeah, the tree is more [apt]. (A female established homeowner in her mid-40s, FG2)

Mature homeowners also conceptualize their housing wealth as a "money tree" prizing it particularly as something that can be cultivated and enlarged. As one mature homeowner stated "you shouldn't just leave it [housing equity] sitting there." This group are the most financially astute and they regard their home not just as a form of long-term savings, but as an investment through which additional wealth could, and should, be produced.

In all, while people may be divided on whether the investment returns on owner-occupation occur by chance or design – whether it represents good luck or wise tactics – there is a broad consensus that accumulating wealth into housing is both a good thing, and a key element of the sense of financial security and overall well-being that is associated with having achieved "the Australian Dream." We turn next to a means of accessing and realizing that dream: mortgage finance.

14.3 Shopping for Mortgages: How to Tell a Tortoise from a Tiger

The "Australian Dream" *sensu stricto* refers to the merits of outright ownership. Australian society has, accordingly, always been more aptly labeled as a "property owning democracy" rather than a "market of mortgagors" (which, as Smith, in press, notes is increasingly the more apt descriptor for the home ownership societies of today's developed world). Nevertheless, successive generations of home-buyers rely increasingly on the leverage that mortgages supply, and while overall just 45 percent of Australian owner-occupiers currently have a mortgage (Scanlon and Whitehead 2004), among first time buyers, the figure is close to 100 percent. Furthermore, the size of home loans has increased in absolute and relative terms over the past decade, while the ratio of the average new loan to household income has increased by 50 percent (RBA 2005). Accordingly, the Australian media regularly report on the record level of debt per capita that is the result of sustained economic growth, high employment, and easy credit over the past 15 years. The fact that such a large part of this debt pertains to home loans – a process sometimes referred to as "democratization of debt" (Australian Broadcasting Corporation 2007) – is now bringing Australian homeowners closer in profile to those in the other English-speaking societies. Furthermore, while in the past Australians have been described as "risk averse" and eager to pay off their mortgages as quickly as possible, recent research finds evidence of a "sea-change" in this attitude, indicating that buyers are now as ready to "borrow up" against property as they are to pay off their debts (Parkinson et al. in press).

This all reflects a trend captured by the chapters in Part I of this collection in which, in recent years, the role and relevance of mortgage finance has changed dramatically, especially in "complete" mortgage markets like that of Australia (see Girouard Chapter 2, this volume). Unlike in the past, where mortgages were hard to come by and were traditionally fixed for long periods, in the last 15 years Australians have had easier access to borrowing, and mortgages have come with a range of flexible options enabling people to borrow from, as well as pay off, their loan. Such products come in a range of forms, but they commonly include redraw facilities and offset accounts, interest-only loans and combination loans (fixed and variable). Most mortgagors can still secure products that are so flexible that for little or no cost, home loans can be rolled into day-to-day financial management. That is, borrowers are encouraged to see their mortgages as a financial tool rather than as a financial burden and to treat their home equity as a liquid asset rather than as fixed capital (Citibank 2006). This enables housing wealth to act as a tax-efficient savings account, reducing the need for (by taking the place of), other "precautionary savings" (RBA 2002, p. 4; Smith et al. 2002).

This shift in the character and content of mortgage markets is both enabling (in that it empowers borrowers to tap into their major store of wealth, which is often their only significant financial resource), and risky for indebted individuals, as well as for the economic, financial, and political system as a whole (Smith et al. 2009). Amongst other things, this raises the question of how people choose and manage their mortgage finance in today's deregulated financial world. The focus groups cast some light on this; and while it is easy to oversimplify the position, a reasonably clear story does emerge from the different positions across the home-ownership trajectory that the eight groups occupy.

Again we can illustrate this with reference to the three sets – marginal, mainstream and mature – of owner-occupation captured by the study. And again we borrow a projective technique from the UK study "Banking on Housing; Spending the Home" which was designed to encourage people to speak about a complex and potentially sensitive topic (mortgage finance) by "projecting" their thoughts through a different, simpler, and more user-friendly lens. Such approaches have now become common in qualitative consumer and market research (Donoghue 2000; Jacques 2005). Here we tried to remove some of the barriers around discussions of housing finance that more conventional questionnaires contain, by inserting into the checklist the prompt *"If your mortgage were an animal, what would it be"?* The results of the UK study inspired the header for this section; it was the working title of a paper reporting the UK results (Cook et al. 2009). The Australian findings are summarized below.

The focus groups whose participants are at the margins of owner-occupation open the debate with three broad observations. First, they indicate awareness of just how easy it was, across the early years of the millennium, to borrow the money required to get onto the housing ladder: "the banks are crying out to loan money to you" (male, 43, recent owner, FG1). Borrowers also point to the wide choice of loan: "we had a choice of fifty-two different mortgages." This complexity is not universally welcomed, and is one of the reasons that so many turn to mortgage brokers, in a bid to secure not just the cheapest deal but also the widest range of useful features. Although mortgage-broking in Australia is much more tightly

regulated than in the USA (the kind of selling that led to the US subprime crisis is not possible), people's experience is mixed, and the leaning is to a simpler model where intermediation is not required.

Second, people's comments speak to the way those who are "shopping for mortgages" acquire a degree of financial capability – a level of risk awareness and a degree of financial competence – which a wider literature sometimes presumes they lack. So on the one hand, "you know you're making a decision now with no clear idea of what's going to happen in your own life or in the property market" (female renter, 25, FG4). And on the other hand, "you can only learn by doing it" (female renter, 43, FG4); "every day I get new information from a variety of sources: from friends, from family, from late night business shows . . . I'm constantly gleaning" (female renter, 25, FG4). The sense here is that those in the market for mortgages are able gradually – because they have to – to become practiced in the art of everyday finance, and this may be one of the reasons why those who become borrowers tend to have better developed financial competencies than renters (Kempson et al. 2005). Acquiring a mortgage is a risky business, but it is also a gateway to using loans creatively to meet various wants and needs.

A third generalization from this group is that the early entrants and marginal owners all aim to pay off their loan quickly: "who likes being in debt?" As if to underline this, the "animals" they projected their mortgages onto ranged from something "alien" to a roaring lion; creatures they encounter reluctantly and hope soon to dispatch. There are a few domestic pets too (a minority), reflecting the extent to which, while "there's always that fear of mortgages, of not being able to manage it" [in the end] "it just seemed to become part of life" (female marginal owner, 40, FG1).

Our discussions with two groups of mainstream, or well-established, mortgagors further illustrate the extent to which living with debt can boost households' financial awareness. The four themes most salient to these home buyers are as follows. First, though they may have been borrowers for some time, they are acutely aware of the "selling spree" that mortgage lenders have engaged in over recent years; they are sensitive to "the pressure of all these people selling you better deals" (female, 50, FG3). They note the complexity this introduces, and are wary of the easy money it brings: "my view is, you crunch the numbers, and if it sounds too good to be true, it is!" (male, 43, FG3). Second, they worry about the governance of this process: "it doesn't look like there is enough regulation" (male, 38, FG2); "most of them [average borrowers] are being ripped off by their bank, because no-one is looking out for them – the government doesn't look out for them" (female, 40, FG2). Third, they understand – and are suspicious of – the divide between bank and nonbank lenders. "There are all those lenders out there that you've never heard of . . . my gut instinct, or what I've been brought up with is 'go with your bank'" (female, 50, FG3). Finally, some are ready to exploit the variety that infuses the mortgage market to manage their finances safely and effectively: "I was looking for someone who would lend me a 100 percent [on an investment property] because I didn't want to have anything hanging over my own home; the one that I live in" (female, 37, FG2). At the same time most are wary of being duped into buying a product they do not want or need ("what one will save you on this, they'll sting you with [by levying] a fee for that" (female, 40, FG2). Reflecting this, the animals onto

which this group project their mortgages are not only very large (three elephants), but also dangerous (a crocodile, a shark, and a tiger), and predatory (a bird of prey and a leech) or rotten at the core (a maggot). The net effect again is to resist the figure of "duped debtor" that appears so frequently in the literature around financial services consumption, drawing attention to the range of skills more fitted to the "competent consumer:" "I made sure that I checked that this was not going to rip me off . . . I made sure that I checked it through thoroughly and asked all the right questions . . . about how it operates . . . you have got to be careful" (male, 36, FG3).

The mature homeowners add a final piece to the jigsaw of financial competencies that the focus groups have assembled. First, those among the group who are feeling the pinch look to a more simple financial past with a certain degree of nostalgia: "They weren't throwing money at you. There was no sort of 'easy sleazy,' you know, mortgages . . . We lived in simple times, and we didn't have that plethora of choice, and so-called options which are more confusing than anything" (male, 64, established owner now in mortgage stress, FG5). Second, they nevertheless report a learning process by which they have come to terms with the complexities of debt: "when we got the first house, I just couldn't sleep properly – I never owed money in my life [so] it was very stressful. But now I'm quite peaceful with it" (female, high income, FG6). The general view is that "we're not daunted by debt . . . we're just finding it very easy at the moment whilst we're working" (male, 47, seller, FG8). But although people know that "debt can be your friend while you're securely employed" (male, 43, seller, FG8); they also know that this can suddenly change. Finally these home occupiers have begun to make the most of the flexibility of the mortgage market as they strive to meet their various household needs. Sellers in particular talk about the merits of debt consolidation, and about being keen to capitalize on a "consumer's market:" "they're falling over themselves to give you a better deal; so I've refinanced a few times, at no cost except convenience" (female, 55, seller, FG8). These are, nevertheless, buyers who are, on the whole, late in their mortgage-holding lives; people who will have to think about paying off their loan before too long. It is instructive then that they liken their loans to a dinosaur (hopefully to become extinct), snakes, including the boa constrictor whose grip is still too tight, and animals that may (like the cow) be milked and used creatively, but which are costly to keep and always hungry.

It is important not to take the findings of eight focus groups as in some sense definitive of how an entire "market of mortgagors" thinks, feels, and behaves. But it is striking nevertheless that rather than being swamped by an inexorable process of financialization – that political and economic trend by which households budgets are entangled with global flows of credit and cash, as governments force consumers to bear the risks of their own financial futures (Martin 2002; Krippner 2005; French et al. 2008) – many mortgagors evince a high level of financial awareness and competence. They have an appetite for debt, they mostly manage it well, and the aim (if not always the practice) in all three sets of focus groups is to position mortgages as instruments that – while useful in their place – are debts to be cleared as quickly as possible. People may choose to live with their mortgages and rub along with them for a while; but (and this is in contrast to the UK findings) they are not, on the whole, "at home" with such products (Cook et al. 2009). Whether,

in practice, they succeed in making the transition from heavily leveraged home buyers to early outright ownership is a moot point.

Other work shows that Australians across the age range plan to make some use of their housing wealth before they die (Wood and Nygaard Chapter 11, this volume). It suggests too that, thanks to the wide-ranging demands which economic, social, and political life now make on people's borrowings, mortgages are likely to span the long- rather than short-run of the typical households' life-course (Parkinson et al. in press). What the findings reported here suggest, overall, is that in accounting for the way people balance assets and debt, it is as important to engage with the concept of active financial citizenship, as it is to highlight disempowering consequences of neo-liberal financialization and deregulation.

Financial citizenship refers to the opportunity households have to participate in the economy and accumulate wealth (Dymski 2005). The term "citizenship" implies that this opportunity should be a more widely available, more fully protected, entitlement; something that is written into the social contract as one element of a broader right to participate fully – and on equal terms with other individuals and organizations – in the way the world works. Even among the participants in this small study, there is a tension between people's ideals (that of clearing debts early) and the reality they increasingly encounter (in which the wealth in their homes is becoming more important at the very times in life when only mortgage debt can make it available). Enacting financial citizenship may be a means for governments to manage and regulate mortgage markets in an effort to turn otherwise-risky encounters to consumers' advantage. The importance of this is underlined in the final section of the chapter.

14.4 Housing Wealth and its Many "Effects": From Fixed Assets to Flows of Cash

Economists have known for some time that there is a link between home prices and consumption, and that the "wealth effects" of housing tend to exceed those of other financial assets (Case et al. 2005). Precisely how, and via what mechanisms, housing wealth is transmitted into the wider economy, is open to debate (Attanasio et al. 2005) but the answer is unlikely to be found from quantitative research alone. Few if any of the national questionnaires have space for detailed questions needed to tap into the complex, and rapidly changing, beliefs and behaviors tipping the balance between saving into, and spending from, housing wealth (Smith and Searle 2008). Qualitative research of the kind informing this paper – open ended questions, inviting a range of possible answers – can, however, shed light on some aspects of this.

Traditionally, housing wealth is conserved into older age and remains locked in bricks and mortar until, through "last time sales" it is released into the cash economy, usually as an inheritance. In this respect, the use of housing wealth has always challenged a conventional life-cycle model of asset accumulation and depreciation across the life-course. This tendency to save into rather than spend from housing wealth right to the end of life is still the dominant model for many older home owners. Equity withdrawal following inheritance still accounts for the major part

of housing's wealth effect. A bequest motive is ingrained in the "Australian Dream," which refers essentially to the process of steadily accumulating wealth into the family home and transferring most of it to the next generation.

> I see it purely as peace of mind and it's a legacy that I will be handing over to my children. (Male, outright owner, FG7)

But there is also evidence in the focus group discussions that the idea of a bequest – when it is handed over and how it is arranged – is changing. Study participants recognize that housing wealth is more liquid now than in the past and this has opened up new opportunities for the intergenerational transfer of wealth. Well-off "baby boomers," in particular – people aware that they have profited from an unanticipated housing windfall – feel the need to help their children through current, and possibly also future, housing affordability crises. So rather than waiting for a time when most of the difficulties and pressures of raising a family are all but gone, and rather than leaving home assets as a lump sum to their children when they die, parents are using mortgage equity withdrawal to roll over some of their housing wealth earlier in theirs and their children's life-course, so realigning the nature of a bequest to reflect contemporary realties.

> We took the view that the children are going to get it anyway, sooner or later, so why not sooner. Given that there was a whole pile of wealth in a house that had no mortgage on it, why not. (Male, 65, high income, FG6)

In the past, receiving an early inheritance was uncommon, but with new financial products, increased wealth, longer life expectancy, and the more complex circumstances young people face, home equity can be tapped into earlier to give family members a head start. The more financially astute also recognize that certain tax advantages are linked to this approach.

> [. . .] We're going to buy the house and rent it to her [our daughter]. There are certain tax advantages out of taking that approach and then in three years time we will sell the house to her but put in an equity contribution that will mean that she will only have to pay in terms of weekly amount on what she borrows, what would be the equivalent to the rent. So in effect it's transferring some of the equity in an existing house to another house. (Male, 65, high income, FG6)

It is worth noting that, if such patterns of intergenerational wealth transfer are seen as part of a broader socio-economic picture, they may perpetuate and further deepen socio-economic cleavages. Well-off middle class parents can give their children a step onto the housing ladder because they typically have sufficient superannuation and possibly a range of other investments, from which to fund their retirement. On the other hand, the children of those who are less well-off will bear the full brunt of housing market polarization and face an affordability crisis because their parents either have few assets at all, or will rely on unlocking their housing wealth to fund their own retirement. The possible effects of this have been illustrated empirically for the UK by Thomas and Dorling (2004). Their analysis shows that in the decade to 2003, children living in the 10 percent of areas with

the most housing wealth experienced wealth gains 20 times greater than those in areas comprising the worst-off wealth decile. If present trends continued for a further 30 years, the richest 10 percent of children would have 100 times more housing wealth than the poorest 10 percent. However, it may not come to this, because, in the UK as in Australia, pensions and investments are not performing well, and anyway, a variety of other calls are now being made by households on the wealth they hold as housing. The question of inheritance may sooner or later become redundant.

The first and most important of the new calls on housing wealth relates to the costs of retirement. Australian housing and social policy is in many ways founded on the notion of housing wealth as a cushion for older age. This is the archetype of Kemeny's (2005) idea of a "really big trade-off" between policies that promote owner-occupation and the state's support for pensions. Certainly there is a strong view among focus group participants that they will need their housing wealth to help fund retirement. Trading down, for example, is an obvious mechanism which households feel they could turn to in order to access their housing wealth to supplement their income. The following quotes express a widespread view – one which is, of course, founded on the presumption of a liquid market:

> It will have to look after me in my old age . . . I can always sell it. . . . And go into something smaller and live off that. My equity in my house is my pension plan. (A male marginal owner, early 40s, FG3)

> [I] would be prepared to downsize in order to cushion my old age. So I see it [housing wealth] as security in my old age. (Female, 36, early home owner, FG3)

Seeing housing wealth as part of a "pension plan" working towards financial security and stability in old age reflects, in part, the impact of what – at the time of the interviews – was more than a decade of price appreciation. The full extent to which this impacts on people's retirement planning is evidenced in the analysis of HILDA (the survey of Housing, Income and Labor Dynamics of Australia) completed by Wood and Nygaard (Chapter 11, this volume). The common tactic is to trade down and release cash; but there are two alternatives.

One is to trade down (or borrow up) to release funds which can be reinvested into pensions. For a time this was an attractive (tax-advantaged) option for Australian households: "We are pretty much at the stage now where we are going to convert our housing wealth into some other form of wealth, probably superannuation" (a high income earner in his 50s, FG6). But it is much less appealing today, because of restrictive rights to government pensions, changes in the superannuation laws, extended life expectancy and poorly performing investments. As a result, it is unlikely that any shift in the attitudes of older people to their housing wealth will fund a wave of early Australian retirements in the way it may have done in continental Europe (Turner and Yang 2006).

The second option is to enter a growing market for equity release products or "reverse mortgages." These enable homeowners with no income stream to receive a lump sum and/or a regular payment, in return for a repayment (a rolled-up interest payment, or a specified share of the equity) when the home is finally sold. This market has become significant in Australia, growing from under $500 million in 2004 to over $1.5 billion in 2006, and it can only be boosted by frequent

media advertisements for "active retirement." The success of these innovations is modest (possibly because they are costly) but their growing popularity is another indicator that expectations around aging and lifestyle have changed now that the baby boomer generation has reached retirement age (Kendig and Neutze 1999; see also Berry and Dalton Chapter 10, this volume). Although it remains relatively small, the potential size of the reverse mortgage market is large: the amount of equity the over-60 age group of Australians holds is estimated to be between $350 billion and $450 billion (Hickey et al. 2007).

On the other hand, such wealth may be increasingly spoken for by the move to use home equity earlier in life, thanks to a range of new opportunities for mortgage equity withdrawal. These options – the growing flexibility to borrow from as well as save into home equity – have been fairly comprehensively set out by papers earlier in the collection. It is clear from this groundwork that mortgage equity withdrawal is an increasingly important mechanism channeling housing wealth into consumption. However, the focus group discussions point to some notable differences among owner-occupiers in their inclination to use this route.

For marginal home owners, large existing debts mean they have little home equity to think about, and this is reflected in their cautious approach towards unlocking housing wealth. Even those with flexible mortgage products prefer to reduce their debt (through additional and overpayments) rather than think about increasing it. On the whole, early homeowners are reluctant to dip into their small amounts of equity to fund additional consumption. Some are attracted to the idea of borrowing against their home to purchase holidays, households goods, and education, but most new owners attach priority to just one aspect of the investment role of their home – its potential in helping them climb the property ladder.

Mainstream owners evince some similar views, though those with higher amounts of equity are generally inclined to draw from their housing wealth sometime before they retire. For this group, housing wealth, extracted through equity withdrawal, is seen as a feasible means of funding holidays and purchasing premium goods. This may reflect high consumer aspirations but it also captures the financial confidence and flexibility of those who are better-off.

> [. . .] we will be traveling too, we will be using that wealth for traveling and just see how it goes. We've got no children so [. . .] other people have responsibilities that I guess we don't have. (A man, 55, established home owner, FG2)

While people without dependent children are likely to use equity borrowing to fund lifestyle choices, families with children resort to mortgage equity withdrawal for other spending needs, ranging from home renovation to children's education (see also Wood and Nygaard Chapter 11, this volume). If there is a tension between using mortgage leverage to generate (housing) wealth and equity borrowing to fund other spending needs, it is increasingly resolved in favor of the latter:

> I mean it's the benefits of wealth accumulation over the sort of life you want to live and I think it's quite legitimate to use a line of credit for the latter as much as the former. (Man in his 50s, selling his property, FG8)

With more wealth on hand and earnings secure, mature homeowners think of equity borrowing as a way to generate additional wealth. Established owners seem less debt adverse than those earlier in their housing "career," often using their debt creatively to maximize financial returns.

> We thought about buying stock with it and we also used the equity in the first apartment to help buy the second apartment. (A woman, seller, FG7)

> The solution to solve the debt is to get more debt. I used that mortgage to buy a small business then I got a cash flow. (Male, 42, seller, FG8)

Others looked to alternative financial strategies that could produce better returns than housing. Established homeowners typically have financially adventurous plans for their housing wealth; but they are geared nevertheless towards retirement and intergenerational transfers.

In the public mind – thanks to media reports and the popular press – older people's newfound willingness to "spend the kid's inheritance" not just during, but even before, their retirement, is linked with a vision of "champagne moments." And as one focus group participant admitted, he is . . .

> [. . .] not going to live my life worrying about when I'm old. I'm going to enjoy it now because I don't care how much money we have, or I've got when I'm 70, if I haven't got health it's just nothing. (Female, outright owner, FG7)

For the most part, however, the talk was less of "high days and holidays" and more of the appropriate balance of assets, spending, savings and debt.

To be sure, the housing market was buoyant at the time we conducted focus groups, and an air of optimism prevailed. Nonetheless, there was equally an acute awareness that plans could easily be compromised. The subprime bubble had burst in the USA and while the scale of its impact was unknown, job loss, liquidity constraints, and the financial shocks associated with separation, death, illness, and other emergencies were never far from people's minds, especially among those already in mortgage stress:

> I just worry about if my husband [drops] dead, overweight and late 40s [. . .] and with the kids but we have insurance [. . .] because that's what happened to people that we know, the husband just went [died] and she was left with two small kids and no income and no relatives, nothing to fall back on and really had a very hard time. (A 40 year old women, early home owner, FG1)

What role does housing wealth play in circumstances like this? The marginal, mainstream and mature households agree on one key theme: they would work through an emergency without bringing housing wealth into the equation, if at all possible; they would "do almost anything to keep it . . . it's a very important asset." However, just how they achieve this varies. Among marginal homeowners who had most of their wealth in their home, the preferred strategy is to reduce costs and "just hang in there" by withdrawing luxuries and "eating peanut butter." As a last resort people would seek assistance from their family or take a second job; anything to keep their home secure.

Mainstream and mature homeowners also opt first for reducing costs, but they have more diverse investment portfolios, and homes are the last, rather than the first, they would draw on. Liquidating other assets by selling shares or investment properties is their first port of call; but a buffer in the shape of home equity provided would be a way of handling the unexpected:

> I'd rather just know it's there if we need it, like if one of us gets sick or something. (A woman in her late 30s, outright owner, FG7)

Remortgaging then is an option; people are aware that the collateral of housing wealth provides a financial buffer not available to renters. One person told us how his brother had used his mortgage to pay hospital debts when he was ill. Such buffering effects of equity borrowing have also been inferred from quantitative research in both the UK and Australia (Benito 2007; Parkinson et al. in press). At the extreme, however, the preferred response to an emergency is to trade down:

> I suppose if everything goes belly up, I can trade down and still come out with a wad of cash that I can invest and have an income. (A man in mortgage stress, 64, FG5)

While practically all the study participants recognized the potential of their home equity to insulate them against financial shock, those with the least wealth overall (housing and nonhousing) are most likely to resort to it.

Of course selling a property during a period of crisis can be problematic, particularly if home prices have slumped. Despite breaking news of the US subprime crisis at the time we conducted focus groups, this was not a huge concern among participants, whose view – which prevails in the Australian policy community even into 2009 – is that housing markets in this part of the word remain robust and may plateau at worst. Unlike the stock market or other forms of investments which have higher levels of volatility, and are seen as complex and risky, housing is seen as a safe place to hold wealth that can be used as a financial safety net should other strategies fail.

14.5 Conclusion

The role and relevance of housing wealth in "home ownership societies" like Australia is changing. This chapter examines the attitudes, behaviors, and aspirations of a cross-section of Australians homeowners, finding clues about where – at the crest of a long wave of property appreciation – housing wealth was positioned in relation to home buyers' needs, savings, spending, and debt.

In an established market democracy such as Australia, ownership of property is an important marker of social status. One of the most influential classical social theorists, Max Weber, argued that " 'property' and 'lack of property' are [. . .] the basic categories of all class situations" (Weber 1918/1991, p. 182). Therefore, according to Weber (1918/1991, p. 187) "property fundamentally determines one's life chances." He conceded that "both propertied and propertyless people can belong

to the same status group" but also argued that this "equality of social esteem [is] precarious" (1918/1991, p. 187). Most Australians subscribe to such "class distinction" when they think about the meaning of home ownership and it is small wonder that they pursue that element of the Australian dream.

The analysis in this chapter, however, shows that the advantage of home ownership is more than symbolic – it has to do with wealth accumulation, loan collateral, and financial security. In this respect, owners are advantaged relative to renters by tax exemptions and advantages such as negative gearing, the absence of capital gains tax or imputed rents on owner-occupied housing, and the benefit of homes being excluded from assets test for pensions. These policy instruments suggest that governments may be relying on home ownership to provide a safety net in lieu of the shrinking welfare state. Homeowners generally concur.

Today, housing is the single largest source of wealth for the majority of Australians; and financial innovation has enhanced their options to use that wealth creatively. In practice this may be strongly mediated by age, income, family composition, cohort, and life-course, as well as by financial shocks and biographical disruption. But it is clear that the value of housing wealth is enhanced by its fungibility; that mortgage equity withdrawal is a matter of routine; and that it is increasingly, if reluctantly, used to fund a range of wants and needs across the life-course. As a means of managing risk, it is very much a last resort; but as a symbol of security it is hard to overstate its importance.

Mortgages form an increasingly important interface between housing wealth and spending money for Australian home-buyers. Although their mortgage market is – to some extent – securitized, it is also more effectively regulated than its counterpart in the USA, and flexible mortgages are more widespread. As a result, an era of cheap credit and mortgage innovation has enabled borrowers to roll their housing wealth into their financial routines without putting their homes and livelihoods at risk. This is not to imply that there is no risk of excess debt or mortgage default for Australian borrowers; nor that vulnerable households at the margins of ownership should not be better protected. On the whole, however, a financial citizenship model of the mortgage market is perhaps more apt for Australia than the predatory lending model that is more closely associated with the USA.

Ironically, the impact of the global financial crisis – which has so far been much less marked in Australia than in the other countries profiled in this book – seems likely to increase rather than decrease the centrality of housing wealth to the welfare of the average Australian. Although the more prudential regulation of big Australian banks has helped them to weather the global financial storm, the Australian Government adopted a strong interventionist approach at the end of 2008 with the aim of preventing the boom in Australian home prices turning into a bust that would exacerbate the severity of a recession. A dramatic reduction in interest rates during late 2008 and early 2009 took some pressure off Australian mortgage markets and saved many homeowners from mortgage stress. In addition, a generous "first homebuyers grant" ($14,000 or $21,000 if buying a newly built property) is intended to support the demand side of the housing market.

A combined effect of these policy measures is that the wheels of the housing market keep turning, albeit slower than before. Therefore, even in the context of a global financial downturn, the Australian faith in bricks and mortar, epitomized

in the study reported here, seems justified. At the same time, since the beginning of the current recession, many Australians have suffered large losses on superannuation (pension) funds as the prices of shares, bonds, and other financial securities collapsed. This has undermined confidence in the main alternatives to housing. At times of extreme financial volatility superannuation schemes are unattractive and risky ways to commit savings despite their tax advantages. And to a person of average financial sophistication, investing in shares looks even more mysterious and risky than before. In consequence, bricks and mortar seem the safest financial option and Australia's long-term "love affair with real-estate" continues.

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Chapter 15

Housing Wealth as Insurance: Insights from the UK

Beverley A. Searle and Susan J. Smith

15.1 Introduction

In the UK, as in most other countries of the English-speaking world, owner-occupation is the dominant housing tenure. But the UK is distinctive in many ways. Less than a century ago, for example, only one in ten households owned or were buying their homes; even by the late 1950s, the housing stock was largely rented (from private and, increasingly, public landlords). It was only during the 1980s that Britain finally became a "property-owning democracy" in which the clear majority of households – now as many as 70 percent – owned or were buying their homes. Today, the British public is notable for a tendency to "buy early and pay high," and to hold a distinctively high proportion of personal wealth as housing (with correspondingly low savings rates and relatively few other investments, apart from a pension; see Banks et al. 2002).

The UK is distinctive in another way. It has, since the early 1980s, been at the forefront of a wave of financial deregulation. This was key to a phase of unprecedented competition among lenders, which resulted in cheaper borrowing and increased choice in the mortgage market. The UK – in marked contrast to the USA – did not achieve this through the innovation of securitization or the expansion of predatory lending. Even immediately prior to the "credit crunch" only about 10 percent of lending could be described as "subprime"; and lending more generally remains comparatively well-policed, both by the government's regulatory agency – the Financial Services Authority – and through the self-regulating role of the Council of Mortgage Lenders.

Nevertheless the wider process of financial deregulation implemented in the UK was not only implicated in a further expansion of owner-occupation, but – most notably – it placed British borrowers at the crest of a wave of mortgage equity withdrawal (MEW) (HM Treasury 2003). A period of falling interest rates (declining from a peak of 15 percent in 1989–90 to a low of 3.5 percent in July 2003) contributed to the growing fungibility of housing wealth in the early 2000s, notably enhancing the significance of this channel from housing wealth to

consumption (Smith and Searle 2008). Subsequently, interest rates became more volatile, preceding a dip to less than 1 percent as the government attempted to manage the credit crisis of 2008–9.

Mortgage equity withdrawal, like the housing markets that drive it, is cyclical. Withdrawals first peaked in the late 1980s at the zenith of a previous round of home price inflation. Since the turn of the millennium, however, this mechanism has been increasingly easy to trigger thanks to the introduction to UK borrowers of a growing range of increasingly flexible mortgages (Smith et al. 2002, 2007). This style of mortgage contract is now common in a few countries – the UK, Australia, and South Africa, for example – but it stands in marked contrast to the long-term fixed rate mortgages that dominate elsewhere, for example in the USA. It is a style of finance that enables borrowers cheaply and routinely to both bring forward their loan repayments and draw down against their accumulating home equity. With little effort and few extra costs households can use "equity borrowing" to roll their housing wealth into day-to-day decisions around savings, spending, and debt.

That is the topic of this chapter. Since the turn of the millennium, the UK – like Australia (see Colic-Peisker et al. Chapter 14, this volume) – has been not so much a "property owning democracy" as a "market of mortgagors." Focusing on a period in the early 2000s when mainstream mortgage finance was relatively cheap, when competition to lend was intense, and the innovation of flexible mortgage features at its peak, this chapter asks how, when, to what extent, and to what ends, British borrowers were drawing from housing wealth to fund a range of other spending needs. As a new era of credit constraints dawns, we also ask what the implications might be for households who have come to rely on equity borrowing to balance their budgets.

15.2 The Evidence Base

Like other chapters in Part II, this essay looks to microeconomic, household-level data to explore the practice of mortgage equity withdrawal. It uses the findings of qualitative research to expand on, and help interpret, the quantitative evidence base.

The UK is perhaps unique in the sheer range of quantitative evidence there is on the topic of mortgage equity withdrawal. Many of the large household surveys ask one or more questions on this theme, and some have done so for a decade or more. We have reviewed the content, quantity, quality, and coverage of these data resources elsewhere (Smith and Searle 2008). Individually and in combination they point to three key trends.

First, there is evidence that a growing proportion of British mortgagors are inclined to engage in equity borrowing irrespective of whether or not they move home. That is, there is a growth of what we call *in situ* equity borrowing – secured borrowing triggered for reasons other than residential relocation. This is borrowing that might be used for nonhousing consumption (in that it may or may not be used for property reinvestment, and is available for other things). Second there is an indication of sustained, if capricious, growth into and beyond the millennium in the

size of the sums released through *in situ* equity borrowing. Finally there is support for the suggestion – based on observations of the changing mortgage market – that the routes from housing wealth to consumption are diversifying. For the first half-decade of the present century the balance was shifting from equity release (trading down and last time sales, which are still the dominant routes) to mortgage equity withdrawal; and, in the latter, there was a shift from remortgaging (refinancing) to more convenient and routine styles of flexible drawdown. Running through all this is a shift in households, tactics from simply accumulating housing wealth for the future to a readiness to draw from – a process of decumulating – housing wealth across the life-course. This parallels a further shift from saving the proceeds of MEW for later, to spending it sooner.

What is striking in light of these trends is how very few of these surveys explore in any detail or with real consistency why it is that people engage in MEW, much less how the proceeds are in practice deployed. Furthermore, there is little chance that this will change in the future, since in a recent major overhaul of the UK survey portfolio, decisions have been taken to rationalize and amalgamate surveys in ways which – ironically given the current financial climate – will reduce rather than enlarge their coverage of housing finance. In 2003–4, for example, the Survey of English Housing (SEH) constructed the best bank of housing finance questions ever included in a UK survey, capturing the specifics of equity withdrawal in that year, and providing a helpful retrospective on the previous five years. In 2008, however, the SEH merged with the English House Condition Survey to form the new English Housing Survey, and this seems unlikely to have space for a full sweep of questions on the housing economy. Likewise, the British Housing Panel Survey (BHPS), which with the addition of just one extra minute of housing finance questions (Searle and Smith 2006) could have filled some key gaps in the evidence base for mortgage equity withdrawal, is to be merged into "Understanding Society" – a survey more geared to the nation's health than to its housing wealth or mortgage debt.

To set the scene for the present paper, we draw from the first 17 years (almost the whole life) of the BHPS. Dating from 1991, this survey contains the most consistent run of data for the UK; it has the advantage of *being* a panel survey (returning, where possible, to the same households every year); and it is the only survey that asks for any detail on what people do with their secured borrowings. It has the disadvantage of being comparatively small among the UK national surveys. And because the core questions are essentially unchanged from year to year, the housing finance questions are increasingly out-of-step with the wider financial environment.

Take, for example, the question that specifically casts light on how the proceeds of MEW are deployed (a question which, among the major survey instruments, is unique to the BHPS). This question asks people each year whether they have "taken out any additional mortgages or loans on this house/flat." Although the survey designers hope this will pick up on the use of flexible features in existing mortgages (an innovation that came a decade after the original question was designed), it is unlikely that it does. Consider a single year, say 2005. This 12 month period is not untypical in that just 9 percent of borrowers answered yes to the "additional mortgages or loans" question, whereas nearly a third – 31 percent – reported

an increase in the value of their outstanding mortgage over the same 12 month period (an increase which, as we shall see, is by no means trivial). To make the best use of the data, we use both measures of MEW in this paper: the first (additional mortgages and loans) to cast light on how the proceeds of MEW are spent; the second (change in value of outstanding mortgage) to give a fuller picture of who the equity borrowers are and what triggers this kind of behavior. An overview of the first measure, examined as part of the ESRC-funded project *Trading Places*, is provided in Smith and Searle (2008). The second measure is taken from the UK contribution to a comparative (ESRC/ARC funded) project on *Pathways from Housing Wealth to Wellbeing* (see Searle et al. 2009a), in which matched data sets for 2001–5 in the BHPS and its Australian counterpart (the survey of Household Income and Labor Dynamics of Australia – HILDA) have been derived. These are reported on in Parkinson et al. (in press).

But no household survey in the UK contains the kinds of questions that this Part of the book is most concerned with. That is, there is little systematic, quantitative data on the way people understand and experience their housing wealth, on the behavioral drivers of equity borrowing, and on the kinds of consumption this fuels. Furthermore, it is not clear that these themes ever could be adequately explored without also adding a qualitative dimension to the data. To that end, the analysis that follows also draws from the qualitative data base assembled for a study of *Banking on Housing; Spending the Home* in England (Smith et al. 2007). These data, produced in collaboration with our colleague Nicole Cook, include 150 semi-structured telephone interviews with a cross-section of mortgage holders supplemented with 35 home visits designed to tease out the drivers and effects of mortgage equity withdrawal. A set of our collected findings can be downloaded from the *Society Today* website maintained by the Economic and Social Research Council (www.esrc.ac.uk). In addition to using standard qualitative interviewing techniques this study used a mix of approaches and media. Pictorial representations helped frame questions and prompt discussion on the role and relevance of housing wealth, and on the choice and use of financial services; the artifacts of a "game" were used as an *aide memoir* to recover key details around mortgage equity withdrawal; graphs were drawn to tap into borrowers views of future trends in home prices and mortgage debt; and photographs were taken by or for participants to signify or symbolize the elements of home and neighborhood which are relevant to the way secured borrowings were spent.

15.3 From Housing Wealth to Spending Money: A View from the British Household Panel Survey

The BHPS was established as a nationally representative sample of around 5,500 households in Great Britain in 1991. The addition of boosted subsamples for Scotland and Wales in 1999 and for Northern Ireland in 2001 have since made this a UK-wide survey, which now returns to around 10,000 households each year. The data in our analysis span the period 1991 to 2007 in which time the number of owner-occupied households ranged from 3,131 to 6,494. Consistently around two-thirds of these are mortgagors. The data include estimates of the current value of

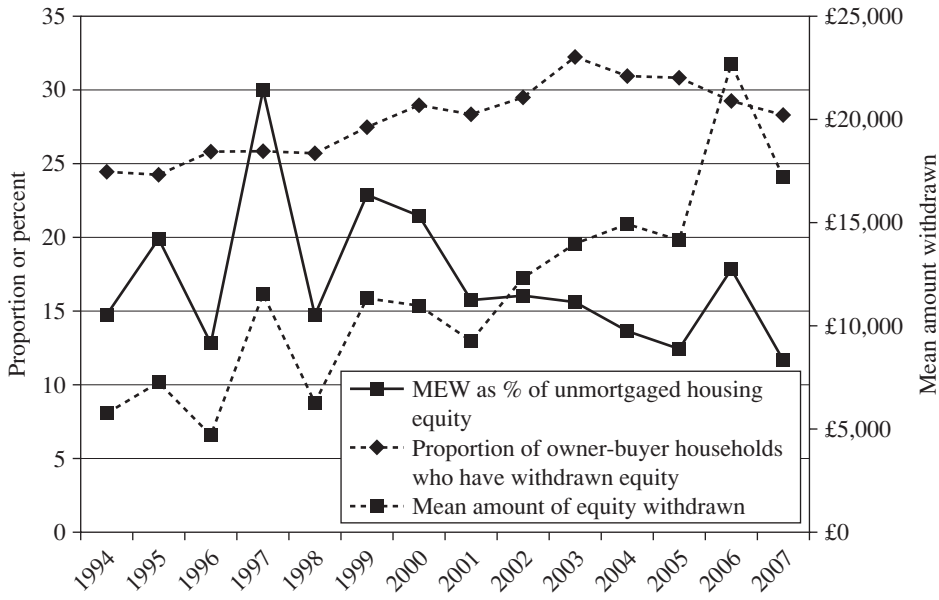

Figure 15.1 *In situ* equity borrowing in the UK.
Note: MEW is where mortgage debt has increased from the previous year. Figures are based on owner-buyer households who own a single property and were present at the same address in the previous year.
Source: British Household Panel Survey, all owner-buyers, authors' calculations

owner occupiers' homes and the size of any outstanding mortgage. These data were used to construct Figure 15.1 which refers to all those home buyers (households with a mortgage) in the study who, in a given year, did not move home but did increase the size of their outstanding mortgage. The figure thus provides a profile of *in situ* equity borrowing; it refers to borrowing that was not rolled into residential relocation, and which must therefore have been motivated by other spending needs. The graph shows three things.

First it indicates that the proportion of home-buying households who draw down *in situ* against their housing wealth in any one year is relatively high. The figure rose from just under one in four (24 percent) in the mid-1990s, to almost one in three (31 percent) by the early 2000s. Second, it shows that the sums withdrawn are substantial – the mean nominal values range from around £5,500 in 1994 peaking at £22,600 in 2006 before falling to £17,129 in 2007. The median values are more modest – £2,000, £8,500, and £8,000, respectively – but it is clear that the sums are not trivial and could not be accounted for by, for example, a roll-up of debt against interest rate changes (which in any case, in the period of study, are more likely to depress the figures. After all if mortgage repayments are not changed and interest rates fall, the outstanding debt should clear more quickly). Finally, Figure 15.1 signals the changing ratio of equity borrowing to home values. There are some wild swings here, peaking at 30 percent in 1997, which may reflect price uncertainty in the late 1990s. But throughout the 2000s the ratio has been constant

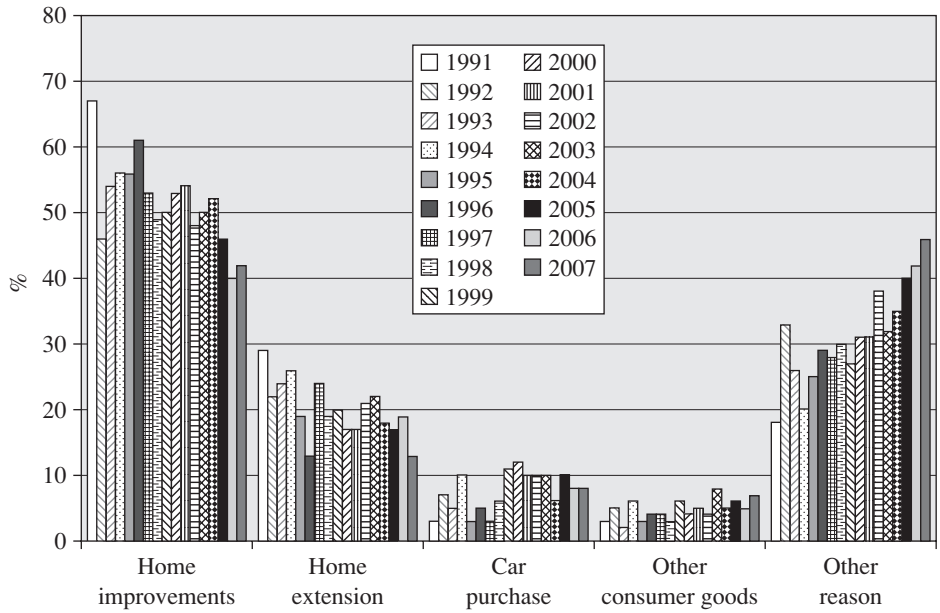

Figure 15.2 Spend from mortgage equity withdrawal 1991–2007.
Note: Figures are based on owner-buyer households (who own a single property and were present at the same address in the previous year), who report taking out an additional loan or mortgage, and spend some or all on each of the categories.
Source: British Household Panel Survey, all owner-buyers, authors' calculations

and (thanks to rising prices) slightly falling, to a low of around 12 percent. This figure is significant. It confirms that equity borrowing is not a trivial undertaking. But it also suggests that by the early 2000s equity borrowing had become an everyday occurrence – part of the routine of mortgage holding; a phenomenon which cannot be reduced to the irrational exuberance of borrowers stacking up debts against a property bubble.

The decision to profile *in situ* equity borrowing of course implies an interest in what such borrowing is for. It is certainly not related to a key driver of "overmortgaging," namely to meet the relatively high transactions costs of moving home. The BHPS is unique among the extensive UK household surveys in asking people what they buy with the proceeds of MEW. The answers do not map directly onto the data in Figure 15.1, however, because the supplementary question on how MEW is spent is only asked as a follow up to the rather narrowly defined equity-borrowing question (listed above) that refers to "additional mortgages or loans." Nevertheless, the findings, which are given in Figure 15.2, provide a useful guide to what might be a more general trend.

Figure 15.2 refers to those home-buying households who – in any one year – used their home as security for an additional mortgage or loan. The chart shows what proportion of these equity borrowers spent some or all of the money they released on the items signified by one (or more) of the given categories. There are three thought-provoking trends evident in this chart.

First, the BHPS data confirm a tendency, which is widely documented elsewhere, for equity borrowing to fund home improvements and extensions (Holmans and Froszrega 1997; Davey and Earley 2001; Benito 2007). In one sense – from the perspective of conventional economic accounting – this practice does not constitute mortgage equity withdrawal at all. It is simply an exercise of reinvesting funds into the quality and condition of the housing evironment. As we have argued before, however, this radically oversimplifies the position, not least because there is a great deal of confusion concerning the kind of improvements that add to the sale value of properties and those which contribute to the longer term viability and sustainability of the national housing stock (Smith 2006, 2008; Smith and Searle 2008).

More pressing for the purposes of this chapter is the indication in Figure 15.2 that, while a very high proportion of equity borrowers use at least some of the money to improve or extend their homes, this tendency has diminished rather than increased across the most recent housing cycle. In 1991 two-thirds (67 percent) of equity borrowers used some of their borrowings to fund home improvements; by 2007, this was true for only two in five (42 percent) of the sample. At the same time the tendency to borrow to fund home extensions fell by nearly 20 percent: whereas nearly one in three (29 percent) used at least some funds for extensons in 1991, little more than 10 percent of equity borrowers spent anything on home extensions in 2007. It may be that the more flexible mortgages become, the more likely it is they are used to fund nonhousing expenditures. This is supported by the findings of a survey specifically targeting home-buyers with flexible mortgages which found that over half the equity borrowers (55 percent) in this study were using the money principally for nonhousing purposes (Smith et al. 2002).

A second quite startling element of Figure 15.2 is the very low proportion of equity borrowers who spend anything on either car purchase or a range of "other consumer goods." This latter category is an undefined catch-all, and it is intriguing that so few borrowers opt for it. The popular image of mortgage equity withdrawal is that it is a style of borrowing that has propped up high street spending, helping some of the major economies – including that of the UK – to stave of recession. The recent economic downturn is partly attributed to the waning of this effect. But less than 10 percent of equity borrowers roll their funds into this type of consumption; and even that iconic symbol of life-style aspirations – the new car – attracts funds from 10 percent or less of all equity borrowers in any one year.

A third key observation from Figure 15.2 is the growing proportion of households whose spend from housing wealth falls outside the standard response categories of the BHPS and is therefore classed as "other." Across the 17 years represented in the chart, the proportion of borrowers who classed their spend as "other" more than doubled; by 2007, nearly half (46 percent) were spending some part of their borrowings on these "other" things. Furthermore, a comparison of the two five-year tranches – 1994–8 and 1999–2003 – shows that while the proportion of equity borrowers who only reinvest into property has doubled; the proportion of those who only spend on other things has tripled (Smith and Searle 2008). The remainder of this chapter asks what these "other" things – items which cannot be recovered directly from the BHPS – might be.

15.4 Equity Borrowing: Housing Wealth as a Financial Buffer

Even without questions which ask people directly how they spend the proceeds of MEW, surveys like the BHPS can indicate how such funds *might* be spent by identifying who the borrowers are, and how the timing of MEW relates to the incidence of other life events. Benito's (2007) analysis of the BHPS is in this vein. Using the "additional mortgage or loan" question as a proxy for mortgage equity withdrawal, Benito builds on Hurst and Stafford's (2004) seminal statement on the role of equity borrowing (in the USA) in the face of financial shocks. Working across an 11 year period (1992–2003) he estimates a random effects probit model to account for the decision to engage in equity borrowing, and a Tobit model to explain the amount of funds withdrawn. He shows that the aniticipation of an adverse financial shock is important in both cases, as is evidence of liquidity constraints (i.e., households that have no other resources to tap into are more likely to use equity borrowing to fund consumption). The implication is that in a country like the UK – where the typical owner-occupier holds the majority of their wealth as housing, has limited savings, and whose pension (if there is one) is sealed until retirement – housing wealth, mediated by mortgage debt, may form an important financial buffer.

To shed further light on the character and utility of this "buffer" we have assembled a different dataset from the BHPS for the years 2001–5 (capturing the peak of the housing cycle, in a period where, coincidentally, trends in the UK survey can be matched to their Australian counterparts in HILDA). Here we use a measure of equity borrowing derived from the figure reported by households as the size of their outstanding mortgage at the end of each year. We include only those who own a single property. The proportion of owner-occupiers who own more than one property rose from 9 to 12 percent over this study period, but this is part of a different story. We again focus on *in situ* borrowing to filter out the "noise" of residential relocation. Apart from confirming that equity borrowing is both frequent and substantial, there are two findings of note from a descriptive overview of these data (which is reported more fully, and set alongside the Australian findings, in Parkinson et al. in press).

First, the pattern and frequency of equity borrowing across the life-course is precisely the opposite of that predicted by the popular "life-cycle" approach to consumption (Ando and Modigliani 1963). It has been observed for some time that housing consumption does not conform to the otherwise-appealing idea that assets are stored up across the working life, and then "worn down" to fund retirement. Older people have hitherto seemed driven instead, by a bequest motive, to roll their home assets over to the next generation. New financial products and changing attitudes to housing wealth in older age might be expected to change this norm, bringing the use of home equity more into line with the life-cycle model. But in practice, the evidence of Table 15.1 (and Figure 15.3) is that among British households the propensity to engage in equity borrowing increases with youth, not age.

Table 15.1 identifies regularities and differences in the frequency of equity borrowing. It does not show what proportion of households engaged in *any* equity borrowing over the five years in question; it is not a measure of the propensity to

Table 15.1 Equity borrowing across the life-course

Age and family type	*Equity borrowers*	
	n	%
Age		
Under 24 years	94	33.8
25–34 years	1,219	35.4
35–44 years	1,712	31.4
45–54 years	1,081	23.2
55–64 years	381	8.3
65 years and over	118	1.8
Total	4,605	18.5
Family Type		
Couple family without children	1,180	12.1
Couple family with dependant children	2,397	32.9
Couple family with independent children	377	16.2
Lone parent with dependant children	199	31.5
Lone parent with independent children	77	14.0
Single person	340	8.4
Other household	35	12.3
Total	4,605	18.5

Source: British Household Panel Survey, authors' calculations

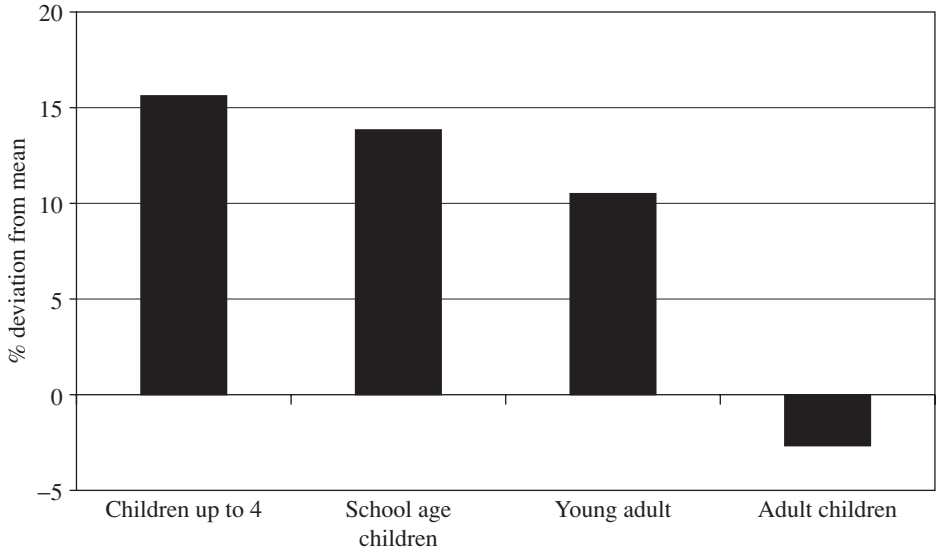

Figure 15.3 Equity borrowing in the context of children.
Note: Figures are based on all owner occupier households who own a single property and were present at the same address in the previous year.
Source: British Household Panel Survey, authors' calculations

borrow from housing wealth – the probability of this having happened at some point in a five year period is much higher, at over 40 percent. Rather it contains a measure of the *frequency* of such borrowing, based on the the number of individual years between 2001 and 2005 in which equity borrowing did occur as a proportion of the number of years in which it could have occurred. The mean for the UK is 18.5 percent; the average British home buyer has a one in five chance of engaging in MEW in any one year. For some groups, however, the chances of this happening are very much higher. For example those aged 25–34 are more than four times as likely as those aged 55–64 to borrow in this way. At the same time, such borrowing is associated with family formation not with impending retirement. Older people obviously have other options; they can trade down rather than borrow up to meet their spending needs, and they may have other assets to draw from. There is also a link between age and family formation which bears further scrutiny. Nevertheless, there are similarities here with evidence from Australia, and we argue in Parkinson et al. (in press) that these trends are more consistent with a "precautionary savings" model of equity borrowing (as outlined by Skinner 1996) than with the more popular "life-cycle" idea. That is, we suggest that housing wealth may be held as a kind of "insurance" against future life events; and this is consistent with the insurance function of owner-occupation as specified by Banks et al. (2004).

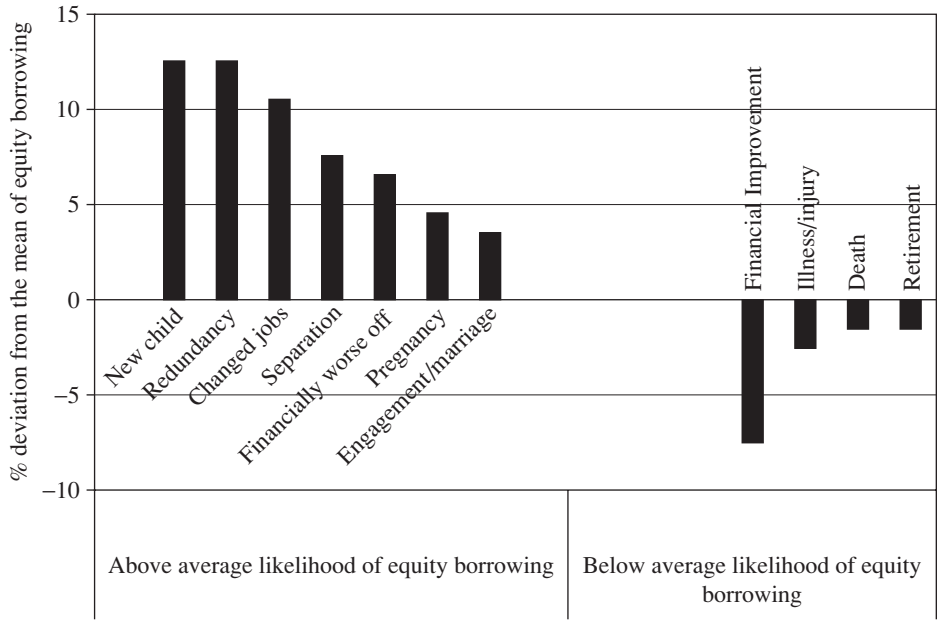

Figure 15.4 Life events and equity borrowing.
Note: Figures are based on all owner occupier households who own a single property and were present at the same address in the previous year.
Source: British Household Panel Survey, authors' calculations

This is amplified by a second key finding from the BHPS dataset which refers to the life events with which equity borrowing is associated. A summary of the life events that appear to increase or decrease the likelihood of equity borrowing is contained in Figure 15.4. The findings are surprising in that equity borrowing is not associated with financial improvement but is linked to financial worsening as well as to actual and anticipated redundancy. It is also associated with uninsurable financial shocks such as separation (rather than divorce which normally implies a financial settlement) and pregnancy (which may result in short-term loss of earnings). While these factors and their interactions have still to be unravelled in a modeling exercise (Searle et al. 2009), they do support the precautionary savings thesis. Mortgage equity withdrawal appears to be less about "high days and holidays" and more about the role of mortgage debt in the repositioning of housing wealth as an asset base for welfare.

15.5 From Housing Wealth to Welfare: A Really Big Trade-Off?

Notwithstanding the analysis so far, there are few "stylized facts" available to those who wish to model and account for the practice of mortgage equity withdrawal. There are several reasons for this, but it is in large part a function of how little is generally known about the way households themselves experience owner-occupation, how they conceptualize their housing wealth, how they choose and use the mortgage products which – until very recently – have made that wealth so fungible, and what role that wealth has, in practice, in the management of all kinds of uncertainties. These are some of the questions that the open-ended prompts, projective techniques, and mixed media environment of qualitative research are well-placed to answer. Drawing on these the remainder of the paper thus presents a different way of filling the evidence-gap in the UK's quantitative data resources on housing wealth, mortgage debt, and the role of equity borrowing.

15.5.1 Safe as houses

One route to a better understanding of the beliefs and behaviors driving mortgage equity withdrawal, is a fuller appreciation of how people conceptualize their housing wealth. To that end, Smith (2008) examined the decision to buy rather than rent as recorded in two qualitative studies completed in the UK in the early 2000s. There are of course financial incentives driving tenure choice, not least the leverage available through mortgages and, in the UK, tax-exemptions for capital gains on a primary residence. There is also a strong political steer into this sector of the housing market. But these studies, which also uncover the complex emotional qualities of the housing economy, point to an interesting additional trend in the role that housing wealth plays in households' decision-taking.

The first study refers to home purchase decisions made over a 20-year period. When these now-established buyers bought their homes, owner-occupation was regarded both as a route into higher quality housing, and as a way out of the

financial and tenure uncertainties that were, at the time, associated with renting. A key theme in this study is the distinction people made between rental payments – the "dead money" that is "lining someone else's pockets" – and home purchase as a more lively financial resource and an asset for the future (a role reinforced in societies like the UK, where owners are not charged an imputed rent for occupying their home). The second study talks to a cohort of buyers who purchased their homes more recently, in the late 1990s. Here the decision to buy hinged less on the practical contrasts between owning and renting, and more on the positive financial benefits of home purchase in its own right. Owner-occupation was regarded by this group of buyers both as the housing service of choice, and – at a time when no-one anticipated the rapid home price inflation that would take place in the following five years – as a wise, respectable, safe and responsible route to effective money-management.

A third, more recent, round of qualitative interviews completed for the *Banking on Housing* project at the zenith of the current housing cycle adds a further dimension to this picture. Most participants in this study (two-thirds of the total) hold the majority of their wealth in their home, which – in addition to providing the housing services they need, and the cultural meanings to which they are attached – they regard as a logical, legible, and desirable style of financial investment. Even highly indebted mortgagors believe "you can't really go too far wrong with property." But there are two sets of ideas in particular which distinguish the mood in this study from those that preceded it.

The first is the extent to which even a small store of home equity has become a touchstone for people's sense of financial security: a resource "to fall back on;" a safety net "should the unthinkable happen;" a shield, a blanket, and a comfort zone. It is not new to show that people value home ownership as a source of security; what is important is that this sense of security has changed, from the nebulous quest for "ontological security" coined by Saunders (1990) and elaborated empirically by Hiscocks et al. (2001), to a more focused interest in the welfare role of home assets. Indeed, interrogating this part of the data, it may not be an exaggeration to suggest that, in the minds of many British households, housing wealth is replacing the institutions of welfare as a route to financial and social wellbeing (Smith et al. 2007). This "insurance" motive may now be a key driver behind some home purchase decisions, setting the scene for the kind of "trade-off" envisaged by Kemeny (2005) and Bulhoewer et al. (2004) between high rates of home ownership, and both public tolerance of, and government support for, state pensions and other welfare transfers.

The second distinctive finding from the more recent work is the extent to which the values people now attach to their housing wealth are tied into its availability; to the recognition that, in the period of this study, home assets could, in extremis, be easily cashed in (thanks to a highly liquid market) and otherwise might provide a store of collateral which (thanks to relaxed credit constraints) could readily be borrowed against. This point is amplified in Smith et al. (2009). The idea that housing wealth is a mobile resource – more like a bank account than a pension, but distinctive nonetheless – was a particularly striking finding from the case-study phase of the *Banking on Housing* research. Home visits provide an opportunity for researchers to work in detail with home-buyers, using a range of participatory and projective techniques to encourage free discussion of the themes that matter to them

using terms they are comfortable and familiar with. A set of questions revolving around the way people conceptualise their unmortgaged home equity – the wealth accumulating through injections of cash, home price appreciation, or (most commonly) a mix of the two – were particularly illuminating. We offered four images as a talking point: a safe, a rainbow, an oasis, and a money tree (the same images used by Colic-Peisker et al. Chapter 14, this volume). The findings are as follows.

For UK home-buyers, the safe was the popular choice; it is depicted not as a store of wealth protected from outside demands and influences, but rather as a means of keeping valuables at the ready. No one chose the safe because it is difficult to get into; they use the metaphor rather to symbolize the fact that some thought needs to go into managing "the combination" – into deciding when and how much to take out. In this there are some similarities with those (a minority) of mortgage holders who conceptualize their housing wealth as a "money tree." This metaphor is most often used to signal caution at a time when it is relatively easy to access accumulating home assets. There is a sense here of the limits to home price appreciation and therefore of the fine balance between enjoying its productivity today and conserving such growth for the future. The rainbow works as a symbol of security, but far from leading to a pot of gold lying buried in the future, one person referred to the ability to spend their treasure today as being precisely what gives their life its colour. Discussions of the desert/oasis also contain a few surprises. The desert is not, for example, experienced as hostile (one person in fact described it as a form of protection around the money in their home); neither is it a wasteland that needs to be struggled across. According to those in the *Banking on Housing* sample, this image is much more likely to represent the comfort of owning: "my little bit of paradise."

All of these images prompted people to talk about housing wealth as a resource that can be borrowed against today as well as saved for tomorrow. This is in line with the changing attitudes to housing wealth documented both in the *Banking on Housing* study and more widely in the UK. A series of studies show that with every successive age cohort – from older to younger – a higher proportion plan to spend from, or cash in, some or all of their housing wealth before they die (Rowlingson and McKay 2005; J. Smith 2004). Coupling this with a tendency to view such wealth as a financial buffer or more general "safety-net" is consistent with the precautionary savings model of wealth accumulation and decumulation introduced above. It is a combination which suggests that home occupiers as much as governments recognize that housing wealth has acquired a *de facto* role as an asset base for welfare. This casts new light on the large and growing class of "other" spend from housing wealth captured in surveys like the BHPS. It opens another window onto the question of when, whether, and to what ends households who are used to "banking on housing" are prepared to use that collateral to increase their mortgage debt; to make the switch to "spending the home."

15.5.2 Spending the home

Equity borrowing depends, by definition, on the character and availability of mortgage finance. This is what provides the interface between housing wealth and

spending money. The data presented so far suggest that owner-occupiers – in the context of a decade of cheap credit – came to think of their home equity as a "feel-safe" resource precisely because of the extent to which it is available to spend from, or borrow against. Rather little is known, however, about the beliefs and behaviors associated with the choice and use of the mortgages required to achieve this. And what information there is relates more to the first of these behaviors (mortgage choice) than to the second (how loans are actively managed). There is some indication that public demand for greater flexibility (especially the possibility to remortgage regularly or routinely borrow back as well as overpay) was an important driver of innovation in UK mortgage markets at the turn of the millennium (Smith et al. 2002), but just how readily mortgage management fits into the world of everyday finance remains to be explored (though see Langley 2008). A central concern of the *Banking on Housing* study, however, was to help address this evidence gap.

One of the most striking observations in this work is the extent to which handling a sizable, perhaps growing, debt is a matter of routine for mainstream borrowers. In the moral panic surrounding the 2008–2009 credit crisis it is easy to imagine that all mortgagors are marginal, and that borrowers everywhere are slipping into arrears. But in a country like the UK, that is not the case. Even at the height of the recent borrowing boom, loan-to-value ratios – at an average of 80 percent overall and 90 percent for first time buyers – remained at their lowest levels since 1982. According to the Council of Mortgage Lenders (whose members account for over 90 percent of the UK mortgage market) the total value of all residential mortgage debt, at about £1 trillion, stands at less than a third of the value of the housing stock even today (a figure which, admittedly, it is almost impossible currently to calculate). The income multiples attached to lending *have* increased; on average people need three times their annual income to secure an 80 percent loan today (compared with nearly half that – 1.7 percent – in 1980), and they have to give up about 16 percent of their net pay to service it. These servicing costs are low compared to the levels reached at the start of the previous recession (they reached 25 percent in 1990), and although the income multiples underpinning this are the highest they have ever been, sensational stories of four, five, and even ten times earnings are not a majority experience.

None of this is meant to trivialize or play down the human cost of such mortgage stress as there is in the UK; 40,000 people lost their homes in 2008, and that is not the hallmark of a fair and inclusive housing system. Nevetheless, millions of borrowers remain securely in their homes, and their mortgage debt is manageable. This majority experience of the "normalization" and routine manageability of mortgage debt is captured in the "banking on housing" interviews. People often find it difficult to discuss their financial affairs with researchers. Financial products tend to be the more complex, daunting, and to an extent boring, items on a survey checklist; as a consequence, several of the household surveys we reviewed have surprisingly high nonresponse rates to questions on housing finance. To address this, and to encourage people to speak freely about a potentially sensitive topic we resorted to a less direct approach, drawing from a tradition of more "projective techniques," by asking the question "if your mortgage were an animal, what would it be?" A detailed overview of the answers provided by a cross-section of 150 mortgagors is contained in Cook et al. (2009). What is important here is that the vast

majority – irrespective of what type of mortgage they hold – refer to their loan as a domestic pet. That is, they embrace it as part of the routine of domestic life, as the focal point of what Lee (2006) terms the "ordinary economy" – the run-of-the-mill accounting that is part of everyday practice ingrained in the constitution of home life. Mortgagors in this sense are less the "duped debtor" presumed by so much of the literature on financial exclusion, and more the "canny consumer" who can be very much "at home" with their loan, and indeed who can use that product actively to make it work for them. That is not to say there are no predatory lenders, no vulnerable borrowers, and no credit risks in the British mortgage market; patently there are. Even mainstream borrowers are sensitive to this: they know their "pets" need active maintenance, are costly, can grow, and may "snap" out when least expected; they also know that some mortgages are "wild," unpredictable, and dangerous. Nevertheless, the overwhelming impression in this study is of a population of competent consumers, who are not blind to risk, and whose financial wellbeing and household budget-handling increasingly depend on their borrowing behaviors.

Obviously economic times have changed radically since these interviews were completed, with recession and unemployment increasing borrowers' vulnerability to default and repossession. *Banking on Housing* mortgagors may not have envisaged the scale of the crisis, but they were aware of – and to an extent ready for – the "tiger that bites" or the "sting in the tail" of their loan. The likelihood is that, like most UK borrowers, they are continuing to meet their mortgage repayments. Although the number of repossessions increased by 54 percent between 2007 and 2008 (from 26,000 to 40,000) this represents less than half a percent (0.4 percent) of all UK mortgages, and it is half the rate experienced in the last recession. The problem is critical for those who face it; the human toll is large. But the size of the problem is small by US standards (where foreclosures are running at nearly eight times the rate of those in the UK), reflecting a better regulated mortgage market and greater lender forebearance (see also Smith Chapter 25, this volume). Indeed, as will be apparent later, the problem for British households today may stem as much from a new round of credit constraints as it does from overborrowing.

Having established that mainstream borrowers generally have the competencies required to manage reasonable debts, we turn now to the way they use the products they have to meet their spending needs. This relatively complex set of questions was reserved for the 35 in-depth case studies forming phase two of the *Banking on Housing* project. Three images formed the basis of these discussions. They were offered as a starting point for debate on how effectively mortgages work when people try to draw down from them rather than pay them off. The images are: a tap, a puzzle (a rubix cube), and a ball and chain. The clear majority (22/35) prefer the image of a tap. They use it to signify the ease with which it is now possible to borrow back from mortgage accounts, as well as to "release it [cash] slowly or in larger amounts." While this facility is widely welcomed, most borrowers are also quick to point out that part of the skill of using this feature is to muster the strength and willpower to turn off this flow of funds. Among those ($n = 6$) who selected the puzzle, only one did so to signal confusion about the way their mortgage worked. The others simply pointed out that withdrawing equity is (and probably should be) more complicated than turning on a tap. This sentiment is also

reflected in some of the images added to the discussion by respondents, such as a well (possible, but difficult, to dip into) and a padlock and key (a device guarding a store of equity which can be opened up, but which would normally be locked away). The five interviewees who preferred the image of a ball and chain were conscious of the size of their debt, the costs of maintaining it, and the length of time they would need to do so. For them the flexibility of increasing their borrowing is eclipsed by the spectre of mounting debt, as well as (in one case) by negative feelings towards their lender.

To summarize: the indication so far is that, by the early 2000s, a cross-section of UK home buyers had come to regard their housing wealth as a "feel-safe" resource, not least because the secured credit required to mobilize this was cheap and easy to obtain. Borrowers were capable enough to use their loan actively – and in many cases safely – as a financial tool. It remains to consider what is required in practice for them to put this tool to work.

15.5.3 A really-big trade-off?

In the *Banking on Housing* study – which includes a cross-section of mortgagors but is not a representative sample – almost two in three (95/150) could be classed as equity borrowers. However, for one in four of these, the facility to engage in mortgage equity withdrawal made no difference to their spending plans or patterns: they would have bought the same items, repaired the same things, added the same extensions, and spent broadly in the same way, and at the same time, as they did, with or without the help of their mortgage. For the remainder, mortgage equity withdrawal does make a difference, in one of three ways. First, around a third ($n = 29$) bought goods, services, or experiences that they would not or could not have considered without the availability of mortgage finance. A further 14 borrowers used MEW to bring planned spending forward in time. Finally, about a quarter ($n = 23$) talk about the extent to which MEW allowed them to buy "bigger and better," or "move everything up a level." This group may have borrowed from other sources to meet their wants and needs; but they would not have borrowed so much or spent so freely.

There are ways of understanding this turn to equity borrowing. The first is to recognize that equity borrowing is readily used when it makes financial common sense. Over half the equity borrowers in the *Banking on Housing* study ($n = 58$), for example, have no other outstanding loans: their only debt was their mortgage. When asked why they chose to add to their mortgage (and potentially put their home at risk) rather than take out a personal loan to fund their spending needs, the dominant answer is that equity borrowing makes financial common sense. Over two-thirds say a key reason for borrowing against the mortgage is that it costs less. Generally this reflects a straightforward comparison of interest rates (interest rates on secured loans in the UK can be as much as 10 percent less than those on bank loans or credit cards). This does not mean that people failed to recognize that the actual cost-calculation is more complex than this; merely that they felt that they could treat a loan rolled into their mortgage as a short- or long-term commitment, which they would manage as they went along.

At the same time, over one in three ($n = 52$) mortgagors in the study (equity borrowers and others) have at least one other outstanding loan. The main reason they did not consolidate these into their mortgages is inertia: "It's just not worth the effort in shuffling it all around." But the other reasons again add up to financial common sense: people think either that they can "beat" their mortgage interest rate (especially with interest-free car loans), or that it is cheaper to repay quickly at a higher rate than slowly at a lower one.

Common-sense aside, however, there is a second way that equity borrowing works, and that is as a facility that people resort to reluctantly, even if it seems irrational, when needs arise and other options are exhausted. There are three points of note concerning this "financial buffer effect."

The first is simply, but critically, to underline that extent to which the collateral in housing does play an identifiable role as a financial buffer. Nearly half the equity borrowers in the *Banking on Housing* study channeled some or all of their borrowings into financial services and welfare management: debt consolidation; meeting the needs of other generations, both parents and children; income smoothing and so on. As one person put it: "we needed that money to exist on" following an unexpected redundancy. Or, more generally, as another borrower puts it: "I'd be scuppered if I had a major expenditure to fund without drawing on the mortgage." In circumstances such as these, equity borrowing releases a pool of funds that is gradually "whittled away" by day to day spending needs.

This is amplified in many areas of the study. For example, one of the questions in this phase of the research asked borrowers to select an image to symbolize the way they used their equity borrowings. Figure 15.5 is one of these: it captures one element of the "buffering" effect such borrowings can have. This image was provided by a middle aged self-employed man, whose tax bill was unexpectedly high. He selected the image because "it's what a fair bit of the equity released had to go on"; indeed without an equity borrowing facility, he would have "had to negotiate" with the Inland Revenue (i.e., he would not have been able to pay). In all, this interviewee spent at least half of his total equity borrowings on "safety net" items. Referring to a phase of spending that amounts to half his outstanding mortgage, he spoke at least twice of the way "most of it's just gone on survival."

Second there is evidence in this study that equity borrowing is used to provide a direct self-insurance role, substituting for costly and unpopular private insurances. For example, less than half the case study households have any kind of mortgage payment or income protection insurance; the majority expect to manage in other ways. To that end, more than three in every four of those who said they would be in trouble should interest rates rise, said they would borrow up in an attempt to manage their budgets. This is consistent with the indication in the BHPS that households who foresee financial worsening borrow more (not less) in advance of such shocks. It is worth emphasizing, however, that far from being an irrational response to home prices – an action prompted by "money illusion" – this kind of equity borrowing is very much a last resort, precisely because it is recognized as being risky. People regard equity borrowing for emergencies as very much "A last ditch thing to save the home", having used up every other means; "a last resort" in the event of a "really awful" episode; "a final, final resort" having explored

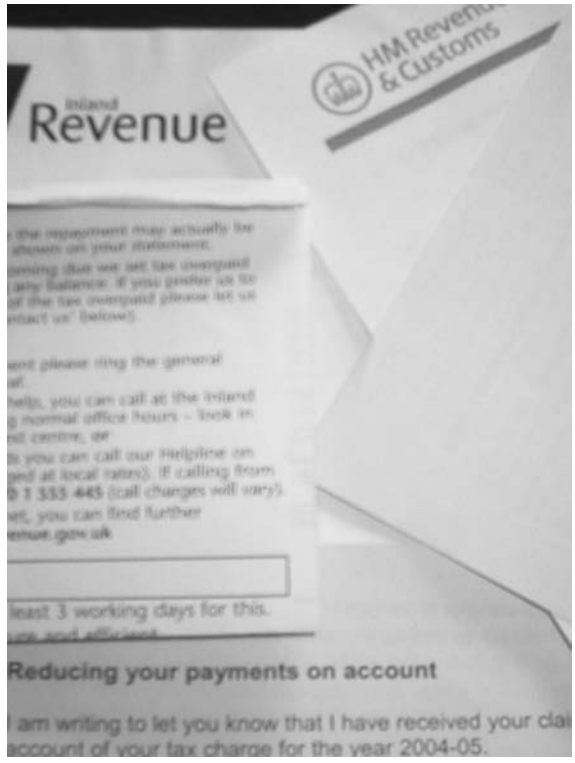

Figure 15.5 Equity withdrawal and welfare management.
Source: authors' image from *Banking on Housing* project

all the other avenues, recognizing that "I'm only getting into more and more debt that way."

Third, there is a wider welfare role for equity borrowing, which can be subtle, and may easily be underestimated from existing survey response categories. Take for example the idea of borrowing against one property to fund the purchase of another (perhaps for a child). On the face of it, it is a simple investment decision. But in practice, borrowers show how it may also have a social policy role: "it seemed the easiest way out, rather than him being tangled up in a social services network." Then there is the question of buying a car: someone "had a mid-life crisis and bought a Porsche"; however, most of those who borrowed against property to purchase a car simply needed transport to work, school, or to fulfill their role as a carer. The same split between lifestyle and luxuries on the one hand, and subsistence and safekeeping on the other, can be identified with respect to spending on home maintenance, appliances, and furnishing.

There is, in sum, an indication of these qualitative data in the process by which housing wealth forms a *de facto* asset base for welfare: not just for those older homeowners who are able to trade down, but also for younger mortgagors who need to borrow up, and can use their home assets as collateral when doing so. This

suggests that mortgage equity withdrawal, as well as forming an important link between housing and the wider economy, also raises challenges for social policy. Housing theorist Jim Kemeny first argued more than a quarter century ago that – in countries like Australia – high rates of home ownership were being encouraged by governments as a direct alternative to providing adequate state pensions to balance the budgets of older households. He referred to this as a "really big trade-off" between creating societies that collectively provide for the needs of older age and those that rely on individuals "insuring" themselves. He has recently revisited and restated this idea (Kemeny 2005). However, in our more recent work on this topic with Stuart Lowe, we suggest that, as the current housing cycle runs its course, the real "really big trade-off" is not between pensions and housing, but between societies which have a strong public commitment to all kinds of social insurances and those which rely on housing wealth as a privatized alternative. These latter jurisdictions depend on home ownership remaining sustainable, home prices steadily rising, and a continuing supply of mortgage finance enabling borrowers to meet their own welfare needs across the entire life-course (Lowe et al. 2008). Our argument is that, already, the integration of housing and mortgage markets has helped legitimize a substantial phase of welfare retrenchment in countries like the UK. The housing-wealth alternative may be working for some individuals, but it means that the distribution of welfare opportunities is becoming as uneven as the distribution of housing wealth. Furthermore, whether this individualized asset-base for welfare is the most desirable role for housing wealth to play is very much a moot point. The empirical answer, for UK households at least, is probably not: it is stressful and may be counterproductive to have to depend on housing wealth for welfare (Searle et al. 2009b).

Currently, however, a housing asset-base for welfare is the *status quo*. In that context, two things are clear. First, a new round of credit constraints – if they imply a brake on equity borrowing – may pose a risk to welfare, now that borrowers are so used to having a buffer of this kind. Second, as recession bites, the welfare of home buyers may prove as vulnerable to investment (price and liquidity) risks as to the effects of mortgage default. Falling prices, as much as unsustainable debt, compromise the recently established position of housing wealth as a financial buffer just at the time when it is needed most.

15.6 Conclusion

This paper provides a round-up of the wide range of evidence which suggests that housing wealth is being repositioned by individuals and societies as an asset base for welfare. Combining quantitative insights from the British Household Panel Survey with qualitative data from a series of UK studies, we make three key observations.

First, for nearly a decade analysts have written about the way the "feel good" factor of rising home prices may have boosted high street spending. This is one explanation for the link between housing wealth and the wider economy. We suggest, however, that mortgagors are more inclined to view home assets as a "feel safe" resource. This is related to the public's growing understanding of the extent to which housing wealth is no longer fixed in bricks and mortar but is fungible;

that is, it provides the collateral people need to increase their borrowing cost effectively. This link between housing wealth and spending money has enabled home assets to fill a psychological gap left by welfare retrenchment, providing people with the sense of social and financial security that was formerly lodged in the institutions of the welfare state.

Second, in order to borrow from housing wealth, people have to be able to manage their mortgages. The evidence reviewed in this paper is that in the mainstream (but not on the margins) mortgages have the capability to do this effectively. On the whole, people are "at home" with their loans. There has been a growing subprime, even predatory, lending sector in the UK, but this has never dominated the mortgage market, and seems unlikely to do so in the immediate future. Furthermore, in a setting where people have learned to rely on equity borrowing to meet a range of wants and needs, a new round of credit constraints may be as problematic for social wellbeing as a phase of overselling has been in other contexts.

Finally we offered a glimpse of the complexities of how, in practice, equity borrowing is used. There is no single model for MEW: it fulfills a variety of roles for the wide range of households who use it. It is, however, more prevalent than might previously have been supposed, and it is by no means limited to better-off households looking to fund luxuries and lifestyles. Neither is it an irrational or impulsive response to the "money illusion" of rapidly rising nominal home prices. Equity borrowing is used either as a cost-effective loan, or as a safety net of last resort. Either way, it works less to fund irresponsible spending sprees and more as an integral part of households' money management, as well as to provide a financial buffer, welfare resource, and a substitute for social policy. If there is a "really big trade-off" between high rates of owner-occupation and a well-functioning collective safety net, the mechanism at the heart of this is equity borrowing. Mortgage equity withdrawal is not only a channel between home prices and the wider economy; it is a conduit between housing wealth and social welfare.

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Chapter 16

Housing to Manage Debt and Family Care in the USA

Helen Jarvis

16.1 US Housing and Welfare: The Backstory

We have to peer in some fairly unlikely places to witness the hidden and complex ways that homeowners privately deal with debt and the rising costs of family care in US cities today. Likewise, we have to alter the way we think about housing as a singular asset (or liability) if we are to understand the ramifications of a fundamental shift from collective to private provision for retirement, healthcare, higher education, and the like. In practice (indeed through myriad micropractices), the contemporary home represents multiple capital and consumer resources; assets, liabilities, and a highly unequal distribution of life-chances. This observation of housing-welfare interdependence has particular significance today in the context of a major downturn in mortgage lending and heavy "corrections" in the market value of residential property. It reinforces recent claims that it is no longer tenable for housing debates (and land use planning initiatives) not to engage with emerging tensions in the management of welfare (Jacobs et al. 2003; Mann 2005). While a "credit crunch" is evident internationally, the origins and social and economic impact (measured in negative equity, home foreclosure, personal bankruptcy, and a sharp fall in home construction) arguably throw a spotlight on US housing markets and the micropractices of US homeowners. Moreover, a fundamental feature of the US housing economic crisis is that it is not limited in scope to housing repossessions, but instead bears down upon a host of intersecting life-chance domains. There are, for instance, a growing number of questions around how housing outcomes affect the well-being of households and their capacity to work as well as the ability of children to do well in school (Maclennan 2005, p. 19) (see also Wyly Chapter 17, this volume, on the racial implications).

This chapter highlights the need for current housing policy debates and planning initiatives to go beyond concerns of shelter, status, finance, and wealth, to also consider housing consumption services (upkeep and use of space) and the influence of particular housing attributes (such as access to a basement, attic, garage or outdoor space) on household capacity to create wealth and cope with a crisis.

It also highlights the contribution and value of qualitative, biographic studies of household housing finance to standard economic approaches to lending. Widespread use of econometric modeling can arguably benefit from qualitative microdata analysis whereby "ground truth" evidence can be used to populate and inform logit or probit models with the variety of adjustments people make to changing circumstances. Greater dialogue between these levels of exploratory as well as deductive research has the potential to make statistical forms of econometric modeling more sensitive to the complex, dynamic systems of housing–welfare interaction.

To illustrate the influence that practical dimensions of housing can have on housing careers, this chapter speculates on the function of "backyard apartments" (sometimes called backyard cottages) – alongside more established household practices of remodeling, extending, self-building and, in times of crisis, abandoning the family home. The exploratory evidence presented here suggests that the family home is increasingly implicated in a changing landscape of consumer-citizenship and self-reliance, resulting in remarkably creative (but costly) private solutions to some very public "problems of living" (Rose 1999). It suggests that the "credit crunch" has exposed fundamental flaws in housing-led economic growth and models of welfare which are rooted in privatized risk.

Recent years have witnessed, simultaneously, major reforms in the provision and legislation of housing, housing finance (deregulation and new mortgage products), healthcare and private insurance, education, old age pensions, and personal care, where these are increasingly interconnected in most advanced industrial economies through a shared language of market competition, "choice," and "self reliance." Housing-related assets are pivotal to these reforms because owner-occupation has long been the government endorsed "tenure of choice" for most families. Indeed, almost all OECD governments promote home ownership and seek to expand the share of property owners. Today, 70 percent of all US households own their own home either outright or with a long loan. In the US context it is also important to recognize that wealth is more unequally distributed than income, in large part through the uneven effects of housing (Squires 2008, p. 2). Once we extend the definition of housing wealth to include housing assets (including rental income potential) this gap widens further still. Moreover, the life-course and cohort effects of boom and bust home price cycles further complicate unequal asset distribution because external shocks periodically result in one cohort or vulnerable subpopulation of owners being "trapped" in a property worth less than they paid. While financial analysts argue that returns from home purchase are generally good, relative to other tenures and conventional saving schemes, actual rates of return vary hugely by location, time of purchase, and dwelling type. There have in effect been some "terrible years to buy" (1973, 1988–89, 1991–2, 1995, 1998–9, 2001–2, 2006–) when those who felt compelled to buy their first home or trade up, unaware of an imminent "correction," experienced significant (if temporary) losses (Farlow 2004). Data for 2008 suggest that 18 percent of all US properties are worth less than is owed on outstanding mortgages. Negative equity is especially high in the states of California, Nevada, Florida, and Arizona, where home prices grew dramatically in recent years (Facorelogic 2008; see also Case and Quigley, Chapter 19, this volume). California has eight of the top ten riskiest markets (with foreclosure rates touching 7 percent) and plunging home prices in the Mountain House region have

resulted in 90 percent of homeowners owing more on their mortgages than their property is worth (Facorelogic 2008). Negative equity is a necessary but not sufficient condition of home repossession or bankruptcy, where the risk of losing a job or facing other economic hardship increases the likelihood of mortgage arrears. For example, the mutually reinforcing negative conditions of negative equity and unemployment are increasingly affecting borrowers in markets like Michigan where the effects of an economic downturn in the automobile industry are having a significant regional impact (Facorelogic 2008).

Notwithstanding the cyclical nature of property investment, the US Department of Housing and Urban Development wish to see the continued extension of home-ownership to low income families and black and minority ethnic groups, believing homeownership to be "an important strategy for regenerating distressed urban neighbourhoods" (Harkness and Newman 2002, p. 597). This policy of expansion has been facilitated by the widespread deregulation of mortgage lending, new life-long mortgage products, and improved opportunities for households to release housing wealth periodically through various forms of mortgage equity withdrawal (MEW; see Smith 2005). Homeownership rates have reached record levels in recent years and this rise has largely been attributed to new mortgage products, subprime loans, and predatory lending. Accordingly, between 1994 and 2005 the annual dollar volume of subprime loans (to nontraditional, undocumented, high risk or poor credit history borrowers with little or no downpayment) grew from $35 billion to more than $600 billion, accounting for one in five new mortgage contracts (Avery et al. 2006, p. 125; in Squires 2008, p. 4). While acknowledging that the ongoing subprime mortgage crisis "ranks among the most serious economic events affecting the US since the Great Depression of the 1930s," Jaffee (2008, pp. 1, 4) argues that nontraditional mortgage lending can be credited with funding "more than 5 million home purchases, including access to first-time homeownership for more than an estimated 1 million households." In macroeconomic terms the policy of extending home ownership to previously underserved borrowers and investors (notably young, black, and minority households) continues to be justified as a strategy of market liberalization and growth, as a means to boost new home construction. Paradoxically, the sudden withdrawal of credit to nontraditional first time buyers since 2007 points to similarly damaging and unintended consequences for housing-led welfare disadvantage.

Among the English-speaking advanced economies (USA, UK, Canada, Australia, New Zealand) the USA probably represents the purest example of a housing- or asset-led system of welfare. Where they exist, welfare payments are modest, means tested, and restricted to those actively seeking employment. While all school age children have an entitlement to free public (state) education, post-18 education is a private "asset" sold across a range of venues, from modest community colleges to the cultural cachet and expense of an ivy-league university. High levels of student debt are justified by the expectation that successful graduates will see a return on their investment over the long term. Likewise, the majority burden of spending on healthcare in the USA falls to individual households, through private health insurance or direct payment. This regime, which is rooted in a minimal welfare state, results in very poor health outcomes for those without the means to pay. Few poor families have adequate access to medical care or any

form of health insurance (Heymann 2000). Connections can clearly be drawn between diminishing access to welfare sources and increasingly "risky" nontraditional mortgage products, whereby "the restructuring of financial services both reflects and reinforces these patterns of structural inequality" (Squires 2008, p. 4). While this chapter focuses on the extreme case of commoditized welfare in the USA, comparisons can be made with the UK and Australia where home price inflation has a long tradition and rhetorical policy debates similarly emphasize the expectations that home equity provides a mainstream source of welfare self-reliance (see for instance Berry and Dalton 2004). Furthermore, the UK and Australia are heavily exposed to housing market volatility because they have very high ratios of mortgage debt outstanding to GDP (82 percent and 78 percent respectively, compared with 72 percent for the USA) (Jaffe 2008, figure 1, p. 8).

Viewed on an individual household basis for relatively advantaged "traditional" mortgage borrowers, the private burden of student debt, healthcare costs, and mortgage payments may at first seem proportionate and sustainable, relative to high average lifetime earnings. The problem is that these costs combine in concentrated peaks over the life-course in household group settings with high dependency ratios. For instance, it is not uncommon for twenty-something college graduates individually to carry upward of $50,000 in debt to student loan companies, double this for couple households (von Hoffman 2005). Associated with this are trends of delayed married, nonmarriage, later child-bearing, smaller families, and longer periods in private rented accommodation. The impact of early debt is evident in the relatively high average age of US first time buyers (as compared with Britain for instance). Using data from the US Panel Study of Income Dynamics (PSID) and the British Household Panel Survey (BHPS), Banks et al. (2004) found that nearly half of all British first time buyers (47.4 percent) were age 20–29 while the majority of US first time buyers (52.6 percent) were age 30–49. Recent research from New Zealand as well as from Australia reinforces an age-specific trend, over the past two decades, of falling home-ownership rates for younger households. Analysis of different age cohorts suggests that the time it has taken successive household cohorts to enter home ownership has lengthened and this is particularly apparent for 25–35 year olds who are most likely to be exposed to the costs of student debt repayment alongside family formation (Berry and Dalton 2004; Government of New Zealand 2008). More worrying still, there is some evidence to suggest that some of the households "deflected" into renting are now unlikely to become homeowners (Maclennan 2008, p. 13; Morrison 2008). The intergenerational implications go beyond the rising average age of first time buyers. This delay also exacerbates problems for a forty-something "sandwich generation" facing not only high costs of child-care, together with student loans in the early years of owner-occupation and family formation, but also, simultaneously, potentially eye-watering personal care costs for frail elderly parents (Genovese 1997; Zal 2001).

16.2 Data Collection and Analysis

This chapter draws on one specific aspect and a small subset of data from a piece of cross-national, intercity comparative household research. The original purpose

of this largely qualitative study was to focus on the way people organize their daily lives around medium-term decisions and goals (concerning home purchase, school choice, migration and commuting, labor market commitment, and working hours). The richness of the original data lends itself to closer scrutiny of the interdependence of housing careers and welfare provision, where biographic narratives tell of both perceived risk and actual events. The methodology recognizes that individual goals and preferences are negotiated within the household collective, accounting for the private and social costs as well as the compromises this balancing entails. This integrated approach attends not only to the dual role of housing, where owner-occupation provides both wealth and consumption services (Banks et al. 2004), but also to the myriad aspects of livelihood which intersect with housing histories and household structure (Jarvis 1999). By way of example, while it is widely recognized that housing costs impose a significant barrier to managing a low-wage livelihood, this chapter points to the paradox that housing resources (such as a "spare room" to let out) can provide short-term remedies for a precarious livelihood and adjustment to changing circumstances. In this way the research was designed to capture the multiple economies and resources; of income, property, transport, "sweat equity," gifts, inheritance, kin networks, and unpaid personnel, through which competition for "consumer citizenship" functions.

Five cities were chosen for comparative research (London, Edinburgh, San Francisco, Seattle, and Portland) on the grounds that they shared many common characteristics, notably high housing costs, while at the same time presenting useful variation in status, cosmopolitanism, and official response to growth (for more on this see Jarvis 2005). A cluster analysis of Census of Population data was generated for each city, ranking all wards/postal districts according to selected social, economic, and demographic variables. A postal questionnaire was then distributed in target wards as a means to select an equivalent quota sample of 20 working family households per city (100 biographies in total) as subjects for in-depth biographic research. Included with each household interview were employment biographies and housing careers for each adult, asset inventories, maps, and diaries of individual and household spheres of activity, together with narratives of the decisions made by couples concerning residential location, spatial mobility, all forms of work undertaken and networks of informal support making up daily routines.

In the discussion which follows, the method and techniques of composite vignettes are employed as a means to succinctly convey the rich complexity of housing and welfare intersections across myriad household practices, while masking individual subject identities. These vignettes incorporate real situations and people but in composite form, based upon numerous observations, drawing on original household research together with additional secondary sources (see English-Lueck (2002) for this approach in anthropology).

16.3 Housing, Welfare, and Household Biography: The Case of Seattle

This section focuses on the case study of Seattle, combining data from in-depth household biographies collected over the period 2000–2002 (coinciding with the

2001 dotcom bust) with more recent housing market and life-course analysis for this metropolitan area. It is illustrative to observe the intersections of housing and welfare, notably family care, from the vantage point of the "typical American family" – juggling home, work, and family life. Seattle provides an especially interesting case for analysis in this respect because Seattle Mayor Greg Nickels and the Department of Planning and Development have been actively pursuing innovations in "accessory dwelling units" (ADUs) and "detached accessory dwelling units" (DADUs) in an effort to improve housing affordability in areas of high demand. This housing policy innovation renders the intersections between housing and welfare especially visible and complex.

Accessory units or "backyard apartments" (also known as guest apartments, in-law apartments, family apartments, or secondary units) provide supplementary housing that can be integrated into existing low-rise single family neighborhoods to provide affordable housing, either for rent or to provide overspill accommodation for the primary household (MRSC 1995). There are three types of accessory units: use of an interior part of a dwelling (adapting a basement or attic for instance); extending the existing home to accommodate a separate unit (over an attached garage for instance); or the construction of a separate dwelling, smaller than the main house, such as over a detached garage or as a garden chalet/backyard cottage (Massachusetts Government 2007).

The City of Seattle is visibly divided north and south of the downtown core. The north is developed at a higher density and features the highest average home prices and greatest concentration of high-value service sector employment. The south features lower density, poorer quality housing, and the legacy of traditional "blue-collar" industries which have seen steady decline (Boeing, timber industries, the port of Tacoma, Seattle Airport, and associated transport industries) (Jarvis 2005). Since 2006, the Department of Planning has been experimenting with allowing the most controversial detached accessory dwelling units (or DADUs) in south Seattle, while for the time being restricting the zones in which these incursions take place, preserving the "exclusivity" of the more up-market neighborhoods to the north and east (Young 2006). Following the success of the 1998–2001 demonstration program for innovative housing design (which allowed a small number of DADUs to be built in the north), pressures have been mounting for further reform of zoning ordinances allowing the construction of accessory dwellings city-wide.

16.3.1 Greenwood, Seattle, October 2000

The late 1990s saw a booming economy in the USA but prosperity was highly uneven and often locally concentrated. In Seattle, Microsoft employees together poured close to $1 billion into the housing market on the Eastside and to the north of the city. In 2000 one Seattle real estate agent was quoted as saying that Microsoft millionaires (dubbed Baby Bills) had single-handedly defined a new price tier for "monster mansions" (Rhodes 2000). Rapid job growth in a region dominated by low density neighborhoods led to an unlikely mix of both sprawl and congestion: coffee-shop conversations turned to clogged bridges, congested highways, soaring home prices, and the social fallout of first a dotcom boom and then its eventual

collapse. Beneath the radar of most media depictions of this epoch were the lived realities of unskilled workers for whom Seattle's shift to "silicon status" added further insult to the injury of low wages, insecurity, and "junk jobs" (Nelson and Smith 1999; English-Lueck 2002 pp. 20, 110).

One couple whose position in Seattle had become increasingly precarious were Hank and Ruth Slater. The Slater's had been living in their modest three bedroom Greenwood home for eight years by the time their biography was compiled for research conducted in 2000 (see Jarvis 2005, p. 153). Located a few miles north of the downtown area, Greenwood features modest 1920s craftsman-style homes at low to medium density in a mixed but upwardly mobile neighborhood. Behind the facade of this respectable family home there were all the tell-tale signs of serious overcrowding and deprivation.

The Slater's bought this, their first house, off Hank's father, Charlie, to escape the trailer (caravan) they moved into as newly weds. This exchange followed a precedent set by Hank's grandparents who sold the house to Charlie as a way of helping him into owner-occupation and funding their own retirement. Shortly after moving in, before they went on to have two sons of their own, Hank converted the two basement bedrooms into a self-contained (illegal) "grandfather flat" for eighty year old Charlie and all the furniture he retained from when he previously owned the whole house. Hank constructed a separate entrance plus make-shift kitchen and bathroom arrangement for which Charlie expected to pay rent out of his pension. The result of this subdivision was to reduce the "primary" ground floor unit to a one bedroom, two reception dwelling.

The monthly costs of the Greenwood house were high but Hank and Ruth were happy to gain a foothold in "real property" at last. The precariousness of Hank's income as a self-employed "handy-man" was such that Ruth went back to work when the children were small "to get on top of the bills." Then, already stretched financially, Hank suffered a shoulder injury for which he had no health or unemployment insurance. The result was the collapse of Hank's business and loss of all regular income. Previously when Hank was unemployed, the family had fallen back on personal savings and Hank usually found new work quite quickly. This time age and poor physical fitness stood against him and buying the house had swallowed up all of their savings. Unable to get by on what Ruth earned at the local supermarket they sought ways to generate income from the only other resource at their disposal, the house. A commercial tenancy would be out of the question with their one-bedroom arrangement so, as landlords, the couple took advantage of hard-up family members with insufficient credit rating to secure mainstream rental accommodation. Today Hank, Ruth, and their two sons all sleep in rooms originally intended for living and eating. This way they supplement their earnings from two jobs by letting out the main bedroom to Ruth's sister and her young child. Two families (three adults and three children) now share one bedroom plus living space in an otherwise comfortable neighborhood. A third household (Charlie) lives in the basement on the same lot. In North America the usual criteria for reasonable living conditions is a ratio of one or fewer people per room. Studies have shown that housing is safe and healthy only when it meets the basic physical and psychological needs (including the value of privacy) of its inhabitants. Moreover, lack of space and quiet due to crowding can lead to poor school performance in children

(HUD 2006, p. 6). With a ratio of two people per room the Slater's are clearly suffering from household crowding. The family nevertheless clings tenaciously to the ideal of owning a piece of real estate.

16.3.2 Green Lake, Seattle 2003

Less than two miles away and a couple of years later, a professional couple, both Microsoft employees, have their legal, detached accessory dwelling unit (ADU) evaluated as part of the Demonstration Program for Innovative Housing Design. The detached ADU (or DADU) sits above a redeveloped detached garage on an alley behind the two-storey craftsman-style primary structure (see Figure 16.1). The secondary dwelling is largely hidden from view from the main street, front elevation (see Figure 16.2). Many of the surrounding homes have legally "grandfathered" accessory structures (garages with small working spaces above) but this is the first in the street to be rented out as an affordable "backyard apartment." The current tenant is a local primary school teacher who is unable to afford a conventional property (to rent or to buy) within easy commuting distance of her job. Most of the neighbors regard this first DADU as a positive example of small-scale infill



Figure 16.1 North Seattle demonstration DADU: view from rear service alley of new secondary apartment above garage.
Source: City of Seattle (2003) Evaluation of the 1998–2001 Demonstration Program for Innovative Housing Design. Reproduced with the permission of the Department of Planning and Development.



Figure 16.2 North Seattle demonstration DADU: main street front elevation.
Source: City of Seattle (2003) Evaluation of the 1998–2001 Demonstration Program for Innovative Housing Design. Reproduced with the permission of the Department of Planning and Development.

housing. Elsewhere there has been NIMBY (not in my backyard) opposition to backyard incursions on the ground that accessory rental units will contribute to parking problems, traffic congestion, invasion of privacy, and loss of community cohesion (Young 2006).[1] Figure 16.3 shows a typical lot layout for a DADU, highlighting the relationship of the secondary to the primary unit and the shared access parking and access arrangements whereby any remaining lot area is retained by the primary residence.

16.3.3 Accessory housing to defray the rising costs of elder-care

Kate Martin plans to build an apartment in her Seattle backyard. She has done the sums and worked out that the rental income she can earn on a quite modest structure in this prime location will more than cover the cost of construction and connection to existing utilities associated with her own family property on the same lot. Rather than view the rental income as a return on her investment (which may be expected to increase in value over time), she views the project as a source of income to defray the cost of providing adequate nursing home care for her elderly

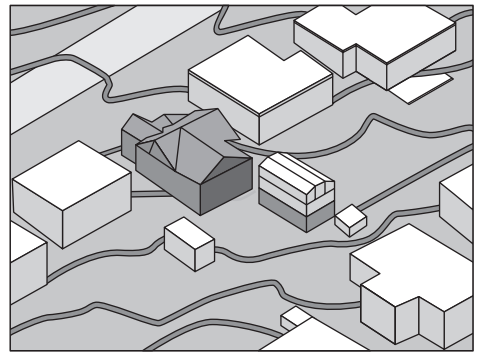

Figure 16.3 Typical lot layout for a DADU showing the subordination and set-back of the secondary unit relative to the primary residence.
Source: City of Seattle (2003) Evaluation of the 1998–2001 Demonstration Program for Innovative Housing Design. Reproduced with the permission of the Department of Planning and Development.

mother who has muscular dystrophy. She recognizes that if she is to be able to bring her sick mother to live with her, she will have to install a stair-lift in her primary property and also employ a day-nurse or home-help. Not knowing for how many years she will have to meet the additional monthly costs of elder-care she feels the need to exploit her main asset (her home and backyard) as best she can as a source of additional income (Young 2006).

16.3.4 Accessory housing to compensate for lost wages

Tom Smith wants to build an apartment in the two-storey garage behind his South Seattle house because rental income from a DADU would allow him to keep and maintain his own house if, as seems likely, he is made redundant from his job in the future. According to Smith "it creates affordable housing on two levels. It makes my mortgage payment more affordable and allows me to offer low-cost housing to another person" (Young 2006, p. 1).

16.3.5 Aging in place

Hilda Oldfield is 78 and lives in a large, rambling house which requires major and costly repairs. She is understandably reluctant to leave this house even though she can no longer manage the stairs. In this home, which she bought with her late husband 50 years ago, she nurtured each of her three children to the stage where they moved out to establish families of their own. Now she enjoys entertaining her grandchildren when they come to visit from a neighboring part of the city. Hilda wants to stay on in the house but she needs help both personally and with the cost of maintaining a large home. Building an apartment in her backyard will allow Hilda to "age in place" (Chapman and Howe 2001, p. 638). By endowing the primary

house to her eldest daughter, Hilda can retain her own independence in the new backyard apartment, safe in the knowledge and security of social and personal support, having her daughter live next door. Moving into the primary dwelling means her daughter can sell her own house and invest the proceeds in necessary repairs to the old family home.

In many parts of the USA these households would not be allowed to construct the types of infill development illustrated in these vignettes. Zoning ordinances typically restrict housing density to one home per building lot as a means of retaining neighborhood character and limiting problems of noise, parking, loss of privacy and the like. Further reform of zoning ordinances in favor of accessory dwellings is highly likely, however, given the pressures on land for development and the shortage of affordable housing for key workers. Advocates of "smart growth" (environmentally sustainable growth of jobs, housing, and public transport) favor this type of small-scale infill development to boost construction of smaller and more modest homes catering for single person and affordable housing needs within the footprint of already existing settlement and infrastructure arrangements. According to the Massachusetts Smart Growth Toolkit, "everybody benefits" from greater tolerance of backyard apartments and effective expansion of a "*rentier* economy:"

> Accessory units provide benefits to the municipality, local employers, homeowners, families, the elderly and renters alike. Maintaining or increasing the number of people per household unit as well as the number of households per lot in existing residential areas reduces the costs for municipalities to extend utilities and services, and preserve land. Municipalities gain additional tax revenue from accessory apartments as a result of improvements to the existing housing stock. The financial impact on municipalities is also tempered by the fact that accessory units provide a housing option that enhances the moderately priced housing stock without requiring local funding. Accessory apartments also provide affordable housing for public sector employees; social service professionals and service sector workers such as day care instructors, teachers, nurses, home healthcare aides and security guards; seniors; and young families. (Massachusetts Government 2007, accessed on-line)

This lengthy quote highlights the complex and by no means unambiguous interrelationship between domestic architecture innovation (and thus planning and building regulations) and the transformation in responsibility and risk of public concerns (affordable housing, elder care, pension income) into private problems for homeowners to solve. While the better off homeowner with a large backyard and capital to invest might gain rental income and increase their equity portfolio (or scope to accommodate adult offspring or provide in-home care for elderly relatives) by this route, others will doubtless follow in the Slater's footsteps, "drawing down" their primary property in ways that potentially undermine the one asset upon which their well-being and security stands.

The asset of the home is clearly not infinitely elastic. On the one hand, flexible mortgage lending makes it possible for homeowners to view their home as a form of cash dispenser, to boost consumer spending (Klyuev and Mills Chapter 3, this volume). On the other hand, alongside belief that private markets deliver basic needs

and wants more efficiently than the state, homeowners are encouraged to think of their home as a store of assets from which to fund their own family welfare from cradle to grave. Although design innovations around accessory dwellings offer potentially very exciting solutions to affordable housing and family care dilemmas, it would be wrong to view private home equity or rental income from a secondary dwelling as a welfare safety net equivalent to collective forms of insurance. As Conley (2001) observes, housing is important not only for the immediate well-being of families, but also for the life-chances of subsequent generations. Underlying inequalities within and between generations are effectively magnified by a housing-led, privatized system of family welfare provision (Smith and Easterlow 2004).

16.4 Micropractices Around Housing Consumption Assets

The remainder of this chapter explores a number of more established housing consumption micropractices, again drawing on household biographies (for owner-occupier working families) originally collected as part of a larger project focusing on home-work-family co-ordination, comparing three high-cost US cities with two cities in the UK (Jarvis 2005). This section draws on the US data alone. While the selected vignettes each focus on a unique household situation, the practices and behavior illustrated are based upon a much larger sample of observations, interviews, and secondary data sources. At the same time, the vignettes are selected to specifically highlight some neglected (and thus atypical) intersections of housing, welfare, and household biography. This might give the impression that negative and extreme aspects of owner-occupation are exaggerated here. Indeed, it should be noted that the vast majority of the 100 households interviewed as part of the larger study regarded their home as a positive source of emotional and financial security (Jarvis 2008). The rationale for the approach adopted here is that it turns the spotlight on housing consumption micropractices, where previously most attention has been paid to the role of housing equity withdrawal. This highlights the ramifications of a shift in social and political norms towards the individual consumer bearing primary responsibility (financially and by the performance of unpaid care-work at home) for extended family welfare. One conclusion that can be drawn from this approach is that policies emphasizing individual reliance on the extension of owner-occupation to deliver increased welfare functions are socially regressive and liable to greatly increase inequality between households and neighborhoods, as suggested in existing analysis above.

16.4.1 Self-build DADU

Brad and Becky Skyla have lived together in a dozen or more rental properties, the length of stay, size, and quality varying with income and employment status. While Becky has been able to bring home a regular pay check as a dental nurse, Brad has experienced periodic unemployment as a carpenter and consequently the couple were never able to enter owner-occupation through conventional means.

Prices in the Seattle area started to sky-rocket from the late 1980s. In despair in 2000, with a young daughter and Becky's elderly mother to care for in their small rental home, they decided to turn to their extended family for help. Brad's parents owned a house on the fringe of the city, bought in the 1950s, which came with a generous plot of land. They asked if they could build themselves a house in Brad's parents back yard.

For this household, the practice of "self-build," coupled with a subdivision of family owned land (a form of intergenerational exchange similar to equity release) provides a unique point of entry on an otherwise out of reach Seattle property ladder. This vignette highlights the critical importance of multiple intersecting assets (including kin networks) as a passport to housing security in a housing-led system of privatized welfare. In such a climate, those with neither social nor material capital are truly disadvantaged.

16.4.2 Saddled with student debt

Sharon Fuller grew up in Alameda, California, in the same house her mother still owns, where she and Jamie now live with their four year old daughter. By the time she graduated from Berkeley, Sharon had accumulated student loans of some $50,000. While Sharon had trained as an attorney she "had no taste for the big bucks legal work" and was still struggling to pay off her student loans 10 years later. In this same period, trailed by debt, Sharon met and married Jamie. Initially the couple lived with Sharon's mother in Alameda, in an effort to save for a deposit on a rented home of their own. A year later and for the following four years they lived in a private rented apartment in San Francisco, in easy commuting distance of Sharon's job at a public sector legal firm. Jamie worked out of their home as a freelance photographer. Feeling settled at last they were a week away from exchanging contracts on a small suburban town house when Sharon was made redundant. Because she was the primary breadwinner they feared they would not be able to meet the mortgage repayments and backed out of the deal. Having given up their rented apartment they had little option but to move back with Sharon's mother. It took four months for Sharon to find a new job and declare she "could not live with her husband and mother under the same roof." Still carrying Sharon's student debt, the couple rented an apartment in nearby Oakland. Facing eviction a year later, now with a young daughter, the option of living with Sharon's mother seemed attractive once again. Sharon's mother was experiencing failing health and this time the move "back home" was presented as one of mutual benefit whereby Sharon's mother "helps somewhat with child-care" and she is helped in turn by them "(taking) her shopping and to her doctors appointments" because she is barred from driving on medical grounds.

This vignette shows that monetary housing assets intersect with micropractices around housing consumption. It illustrates the importance of considering not just tenure stability and the potential for accumulating equity (and debt), but also housing characteristics, such as house size, adaptability, and the number of rooms available.

16.4.3 Recovering from negative equity

Twenty years onto the property ladder Doug and Kim Shearer have accumulated surprisingly little housing equity or savings. Nevertheless, they claim to have ridden a boom-to-bust roller coaster without losing faith in housing as the bedrock investment for their family future. When the couple married in their mid-twenties they each owned a condominium apartment as first time buyers. Initially they lived in Kim's condo and rented Doug's out to a friend before eventually selling to his parents at a fair market price. Shortly after they were married in 1985, Doug was recruited to a start-up business in Anchorage, Alaska, where the oil-based economy was booming. They viewed this as a "big step-up" for Doug and an "intriguing proposition" whereby Alaska represented simultaneously a "sense of dread and adventure."

Kim took a two year leave of absence from her job and they leased out her condo. Unable to find anywhere suitable to rent, they took the plunge and bought a home in what they thought was a buoyant market. Sixteen months later Doug's business ran into trouble, largely as a consequence of a crisis in the oil industry. Returning to Seattle they found it impossible to sell the house in Anchorage. This led them to walk away from their first joint purchase, as many did in the late 1980s. Worried about the possibility of being pursued for this debt the Shearer's did not try to buy another property for five years. Not wishing to delay starting a family any further they leased out Kim's condominium again and rented a family home. Finally in 1993 they bought the house they live in today. Since these inauspicious beginnings they have maintained a career of owner-occupation and twice remodeled their home by withdrawing equity from a home which has increased in value.

16.4.4 Reality check

Guy and Greta Florin had been living in the heart of the San Francisco Mission district for seven years by the time their biography was compiled for research conducted in 2000. Back then they could not afford to buy a place of their own but they maintained a reasonable quality of life in a two bedroom rented apartment, supported by two good salaries. A year later they were forced to abandon the "beautiful city" to set up home in the small university town of Davis. Greta had been struck by a debilitating illness and her health insurance was inadequate to cover the cost of treatment and time off work. Reduced to one salary for several months they could no longer afford the rent on their small apartment or the private school fees they felt necessary to ensure their sons received adequate education in central San Francisco. Ironically, compelled to abandon San Francisco for a more conventional "male breadwinner" lifestyle in Davis, they were able to buy a suburban property and find places for their two sons in good state schools.

This vignette reveals a number of pitfalls in the housing-welfare nexus, even for an ostensibly advantaged working family: costs of living which called for two "good" salaries and perfect health or, failing that, costly medical and unemployment insurance; lack of affordable housing; run-down state schools fuelling the sense that extra money had to be found from the household budget to compensate

for perceived shortcomings in public services; and pressure to invest large sums in post-18 education. This vignette neatly illustrates the cradle to grave intersections of housing, welfare, and household biography.

16.5 Heaven Helps Those Who Help Themselves – If They have a Big Back Yard

Missing from the market-led political drive to view the home as a "cash dispenser" and the family as a "little welfare state" (Klyuev and Mills Chapter 3, this volume; Folbre 2001, p. 202), is recognition of the multiple, hidden, and informal practices by which the household and home function as the foremost realms of noncapitalist economic production (Gibson-Graham 1996) – and of all the social (re)production work necessary for individuals and families to "go on" from one day to the next (Jarvis et al. 2001). For instance we learn from the vignettes above that income and conventional capital assets are insufficient as a frame of analysis within which to explain relative household life-chances (Smith and Wallerstein 1992; McDowell 2004; Jarvis 2007). Thus we need to broaden out the scope of recorded household assets (and liabilities) to include income from property, space for live-in help, unpaid domestic labor, sweat equity, self-provisioning, gifts, inheritance, transport, kin networks, unpaid personnel, and the like. A broader scope highlights the dual role of housing, where owner-occupation provides both wealth and consumption services (Banks et al. 2004) through upkeep and use of space. It also recognizes that home consumption assets (the subletting of rooms for instance) intersect in complex ways with financial assets of the home (equity withdrawal to spend on home improvements for instance).

We do not know from the limited research available on accessory dwellings the extent to which occupants (tenants) of accessory dwellings interact for collective benefit (exchanging meals, sharing use of a garden or car for instance) with occupants (owner-landlords) of primary dwellings. Neither can we do more than speculate on the current or potential significance of accessory housing assets in differential household capacity to meet the costs of, or directly provide, family care. Further research is clearly needed to establish the true nature of the housing-welfare interdependence in this particular context. The general expectation is that this form of domestic architecture attempts to simultaneously enable new kinds of reciprocity and revive traditional notions of extended family (Hare and Guttmann 1984; Gellen 1985; Cobb and Dvorak 2000). What is clear, however, is that the legal DADU illustrated above, though modest in terms of construction costs ($152,000) relative to the price of single family homes in the vicinity (averaging $550,000), offers markedly greater scope for housing wealth and welfare protection compared with the Slater's do-it-yourself subdivision (Rudel 1984; Seattle City Council 2001).

16.6 Conclusion

The aim of this chapter has been to highlight the interdependence of housing consumption with other household resources and the relationship of this with a

household's capacity to manage debt and family care in a climate of privatized welfare. A parallel aim has been to stimulate a more nuanced debate on the merits and risks of viewing the extension of owner-occupation (including backyard development and other creative means of exploiting private property) as an alternative to collective provision for retirement, unemployment, healthcare, and higher education.

Growing inequalities in household wealth distribution characterize the USA. We know from rich accounts of urban poverty in the USA, such as William Julius Wilson's *The Truly Disadvantaged* (1987) and Barbara Ehrenreich's (2001) *Nickel and Dimed*, that the depths of disadvantage are increasing, just as the heights of consumer sovereignty are continually celebrated – even now at a time of deepening global economic crisis. Considerable attention has consequently been paid to the polarization of the US population between "work rich home owning" and "employment deprived, nonasset-owning" extremes. Yet this chapter reminds us of the reality that many employed homeowners (like Hank and Ruth Slater) can be ostensibly "work rich," in the simple sense of being employed and holding multiple jobs, yet at the same time disadvantaged in the competition for housing and neighborhood services (Jarvis 2005, p. 143). Moreover, the relationship between home ownership and housing wealth is not straightforward or universally advantageous. Some homeowners pay a high price (whether experiencing overcrowding or financial loss) for the social imperative to acquire a stake in "real property." As Masnick (2004, p. 304) points out, "unequal ownership opportunities help sustain differences in wealth, education, access to jobs, and overall quality of life (whereby) home-ownership differentials are both a cause and a consequence of social inequality." This double-edged characteristic of property investment (home prices can go down as well as up) has never been more apparent than it is today.

Of course, owning property is not essential or the only means of securing a home or shelter but it is fair to say that in most OECD market-led economies, housing wealth provides a crucial vehicle to social mobility and a popular route by which middle class parents ensure their offspring's advantage in the competition for education and housing. Increasingly, this intergenerational transfer conflicts with the need to provide for the current generation and the costs of personal care associated with longer life expectancy and labor-intensive home-based care. This highlights a further aim of this chapter which has been to extend orthodox understanding of intergenerational equity, to raise awareness of a number of neglected housing-related assets, such as access to a "spare room" or backyard within which to incorporate an accessory dwelling, as potential solutions to high levels of debt or the costs or direct provision of family care over the life-course. The vignettes above illustrate the multiple ways that government ambitions to exploit housing-related assets exacerbate the experience of wealth inequality.

While not explicitly the subject of this chapter, it is interesting to reflect on potential cross-national differences in the impact of market liberalism and the privatization of risk from a household perspective. Cross-national differences are particularly likely with respect to the options facing marginal first time buyers. In Seattle, the 20 year journey Mr and Mrs Skyla have taken, ultimately to build their home as a project of "do it yourself," illustrates the "longer ladder" that exists in

the unregulated US "enterprise culture." Less stringent planning and fewer safety nets in the USA encourage more rungs at the lower end of the property market, at the same time that upper rungs feature growth in "trophy" homes. While helping more people buy their own home may stimulate growth and appear "empowering," the accompanying promotion of a longer housing ladder driven by personal risk and debt is likely to result in greater social exclusion, not reduced asset poverty. Households with few housing assets are particularly vulnerable to diminished state protection as they are the least likely to be able to top-up or replace collective state services with private insurance. Not only does the goal of home ownership elude one in four US households, it also harbors unsustainable debt. In the USA, those in greatest hardship (aside from the homeless) occupy unregulated rungs at the very bottom of the housing ladder, markets associated with substandard conditions of overcrowding and poor maintenance.

The regressive implications of a market-led system of allocation have not gone unnoticed in the academic literature (see McDowell 2004; Smith and Easterlow 2004; Tronto 2006; Jarvis 2007). The principles of efficiency and competition are widely accused of reinforcing uneven development and inequality in relation to the way consumer choice is socially constructed and materially circumscribed. Nancy Fraser (1997) points to the paradox whereby the neo-liberal state (some would use the term neo-conservative) affords greater recognition to individual rights (to own property) and the language of choice (shopping around for specialist medical treatment) without making any attempt to redistribute the resources necessary to exercise these rights or to make real choices in a market-led system of allocation (Jarvis 2008).

Arguably, household wealth distribution needs to be viewed as part of an integrated analysis alongside the management of welfare and household livelihood. Entry barriers to owner-occupation and lack of alternative forms of affordable housing, together with the cost and practical realities of caring for dependents, exacerbates underlying social stratification. Of crucial significance in this regard is the dual role housing plays in generating income and running costs, equity and debt, assets and liabilities.

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Note

1. This biographic vignette together with the supporting literature and illustrative photographs of a Seattle demonstration DADU (reproduced with the permission of the City of Seattle Department of Planning and Development) are brought together as a composite and do not refer to a single "real" family/home in Seattle at the present time.

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Chapter 17

The Subprime State of Race

Elvin K. Wyly

17.1 Subprime: from Risk-Based Pricing to the Racial State

There is agreement across the political spectrum in the USA that racial and ethnic minorities faced bigotry and discrimination in housing and mortgage markets in the past, and that recent years have brought a dramatic expansion of lending to minority individuals and neighborhoods. But there is sharp disagreement on how and why things changed; and that, essentially, is the topic of this chapter. The dominant perspective is that of mainstream economics – an account which provides the foundation for national policy and regulation, and which offers an optimistic story of enlightened, profit-seeking economic actors finally resolving old problems of credit rationing in order to create a more efficient and fair system of *risk-based pricing*. The alternative narrative is rooted in critical race theory, and emphasizes the importance of political struggle over the rules governing permissible market behavior. As old forms of discriminatory exclusion were challenged by the civil rights revolution of the 1960s and 1970s, new types of deregulated subprime exploitation created new kinds of profitable inequalities that produced today's deeply racialized catastrophe.

From the perspective of economics and finance, the central dilemma of credit rationing is asymmetric information. When a lender has insufficient or unreliable information on a borrower's true willingness or ability to repay a loan, the supplier's rational response (raising the price to cover the elevated risk of loss) creates perverse behavioral incentives. Borrowers with no intention or ability to repay – the ones Adam Smith called the "prodigals and profectors" – will be happy to accept the offer, since they do not care about costs they do not plan to honor. But prudent, thrifty consumers with good intentions *will* be driven away as prices rise (Greenwald and Stiglitz 1991). Unable to separate the misers from the charlatans, lenders will set qualification standards too high, will ration the supply of credit, and may even resort to economically irrational assumptions (such as the race or ethnicity of a borrower or neighborhood) in attempts to make a profit while

avoiding adverse selection (Stiglitz and Weiss 1981). As long as asymmetric information persists, many qualified borrowers will be left unserved, in a systematic case of market failure.

During the 1980s and 1990s, however, a dramatic revolution in consumer credit reporting systems, delinquency and default models, and automated underwriting systems finally resolved lenders' asymmetric information – or so it seemed at the time (Engel and McCoy 2002; Miller 2003; Brown and Burhouse 2005; Markus et al. 2005). As lenders were better able to distinguish good risks from bad, they were able to go deeper into the applicant pool, successfully using risk-based pricing to serve people in need (Durkin and Staten 2002; Golding et al. 2008; cf. Ashton 2009). Enormously influential in theoretical and applied economics, risk-based pricing has also been the accepted wisdom among those in a position to shape policy. Months before the US housing boom reached its limits, the then Federal Reserve Chairman Alan Greenspan (2005) gave a conference speech praising the doctrine:

> "Where once marginal applicants would simply have been denied credit, lenders are now able to quite efficiently judge the risk posed by individuals and price that risk appropriately . . .
>
> . . . improved access to credit for consumers, and especially these more-recent developments, has had significant benefits. Unquestionably, innovation and deregulation have vastly expanded credit availability to virtually all income classes. . . . Home ownership is at a record high, and the number of home mortgage loans to low- and moderate-income and minority families has risen rapidly over the past five years."

In short, the advent of risk-based pricing – the key to a cascade of innovation in the US mortgage market – is built on an encouraging narrative of market innovation stamping out the irrationalities of discrimination (Ashton 2009). More than half a century ago, Becker (1957) famously declared that discrimination could not persist in a competitive, free market, since it required that agents forfeit profitable transactions if they wanted to satisfy a "taste" for bigotry. And yet racial and ethnic disparities of exclusion remained a pervasive feature of American housing and credit markets through the late 1980s, and persist in modified form today. Deregulation failed to eliminate racial discrimination. Instead of the competitive market incentives envisioned by Becker (1957) and later advocates of risk-based pricing, social movements and political struggle were decisive in challenging racial exclusion. The civil rights movement achieved a series of victories between the early 1960s and the late 1970s that put the federal government on record against racial discrimination: Title VI of the Civil Rights Act of 1964, Title VIII of the Civil Rights Act of 1968 (usually called the Fair Housing Act), the Equal Credit Opportunity Act of 1974, the Home Mortgage Disclosure Act (HMDA) of 1975, and the Community Reinvestment Act (CRA) of 1977. These statutes embodied a turning point in American race relations, and they promised a fundamental change in the rules governing private market decisions. This promise was delayed and denied for many years through weak enforcement; but finally, in the early 1990s, it became clear that lending institutions would no longer be given a free hand in racially discriminatory exclusion. Ironically, conservatives who argue that markets

are inherently race-neutral acknowledge the bankruptcy of this theory when they try to blame today's crisis on government interventions that encouraged lax lending to serve unqualified minorities: if it required a national civil rights movement and major federal laws in the 1960s and 1970s and belated enforcement a quarter-century later to encourage lenders to finally stop excluding racial and ethnic minorities, then obviously Becker's (1957) market incentives failed to teach bankers, brokers, and investors to give up their irrational "taste" for bigotry.

To help understand how and why racial inequalities persist in housing finance, this chapter provides first, an analysis of how the subprime "miracle" turned into a racist mirage, and secondly, a theoretical interpretation of risky credit as a product of changes in America's "racial state."

17.2 Credit Crunch: The Curious Disappearance of Race

For years prior to the financial disaster of 2006–7, activists, attorneys, and housing researchers had been warning of the dangers of subprime and predatory lending, mindful of its severe racial inequalities. These experts recognized early on the little-publicized fact that African American and Hispanic/Latino borrowers are (depending on the company or the city) between two and five times more likely than non-Hispanic Whites to end up with subprime credit. By the early 2000s social scientists were suggesting that America's well-known history of racial discrimination and redlining (denying credit to qualified racially marginalized people and/or places) had given way to new patterns of reverse redlining and racial stratification of good and bad credit (HUD–Treasury Joint Task Force 2000; Engel and McCoy 2002; Squires 2003, 2004; Immergluck 2004; Williams et al. 2005).

For a while, such concerns were easily ignored. US subprime lending was an extraordinarily profitable business: for neighborhood mortgage brokers and lenders working in cities and suburbs across the USA, for investment banks who bought packages of these loans and assembled them into tradable financial instruments, and for investors who bought shares in the resulting mortgage-backed securities (MBSs) and collateralized debt obligations (CDOs) that were traded around the world. But in late February 2007, the upscale global banking empire HSBC issued an "unprecedented profit warning," and announced that it was boosting its loan-loss reserves by 20 percent (Tam 2007). HSBC is Europe's largest bank, but several years earlier it had also become the second-largest subprime lender in the USA after a $14.2 billion acquisition of Household International, a company notorious for deceptive, abusive, and irresponsible practices in a syndrome known as "predatory" mortgage lending (Zuckoff 1992; Sorkin 2002; McCoy and Wyly 2004). In 2007, HSBC sought to reassure anxious investors that the bank's global business remained healthy, and that the earnings shortfall was confined to US operations – in particular, to faster-than-expected defaults on the 2006 vintage of high-cost "subprime" loans made to borrowers with low incomes and blemished credit histories. However, news of defaulting loans shocked everyone who considered the implications. In New York, the Dow Jones Industrial Average slid by 415 points in a single day, and the *New York Times*' breathless lead – "Stock markets around the world plummeted yesterday in a wave of selling" (Norris and Peters

2007) served as a vivid preview for all of the dramatic events of 2007 and 2008 that are now described on the front page of the *Wall Street Journal* (*Wall Street Journal* 2007; Wessel 2008), the most conservative major newspaper in America, as the worst financial crisis since the Great Depression (Pérez-Peña 2008, p. C8).

The credit crisis began to unfold. First a wave of bankruptcies swept through the lightly regulated nonbank mortgage companies that dominated the subprime and predatory business. Then, rising defaults and foreclosures worsened MBS losses, and threatened the off-balance sheet structured investment vehicles (SIVs) that Wall Street investment banks had devised to avoid regulation and disclosure of what had been such a lucrative line of business. MBS and SIV losses undermined unregulated hedge funds, and began to trigger mounting losses in the equally unregulated and opaque web of insurance promises that banks and SIVs had purchased in the $60 trillion global credit default swaps (CDS) market. Banks, hedge funds, and other institutions reluctantly began writing down mortgage-related assets – which for publicly traded companies involved a long, slow parade at each quarterly filing deadline that eventually reached some $500 billion by September 2008.

Thanks to the regulatory vacuum and the absence of disclosure requirements on SIVs, CDOs, CDSs, and all the other specialized acronyms of Wall Street's financial innovations, banks and institutional investors around the world began to hoard capital amidst contagious suspicion: no one could predict who would take the next write-off, or even who would survive. Every financial transaction requires the acceptance of risk, and the spreading realization that new elements of the global financial system had been built on the foundation of sophisticated subprime risk models that earned top grades from bond-ratings agencies before imploding horrified bankers and investors. Risk was redefined and relearned as everyone tried to protect themselves from "a hideous STD – a securitization transmitted disease" (Fisher 2008). Not knowing who to trust, financial institutions began to refuse to lend, even as central banks flooded the markets with cash trying to reduce the short-term cost of funds.

The full details of this crisis are still unfolding quickly, as institutions and investors struggle to make sense of incomplete and contradictory information. By April 2009, the International Monetary Fund estimated that financial institutions worldwide face aggregate losses of more than $4 trillion on loans and securities, including $2.7 trillion worth originating in the USA. It may be too early to provide a full and complete accounting of America's subprime mortgage boom and bust. But it is not too early to note how the topic of racial exploitation was quickly erased from public view as the crisis spread. It is worth remembering that HSBC, the giant conglomerate whose failing fortunes first alerted financial analysts to the subprime crisis, had only a few years earlier fought back a disclosure request that dealt specifically with issues of race, discrimination, and subprime practices. After severe Black–White and Hispanic–White disparities were found in tabulations of data fields for high-cost loans newly required under the Home Mortgage Disclosure Act (HMDA), the Civil Rights Bureau Chief of the New York Attorney General's office sent letters to HSBC and three other large lenders in April 2005. Each letter cited the racial disparities in loan pricing observed in the banks' publicly disclosed HMDA records, and requested internal information on the banks' underwriting operations "in connection with the inquiry into whether violations of federal and state

anti-discrimination laws had occurred" (cited in OCC vs. Spitzer 2005, p. 8). State regulators, in other words, were asking for precisely those kinds of details on, *inter alia*, borrower credit and assets that lenders always cite when they claim that there is no possibility of racial discrimination in their business practices. HSBC joined with the other targets of the investigation (Citibank, JP Morgan Chase, and Wells Fargo) along with an industry trade group and the Bush Administration's Office of the Comptroller of the Currency (OCC) to sue the New York Attorney General. The banks eventually won in US District Court on the grounds that a state regulator's demand for data from a nationally chartered bank constituted impermissible "visitorial" powers granted to the Federal Government in the National Bank Act of 1864. They rejected the opportunity to prove themselves innocent of the charges of racial discrimination that had long plagued the subprime sector.

This is symbolic of a more general trend: as the American subprime catastrophe spread into a global crisis in credit and financial markets, issues of race and class were first distorted and then ignored. By the time the American Dialect Society (2008) met in January to vote "subprime" the word of the year, the subject had been neatly whitewashed. Erasing race from the still-unfolding history of America's global financial crisis is dangerous, misleading, and disempowering, and in the remainder of this chapter I challenge this disappearance. Three particular issues demand attention.

First, explanations for the subprime crisis quickly slipped into a deceptively simple narrative. The problem was portrayed as a matter of "too much easy credit" for everyone, including the most unqualified or irresponsible borrowers; mistakes were made by all, and if lenders and Wall Street were guilty of lax standards, so too were irresponsible consumers who borrowed beyond their means. A *Wall Street Journal* (2007) editorial even suggested that the wave of subprime mortgage company failures proved that lenders had not been charging *enough* from their customers. This argument is deceptive: bankruptcy reorganization is the typical end of a profit cycle for a risky enterprise, it has no connection to the suitability of prices charged, and it allows corporations and managers to shield themselves from certain kinds of legal and financial liabilities (Eggert 2002; Engel and McCoy 2002, 2007; McCoy and Engel 2008). At the same time, Nobel laureate Joseph Stiglitz (2007), in a wide-ranging critique of Bush Administration fiscal policy, argued that "Bush's own fiscal irresponsibility fostered irresponsibility in everyone else. Credit was shoveled out the door, and subprime mortgages were made available to anyone this side of life support." But Stiglitz, too, is wrong. In 2006, the most permissive year of irresponsibility, more than five million people who applied for mortgage credit were denied (FFIEC 2007). No one has yet asked who these were.

Second, to the extent that there is an explicit racial dimension to the easy credit/personal responsibility discourse, it is a story that blames victims and government regulations while ignoring the systemic nature of discriminatory targeting. Many conservatives have followed the lead of Thomas Sowell (2007), who blames the crisis on the Community Reinvestment Act (CRA) of 1977 on the grounds that the law "pressured lenders to invest in people and places where they would not invest otherwise." Similarly, Angelo R. Mozilo, chief executive of Countrywide Financial (once the nation's largest subprime lender) told a conference at the right-wing Milken Institute that "the industry faced special pressure from minority

advocates to help people buy homes," by forcing lenders to "lower their mortgage standards" (quoted in Morgenson and Fabricant 2007). But Sowell and Mozilo are wrong. The CRA applies only to deposit-taking institutions, and affects relatively few of the nonbank mortgage companies operating in the subprime markets. Non-Hispanic Whites are 50 percent more likely than Non-Hispanic Blacks to obtain loans from CRA-covered institutions (Apgar et al. 2007). Government regulations, in other words, are strongest in the prime market where traditional lenders compete to serve middle-class Whites.

Third, the discourse of global crisis has obscured the regional and neighborhood geographies of the subprime boom. The present crisis is routinely described as stretching indiscriminately "from Main Street to Wall Street" (e.g., Bajaj 2008). But this is too amorphous. Many researchers are now undertaking the kinds of research needed to understand the intricate networks that link globalized finance systematically with particular neighborhoods, streets, and social groups (Mansfield 2000; Engel and McCoy 2002, 2007; Pennington-Cross 2002; Immergluck 2004, 2008; Williams et al. 2005; Peterson 2006; Apgar et al. 2007; McCoy and Engel 2008; Ashton 2009). What follows is a small contribution to this growing body of work, focusing on the severity of racial inequality in loan origination and its relations to institutional structures and securitization networks across several hundred US cities in the peak years of the boom from 2004 to 2006. Specifically, I analyze subprime mortgage finance as a reflection and reinforcement of class and racial inequalities in American housing markets.

The remainder of the paper proceeds as follows. After introducing the data and approaches, I propose three hypotheses regarding the racialization of subprime mortgage lending. I test these against an empirical analysis of race–class inequalities and institutional structures using a series of matched borrower- and lender-level databases compiled from the 2004, 2005, and 2006 HMDA records. This analysis includes descriptive tabulations and graphics, as well as a conventional econometric analysis to control for demand-side factors. Finally, I offer a theoretical interpretation of these findings drawing on Omi and Winant's (1994) notion of the "racial state."

17.3 Data and Methods

The subprime debacle in the USA invites some simple questions. To what extent did the subprime industry serve those who would otherwise be excluded by mainstream lenders? Did the changes in regulation, industry structure, and securitization have any effect on racial inequalities? Has racial exclusion disappeared, or been transformed? To what extent do the effects vary across the nation's urban and regional housing markets?

I explore these questions with the applicant-level public data disclosed according to the Home Mortgage Disclosure Act (HMDA). Beginning in 2004, HMDA required the identification of high-cost loans that generally correspond to the subprime sector: loans where the total borrowing costs (including points, fees, and other charges) exceed a "rate-spread" trigger – an annual percentage rate more than three percentage points above the yield on Treasury securities of comparable maturity for first lien loans, and five percentage points for subordinate liens

(FFIEC 2005–2008). HMDA has many limitations, not least because banking industry lobbyists have fought back attempts to improve the data. Conservatives invariably argue that HMDA cannot prove discrimination because the data omit key measures of borrower creditworthiness – but these ideologues conveniently neglect to mention the banking industry's strong opposition to adding credit scores to HMDA (Immergluck 2004). Despite these limitations, the annual HMDA disclosures offer the broadest possible coverage of the "front end," application and origination end of the loan market, and they offer a glimpse into the secondary market via loans that are sold in the same calendar year by originating institutions. These data are not a sample: the Act requires the disclosure of certain characteristics on all applications received by all but the smallest and/or rural mortgage lending institutions – and this includes borrowers' self-reported race, ethnicity, and gender. Moreover, although the vast majority of HMDA research measures the income and other qualifications of those who apply for credit, the data can also be used to identify and analyze the characteristics of those who make loans: the thousands of separate entities filing HMDA reports can be regarded as a rough approximation of the many different subsidiaries competing for market share.

Using these data, I test three hypotheses (Williams et al. 2005; Apgar et al. 2007; Ashton 2009). First, a *racial stratification* hypothesis suggests that, all else constant, subprime credit added a new dimension of inequality instead of erasing old denial-based racial exclusion. Second, a *racial restructuring* hypothesis holds that the competitive reorganization of lenders pursuing market niches and regulatory freedoms had significant effects on racial inequalities – effects that cannot be blamed solely on the presumed deficiencies of borrowers. Third, a *racial rescaling* hypothesis proposes that the unequal treatment of racially marginalized individuals and places was worsened by connections to secondary securitization networks.

17.4 Mapping Old and New Inequalities

A simple, unconditional tabulation of loan rejections provides a preliminary test of the racial stratification hypothesis. Despite the widespread turbulence of the industry in a competitive housing and lending boom, loan rejection rates were remarkably stable (Table 17.1). There is no evidence of falling denial rates to suggest that subprime innovation erased traditional lines of exclusion; indeed, with only a few exceptions, rejection rates edged upward. Overall denials slipped marginally for non-Hispanic Blacks between 2004 and 2005 (from 30.7 percent to 30.1 percent), and this period also brought a slight decline for applicants who identified themselves as non-Hispanic but who refused to answer the race question. In all other cases, however, denial rates increased between 2004 and 2006. Some of these increases were substantial – from 22.2 percent for non-Hispanic Black homebuyers in 2005 to 26.3 percent the next year, for instance. Moreover, *relative* denial rates proved durable. In 2004, non-Hispanic Black homebuyers were denied at a rate 1.91 times higher than non-Hispanic Whites. This ratio was almost identical the next year, and jumped to 2.15 in 2006. During the year when everyone was supposedly able to obtain credit, more than 3.8 million homeowners and would-be homebuyers were rejected by lending institutions. African Americans were twice

Table 17.1 Application rejections by race and ethnicity, 2004–2006

Applicant race	*2004*		*2005*		*2006*		*Number of denials, 2006*	
	Hispanic	*Non-Hispanic*	*Hispanic*	*Non-Hispanic*	*Hispanic*	*Non-Hispanic*	*Hispanic*	*Non-Hispanic*
Denial rates, home-purchase only (%)								
American Indian or Alaska Native	18.04	18.51	18.90	19.03	23.33	20.49	7,808	5,388
Asian	15.59	12.71	17.17	14.45	21.65	15.59	1,464	58,641
Black or African American	17.79	21.08	21.21	22.20	25.32	26.31	5,265	231,715
Native Hawaiian or Other Pacific Islander	16.75	15.09	22.57	16.46	23.03	19.48	2,674	7,307
White	17.05	11.03	18.74	11.63	22.94	12.23	284,201	491,049
Information not provided	20.07	20.22	22.32	16.71	25.11	19.21	25,338	25,434
Denial rates for all single-family applications (%)								
American Indian or Alaska Native	25.39	25.85	27.18	28.17	35.35	30.95	36,194	25,292
Asian	20.38	15.64	22.11	17.69	26.75	20.18	4,041	145,563
Black or African American	24.88	30.67	26.14	30.15	30.67	32.90	14,255	721,211
Native Hawaiian or Other Pacific Islander	23.13	21.48	25.95	22.33	30.12	26.14	9,510	25,987
White	22.04	17.34	22.34	18.13	26.07	19.79	653,162	2,051,464
Information not provided	26.35	25.87	29.18	24.41	31.67	24.70	87,458	105,823

Data source: FFIEC (200520007)

Table 17.2 FHA and subprime market shares by race and ethnicity (includes only loans approved and originated to owner-occupiers in one to four-family dwellings)

	FHA prime share (%)			*Conventional subprime share (%)*			*Conventional subprime volume ($billion)*		
	2004	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*
Race:									
American Indian or Alaska Native	4.40	2.95	3.46	16.02	27.58	29.57	2.81	5.25	4.48
Asian	0.82	0.61	0.76	5.67	15.93	17.87	6.84	22.13	21.12
Black or African American	8.10	5.25	5.76	25.74	44.95	46.85	30.43	72.15	77.18
Native Hawaiian or Other Pacific Islander	3.23	2.10	2.66	13.99	28.44	30.66	1.94	5.04	4.65
White	3.63	2.75	3.37	9.26	19.17	21.92	121.71	303.31	306.89
Information not provided	2.17	1.23	1.77	12.76	25.98	28.56	33.75	74.78	72.21
Not applicable	0.89	2.12	2.69	3.34	7.69	5.46	0.02	0.05	0.02
Ethnicity:									
Hispanic or Latino	4.71	2.41	2.41	16.79	37.87	40.47	34.30	109.63	116.64
Non-Hispanic	3.62	2.86	3.61	9.52	18.59	21.29	130.22	303.05	307.77
Information not provided	2.18	1.29	1.67	11.94	24.39	26.70	32.87	69.83	61.85
Not applicable	4.51	4.60	3.77	5.00	16.12	26.68	0.09	0.20	0.30

Data source: FFIEC (2005–2007)

as likely as Whites to be rejected, and there is little evidence that 'old-style' denial-based exclusion disappeared in this part of the market.

Other dimensions of the market, however, shifted considerably during this short period of time. Credit insured by the Federal Housing Administration (FHA), historically prevalent among low- to moderate-income neighborhoods and African American borrowers, was quickly crowded out by the unregulated subprime boom (Table 17.2). FHA loans accounted for only 8.1 percent of all loan volume to African Americans in 2004, and this share slipped below 6 percent over the next two years. In contrast, in a single year, conventional subprime market penetration of African American communities shot up from 26 percent to 45 percent; a lucrative $30.4 billion market mushroomed into a $72.1 billion business. Total subprime volume for all racial groups was just shy of $200 billion in 2004; the market more than doubled the next year, and then edged up to $486 billion in 2006. (All of these figures are conservative estimates, since they exclude applications with incomplete or missing information on ethnicity and other key variables; considering all records, the total subprime market exceeded $540 billion in 2006).

These figures attest to a broad and lucrative array of opportunities for brokers, lenders, investment banks, and many other individuals and institutions competing in an evolving market and regulatory environment. Competition brought notable shifts among types of institutions reporting to different regulatory and supervisory agencies (Table 17.3). The most significant departure from historical patterns was

Table 17.3 Subprime specialization by subsidiary type

Lender type	*Avg. lender share of high-cost loans*			*2006 Only Number of Institutions*	*Origination volume ($ billions)*			*Statistically significant differences between means, by lender type (Tukey test, P < 0.01)*										
	2004	*2005*	*2006*		*High-cost*	*Other*		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
Bank regulated by Federal Reserve Board (FRB)	18.47	20.39	20.68	519	3.5	24.5	*1*		✓				✓		✓	✓		
Mortgage subsidiary of FRB-regulated bank	50.13	50.19	54.00	147	76.2	196.1	*2*	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Bank regulated by Federal Deposit Insurance Corporation (FDIC)	21.65	21.53	21.88	2,725	35.6	75.1	*3*		✓				✓		✓	✓		
Mortgage subsidiary of FDIC bank	8.39	11.63	18.73	91	7.5	31.	*4*		✓				✓		✓			
Mortgage subsidiary of credit union	8.04	6.38	8.70	24	0.2	1.8	*5*		✓									
Credit union	8.19	7.78	5.88	2,019	0.8	46.2	*6*	✓	✓	✓	✓			✓			✓	✓
Bank regulated by Office of the Comptroller of the Currency (OCC)	19.35	21.55	21.60	955	67.7	399.5	*7*		✓				✓		✓	✓		
Mortgage subsidiary of OCC-regulated bank	9.68	4.71	6.74	276	5.7	120.3	*8*	✓	✓	✓	✓			✓			✓	✓
Thrift regulated by Office of Thrift Supervision	5.94	7.21	10.30	584	36.3	259.2	*9*	✓	✓	✓			✓	✓				✓
Mortgage subsidiary of OTS-regulated thrift	8.81	19.26	24.23	34	34.6	18.0	*10*		✓				✓		✓			✓
Independent mortgage company	10.38	17.47	19.90	1,392	272.7	433.2	*11*		✓				✓		✓	✓	✓	

the aggressive growth of specialized subsidiaries of traditional, deposit-taking savings institutions and banks. Until a few years ago, the subprime market was dominated by thinly capitalized, lightly regulated independent mortgage companies that were not subject to CRA oversight (Apgar et al. 2007). These firms still account for an outright majority of all high-cost lending volume. But this dominance appears to be only a byproduct of the overall shift from traditional banks to nonbank financial services. In fact, the average subsidiary of a Federal Reserve regulated bank did a majority of its mortgage business in high-cost loans in 2006. The subprime market shares of each of the 146 subsidiaries reporting to the Federal Reserve stand out as statistically significant and distinctive when compared with the market shares of all other lender types (see the right-hand side of Table 17.3).

So banks moved into the subprime market through their flagship operations, by creating specialized subsidiaries, and through targeted acquisitions of existing subprime firms. This "strategic transformation of banking" (Dymski 2007) was driven in large part by the voracious Wall Street appetite for mortgage-backed securities (Ashton 2009). By 2006, subprime loans were more than four times more likely to be sold into private securitization compared to private loans, more than twice as likely to be sold to special-purpose vehicles (SPVs) – vehicles specifically designed as pass-through entities that break the chain of legal liability between the loan transaction and subsequent investors (Eggert 2002; McCoy and Engel 2008) – and almost twice as likely to be sold to life insurance companies, other mortgage banks, and finance companies. At the peak, more than three-quarters of subprime originations went directly into the secondary market through various sales networks that bypassed governmental oversight or disclosure (Table 17.4). These findings are in line with Malpezzi's (2008) assessment that, beginning in 2003, private subprime securitization routes began to edge out the Government Sponsored Enterprises in the secondary market.

Critically, these mortgage market changes are intertwined with urban and regional geographies of economic growth and decline, housing construction and neighborhood change, and historical legacies of immigration and racial–ethnic diversity. Several studies document the multivariate interdependencies between segmented credit flows and metropolitan housing markets (Pennington-Cross 2002; Apgar et al. 2007; Immergluck 2008; Mayer and Pence 2008). But two of the simplest ways of mapping the subprime landscape offer the clearest views. First, subprime market share correlates quite closely with denial rates across the nation's 387 metropolitan areas (Figure 17.1). For advocates of risk-based pricing, this pattern offers clear confirmation of its value: subprime credit goes to precisely those places where borrowers would otherwise be excluded. Yet this argument is weakened when we consider how long the subprime boom lasted: if risk-based pricing really works, why has the subprime market share failed to reduce regional denial rates? Moreover, if risk-based pricing is racially neutral, why does figure one hint that places with the highest shares of African American borrowers are characterized by *both* high denial rates and higher subprime shares? On these measures, risk-based pricing is most prevalent in places like Detroit and many of the regional centers of the Confederacy; the few exceptions (places in the upper right corner of the chart with low Black shares) are low-income cities with large Latino and migrant-worker populations on the Texas–Mexico border. The overall pattern provides strong

Table 17.4 Secondary sales circuits (includes only conventional, conforming loans approved and originated for one to four-family dwellings)

Purchaser type	*Subprime*			*All others*			*Ratio*		
	2004	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*
Not sold in same calendar year	29.57	21.78	21.25	25.13	24.05	26.86	1.18	0.91	0.79
Fannie Mae	1.48	1.93	2.18	21.18	18.18	17.81	0.07	0.11	0.12
Ginnie Mae	0.00	0.00	0.00	0.00	0.00	0.00			
Freddie Mac	0.20	0.12	0.40	12.81	12.61	11.79	0.02	0.01	0.03
Farmer Mac	0.00	0.00	0.00	0.00	0.00	0.00			
Private securitization	2.55	15.85	15.80	1.74	4.12	3.60	1.47	3.85	4.39
Commercial bank, savings bank, or savings association	7.69	5.98	4.87	5.31	4.55	4.81	1.45	1.31	1.01
Life insurance company, credit union, mortgage bank, or finance company	10.15	17.39	18.18	7.06	8.97	9.61	1.44	1.94	1.89
Affiliate institution	6.13	8.01	9.15	7.02	11.40	11.55	0.87	0.70	0.79
Other type of purchaser	42.23	28.92	28.18	19.74	16.12	13.96	2.14	1.79	2.02
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*			
Total originations ($billions)	*182.7*	*405.5*	*425.9*	*1,174.8*	*1,193.8*	*1,115.6*			

Data source: FFIEC (2005–2007).

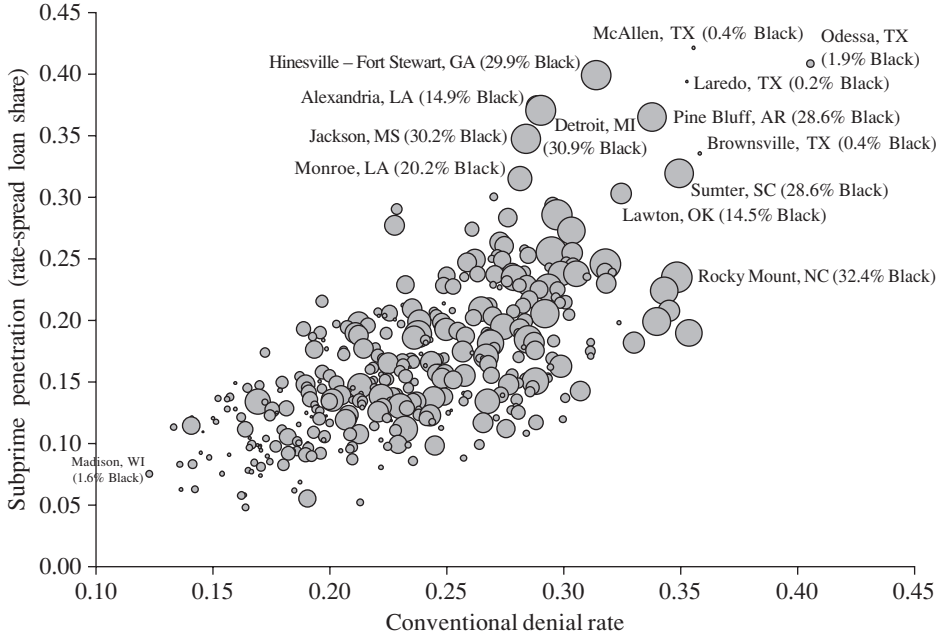

Figure 17.1 Conventional denial rate (horizontal axis) and rate-spread market share (vertical axis) by metropolitan area, 2004.
Note: Circle sizes proportional to non-Hispanic black share of loan applications.

support for our first hypothesis – that the old inequalities of denial-based exclusion persist alongside newer inequalities of stratified exclusion.

A second mapping approach offers clues on who was responsible for creating these new inequalities. The racial restructuring hypothesis holds that the competitive reorganization of the mortgage industry – as lenders reconfigured themselves to avoid regulatory oversight while pursuing subprime profits – was intertwined with worsening racial inequalities. Graphing the relationship between subprime specialization and orientation to the minority market provides significant evidence in support of the racial restructuring thesis (Figure 17.2). As a general rule, lenders only pursue the African American and Latino markets if they can reap the deregulated profits of high-cost lending. Only a few lenders specialize in the minority market while avoiding the subprime business – the institutions in the bottom-right corner of the chart. These are institutions in Puerto Rico, where a strong government subsidy program renders private subprime credit noncompetitive. Most lenders nationwide specialize in prime credit mostly for non-Hispanic Whites (the bottom left of the graph) or pursue Black and Hispanic borrowers with high-cost lending (the top right). The pattern would be even more striking if subprime lenders did not exploit regulatory loopholes that result in many loan applications being coded with no information on race, ethnicity, and sometimes gender: 99 percent of the applications reported by Resmae Mortgage (see the upper left corner) were racially or ethnically invisible. Without these disclosure problems, the institutional

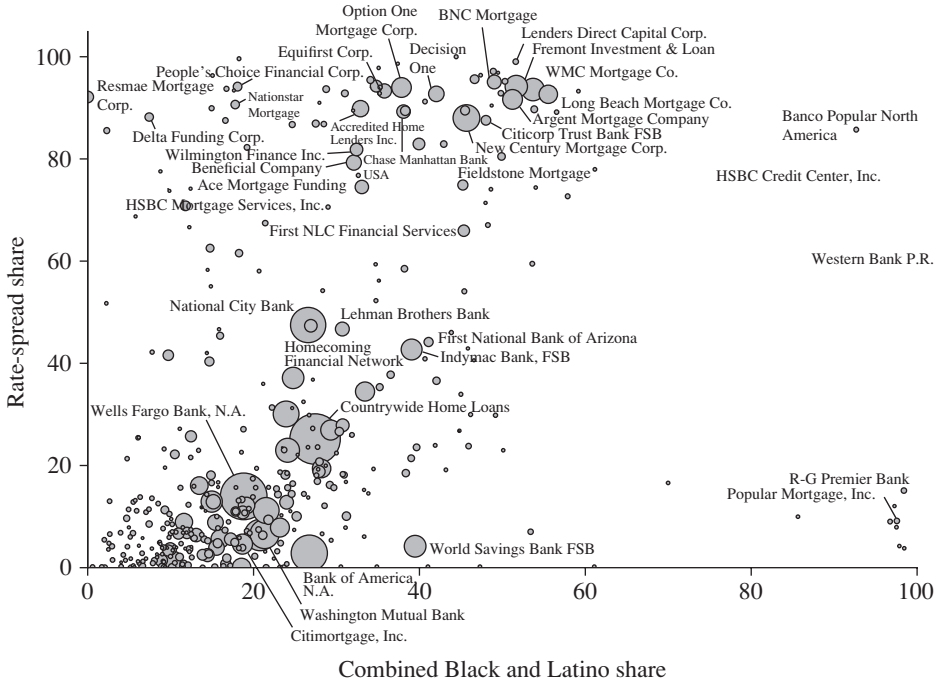

Figure 17.2 Black and Hispanic share of applications (horizontal axis) by share of originations exceeding rate-spread trigger, 2006.
Note: Circle sizes proportional to total originations.

correlation between subprime specialization and racial–ethnic marketing would probably be much stronger.

Resmae filed for bankruptcy protection in early 2007, and its assets were subsequently purchased in March 2007 by the Citadel Investment Group, a private hedge fund. Many of the other institutions in Figure 17.2 also sought bankruptcy protection. The first wave of failures swept through the institutions on the top of the graph – most of them lightly regulated, nonbank institutions that made and sold loans quickly, earning up-front profits from initial transactions rather than long-run streams of interest income from repayments. The largest and most prominent failure was New Century Financial, a firm that made 204 thousand mortgages ($51.6 billion) in 2006, 88 percent of them high-cost. It was the second-largest subprime lender after HSBC Finance ($52.8 billion); Black and Hispanic borrowers accounted for about 46 percent of the firm's originations. New Century reported a profit of $63 million in the third quarter of 2006, but several months later the firm was forced to restate earnings, and soon sought bankruptcy protection. A subsequent external audit uncovered systematic accounting failures – related to repurchase provisions that sometimes required originating lenders to buy back loans from investors if the borrowers slip into delinquency within the first 90 days – and concluded that the $63 million profit was an illusion, along with more than $200 million more claimed as profits during 2006 (Missal 2008).

For many years, of course, these kinds of profits were very real, sustained by rising home prices and quick distress resales that avoided formal default or foreclosure while insulating lenders and investors from losses. But as the boom ended and defaults spread, New Century was the precursor to a growing wave of failures – first the subprime specialists, then the investment vehicles that had supplied their capital, then larger national and transnational banks and investment houses. By September 2008, Lehman Brothers collapsed, Fannie and Freddie were placed into a federal conservatorship (nationalism in all but name), and the federal government was forced to take a 79.9 percent stake in AIG, once the world's largest insurance company. Goldman Sachs and Morgan Stanley became the last of New York's independent investment houses to reorganize themselves into traditional bank holding companies so they could obtain federal assistance. Wall Street, which had defined itself since the late 1990s by the innovative evasion of regulations led by the independent investment houses, had effectively destroyed its own business model. The old-fashioned bank, backed by government guarantees and federal supervision, was suddenly fashionable again. Unfortunately, while financial institutions have been rescued by rapid-response, emergency infusions of trillions of dollars, conservatives have fought back nearly all attempts to provide meaningful assistance to homeowners facing foreclosure on predatory subprime loans. What is clear from Figure 17.1 and Figure 17.2 is that the restructuring of the mortgage sector became deeply racialized, with troubling implications for the unequal risks facing millions of individual borrowers and communities.

17.5 Modeling the Transformation

It could be argued that the evidence presented thus far is circumstantial, because it does not distinguish between lenders' actions and the qualifications of prospective borrowers. To address this, a multivariate approach is needed to control for demand-side factors and to highlight the independent effects of subprime lending on racial stratification, financial-services transformation, and racialized institutional practices. Here I use the standard approach of most HMDA-based studies, which involves estimating individual-level models to control for applicant income, requested loan amount, and similar borrower characteristics. This standard approach is augmented with (i) subsidiary-level aggregates designed to measure market specialization, and (ii) a proxy for applicant credit history.

In the early 1990s, Abariotes et al. (1993) developed a technique to use the reasons lenders provide when they deny applications in order to infer underwriters' judgments of credit quality (see also Myers and Chan 1995; Holloway 1998). When lenders reject applications, they can cite specific reasons for their decision, and by far the most common is credit history; these denial codes can be used to estimate, for a random sample of applications, a logistic regression model predicting the likelihood of a bad-credit denial as a function of borrower income, loan-to-income ratio, and so on. The parameters of this model can then be used to calculate a probability value for all applicants in the entire database, measuring each prospective borrower's statistical similarity to those consumers rejected by lenders who specifically identified credit history as a problem.

Table 17.5 Tests of risk-based pricing, 2006. Estimated with all conventional single-family applications either (i) approved and originated, or (ii) rejected by the lender, for properties in a metropolitan area in the continental USA, filed either at subprime institutions (those where rate-spread loans account for at least 80 percent of originations) or prime lenders (where rate-spread loans are no more than 20 percent of all loans). Reference category for loan purpose is home purchase; for race/ethnicity/gender, non-Hispanic white male; for institution, Federal Reserve regulated bank

Variable	*Loan Rejection Models*									
	Subprime Specialists					*Prime Lenders*				
	Base model		*Add credit proxy*			*Base model*		*Add credit proxy*		
	Coefficient	*Odds ratio*	*Coefficient*	*Odds ratio*	*Tolerance*	*Coefficient*	*Odds ratio*	*Coefficient*	*Odds ratio*	*Tolerance*
Intercept	−0.514	0.60	−0.5768	0.56		−2.1502	0.12	−2.3487	0.10	
Applicant income	−0.00000103	0.89	−0.000000413	0.96	0.27	−0.00000276	0.65	−0.00000128	0.82	0.28
Income squared	0.000000000000151	1.08	0.0000000000000448	1.02	0.40	0.000000000000311	1.28	0.00000000000015	1.13	0.37
Income to loan ratio	0.0618	1.14	0.0466	1.10	0.68	0.0097	1.04	−0.0251	0.91	0.87
Owner-occupant	0.0476	1.05	−0.0235	0.98	0.84	−0.3359	0.72	−0.4807	0.62	0.86
Subordinate lien	−0.2692	0.76	−0.2893	0.75	0.81	0.2242	1.25	0.1757	1.19	0.78
Jumbo loan	0.3171	1.37	0.3186	1.38	0.83	0.455	1.58	0.4352	1.55	0.78
Pre-approval requested	−0.4443	0.64	−0.3613	0.70	0.98	−0.5733	0.56	−0.391	0.68	0.90
Data edit failure	0.2088	1.23	0.2515	1.29	0.39	0.0897	1.09	0.2082	1.23	0.84
Home improvement	0.2532	1.29	−0.2461	0.78	0.27	1.1044	3.02	0.1359	1.15	0.22
Refinance	0.3373	1.40	0.1779	1.20	0.30	0.7767	2.17	0.4841	1.62	0.51
Demographic information unknown	0.4413	1.56	0.3316	1.39	0.53	0.7323	2.08	0.4826	1.62	0.76
Female primary applicant	−0.0106	0.99	−0.0415	0.96	0.91	0.101	1.11	0.0326	1.03	0.93
Hispanic	−0.0586	0.94	−0.1957	0.82	0.44	0.6095	1.84	0.2653	1.30	0.71
Native American	0.2293	1.26	0.0113*	1.01	0.94	0.7741	2.17	0.2415	1.27	0.96
Asian or Pacific Islander	0.0661	1.07	0.0488	1.05	0.93	0.285	1.33	0.2701	1.31	0.96
African American	0.1808	1.20	−0.087	0.92	0.20	0.8732	2.40	0.2193	1.25	0.49
OCC-regulated bank	0.0113*	1.01	0.0292	1.03	0.54	0.5348	1.71	0.5372	1.71	0.24
FDIC-regulated bank	−0.4331	0.65	−0.4137	0.66	0.40	−0.1227	0.88	−0.1226	0.89	0.51
OTS-regulated thrift	0.4081	1.50	0.353	1.42	0.43	0.543	1.72	0.4134	1.51	0.32
Credit union	−1.5659	0.21	−1.3061	0.27	0.99	−0.5012	0.61	0.1031	1.11	0.40
HUD-regulated mortgage bank	0.2294	1.26	0.2388	1.27	0.39	0.4103	1.51	0.4306	1.54	0.30
Credit instrument			3.8864	1.18	0.11			8.7599	1.52	0.14
Number of observations	3,552,926		3,552,926			7,654,073		7,654,073		
Pseudo R-squared	0.0426		0.0434			0.1141		0.1190		
Unadjusted denial rate	0.493		0.493			0.198		0.198		

Rate-Spread Approvals at Subprime vs. Rejections by Prime Lenders			
Coefficient	*Odds ratio*	*Tolerance*	
1.0534	2.87		
−0.000000703	0.92	0.31	
0.0000000000000936	1.06	0.40	
−0.058	0.79	0.89	
0.4913	1.63	0.87	
0.1257	1.13	0.81	
−0.4539	0.64	0.81	
−2.0565	0.13	0.97	
0.7122	2.04	0.72	
−0.3559	0.70	0.18	
−0.2466	0.78	0.42	
0.1053	1.11	0.64	
0.231	1.26	0.92	
0.9636	2.62	0.56	
0.3547	1.43	0.94	
−0.0663	0.94	0.94	
1.3613	3.90	0.31	
−3.6783	0.03	0.35	
−0.9028	0.41	0.53	
−1.4526	0.23	0.38	
−5.0202	0.01	0.67	
−0.1655	0.85	0.29	
−9.1694	0.62	0.12	
3,317,583			
0.4309			

*Coefficient not significant at P = 0.05; all other coefficients are significant at P < 0.001.

Citing credit history has always been the best way for lenders to insulate themselves against charges of discrimination, and lenders' responses to the denial-code questions in HMDA are almost never scrutinized by regulators; as a result, this instrumental variable gives the benefit of the doubt to underwriters and lenders, and subsumes a certain amount of racial bias into a measure of applicant financial qualifications. Including the credit instrument in subsequent models of denial or subprime selection has the effect of using lenders' own judgments to build in a conservative bias that minimizes the likelihood of a finding of racial inequality. So, to the extent that the results support the three hypotheses under consideration, the findings will be robust.

17.5.1 Denial and stratification

The first hypothesis under scrutiny in this analysis is that subprime specialization complicates denial-based exclusion rather than reducing it. The raw rejection rates (recall Table 17.1) seem to support this hypothesis: at the peak of risk-based pricing in 2006, non-Hispanic Blacks are rejected at a rate 1.66 times higher than non-Latino Whites for all single-family applications, and at a rate 2.15 times higher for home purchase loans. For Hispanics, the disparities are substantially less, although the ratios vary with the interaction of race and ethnicity. For all applications, rejection ratios (of minority groups relative to non-Hispanic whites) range from 1.35 for Hispanics who identify themselves as Asian, to 1.78 for American Indian and Alaska Native Hispanics; for home purchase applications, the disparities range from 1.77 for Asian Hispanics to 2.07 for Latino African Americans.

Intriguingly, these inequalities do seem to be reduced among subprime specialists. If we model the likelihood that a loan request will be denied as a function of applicant characteristics, the results diverge sharply for prime and subprime institutions (Table 17.5). For applications filed at lenders where fewer than 20 percent of all originations are subprime, the odds ratio comparing non-Hispanic Blacks to non-Hispanic Whites is 2.40 when considering directly observed applicant characteristics; adding estimated credit risk reduces this disparity to 1.25 (see the columns for "prime lenders"). At lenders where more than 80 percent of all originations are subprime, the corresponding ratios are 1.20 and 0.92 – the latter implying that Blacks are treated slightly more favorably than Whites at subprime specialists. This finding directly contradicts the racial stratification hypothesis. Yet three considerations merit caution. First, fit diagnostics fall far below previous HMDA-based studies – especially for subprime specialists. Individual applicant characteristics offer very little predictive value, yielding pseudo-R^2 measures between 4 and 12 percent. The credit proxy has the expected sign, but adds little improvement to model fit, in contrast to its robust performance in previous studies (Myers and Chan 1995; Holloway 1998; Holloway and Wyly 2001). Second, the reduction or disappearance of racial effects in the denial model can be interpreted in ways that undermine the rationale for risk-based pricing, namely, that if firms are allowed to charge higher costs to cover riskier borrowers, they will be *less* likely to engage in denial-based exclusion. Table 17.5 suggests that regardless of race and ethnicity, *anyone* who applies at a subprime specialist faces a higher chance of denial than those

who apply elsewhere (49.3 percent vs. 19.8 percent). Racial inequalities in underwriting have been replaced by racial inequalities in marketing and broker referral networks. Third, the provisions of HMDA do not allow us to identify people who sought prime credit and who were turned down, nor to distinguish them from others who apply for prime credit, only to find on closing that the paperwork has been changed to a more costly and risky subprime loan. Such tactics are pervasive in the subprime market, and the impossibility of systematically measuring them makes it difficult to provide a definitive test of risk-based pricing.

An alternative approach, however, offers important clues. If financial innovation serves borrowers who would otherwise be excluded from mainstream credit, then there should be no significant differences between people who are served in the subprime market and people excluded by the old, credit-rationing prime lenders. In other words, the profile of borrowers approved for high-cost credit at subprime lenders should be roughly similar to the profile of those who applied and were rejected by prime lenders. Model results contradict these expectations.

The right-hand panel of Table 17.5 shows there are striking, systematic differences between these populations. In models calibrated with 2004 data, the credit proxy yielded a standardized odds ratio of 1.3, confirming that subprime lenders serve riskier consumers; but this effect reverses by 2006, while racial and ethnic contrasts widen. After accounting for income, loan type, estimated debt burden, and estimated credit risk, African Americans are 3.9 times more likely to end up with high-cost credit at a subprime specialist than they are to be rejected by a prime lender. For Latinos, the ratio is 2.62. Put another way, the customer base of the subprime industry had almost four times as many African Americans, and more than two and a half times as many Latinos, as would be expected if the industry were simply serving those turned away by traditional lenders. It strains credulity to accept that these results are solely the result of rational, fully informed choice. The results suggest rather that segmentation of racial and ethnic minorities intensified with the expansion of risk-based pricing. Risk-based pricing may have eliminated racial disparities in rejection by increasing rejection rates for *all* borrowers who deal with subprime lenders and brokers. At the same time, subprime lenders can legitimately claim that all borrowers are treated without regard to race. And yet marketing and broker referral networks ensure that racial and ethnic minorities are disproportionately steered into high-cost credit. Risk-based pricing complicated traditional inequalities but certainly did not eliminate them.

17.5.2 The New Institutional Landscape

The second hypothesis shifts the focus from the qualifications of borrowers to the strategic, competitive decisions of lenders: the racial restructuring hypothesis proposes that the institutional reorganization of the lending industry created racial disparities that persist after accounting for the characteristics of consumers. To test this proposition, I estimate a series of models predicting the likelihood that an approved, originated loan will exceed the high-cost subprime threshold (Table 17.6). Model 1 presents the odds ratios from a model with only the directly observed characteristics of applicants; Model 2 adds the credit proxy; and Model 3 adds measures

Table 17.6 Logistic models of subprime segmentation

	Model 1			*Model 2*			*Model 3*		
	2004	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*
Income	0.45	0.60	0.76	0.54	0.73	0.88	0.66	0.75	0.86
Income squared	1.46	1.31	1.15	1.35	1.18	1.07	1.21	1.16	1.08
Income to loan ratio	1.12	1.04	1.02	1.06	0.97	0.97	1.15	1.11	1.09
Owner-occupied	0.81	0.93	0.73	0.75	0.83	0.66	0.65	0.64	0.53
Subordinate lien	2.66	1.92	1.41	2.48	1.85	1.40	1.87	1.29	1.16
Jumbo loan	0.65	0.83	0.93	0.64	0.84	0.93	0.51	0.70	0.69
Pre-approval requested	0.61	0.48	0.31	0.69	0.58	0.37	0.80	0.88	0.52
Data quality flag	0.88	0.91	1.09	0.91	0.98	1.15	1.35	1.33	1.23
Home improvement	0.69	0.44	0.52	0.40	0.20	0.24	0.36	0.19	0.33
Refinance	1.06	0.83	0.96	0.88	0.63	0.76	0.68	0.48	0.64
Demographic information incomplete	1.46	1.68	1.63	1.33	1.43	1.37	1.01*	1.02	1.12
Female applicant	1.26	1.29	1.23	1.23	1.22	1.17	1.05	1.05	1.04
Hispanic/Latino applicant	1.84	2.65	2.71	1.48	2.02	2.13	0.89	1.09	1.26
Native American applicant	1.96	1.78	1.66	1.48	1.18	1.13	1.32	1.19	1.27
Asian, Hawaiian, Pacific Islander applicant	0.75	0.99*	0.99	0.75	0.96	0.97	0.71	0.67	0.79
Black/African American applicant	3.46	3.93	3.77	2.27	2.24	2.35	1.60	2.33	2.38
Credit history instrument				1.26	1.40	1.36	1.24	1.32	1.24
Loan sold to GSE							0.10	0.19	0.24
Loan sold to private investor							0.96	1.99	2.48
Loan sold to bank							1.34	1.57	1.87
Loan sold to finance company							1.00*	1.78	2.01
Loan sold to affiliate institution							1.04	0.92	1.09
Loan sold to other purchaser							1.47	2.04	2.92
National market share							1.22	1.19	1.09
Data quality flag share							0.93	0.96	1.01
Denial rate							1.25	1.40	1.60

Table 17.6 (*Cont'd*)

	Model 1			*Model 2*			*Model 3*		
	2004	*2005*	*2006*	*2004*	*2005*	*2006*	*2004*	*2005*	*2006*
Withdrawal rate							1.09	1.20	1.25
Declined rate							1.07	1.23	1.25
Share of applications closed as incomplete							1.02	1.06	1.08
Share of loans made to owner-occupiers							1.01	0.94	0.86
Subordinate lien share							0.78	0.85	0.86
Jumbo share							0.64	0.68	0.90
FHA share							0.71	0.72	0.80
Share of applicants with incomplete demographic information							1.30	1.44	1.20
Female share							1.16	1.20	1.16
Hispanic/Latino share							1.32	1.77	1.37
Native American share							1.07	0.92	0.96
Asian share							0.72	0.62	0.62
Black/African American share							1.50	1.99	1.77
Lender Black share * Native American applicant							0.99	0.99	1.00*
Lender Black share * Asian applicant							1.02	1.04	1.03
Lender Black share * Black applicant							0.99	0.96	0.98
Lender Black share * Hawaiian or Pacific Islander applicant							1.03	1.04	1.04
Lender Black share * White applicant							1.01	1.02	1.02
Lender Black share * Racial information not provided							1.02	1.02	1.01
Pseudo-R^2	*0.11*	*0.13*	*0.10*	*0.12*	*0.13*	*0.11*	*0.42*	*0.56*	*0.50*

N for 2004: 10,951,818; for 2005: 12,475,694; for 2006: 11,018,814.

* Not significant at $P < .01$; all other coefficients are significant at $P < 0.01$.

Note: Odds ratios for continuous variables measure the change in odds with a one-standard deviation increase in the respective predictor.

Data Source: FFIEC (2005–2007).

of the market specialization of the lender where the borrower obtained the loan. These models offer detailed evidence on the relations between risk-based pricing and the institutional restructuring of recent years. Four main findings stand out.

First, the subprime industry moved well beyond its established niche of low-income borrowers. Model results are consistent with Immergluck's (2008) diagnosis that practices in the low-income subprime market moved rapidly into the "exotic" Alternative-A market serving middle- and high-income buyers in overheated regional housing markets. The standardized odds ratios for applicant income and debt ratio moved steadily towards 1.00 between 2004 and 2006, while owner-occupied status became a more reliable predictor. Even more remarkable, among similar loan amounts to similar borrowers, refinance loans became less likely than home purchase loans to carry high-cost features (the refinance odds ratio dips well below 1.00 in Model 2). These results provide some support for the idea that risky practices became common among middle-class borrowers trying to cope with high housing costs, or seeking loans for investment properties.

But the *second* finding is a sharp racial stratification in these opportunities and constraints. Racial disparities persist after accounting for owner-occupancy and all other factors. At its worst, and only considering directly observed characteristics, African American borrowers were almost four times more likely than Whites to take on subprime credit in 2005. Adding the credit instrument reduces these disparities, but does not eliminate them (see Model 2, Table 17.6). The ratio for Blacks dips slightly from 2.27 in 2004 to 2.24 the next year, only to shoot up to 2.35 the year after that. Meanwhile, the subprime market appears to have reoriented towards Latino borrowers at the height of the boom, with racial odds ratios rising from 1.48 to 2.02 to 2.13. Adding the vector of lender measures, however, fleshes out a subtle distinction in the racial–ethnic dimensions of the industry. Adding lender variables substantially reduces the odds ratios for Hispanics (compare Models 2 and 3): the Latino odds ratio for 2004 is only 44 percent of its magnitude in the model excluding institutional measures, and this figure stays at 0.54 the next year, and 0.59 in 2006. For African Americans, by contrast, the figures are 0.71 in 2004, 1.04 in 2005, and 1.01 in 2006. In other words, much of the racial disparity between Hispanic and non-Hispanic White consumers is a product of the distinctive kinds of lenders active in Latino markets. For African Americans, the entire spectrum of the industry is stratified and biased, and the disparities worsened: the odds ratios for Blacks, after accounting for estimated credit and lender characteristics, rises from 1.60 in 2004 to 2.33 the next year to 2.38 in 2006.

The *third* finding deals with the interactions between racial inequality and networks of structured finance. Private capital that once avoided racial and ethnic minorities moved aggressively into these markets during the boom – creating disparities that cannot be attributed solely to demand-side factors or consumer qualifications. Marketing, advertising, and broker referral networks appear to be important on the front end – attracting applicants – but so also are the decisions about where to sell the loan once it is originated. On the front end, lenders and subsidiaries serving racial and ethnic minorities are doing so mainly through the vehicle of subprime credit. A lender specializing in the African American market (i.e., increasing the lender's Black share by one standard deviation, a bit over 5 percent) increases the likelihood that the loan will be subprime by a ratio of 1.50 in 2004; this effect

strengthens to almost 2 the next year before moderating slightly. The trend is more ambiguous for lenders focused on the Latino market, but the ratio exceeds 1.7 in 2005. Since these ratios persist after accounting for all borrower characteristics that can be measured with public data, the results provide evidence that lending industry structure rivals individual characteristics in terms of understanding market outcomes: among identical consumers, the kinds of loan one receives depends significantly on the kind of institution one is dealing with. Nearly two-thirds of all mortgages are negotiated by mortgage brokers between consumers and lenders (El Anshasy et al. 2006), and we cannot distinguish the business practices of banks and mortgage companies from the activities of brokers. But that is precisely the point: if a lender establishes a dedicated subprime unit to cater to African Americans, or establishes networks with local brokers active in African American neighborhoods, the result will be the same. Serving the minority market will reflect and reinforce localized racial inequalities, while allowing all industry actors to truthfully deny any knowledge of discrimination or biased intent. Yet discriminatory outcomes will persist as economically rational and highly profitable. Even as serving the minority market has become synonymous with specializing in high-cost lending, lenders are still able to claim that all their customers are treated equally: note the extremely weak odds ratio for the interactions between applicant race and lender African American share. And yet, thanks to the combined actions of subprime lenders working in minority neighborhoods and lenders marketing and advertising to minority borrowers through specialized subsidiaries, subprime credit became even more sharply racialized during the boom years between 2004 and 2006.

These boom years departed from previous American housing booms, by virtue of the new pipelines connecting borrowers and neighborhoods to national and transnational securitization networks. The *fourth* finding is that this new infrastructure worsened racial inequalities. To be sure, significant racial coefficients from models estimated with HMDA data have always been challenged by conservative analysts and industry partisans, who cite a long list of reasons why the results cannot "prove" discrimination. Yet it cannot be disputed that such results clearly merit further investigation (this is precisely the methodology used by the Federal Reserve Board to identify institutions for further regulatory examination). In this case, the results indicate that racial disparities worsened in tandem with the acceleration of subprime securitization. The Black odds ratios rose 49 percent in two years, and the Latino ratio jumped 42 percent, at the same time that subprime originations ballooned from less than $200 billion to more than $425 billion, and as lenders moved loans quicker off their books into the secondary market. Loans originated and then quickly sold to another bank were by 2006 almost twice as likely (compared to a loan held in portfolio) to be subprime, all else constant.

In 2004, there was little difference between lenders' portfolio business and the mortgages they quickly resold to finance companies and private investors. Two years later, loans sold to finance companies were twice as likely to be subprime; for private investors, the ratio shot up to 2.48. The pass-through investment vehicles ("other purchasers") have been important conduits for several years for both prime and subprime resales, but even here, subprime circuits moved much quicker, with the odds ratio jumping from 1.47 to 2.92. Notice that, by contrast, mortgage loans sold to affiliate institutions are split evenly between market segments: after accounting

for all other factors in the model, loans sold to affiliates are not substantially more likely to be subprime (the odds ratio never gets above 1.1). These results suggest that subprime securitization networks became especially vulnerable to the classic lemons problem, where originators had incentives to pass off their worst products to others (not affiliates) who believed that structured finance would insulate them from losses (Engel and McCoy 2007). Until early 2007, of course, this was a fairly safe and profitable assumption.

17.5.3 Subprime geographies of race

The implications of this last finding – the interaction of racial inequalities with securitization networks – deserve careful consideration, in light of our third hypothesis that deals with racial rescaling. Additional models confirm that the strengthening of racial segmentation amidst secondary-market acceleration is no coincidence. I estimated models with interaction terms for all 379 metropolitan areas in the USA, testing for relations between the local severity of racial segmentation, the effects of lender specialization, and the role of securitization channels. Consider first the interdependence of individual inequalities and lender specialization across metropolitan areas (Figure 17.3). The raw logit coefficient for subprime selection in the full model for 2006 with all interaction terms is 0.46, corresponding to an odds ratio of 1.6. But this coefficient (ignoring interactions not significant at $P = 0.05$) varies widely, turning negative in places like Idaho Falls, Idaho, Flagstaff, Arizona, Redding and San Luis Obispo, California – while rising substantially in Sheboygan, Wisconsin, Sioux City on the Iowa–South Dakota border, Terre Haute,

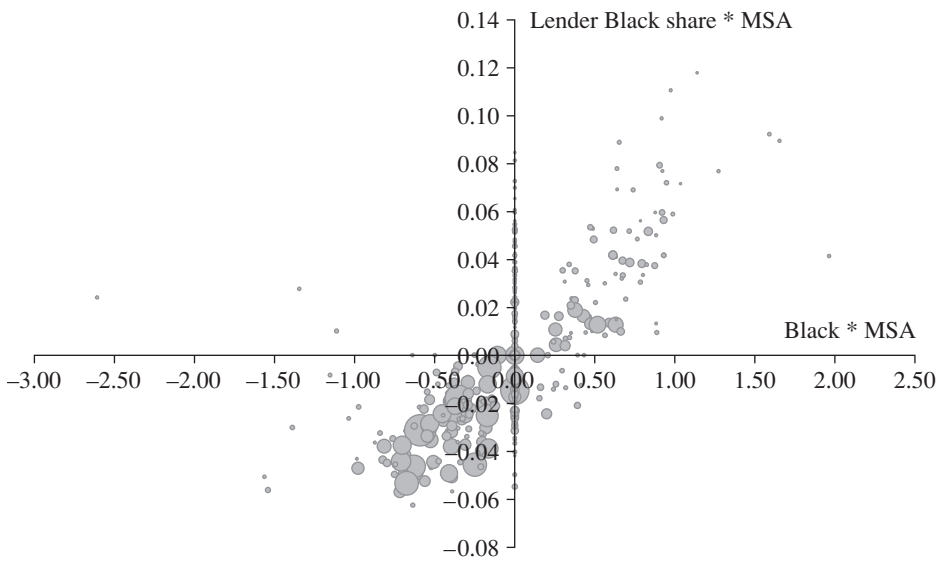

Figure 17.3 Interaction terms from 2006 racial segmentation model, Black by MSA (horizontal axis) and lender Black share by MSA (vertical axis).
Note: Circle sizes proportional to total HMDA loan application records.

Indiana, and Johnstown, Pennsylvania. At both extremes, these are places that are easily overlooked both in national housing-market research and in most local case studies. Outside of Sheboygan or Idaho Falls, who would go there to study racial inequalities in subprime lending? But the pattern becomes obvious when racial segmentation coefficients are plotted against interaction terms for the lenders' African American share – an effect that varies much less, in raw terms, across metropolitan areas (Figure 17.3). In urban and regional housing markets with the most severe segmentation of Blacks into subprime credit, lenders' specialization in the African American market is more decisive in predicting whether an individual borrower will wind up with a high cost loan. Disparate impacts by race are inextricably tied to institutional decisions on subsidiary structure, market specialization, broker networks, and other business practices. The bubbles on this chart are scaled for market size; the worst inequalities thus seem confined to small cities, where in extreme cases the majority of Blacks in town might get subprime loans from one or a few local lenders or subsidiaries that specifically market easy credit and court the African American market. But these intensified effects are by no means confined to small cities. The cluster of larger metropolitan areas with Black by MSA interaction term coefficients around +0.50 includes Detroit, St Louis, Kansas City, Milwaukee, Indianapolis, and Dayton, Ohio. And while many of the nation's largest cities appear in the bottom left quadrant, this does not mean that there are no significant racial inequalities in these places (recall the 2.38 overall odds ratio in Table 17.6).

Securitization networks accentuate institutional divisions and established contexts of regional race relations. Places where local lenders quickly sell loans to special-purpose-vehicles tend to be places with a significantly higher probability of subprime segmentation, and these are also the same places where Black–White loan disparities are more severe (Figure 17.4). This relationship is not overwhelming

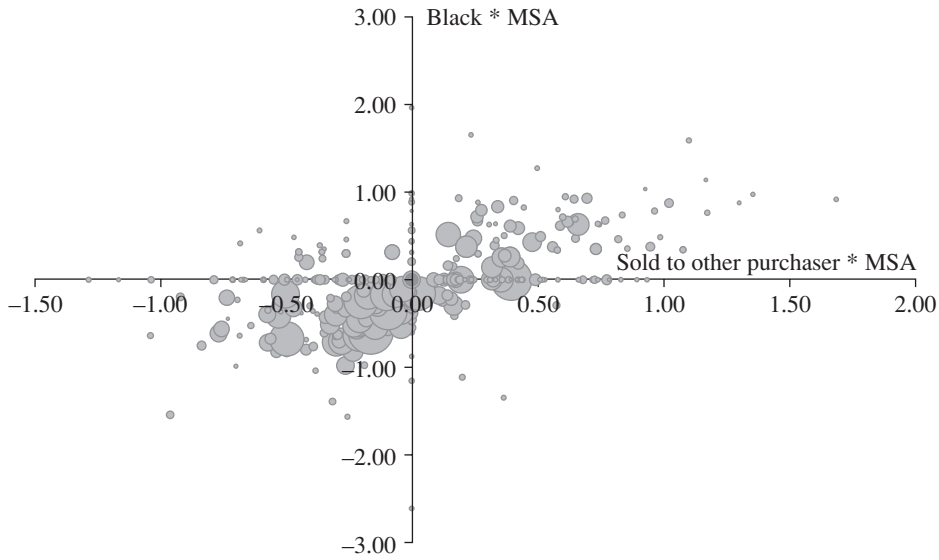

Figure 17.4 Interaction terms from 2006 racial segmentation model, sold to other purchaser by MSA (horizontal axis) and Black by MSA (vertical axis).
Note: Circle sizes proportional to total HMDA loan application records.

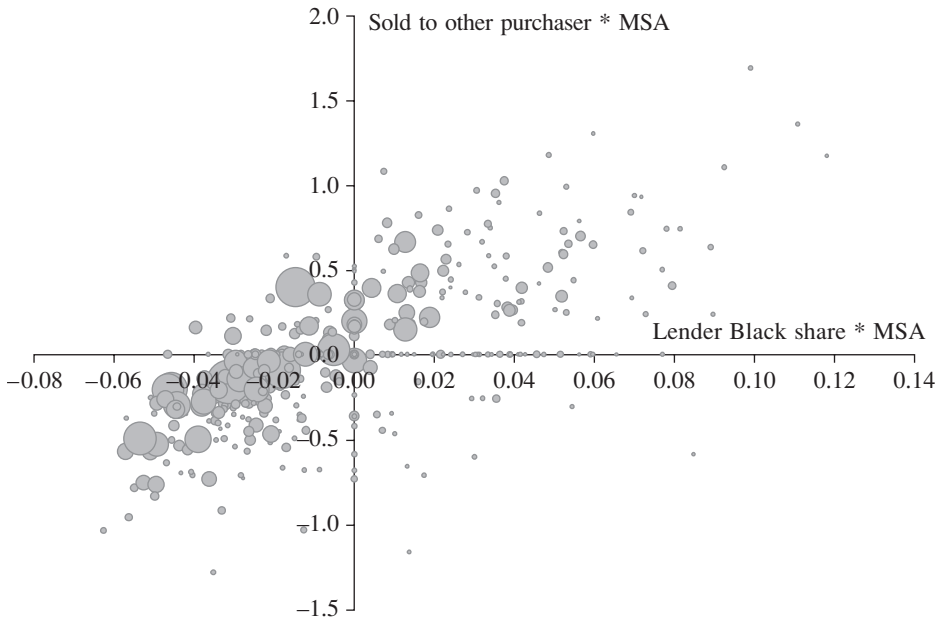

Figure 17.5 Interaction terms from 2006 racial segmentation model, lender Black share by MSA (horizontal axis) and sold to other purchaser by MSA (vertical axis).
Note: Circle sizes proportional to total HMDA loan application records.

($R^2 = 0.25$), but it persists after accounting for an extensive array of borrower and lender characteristics. Finally, lenders specializing in the African American market are more likely to push borrowers into subprime credit in those places where subprime loans are quickly sold to special-purpose vehicles and Wall Street investment networks (Figure 17.5).

17.6 Theorizing the Subprime Racial State

How should the significance of this analysis be understood? For the first time in a generation, orthodox interpretations of lending, borrowing, credit, and risk – especially the American-imposed "Washington consensus" of neo-liberal globalization – are being subjected to widespread, genuine scrutiny. New spaces have emerged to allow alternative views that challenge conventional economic theory and policy. Here I suggest looking to critical race theory for one account of how the subprime crisis arose and why its effects are so unequal. To this end, the work of Michael Omi and Howard Winant (1994) offers an especially valuable contribution that has quickly earned "classic" status (Levine 2006). Omi and Winant set out to develop a broad theory of *racial formation* – an explanation of how racial categories, identities, and subjects are created, how they change, and how they become sites of political conflict. Dynamic change, context, and contingency are at the heart of this analysis of structured inequality – one which avoids the crude reductionism, determinism, and essentialism of traditional theories of race, ethnicity, and class, while

also resisting the indeterminacy of post-structuralist ideas of fluid, post-racial identities. For these authors, race is neither a concrete, fixed *essence*, nor a purely ideological *illusion*, but rather a durable creation of ongoing social and political struggle. For our purposes, the most important part of this panoramic work of theory is an account of the *racial state* (see also Goldberg 2002). In brief, the argument is that social movements and advocacy groups "which seek to represent racially defined minority interests, mobilize minority group members politically, and articulate minority viewpoints," (p. 78) typically encounter fierce resistance from dominant, majority interests controlling state institutions. Faced with challenges, Whites entrenched in the state seek to absorb, marginalize, and co-opt minority claims for representation, power, or reform. Yet these efforts are never completely successful, and thus contemporary racial politics traces out a *trajectory* of "conflict and accommodation . . . between racially based social movements and the policies and programs of the state" (p. 78).

Omi and Winant (1994) use this framework to present a concise yet empirically rich analysis of the post-war period, tracing the rise of the civil rights movement and the responses by different elements of the White-dominated American racial state – its institutions, its explicitly or implicitly racial policies, the conditions and rules justifying state action, and the social relations of coalitions that maintain state legitimacy. They write of an "unstable equilibrium" in which "progress" is neither linear not assured, using a framework which – as with most critical race theory – is typically applied to those controversies where the racial dimensions of political projects are *explicit* and unmistakable – ongoing civil rights struggles, racial (de)segregation in education, affirmative action, media representations of racial and ethnic minorities, the racialization of criminality and incarceration, and so on (Oguss 2005; Parker 1998; Gilmore 2007; Dickinson 2008).

My suggestion, however, is that we can understand the racialization of the American subprime crisis in these terms, by attending to the *implicit* dimensions of majority-controlled state institutions, and by teasing out the "racial definitions and meanings" woven into the fabric of practices that appear at first glance to have nothing to do with race. Since the late 1970s, three broad changes in state and society set the stage for the deeply racialized contours of subprime credit measured above. They are: a subtle shift away from civil rights enforcement in favor of free markets and the "ownership society," the fragmentation of regulation into a complex, weak patchwork of easily avoided limits on market behavior, and the growth of a global market for high-yielding mortgage-backed securities. Together they transformed the racial state.

On the first point, while the early years of the Clinton Administration brought co-ordinated fair housing and fair lending initiatives (Vartanian, et al. 1995), later on, policies viewed through the lens of race or class – affirmative action, school integration, welfare assistance – came under assault. At the same time policies designed to expand homeownership enjoyed strong and consistent support across the political spectrum (Retsinas and Belsky 2002), leading the Clinton Administration to pursue "market benevolence" policy as a substitute for (rather than complement to) a traditional center-left attempt to reduce racial and class inequality. This shift made it easy for the Bush Administration to reorient market policies in ways that altered the terrain of racial inequality without attracting much attention.

The racialized fair housing and antidiscrimination enforcement efforts of the Clinton years were quickly and quietly reversed (see Immergluck 2004, p. 196). But there was no need to take any additional, deliberate actions (of the sort portrayed in Omi and Winant's model) because of the established conventional wisdom around the benefits of deregulation in the apparently neutral domain of banking supervision. With the exception of a weak law passed in 1994 (the Home Owner's Equity Protection Act or HOEPA) serious federal action on racially discriminatory predatory lending only began near the end of the decade. Even then, the results of a 2000 HUD–Treasury Task Force on predatory lending – emphasizing the racial–ethnic, class, and geographical concentration of abusive practices – were easily ignored by the incoming Bush Administration. Racial inequalities worsened over the years with almost no enforcement: HUD began only three fair lending investigations between 2006 and mid-2008, and the Department of Justice filed a single mortgage lending case in 2007 (NFHA 2008, p. 50). So pro-homeownership programs encouraging lending to low-income and minority households fared well under Bush, because they fit so smoothly into the "coherent neo-liberal discourse" of Bush's "ownership society" (Beland 2007, p. 91). Anti-discrimination and fair-housing legislation from the 1960s and 1970s was not repealed. But with no enforcement, the results were the same.

Second, racial inequalities were reinforced as the interaction of state and federal policy created new opportunities for lending institutions to escape regulation. The history of American financial regulation is very complicated, but Chomsisengphet and Pennington-Cross (2006, p. 38) conveniently summarize it: "Many factors have contributed to the growth of subprime lending. Most fundamentally, it became legal." Until the late 1970s, state-chartered banks were subject to general usury limits on the cost of credit, while nationally chartered banks had the option of choosing between a federal cost limit and the maximum permitted in the state where the loan was made. After a 1978 Supreme Court decision (*Marquette*), however, banks were allowed to "export" the cost limit applied in their state of incorporation, thereby pre-empting other states' usury limits. National banks "could establish their headquarters in states with high usury limits – or none at all – and charge the high interest rates permitted by the banks' home state to borrowers located in any other state" (McCoy and Engel 2008, p. 5). Then, in response to inflation pressures which began to push prevailing mortgage rates above some state usury thresholds, Congress passed the Depository Institutions Deregulation and Monetary Control Act (DIDMCA), which eliminated interest limits for first-lien residential mortgages. DIDMCA also allowed regulatory "exportation" for other kinds of depository lenders (McCoy and Engel 2008). In 1982, Congress passed the Alternative Mortgage Transactions Parity Act (AMTPA), which pre-empted state laws, for nearly all types of lenders, for loans that departed from the standard formula of fixed-rate long-term loans; the result was to legalize adjustable-rate mortgages, balloon payments, negative-amortization loans, and many other transactions that previously violated state usury laws. This complex regulatory landscape applied unevenly to institutions and financial practices, and for a growing number of lenders and borrowers, the pre-emption provisions encouraged a competitive race to the bottom. The legal patchwork became even more complicated after a series of executive branch and judicial actions eviscerated state consumer protection laws for certain kinds of institutions, neutralized

the already weak restrictions on lending transactions, and encouraged lenders to organize their operating subsidiaries to avoid oversight or regulation.

The third component of the subprime racial state involved macroeconomic conditions and broad trends in the financial services industry. A wave of mergers and acquisitions has been underway for more than a decade (Dymski 1999), and a 1999 law (the Gramm–Leach–Bliley Financial Services Modernization Act) eliminated Depression-era restrictions that had separated securities-dealing investment banks from traditional, deposit-taking banks. The nation's largest bank holding companies achieved a steadily growing share of total assets (Dymski 2005), while large investment banks responded to the flow of investment into US markets driven by high personal savings rates and central bank policies across Asia. Amidst historically low yields on fixed-income bonds, residential mortgage-backed securities became increasingly popular – and subprime securities promised even higher yields, with individually risky loans packaged into pools designed to spread, manage, and minimize losses for investors with different risk-yield preferences (Ashton 2009). At the peak, subprime securities were issued at the rate of more than half a trillion dollars a year (Standard and Poor's 2006).

None of these changes required any explicit struggles over the racial categories, meanings, or inequalities at the heart of Omi and Winant's (1994) model. But, as we have seen, each change quite literally *took place* on the foundation of racial–ethnic and class segregation in America's housing markets. The result is not just a new political economy based on the integration of housing, mortgage, and financial markets, but also a new kind of racial state in which corporate organization, financial intermediation, and competitive deregulatory innovation have transformed the scale of racism. With the growth of specialized and lightly regulated subsidiaries, the proliferation of small, independent mortgage brokers, and the expansion of securities-related loan-selling networks, all actors are able to deny any discriminatory intent. Local brokers who specialized in high-risk subprime loans can treat all customers the same – but segregation, lower minority incomes, and the continued exclusion by prime, mainstream banks will ensure that most subprime brokers will spend most of their time in minority neighborhoods. Mortgage companies and bank subsidiaries can claim that they treat all customers who come to them equally, without regard to race or ethnicity – but when they create specialized subsidiaries that aggressively market to minorities, and when they work closely with local broker networks, these processes will ensure that minorities are more likely to wind up at institutions that give every customer a bad deal. And Wall Street investment banks can truthfully say that they have no knowledge whatsoever of the race or ethnicity of individual borrowers whose loans are being packaged into MBS and sold to investors around the world. And yet the combination of racial segregation, deregulatory subsidiary structure, and target marketing will ensure that a disproportionate share of investors' yields, and investment banks' fees, will be extracted from African American and Latino people and communities. This new racial state has replaced the explicit racial politics of a previous generation with seemingly race-neutral debates over consumption, credit, and obscure banking regulations. This neutral discourse has woven the localized racisms of American neighborhoods – segregation patterns produced and reproduced since the 1930s – into a complex web of national and transnational economic relationships.

All who benefit from these relations are truthful when they deny any discriminatory intent. Indeed, if there is one person who best personifies the new racial state, it is E. Stanley O'Neal – a Black man who grew up in the town of Wedowee, Alabama, on several hundred acres of land that had been in his family for two generations. O'Neil's grandfather was born into slavery in 1861, but had managed to get around Jim Crow laws by having a white friend buy small parcels of land and transfer them (Cassidy 2008). O'Neill himself became CEO of the nation's largest securities brokerage firm, Merrill Lynch; he led their lucrative expansion in subprime securities until the market collapsed and the firm took what was then the largest write-off in Wall Street history (almost $8 billion). O'Neill was forced to retire in October 2007.

17.7 Conclusions

There is now a rich, interdisciplinary, and rigorous literature documenting a shift in the operation of US housing and mortgage markets from simple divisions of racially discriminatory exclusion to a more complicated environment of racially discriminatory segmentation, inclusion, and exploitation. But if the means are sometimes complicated – target marketing, yield spread premiums, prepayment penalties, risk tranches and CDOs, and credit default swaps – the ends are quite simple. Larry Wilmore, the self-described Senior Black Correspondent on the satirical news program The Daily Show had it about right when he declared in August 2007, that subprime lending is "the financial N-word." In an eloquent commentary on the unfolding crisis, James Sidaway (2008, p. 197) reminds us that the labeling of risks as 'subprime' is one way of obscuring the extent to which exploitation and dispossession are mediated through race and class:

> "At the most basic level, African American and poorer white folk are disproportionately amongst those who are losing homes. Whole neighborhoods in some cities have been wrecked as homes are repossessed, values collapse, and buildings fall into ruin. It is not news that American cities are racialized and divided in class terms. But the current crisis seems set to deepen these sociospatial divisions. Mapping the social and economic geographies and countering conservative (and sometimes racist) discourses of simply blaming the dispossessed for their lack of financial nous or recklessness is an urgent task."

This chapter is a response to Sidaway's call to map these geographies, and to counter racist conservative discourse. The maps and models I have presented can be regarded as analytical documents, designed to test causal hypotheses and evaluate alternative explanations. But they are also guides to action, designed to support the work of those who have led the community reinvestment movement for many years. The new racial state was produced by deregulation and industry restructuring that weakened the achievements of multiracial organizing during the civil rights era. Challenging today's inequalities requires a vigilant politics of measurement and mobilization. The new racial state operates by hiding in plain sight, obscuring racism by declaring the good intentions of lenders and the bad

qualifications of consumers, by emphasizing technocratic financial details and the virtues of deregulated market discipline. Fighting back requires, as a first step, making things visible. The legacies of the civil rights era are at risk, hidden, and ignored, but they are not lost: despite conservatives' best efforts, we still have HMDA, the CRA, and the Fair Housing Act. At an interdisciplinary conference on predatory lending in September 2005, the prominent civil rights litigator John Relman (2005) described what is at stake:

> "Race matters, and race is everything . . . If someone tells you that race is not the issue, they don't know what they are talking about. Race is the issue. It's always been, and it will always be, in America, and if you . . . don't understand that fact, and understand that race and class always go together, then you're not going to understand the story of what this litigation is about. And in the end, litigation is about telling a story, and it's about telling a story to a jury or a judge, but the story has to be true if you're going to win, and the true story in America is that race and class, and race and exploitation, always go together."

In January 2008, Relman filed a suit under the Fair Housing Act on behalf of the Mayor and Council of the City of Baltimore against Wells Fargo, alleging a pattern or practice of targeting African American neighborhoods – illegal reverse racial redlining – for risky loans that maximize short-term profits at the expense of a predictable wave of foreclosures (Relman 2008). This is the first lawsuit filed by a municipality seeking to redress the costs of racially discriminatory lending, but there will be others, and there are many other efforts underway – litigation, foreclosure mitigation, organizing to demand regulatory reform, and research to map the geographies that must be changed. We all have a lot of work to do.

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Chapter 18

The Housing Finance Revolution*

Richard K. Green and Susan M. Wachter

18.1 Introduction

Houses are expensive. Consequently, the availability and cost of housing finance are critical determinants of how well housing markets function around the world. Changes in housing finance mechanisms are drivers explaining the dramatic changes in housing markets and housing activity seen in industrialized countries in recent years. Historically, in many countries, housing finance relied on funds provided by local lenders, typically depository institutions. With the development of capital markets and mortgage securitization, however, funding for housing comes from a much broader set of investors, including international investors. This paper examines the institutional changes in housing finance in industrialized countries over the past 30 years, including securitization and new types of mortgage contracts.

In several countries, most prominently the USA, there has been a major shift to financing housing through mortgage-backed securities (MBS). The market structure that supports securitization as the predominant funding source for mortgage finance in the USA has changed dramatically over time. We describe these changes and the related developments of home equity extraction and borrowing, credit scoring, and the development of the subprime market and its recent implosion. We consider how government policy and market forces have contributed to these developments.

Housing finance systems have evolved differently across countries, although there are elements in common. National institutional factors remain important and there remains variety in housing finance institutions. What accounts for these cross-country differences in the structure of housing finance? Is there a process of convergence in structure? And how have these changes affected housing

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affordability? We begin with an international perspective fleshed out with three contrasting case studies. We then turn to the USA and consider how the assignment of risks associated with mortgage lending has changed as a result of recent housing finance innovation, while reflecting on the new stress points and implications for financial stability. Finally we consider what the implications are for supervisory policies or financial market regulation.

18.2 The Housing Finance Revolution: A Global Perspective

Over the past 30 years, housing finance systems in industrialized countries have undergone revolutionary change. Historically, housing finance has been provided by heavily regulated local lenders and by government run entities. Mortgage finance was not funded by international capital flows. Today, the integration of housing finance into capital markets is a global phenomenon, albeit in varied forms. The deregulation of housing finance and its integration into global financial markets is occurring throughout the world. Nonetheless the nation-specific historical structures of housing finance have heavily influenced current structures. In examining this, it is helpful to understand that housing finance systems can be divided into four major types: depository systems (lending funded by savings), directed credit (including provident funds, raised by payroll taxes, and contractual savings schemes), specialized mortgage lending (through government regulated or owned banks or "covered bonds" as described below), and, more recently, lending linked to secondary mortgage market systems achieved through securitization.

The traditional methods of housing finance were constrained by government policies that segmented the financing of housing into specialized circuits that were cut off from the rest of the economy. In the early 1980s even the most market-oriented approach, which provided housing finance through a depository system, was heavily regulated. For example, in the UK, housing finance in 1980 was largely funded by building societies that often charged below-market interest rates. Building societies were historically formed by co-operatives that pooled savings to finance the purchase of homes. By the 1980s, however, they were all mutual institutions (with a membership of savers and borrowers), and this is what distinguished them from banks (companies owned by and run for shareholders). Because they were able to co-operate to set below-market rates on loans, the mortgage market was shielded from macroeconomic fluctuations. Although the nonresponsiveness of building society rates to general interest rate shifts may have been essentially a technical issue (related to the member-notification requirement of rate changes), some argue that these lenders as a whole were "intentionally rather unresponsive to market rate changes" (Diamond and Lea 1992). Under these circumstances, institutions such as commercial banks raising capital through market channels (rather than from deposits) could not compete, and so mortgage financing largely rested in institutions shielded from market pressures.

The integration of housing finance into capital markets resulted from the deregulation of these mutuals, and of housing finance more generally (as discussed more extensively in the work of UK housing economists John Muellbauer, Mark Stephens, and Christine Whitehead). The trigger was the removal of the "corset"

on bank lending in the early 1980s allowing banks to extend their mortgage lending, and encouraging building societies to lobby for compensating changes. The Building Society Act in 1986 followed, enabling these institutions to offer competitive banking services equivalent to that of other banks in the UK. Building societies were allowed to convert to corporate status (demutualize), operate as private firms, and access capital markets via controlled public offerings of stock. The Act also made provisions allowing commercial banks to offer variable rate mortgage products to borrowers. The leveling of the playing field enabled the larger and more financially integrated commercial banks to increase their market share by issuing variable rate mortgages funded by deposits. As a result, specialized building societies declined in the UK, and commercial banks grew: building societies provided 70 percent of mortgage debt outstanding in 1980 and by 2000 they were providing less than 15 percent, with commercial banks providing over 70 percent (Flanagan and Reardon 2002, p. 3). Subsequently, this mortgage market has diversified considerably, with a range of fixed as well as variable rate products embracing a variety of prepayment and "drawdown" facilities. Wholesale funds have played a growing role, and mortgage backed securities (a development first initiated in the USA) were introduced in the latter half of the decade. Long-term fixed-rate mortgages, however, remain a tiny proportion of the UK market, despite the recommendations of the landmark Miles report (Miles 2004).

Within what was to become the euro-currency market, mortgage finance institutions underwent even greater transformation, given their historically greater government involvement. Directed credit supplied by contractual saving schemes and state regulated mortgage banks declined and was here also replaced by commercial bank lending. For example in Spain, until the mid-1980s, the Central Bank controlled the housing finance system by setting savings and borrowing rates for local savings banks, restricting their investing to public debt and mortgages. In addition, the government was the principal originator of mortgage loans. But beginning in the mid-1980s, the government lifted its regulations to allow commercial lending institutions to enter the market, raise funds through demand deposits, and offer variable rate mortgage loans. In addition, vehicles for securitization were developed, although as in the UK, these remained a limited source of funding.

Throughout Europe, similar changes were occurring. From heavily regulated and rationed systems, modern housing finance emerged with funding increasingly supplied through market-oriented commercial banks. Even in Germany, where prior to 1980 most funds had been provided by heavily regulated or state owned mortgage banks (Duebel 1996), private sector depository institutions – although with a different menu of mortgage products as discussed below – predominated by 2000. The result has been the explosion of mortgage growth throughout Europe, as shown in Figure 18.1, although in some countries the high growth rates reflect very low starting levels, as seen in Table 18.1.

Similar changes occurred throughout the industrialized world, in formerly socialist and, to some degree, in emerging economies as well. The changes that have transformed housing finance have been global in scale and are the result of global forces. These include: new technology, a societal-wide move from government regulation to greater market orientation, and the worldwide decline in interest rates.

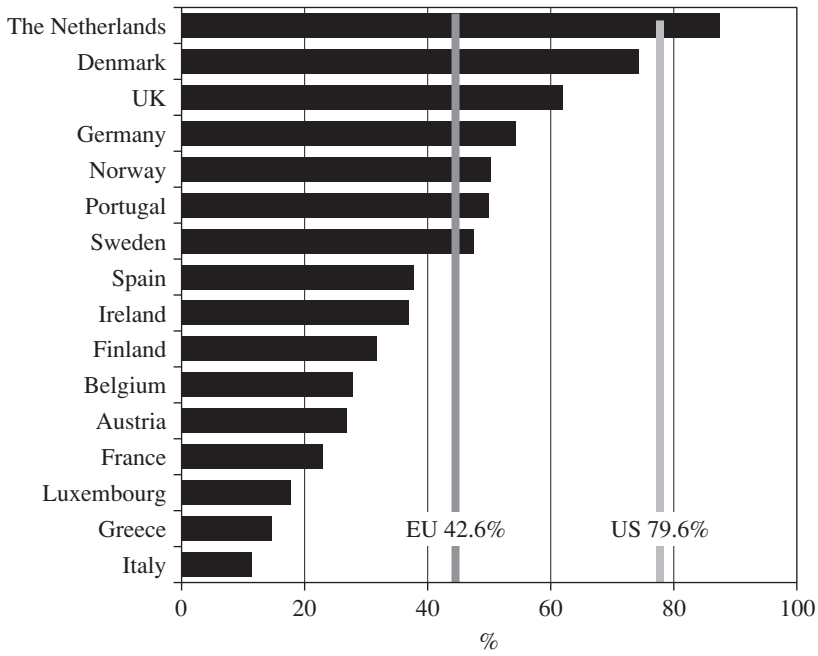

Figure 18.1 Residential mortgage debt outstanding to GDP.
Source: European Mortgage Federation, Federal Reserve System, Duebel (2004)

Table 18.1 Selected mortgage market growth rates per annum: European Union 8.2 per cent average of 15 countries (1992–2002)

Country	*%*
Greece	23.5
Portugal	22.5
Ireland	18
Spain	17
Germany	6
France	4
Finland	3.5
Sweden	2.5
USA (1993/2002)	8

Source: European Mortgage Federation, Federal Reserve System, H. J. Duebel (2004)

Technological innovation has proved instrumental to the changes that have swept housing finance. The development of money market funds forced the elimination of the constraints of interest rate ceilings, providing an alternative investment vehicle largely grounded on highly rated, short-term debt securities. As a liquid and highly stable investment, money market funds first came to fruition in the early 1970s with the Reserve Fund in the USA. Such innovation was abetted by the

dismantling of capital barriers that had once hindered cross-border flows. Money flowed out from regulated institutions into the new, higher-yield money market accounts, thus diminishing the ability to rely on protected savings deposits to fund loan origination. This outflow occurred in episodes of disintermediation, which worsened over time.

An important example of this was the savings and loans crisis in the USA, which is further discussed below. Countries such as the UK and elsewhere where variable rates predominated, avoided similar crises, but nonetheless, rate ceilings were unsustainable. Similarly in Europe, this same force undermined contractual savings, whose low returns were easily beaten by returns in the money markets. The mortgage bank system in Germany, which provided long term mortgage financing through on-the-balance-sheet "covered bonds" (as distinct from off-balance sheet asset-backed securities), was not directly affected by this change.[1] Nonetheless, commercial banks in Germany also moved to increase their market share by offering an alternative to the covered-bond-financed nonprepayable mortgage, which was the depository financed variable rate mortgage with the option to prepay.

Forces of deregulation operating in many markets throughout the world also contributed to the development of commercial banks as primary providers of housing finance globally. Governments increasingly recognized that markets could deliver lower cost financing with less rationing. A consensus emerged that the most effective way to increase access to credit and to secure sustainable finance was through market-based systems linked to capital markets. This did not necessarily imply securitization. Rather, commercial banks emerged as the major mortgage lenders in Europe and in developed Asian economies as well.

The third characteristic that linked housing finance to global capital markets was a major decline in interest rates worldwide. We show in Figure 18.2 average nominal prime interest rates from 1980 to 2004 for industrialized nations,[2] which declined from an average of 15 percent in 1980 to 4.4 percent in 2004. (Interest rate declines have continued, across many economies, even with rising GDP growth rates in recent years. While declines in interest rates are to be expected with declining GDP growth rates of 2001, it is notable that the decline in rates continued even as world GDP growth resumed at high levels.) This historic decrease has been instrumental in achieving lower cost financing for mortgage lending in country after country, which adopted monetary policies to control inflation and to enable linkages to global capital flows. The decline in the cost of market funding rewarded the move to market-based financing. As examples, we depict how mortgage rates have declined with government debt yields in Figures 18.3 and 18.4, which track these series for the UK and France over the past 30 years.

The major consequence of the link, provided by global capital flows, to cheap debt is an increased access to financing for home ownership, a resulting increase in housing demand, and surge in housing prices in industrialized economies throughout the world. Housing prices surged for three decades (through 2004). A sustained price increase of this sort across so many economies' housing markets, which are local markets, is highly unusual and perhaps unprecedented. While there are specific factors contributing to the run-up in individual countries, it is clear from the ubiquity of the price acceleration over the past several decades that a common global factor is at work.

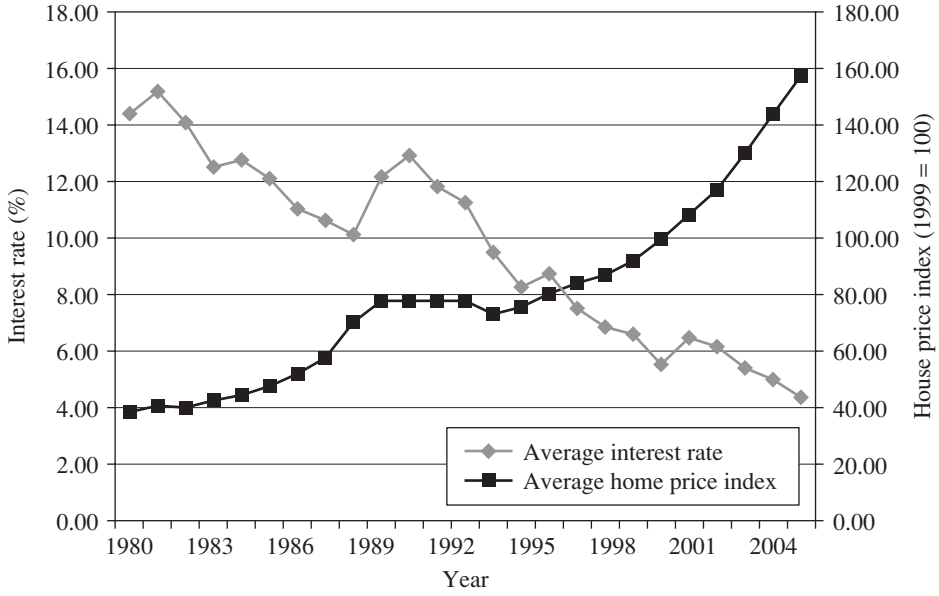

Figure 18.2 Global average interest rate and home price index.
Source: Bank of International Settlements home price index interest data from UN Statistical Database

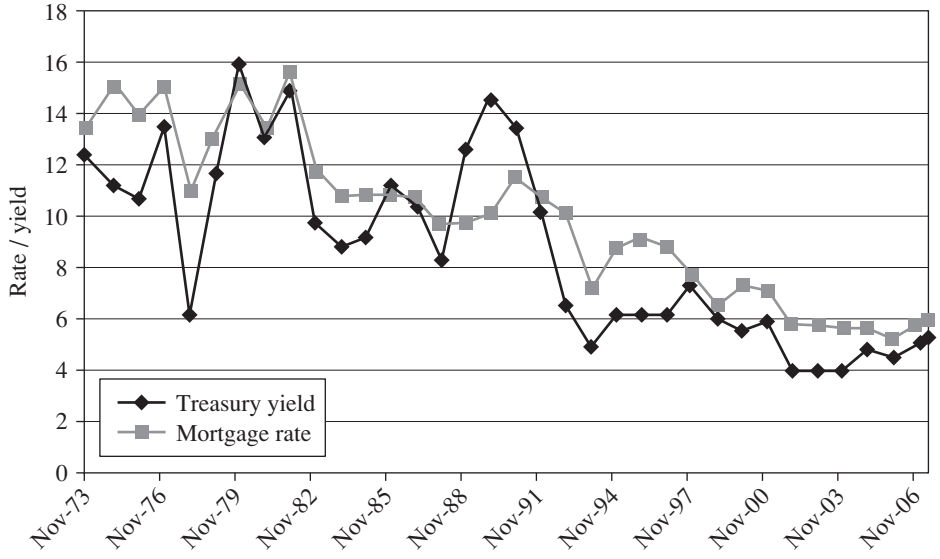

Figure 18.3 Treasury yields and mortgage rates, UK.
Source: Global Financial Data; V. Morgan, Studies in British Financial Policy, 1914–1925: Central Statistical Office, *Annual Abstract of Statistics*, London: CSO (1924–); Bank of England, *Quarterly Bulletin*

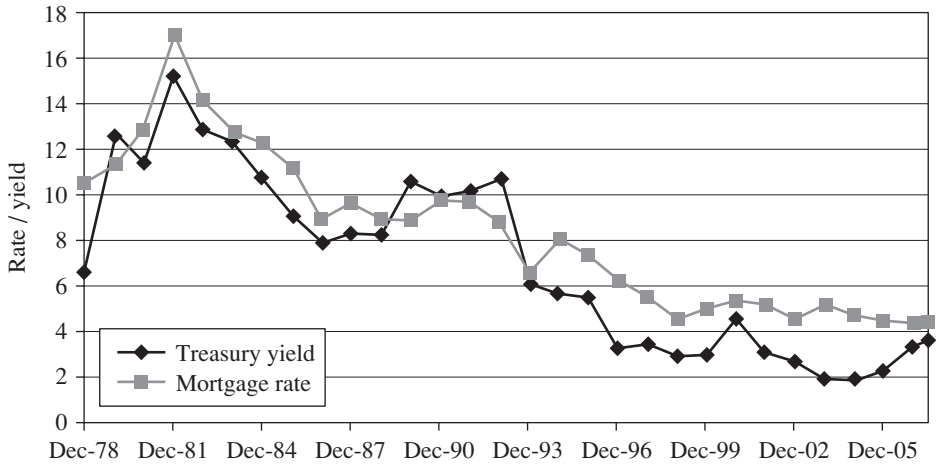

Figure 18.4 Treasury yields and mortgage rates, France.
Source: Global financial data; League of Nations, *Monthly Statistical Bulletin*, Geneva: League of Nations (1936–45), Banque de France, Bulletin Trimestriel (1946–) and web site

Table 18.2 Interest rate coefficient on simple Granger causality regressions

Country	*Interest rate coefficient, C(3)*	*Std Error*	*t-statistic*
Pooled (1980–2004)	−0.46	0.12	−3.87
Australia(1986–2004)	−0.40	0.49	−0.81
Belgium(1991–2004)	−0.02	0.28	−0.07
Canada(1980–2004)	−0.42	0.29	−1.48
Sweden(1981–2004)	−0.53	0.21	−2.49
UK(1980–2004)	−1.08	0.48	−2.25
USA(1980–2004)	−0.19	0.14	−1.35

Source: BIS Price Data (www.bis.org). Regression is $P - P(-1) = C(1) + C(2)*(P(-1) - P(-2)) + C(3)*I(-1)$, where P is home price level and I is nominal interest rate.

The new factor is the translation of interest rate declines into country-specific mortgage rate declines. In the 1990s, the integration of segmented mortgage markets into global capital markets generated mortgage rate declines that both increased housing affordability and decreased the relative cost of housing, with a resulting boom in housing.

Table 18.2 presents simple regression results for six countries, testing for whether nominal interest rates cause changes in home prices. (The Granger tests here are with one lag only, because we have small numbers of degrees of freedom.) In all cases, the sign on the interest coefficient is negative, and in two cases it is significant at the 95 percent confidence level. A pooled regression for the full set of countries shown in Table 18.2 is significant at the 99 percent confidence level. While these are nothing more than stylized facts, they are consistent with declining nominal interest rates driving home price appreciation. This suggests that

the erosion of rationing and lending constraints is tied to high nominal rates. Interestingly, no relationship is found between real interest rates and home prices (Kim and Wachter 2005).

Of course, supply elasticity is the key factor in housing price appreciation resulting from interest rate declines. While mortgage rate decreases improve affordability, increase demand, with supply constraints, housing asset price appreciation counterbalances this. Though we have no direct data on supply constraints in Europe, it is notable that there are systematically higher rates of home price appreciation rates in cities (where supply of developable land is limited) relative to national rates of increase (Kim and Wachter 2005). There is also evidence in the USA that housing price increases occurred disproportionately on the two coasts, where supply is more limited (Glaeser 2005; Green et al. 2005). Thus, in the USA, mortgage rate declines have resulted in very different affordability outcomes across markets.[3]

There is also the possibility that price acceleration, initiated by one-time mortgage market innovations that increase demand, may go beyond levels justified by fundamentals. If homeowners understand that declines in interest rates and mortgage innovation are one-time events, then the changes will lead to stable and higher equilibrium home prices. However, if expectations about future home prices are based on observed ex-post home price changes, bubbles can emerge (Malpezzi and Wachter 2005; Case and Shiller 1989).

Magnifying the impact of declining interest rates is the current ubiquity of adjustable-rate mortgages (ARMs), which move with lower cost short-term interest rates. Mortgages around the world range from short term, bullet loans due every three years, as in South Korea; to mortgages where upward increases are at the discretion of the banks, in the UK; to mortgages which roll over every five years with funding, but not interest rates guaranteed, as is the case in Canada. Across many of these jurisdictions, volatility concerns surrounding the use of variable rate mortgages (the need to mitigate households' exposure to interest rate risk, home price volatility, and macroeconomic instability) have led to a movement by governments and government entities to implement and foster a process of securitization as one means of supporting growth in the market for long-term fixed rate mortgages. (When Gordon Brown, Britain's Prime Minister, was Chancellor of the Exchequer he cited housing volatility as a key barrier to Britain's adoption of the euro. His five tests speech included a push towards fixed rate mortgages as an attempt to combat this volatility.) In practice, securitization has not been widely adopted and variable rate mortgages remain pervasive, for a variety of reasons including, in the UK for example, cultural preference and consumer taste (Thomas 2007), and cost: as Simon Tyler of independent adviser Chase de Vere Mortgage Management notes; "they (fixed rate mortgages) are never the cheapest deals on the market, so they will probably never be the most popular" (cited in the *Daily Express*, November 18, http://www.kc3.co.uk/~dt/interest_rates.htm). Furthermore, as discussed below, banks may have little interest in raising capital to offer alternatives to the variable rate mortgage (see Green et al. 2007). Moreover, the current securitization-related subprime crisis in the USA – like the demise of the UKs Northern Rock whose business model, based on rapid growth in MBS, produced (in February 2008) the first run on a British bank in more than a century – may

raise doubts about the viability of housing finance systems grounded in securitization, also discussed further below.

To consider whether housing finance systems will converge to systems centered on bank-funded ARM-lending or on capital market based, securitization backed longer-term mortgages, we examine in more detail the current transition in public sector and specialized housing financing institutions across several non-European countries. In the following, we trace developments in three countries: Bangladesh, South Korea, and Australia. Bangladesh, at one extreme, illustrates how mortgage markets are being transformed. Despite the fact that mortgage markets are still small, they are increasingly reliant on private sector institutions and privately held banks. In South Korea, an economy that is now the tenth largest in the world, mortgages are currently funded almost entirely through private depository institutions that have evolved to replace government entities. Together, the trajectories of these countries illustrate the most common prevailing pattern in both Asia and in Europe: one which relies on deposits, rather than the wholesale or securities market, for mortgage funding. This contrasts with the Australian market, where securitization has become an important channel for mortgage finance. It remains an outlier, but provides an illustration of how a large asset-backed securities market can develop relatively quickly. The outcome of these differing trends for global capital markets will be strongly impacted by the direction taken by the fast emerging economies of China and India – topics beyond the reach of the present volume.

18.2.1 The mortgage revolution in Bangladesh

Bangladesh has one of the least sophisticated financial institutions of any country in the world. While it has a banking sector, it is only recently that private banks have developed; it also has nearly nonexistent pensions and insurance sectors. Yet despite these primitive conditions, the housing finance sector in Bangladesh has changed materially recently, and these changes are consistent with those contemplated by the Washington Consensus. (A specific set of policy prescriptions considered to constitute a "standard" reform package promoted for crisis-wracked countries by Washington-based institutions. It is broadly associated with expanding the role of market forces and constraining the role of the state.)

For many years, the principal housing lender in Bangladesh was the Bangladesh Housing Building Finance Corporation (BHBFC), a government owned mortgage institution. As recently as 2001, nearly half the par value of mortgages in Bangladesh was held by BHBFC. This heavily subsidized institution also did business outside of the mortgage market, and as such, had little incentive to make good lending decisions.

The BHBFC was funded by the Bangladesh Treasury, with a cost of funds of 5 percent per year, an amount well below the market rate of interest. Mortgages were managed administratively, rather than financially: bureaucrats originated and serviced mortgages through rules (some formal, others not) instead of through market tested underwriting guidelines. This led to all manner of inefficiencies. First, BHBFC approval times were exceptionally long – sometimes as much as a year from application to approval. Second, because mortgages carried below market rates

of interest and were essentially granted by the government, they were allocated via rationing, rather than underwriting. The allocation process was often political, rather than financial. Third, because BHBFC was for many years not held to general performance standards, the agency had little incentive to service loans, and so loan performance was poor. Typically, 20 percent of loans would be in arrears. When BHBFC did foreclose, it would typically collect less than 50 percent of the outstanding loan balance.

The most important thing the Bangladesh Government did to begin the mortgage finance revolution in Bangladesh was to stop directly funding BHBFC. The corporation does still retain a number of advantages – it gets a tax exemption, has much more lax capital requirements than other financial institutions in Bangladesh, and has its bonds guaranteed by the national government. But since it has lost its direct government funding, its mortgage volume has stagnated, and its market share of mortgage debt outstanding dropped from 48 percent to 40 percent in just the period from 2001 to 2003.

About one-quarter of this loss in market share was filled by nationally owned banks, which were subject to many of the same perverse incentives as BHBFC. However, three-quarters of the change in market share was filled by private sector institutions, including privately held banks and private housing finance corporations (HFCs).

What is remarkable is that these private corporations (especially Delta BRACK housing finance and IDLC) were able to gain a toehold in the Bangladesh mortgage market despite a huge disadvantage in cost-of-funds. For example, in June 2003, public-sector financial institutions had a cost of funds of less than 5 percent, while private commercial banks had a cost of funds of nearly 8 percent and housing finance corporations had a cost of funds of 12 percent. Yet, these private banks and HFCs were able to take business away from government-owned institutions because they operated with far more efficiency. Delta BRACK and IDLC are particularly interesting stories. Management at these institutions worked to develop underwriting standards for mortgages which are consistent with practices in the developed world. Borrowers are required to put substantial equity (typically 25 percent) into their houses, and must meet payment ratio requirements. The HFCs also attempted developing standards for evaluating potential borrowers' credit histories, having inferred from other countries' experiences that past history of bill-payment is a strong predictor of future payment.

HFCs also pay far more attention to servicing than their government-owned counterparts; in particular, HFC management maintains that threatening to foreclose is an effective mechanism for getting borrowers to continue on time payment, or to redeem themselves quickly should they fall behind on their payments. Foreclosure laws in Bangladesh are rather weak, and it is questionable as to whether lenders would succeed in reclaiming property quickly and efficiently. Because of this, the HFCs do two things to protect their assets: they insist on holding titles until mortgages are retired, and they are aggressive about making borrowers aware when their payments are deficient.

While HFCs are still a small part of the housing finance system in Bangladesh, they are examples of the worldwide revolution in housing finance. They treat housing finance decisions as a business matter rather than an administrative matter; they

use an empirical foundation for making underwriting decisions; and they are as aggressive as possible about curing deficient loans. Again, what is remarkable is that HFCs are able to attract borrowers even though their cost of funds is substantially higher than their government-guaranteed competitors.

Executives from IDLC maintained in 2004[4] that lack of capital prevented more rapid growth in Bangladesh. The country is hampered by a lack of access to long-term capital markets; and it does not have long-term savings vehicles, such as pension funds and life-insurance companies. At the same time, the banking system, until recently, has been entirely nationalized. So while Bangladesh has taken some important steps in redeveloping a more rationalized and efficient mortgage system, until its financial institutions become more mature in general, there were be limits to how much housing finance can develop.

18.2.2 The mortgage market in South Korea

While South Korea's economy grew rapidly between the end of the Korean War and the middle 1990s, the sophistication of its mortgage market did not. Excellent overviews of the South Korean housing finance system are provided by Renaud (1988) and by Struky and Turner (1986). They show that, initially, the mortgage market was largely in the hands of two government institutions: the Korea Housing Bank and the National Housing Fund. Conventional depository institutions were not interested in holding mortgages, because the regulatory regime held mortgage interest rates below short-term market interest rates. On the other hand, households could only obtain mortgages if they placed deposits in one of the two housing institutions, both of which paid below market interest rates. The upshot of these factors was stunted development of the South Korean mortgage market. Borrowers had to wait in a queue before becoming eligible to receive a very low loan-to-value ratio loan. This, in turn, led to a very low Mortgage Debt Outstanding to GDP ratio compared with other small markets – in the early 1990s, the ratio of the number of households to the number of housing units in South Korea was roughly two-to-one.

The 1998 Asian financial crisis gave the South Korean Government motivation to initiate reforms (see Kim 2001) including the development of a more market driven mortgage market. And as Bank of Korea data demonstrate both the consumer credit market in general and the mortgage markets in particular have grown quite rapidly in the aftermath of these reforms (see Figure 18.5). Nevertheless, the South Korean mortgage system now very much resembles the US system before the Great Depression. Loans generally have very low loan-to-value ratios, variable rates of interest, and balloon payments. Mortgages in South Korea are still financed almost entirely through depositories, rather than capital markets. Some policymakers in South Korea believe that securitization is necessary for mortgages there to become more like their counterparts in other parts of the world. The South Korean Government has a set of schemes, such as the Korean Mortgage Corporation (KOMOCO), to securitize mortgages, but although there is growth recently in the use of longer-term mortgages backed by securitization, ARMs funded from deposits still predominate.

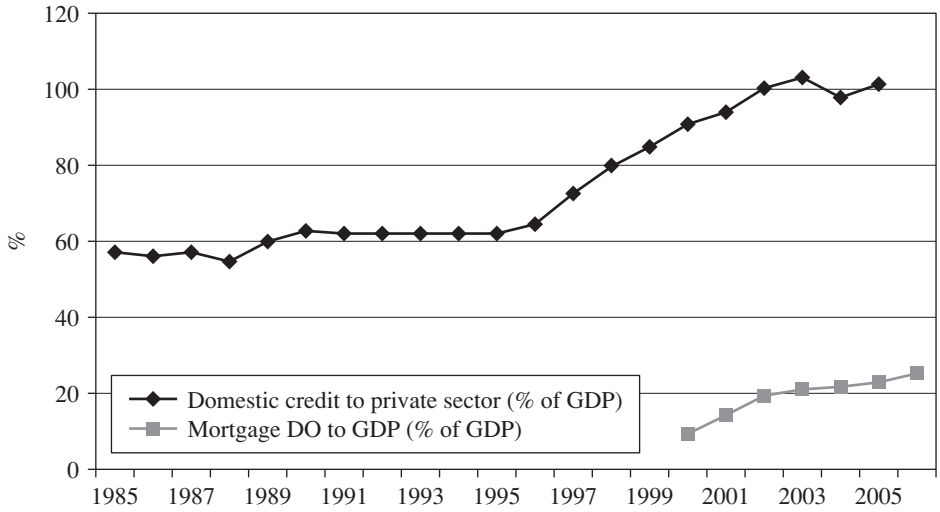

Figure 18.5 Growth of mortgage and consumer credit, Korea.
Source: Bank of Korea

The various European mortgage systems, however, suggest that securitization is not the magic bullet for the creation of a viable solution. As discussed above, the two emblematic countries with robust but somewhat differing mortgage systems in their proportion of ARMs and FRMs are Germany and the UK. And as we have seen, the UK system is funded almost exclusively through deposits to banks while the German system is funded by covered bonds as well. Both systems work, although the homeownership rate in the UK, at 70 percent, is substantially higher than it is in Germany, where it is 40 percent (International Union for Housing Finance 2005). (We do not want to make too much of this difference, as there are other profound differences between the two countries' housing markets. But the fact that the British system is funded by banks has not seemed to retard the access of homebuyers to reasonably priced mortgage capital.) Thus, these are two models of a viable mortgage system, each with its risks. A third model, also with its own risks (as the events of 2007–9 starkly show), is to rely on securitization through collateralized MBS, as South Korea has attempted and as Australia has accomplished, as discussed in the following section.

18.2.3 The Australian asset-backed security market

The foundation of this material is discussion at the EASE NBER Conference, June 2007, as well as Battelino (2004) and Bailey et al. (2004). The Australian asset-backed security (ABS) market has grown rapidly over the past decade, and is now one of the largest ABS markets in the world. As of March 2007, Australian entities' ABS outstanding amounted to $215 billion, up from $18 billion a decade earlier. Roughly $138 billion of these ABSs are issued in Australia, with the remaining $77 billion issued offshore. (ABS data are available from *Reserve Bank of*

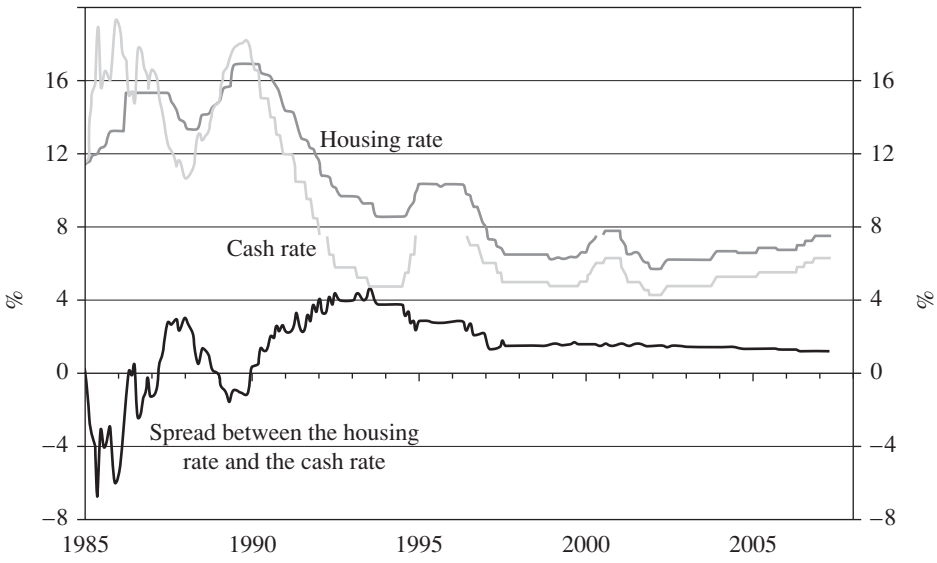

Figure 18.6 Australia banks' housing interest rates.
Source: Royal Bank of Australia and Bank of International Settlements (www.bis.org)

Australia Bulletin, Table B19 Securitization Vehicles (http://www.rba.gov.au/Statistics/Bulletin/index.html).)

Asset-backed securities were first issued in Australia by the New South Wales and the Victorian Governments' housing agencies in the mid-1980s. However, the ABS market really started to develop in 1994, when specialist mortgage lenders entered the Australian mortgage lending market. These lenders relied on Residential MBS, rather than deposits, to fund their housing loans. Broadbent (2008) identifies three key factors that allowed specialist mortgage lenders to enter the Australian mortgage market.

First, in the early 1990s, banks' interest margins on housing loans were a very high 4.25 percentage points (see Figure 18.6) and this coupled with very low default rates meant that housing loans were very profitable.[5] The bank bill rate, which is the benchmark interest rate for most floating rate bonds in Australia, stabilized in the early to mid-1990s at an interest rate that was well below this housing rate (Figure 18.7). The decrease in the bank bill rate was largely due to the sharp fall in the inflation rate in Australia, and provided specialist mortgage lenders with stable and predictable funding costs. Second, Australian and overseas banks without large mortgage lending operations in Australia, were willing to provide specialist mortgage lenders with wholesale lending facilities and help them develop their securitization procedures. Finally, Australia's managed funds industry was growing rapidly, mainly due to the introduction of compulsory superannuation in the late 1980s. These institutional investors had a healthy appetite for highly rated debt (including ABS). (Managed Funds data are available from *Reserve Bank of Australia Bulletin* Table B18 Managed Funds (http://www.rba.gov.au/Statistics/Bulletin/index.html).)

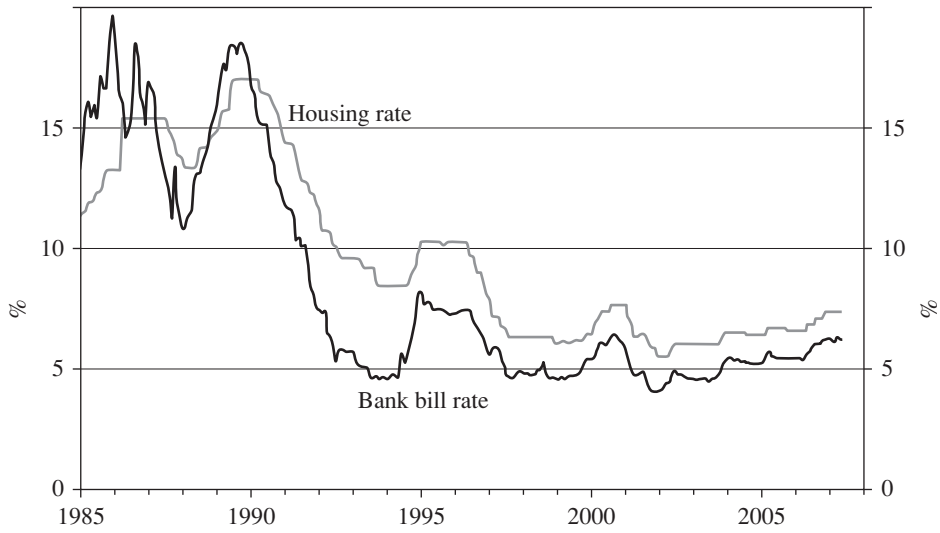

Figure 18.7 Bill rate and housing rates, Australia.
Source: Royal Bank of Australia and Bank of International Settlements (www.bis.org)

During the late 1990s, banks and other deposit taking institutions started to issue reasonable quantities of residential MBS (RMBS). Regional banks, in particular, have significantly increased their issuance of RMBS because their housing lending has been growing rapidly and securitization is a cost-effective source of funding. In short, in Australia, the securitization market developed within a year or two of the issuance of ABS becoming profitable. The ABS market was developed by specialist mortgage lenders in conjunction with a few banks that did not have large mortgage lending operations in Australia, and these entities were keen to exploit the supernormal profits earned on housing loans.

This contrasts to some Asian economies where ABS issuance is growing very slowly, from a low base. Given government encouragement in many of these countries, the relevant question may be "why are Asian securitization markets not growing more quickly?" rather than "why did the securitization market develop in Australia?" Possible factors inhibiting growth in securitization in Asia include: limited liquidity resulting in relatively low interest margins on housing loans in the banking system of some countries; resistance on the part of domestic banks in other countries where interest margins are high; and a lack of good data on mortgage default and prepayment rates available to potential securitizing institutions, which inhibits their underwriting of ABS. Next, we turn to the US case, a country where the housing finance revolution has led to a predominant reliance on securitization.

18.3 The Mortgage Revolution in the USA

Home mortgages have become an increasingly large part of American household balance sheets. In 1949, mortgage debt was equal to 20 percent of total

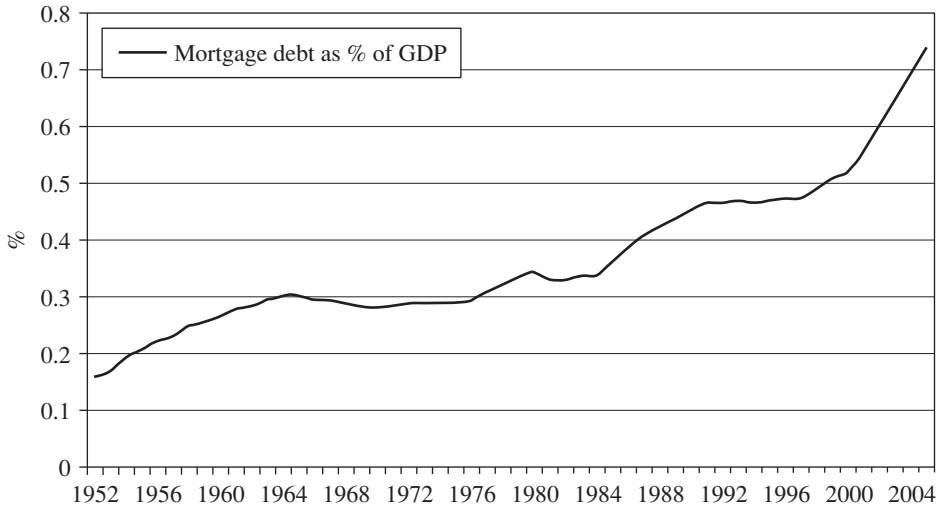

Figure 18.8 Mortgage debt as a percentage of GDP, USA.
Source: Federal Housing Finance Board

household income; by 1979, it rose to 46 percent of income and to 73 percent of income by 2001 (Mishel et al. 2003). Similarly, mortgage debt was 15 percent relative to household assets in 1949, but rose to 28 percent relative to household assets by 1979 and 41 percent of household assets by 2001.

This enormous growth of American home mortgages (as a percentage of GDP), as shown in Figure 18.8 has been accompanied by a transformation in their form, such that American mortgages are now distinctively different from mortgages in the rest of the world. In fact, Cho (2004) shows that the growth in Mortgage Debt Outstanding in the USA has closely tracked the extent to which the mortgage market have increased reliance on securitization.

The structure of the modern American mortgage has changed substantially over time. The US mortgage before the 1930s would be nearly unrecognizable today: it featured variable interest rates, high down-payments, and short maturities. In fact, before the Great Depression, homeowners typically renegotiated their loans every year.

The ignition of inflation in the later 1960s and 1970s altered the ability of depositories to fund long-term, fixed-rate mortgages: inflation pushed up nominal interest rates and eroded the balance sheets of depositories that funded fixed-rate mortgages. Depositories found themselves in a straitjacket due to Regulation Q, a federal rule that placed a ceiling on the rate that depositories could pay depositors. As nominal interest rates rose, depositories could not match what the market was paying for large-scale investors on US Treasury securities (assets backed by the full faith and credit of the USA which pay a market rate of interest). Moreover the major factor (as described above) operating in both the USA and elsewhere to limit the ability of depositories to fund fixed-rate mortgages was the rise of new, competing savings vehicles, such as money market funds, mutual funds, and pension funds, which paid higher rates than depositories and were also accessible to small savers. (At the same time, long-term savings vehicles, such as pension

funds, were better suited for investment in long-term assets, such as securitized long-term mortgages.)

The result of the ignition of inflation and the new savings vehicles was an outflow of funds. This led to a crisis in the savings and loan industry, a major structural change in US mortgage markets, and ultimately a transformation of the housing finance system. (The commercial banking industry was not nearly as affected since, unlike the savings and loans industry, which by statute invested in mortgages, banks were able to invest in a variety of assets. For a discussion of the savings and loans industry crisis and its aftermath, see Bentson and Kaufman (1997).) Legislation responded to the new environment and removed deposit ceilings and allowed thrifts to invest in adjustable rate mortgages. (The legislation that allowed adjustable rate mortgages and eliminated interest rate ceilings for S&L banks was the St Germain Depository Institutions Act of 1982. Specifically, Title VIII – the "Alternative Mortgage Transaction Parity Act of 1982" Sec.803 (A) "in which the interest rate or finance charge may be adjusted or renegotiated.")

For a time in the late 1970s and early 1980s, when many pundits were projecting massive and variable inflation for years to come, it even appeared that the fixed rate mortgage might become an historical anomaly and that the US mortgage market would return to the adjustable rate mortgages common before the 1930s. As the sharp increase in the proportion of loans accounted for by ARMs in the late 1980s confirms, in a highly volatile inflationary context, fixed rate mortgages become exorbitantly costly, effectively eliminating their market (see Figure 18.9).

18.3.1 The first US mortgage revolution

One cannot grasp the modern housing finance revolution without considering the revolution of the 1930s – the revolution in which the long-term, self-amortizing, fixed rate mortgage was born.

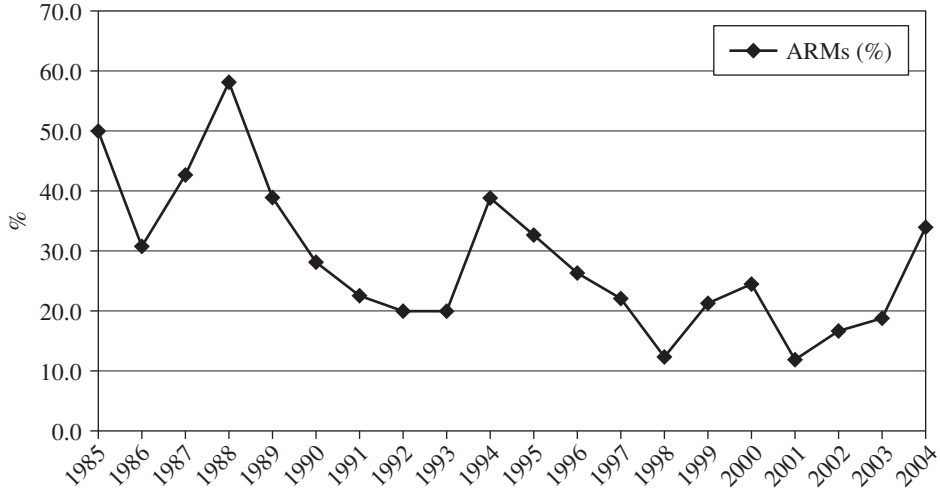

Figure 18.9 ARMs as a percentage of all loans, USA.
Source: Federal Housing Finance Board

Before 1933, the typical first-lien mortgage in the USA had a short-term, a variable rate of interest, and a loan-to-value ratio of 50 percent or less. Mortgages usually had no amortization, and consequently required a balloon payment at the end of the mortgage term, which was usually something less than five years. Mortgages were funded by two types of lenders: local mutual, depository savings and loans institutions, and mortgage bankers, who acted as brokers between borrowers and investors, such as insurance companies. In the nineteenth century, loans were often funded by life-insurance companies, and for some insurance companies, such as Northwest Mutual Life Insurance, farm and home mortgages were the principal repository for investment. (This statement is based on a conversation with Eugene Skaggs, who was Executive Vice President for equity investment for the Northwest Mutual Life Insurance Company.)

Lenders set mortgage terms to insulate themselves from risk. The variable interest rate protected depository institutions from fluctuations in interest rates, and the low loan-to-value ratios protected them from credit risk. But the bullet payment feature created a problem for borrowers when unemployment rose and bank liquidity fell during the Great Depression. As Bernanke and Gertler (1989) note, periods of price deflation, such as the Great Depression, create particular problems for debt holders, as interest rates cannot fall below zero. At the time mortgages came due in the early 1930s, with prices declining, real interest rates were very high, which exacerbated the fall in home prices. At the same time, the nominal value of outstanding debt remained unchanged, so loan-to-value ratios effectively rose. This led financial institutions to avoid extending credit to borrowers wishing to refinance. Borrowers therefore had to sell their houses to pay off their mortgages, which led to a flood of houses on the market, which further depressed prices. Borrowers who could not sell defaulted and lenders foreclosed, and then sought to sell in order to raise liquidity. This weakened the market even further.

To restore liquidity to the mortgage market, New Deal Housing Finance legislation created the Federal Housing Administration (FHA) to insure long-term mortgages, and created the Home Owners Loan Corporation (HOLC; and its successor, the Federal National Mortgage Association) to tie the mortgage markets to capital markets. Green et al. (2007) note:

> The HOLC, backed with the full faith and credit of the US Government, raised money in the bond market to purchase non-performing mortgages from depository institutions. They reinstated the loans as 20 year fixed payment mortgages (Green and Wachter, 2005). One could look at this as the first example of mass "loan modification." Borrowers were relieved from an impossible position (where they had to raise a large amount of cash to pay off a mortgage balance) and placed in a manageable position. At the same time, by changing the terms of the loans, the Federal Government reduced the risk embedded in them, and therefore increased their value to depositories [particularly since they were insured by the Federal Housing Administration], who ultimately bought them back from the HOLC.

While the government's intervention in the credit market was successful, one could also argue that the success arose in part from extraordinarily good timing. The FHA was created *after* the housing market had cratered, and after the general price

level had fallen about as much as it was going to fall. Bureau of Labor Statistics data report (BLS 2007) that the Consumer Price Index fell by 22.8 percent between January 1930 and January 1934, but rose by 7.5 percent between January 1934 and 1938. Nevertheless, New Deal Housing Finance legislation created two important precedents: the direct intervention of the Federal Government in the US housing finance market, and the creation, within the USA, of long-term, self-amortizing, fixed-rate mortgages with relatively high loan-to-value ratios.

18.3.2 Antecedents and fomenters of the current mortgage revolution

Market conditions

The "first" modern mortgage system in the USA lasted from the New Deal era through the 1970s. Under this system, the principal source of mortgage finance was local savings and loans institutions; during the 1970s, more than half of home mortgage debt outstanding was held by them (see Figure 18.10). These institutions

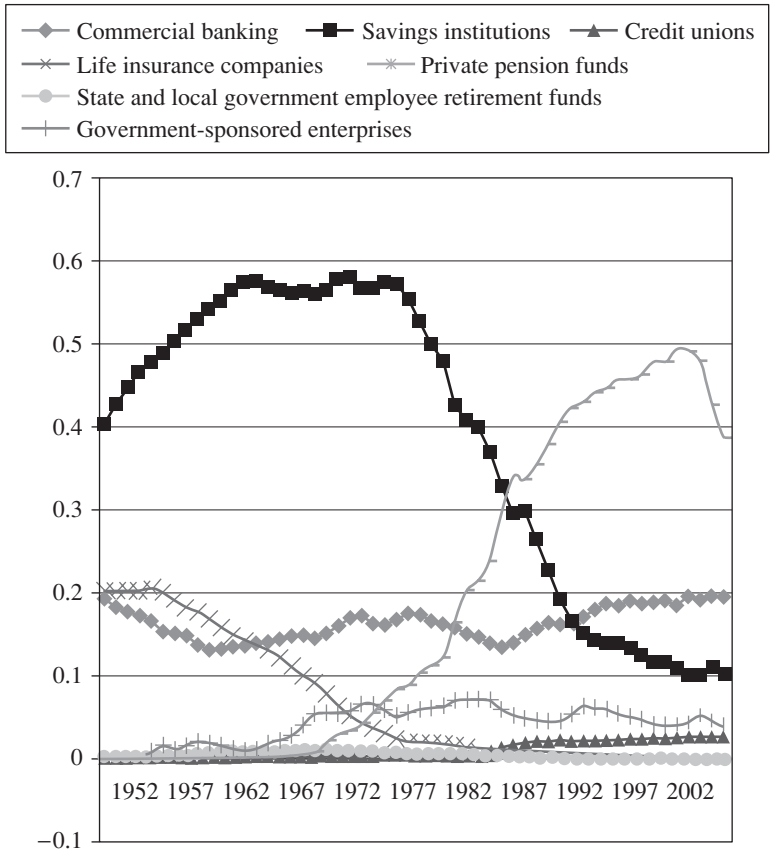

Figure 18.10 Mortgage holdings by institutional type in the USA.
Source: Board of Governors of the Federal Reserve System, Table 1173. Mortgage Debt Outstanding by Type of Property and Holder: 1952 to 2005

were heavily regulated and federally insured. Assets held by savings and loans institutions (S&Ls) were largely restricted to home mortgages on properties within a 50 mile radius of the institution. This geographical limitation was supposed to insure that lenders had "local expertise" in underwriting mortgages. More generally, mortgage underwriting was based at least in part on relationships, and as such, was quite different from the empirically based metrics that are the foundation of prime mortgage underwriting today.

Liabilities, for S&Ls, were deposits whose interest rates were limited by a ceiling extended to S&Ls in 1966 and removed in 1986 by the Monetary Control Act of 1980. Depositors were protected by the full faith and credit of the US Government through the Federal Savings and Loan Insurance Corporation (FSLIC). (Deposits were initially insured up to $2,500; they are now insured up to $100,000.) Finally, S&Ls could receive advances from a Federal Home Loan Bank at below market rates of interest to finance mortgages. They were required to hold regulatory capital of 5 percent, although the definition of capital was not particularly rigorous. Federal Government supervisory staff for Savings and Loans were fairly low in numbers and poorly paid, so that competent examiners would move from SL supervision to bank supervision, where work was more interesting and pay was better.

Before the late 1960s, the S&L system worked quite well for the USA. While supervision was lax, the inability of S&Ls to do anything other than make mortgage loans largely prevented moral hazard. The Savings and Loans Charter also gave S&L management a franchise worth protecting – the ability to borrow at below market interest rates to fund market rate mortgages (thanks to both the FSLIC and the Federal Home Loan Bank system). This meant that S&Ls were steadily, if not spectacularly, profitable.

Favorable macroeconomic conditions helped the system work. Nominal interest rates remained low, and perhaps just as important, the yield curve was positive at almost all times before 1966 (see Figure 18.11). Before the 1980s, mortgages were overwhelmingly long-term fixed-rate products, subject to substantial interest rate risk. As Fisher and Van Order (2006) put it, "the institutions were not allowed to originate 'balloon' mortgages, which had caused the Depression-era wave of foreclosures. Through its provision of uniform underwriting standards for the provision of mortgage insurance, the Federal Housing Administration (FHA) made the long-term fully amortizing loan with a fixed rate of interest (FRM) ubiquitous in the USA starting in the 1930s." (As we shall discuss later, the regulatory climate, as interpreted by the Federal Home Loan Bank Board was at least partially responsible for this ubiquity in fixed rate loans.)

So long as interest rates remained stable (and so long as the yield-curve remained positive), interest rate risk had little impact on profitability – or at least on solvency. But a hint of problems to come arose in 1966, when the yield curve turned and remained negative for more than a year (specifically December 1965 through February 1967). During this time, some S&Ls became insolvent, and all faced disintermediation problems. Changing macroeconomic conditions revealed an unsustainable regulatory regime.

In 1968, the Federal National Mortgage Association (FNMA) was divided into two pieces: the Government National Mortgage Association, known as Ginnie Mae,

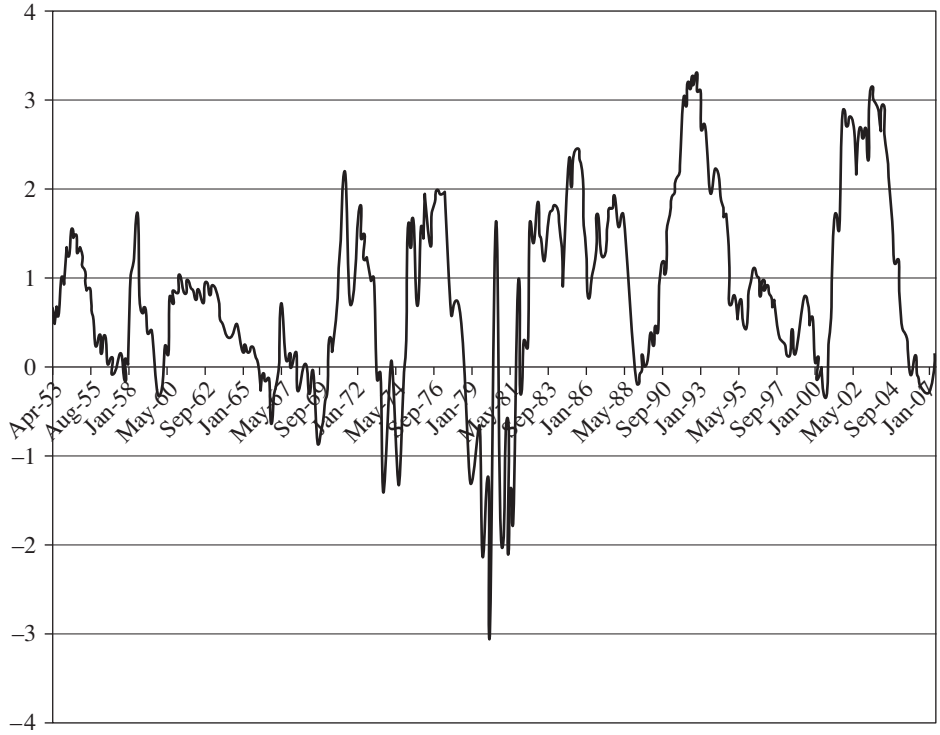

Figure 18.11 Yield curve, 10-year to 1-year Treasury spreads, 1953–2007, USA.
Source: US Federal Reserve

and the "new" FNMA, known as Fannie Mae, which was now privately held and able to buy and sell nongovernment-backed mortgages to raise additional funds for mortgages. The intent of Congress with the creation of Ginnie, the new Fannie, and Freddie Mac, the Federal Home Loan Mortgage Corporation created in 1970 to assure S&Ls always had adequate liquidity, was at least partly to ensure that the mortgage liquidity problems of 1966 would never happen again. (A separate motivation was to move debt off the government balance sheet in a time of rising government expenditure.) In fact, the Federal Charters granted to Fannie and Freddie required them to promote liquidity and stability in the secondary market for mortgages as well as to provide mortgage credit throughout the nation. These institutions would, in turn, bring uniformity to the mortgage market and invent financial instruments – derivatives of mortgage backed securities – that would help keep the mortgage market liquid for the entire period from the mid-1980s to today.

At the same time, some S&Ls attempted to deal with the problem by issuing adjustable rate mortgages, and by 1969, around 19 percent of new mortgages did have floating rates. It was not actually clear, however, whether they were permitted to make such loans. The Federal Home Loan Bank did not believe that S&Ls could do so, and so promulgated a rule preventing payments from ever rising

over the life of a loan (Fisher and Van Order 2006). By effectively barring ARMs, the Federal Home Loan Bank Board prevented SLs from managing market risk, and removed incentives to learn more sophisticated balance sheet management.

The problems of the 1960s were minor when compared to the late 1970s. Double-digit inflation produced double digit long-term interest rates and recessionary expectations led to a sharply negative yield curve. Savings and loans institutes became substantially insolvent. In an environment where the one-year Treasury rate rose to 15.06 percent, the present value of a mortgage with a 7 percent coupon rate and a 10-year expected life fell to 28 percent less than par. Additionally, the minimum capital requirement for S&Ls was only 5 percent, and the institutions were required to invest almost exclusively in long-term fixed rate mortgages.

Beyond the problem of interest rate risk, S&Ls in the late 1970s faced credit risk for the first time. Between the end of World War Two and the 1970s, home prices in the USA rose in almost all years across almost all locations. Conventional loans had credit enhancements (either relatively low loan-to-value ratios or private mortgage insurance), and FHA loans were backed by the full faith and credit of the US Government. This meant that residential mortgages were very safe, as equity or insurance protected against default loss.

The early 1980s, however, brought about nominal home price declines in the Rust Belt. Office of Federal Housing Enterprise Oversight (OFHEO) data show that in 1982, home prices fell in Detroit by 17 percent and in Flint by 15 percent. Prices in Cleveland fell by a small amount over the course of 1982, but neither did nominal prices go up much between 1980 and 1984, meaning that borrowers accrued little equity just by sitting in their houses.

Defaults rose substantially. Savings and loans institutions were prevented from lending beyond a very limited geographical area, meaning that they were unable to diversify geographically. This combination of events produced a broken housing finance system. Mortgage debt outstanding relative to personal income fell by 7 percent between 1979 and 1981. In the face of this situation, lenders and government officials recognized a need to change mortgage loan procedures. While part of the "solution" to the mortgage finance crisis was the catastrophic Garn-St Germain Act of 1982 (the Act was catastrophic because it postponed an effective solution and the problem worsened), part of it was the development of a revolution that still reverberates.

Specifically, Congress recognized that ceilings on returns to deposits were counterproductive, and passed the Monetary Control Act of 1980 phasing out Regulation Q. Moreover, the Federal Home Loan Bank Board recognized that depositories could protect themselves against interest rate risk by issuing Adjustable Rate Mortgages. The Federal Home Loan Bank Board in 1982 gave explicit permission for SLs to originate and hold ARMs, and the market share of ARMs responded accordingly.

While other countries dismantled their segmented housing finance systems and linked housing finance to capital markets through deregulated depositories, the USA linked housing finance to capital markets through depository deregulation and securitization. Thrifts restructured their portfolios by exchanging fixed rate mortgages for MBS that could be sold to one of the US secondary market agencies. This behavior was encouraged by rules that allowed losses to be amortized rather

than realized immediately (Wachter 1990). Thrifts then solved their asset liability mismatch going forward by holding in their portfolios newly available adjustable rate mortgages.

Elsewhere, securitization has not developed in part because the "infrastructure requirements for mortgage security issuance are demanding, time consuming, and costly" (Chiquier et al. 2004). The USA, on the other hand, provided the underpinnings for its mortgage security infrastructure with the creation of HOLC in 1934 and FNMA in 1938. Freddie Mac invented MBS pass-throughs, instruments that passed cash flows from borrowers to securities holders, in 1971. The mortgage securities market became increasingly sophisticated as it integrated the tools of modern finance, as discussed further below.

One of the mechanisms the Government sponsored enterprises (GSEs) used to create liquidity in the mortgage market was the standardization of mortgage documentation. This documentation allowed the GSEs to parsimoniously collect the data necessary to develop robust underwriting models and guaranteed that home mortgages within securities would be sufficiently homogeneous that they could trade in liquid markets. All these developments allowed 22 years of uninterrupted liquidity in the market for conventional conforming mortgages. (Conventional mortgages are those not backed by the full faith and credit of the US Government. Conforming mortgages are those eligible for purchase by Fannie Mae and Freddie Mac.)

State of knowledge

So far as we know, no one applied option pricing theory to mortgages before the late 1970s, when Asay (1978) wrote an innovative and seminal dissertation. Dunn and McConnell (1981) and Foster and Van Order (1984) followed with influential papers of their own. Yet on reflection, mortgages obviously have lots of optionality embedded in them. Borrowers have an option to put houses back to lenders through default, and an option to call mortgages back from lenders through low-cost refinancing. Black–Scholes modeling techniques thus helped investors gain insights into the spreads they required in order to be compensated for underlying mortgage risk.

The mortgage market made for a particularly interesting application of option pricing theory because borrowers often do not exercise optimally. While the frequency of the exercise of both the call and put options increases as they get deeper and deeper into the money (Foster and Van Order 1984, 1985; Kau et al. 1994), households appear to neither default ruthlessly nor prepay optimally. With respect to default, many households seemed particularly immune to market conditions. Foster and Van Order found that of households whose mortgage debt exceeded 110 percent of house value, only around 4 percent defaulted.

Archer and Ling (1993) and Green and Lacour-Little (1999) also found that households did not exercise prepayment optimally. In fact, in the middle 1990s, many borrowers had mortgages whose coupon rates were more than 200 basis points above market rates, and yet failed to refinance. Identifying such borrowers became an important part of mortgage pricing because slow, prepaying, premium mortgages were highly profitable. So as mortgages began to be funded increasingly in capital markets, and as computer power became cheaper, investors in mortgages developed sophisticated models of default and prepayment behavior.

Residential borrowers do not (or at least did not) behave in the same manner as corporate borrowers, and indeed, may not behave in a manner easily explained by any theory of utility maximization. (Kau et al. (1994) dispute this, arguing that both rational and "irrational" behavior could be observationally equivalent to each other.) Thus, investors that could identify the characteristics of borrowers who did not behave "optimally" gained a considerable advantage over others.

Changing behavior and changing loan origination costs have, however, undermined the ability of econometric models to predict prepayment speeds. Borrowers have become much more aggressive in the exercise of the call option. Bloomberg data show that The Public Securities Administration Conditional Prepayment Rates (CPR) for a mortgage with a 100 basis point spread over market has increased by three-to-four times between 1993 and 2006. In 2005, when mortgage interest rates were low, around 40 percent of existing mortgages were refinanced in a single year. The instability of models predicting prepayment may be a harbinger about how much we can glean about future defaults based on past default models.

18.3.3 The succession to the revolution: The terror?

A variety of indicators imply that the housing finance revolution in the USA has improved efficiency and consumer welfare. Nevertheless, recent events suggest that, just as in 1789, a revolution has produced a terror.

An important precursor to the subprime crisis was the development of the private label MBS market for nonconforming prime mortgages. This market developed in parallel with the Fannie–Freddie security structure, and allowed for capital market financing of mortgages whose balances were larger than that permitted for Fannie/Freddie purchase. (Every year, the OFHEO uses a formula based on home prices to determine the maximum-sized loan that Fannie Mae and Freddie Mac may purchase. This is known as the "conforming loan limit.") The private-label market worked initially to support growth in securitization of "jumbo" mortgages (mortgages on high-value homes), just as the Fannie–Freddie agency debt supported the growth of prime mortgages, although it was in a few ways critically different from the agency market.

Because private-label securities have no government backing, implicit or otherwise, the coupon rates on loans backed by such securities are higher than they are in the conforming market. The Congressional Budget Office (2004) estimates that borrowers in the nonconforming market historically pay a premium of 25 basis points relative to borrowers in the conforming market. Green and Wachter (2005) note that nonconforming mortgages typically have higher down-payments and a greater tendency to be ARMs than conforming mortgages, but that could be a result of borrower choice, rather than security structure.

The most meaningful way in which private-label securities differ from agency-backed securities is with respect to structure. Fannie and Freddie securities are tranched for (differentiated on the basis of) prepayment risk, but are generally not tranched for credit risk. Private-label securities are, however, tranched for credit risk. As a result, early tranches are presumed to have virtually no credit risk (particularly in the prime market for jumbo loans), while later tranches take on more credit risk,

and therefore, earn higher expected rates of return. Over the period of the late 1990s, when home prices were rising and the private-label market was largely confined to prime mortgages, credit losses on even junior tranches remained low.

This all changed recently. The private label market grew dramatically, with issuances rising from $586 billion in 2003 to $1.2 trillion in 2005. A large share of this more recent growth came from the subprime and Alternative-A (near-prime) markets, whose share of the private-label market grew from 41 percent to 76 percent over this two-year period (England 2006).

The creation of structured finance for mortgage credit risk abetted the rise of the subprime market. For a time, capital markets seemed to have an appetite for almost any kind of risk, so long as it received sufficiently large yields in exchange. But as we shall discuss below, investors in junior credit tranches often faced uncertainty, rather than risk. Many subprime loans had essentially no underwriting, and insufficient data were available to calibrate default risk for subprime mortgages.

At the heart of the subprime crisis are three basic issues: pricing versus rationing, asymmetric information between lender and borrowers, and asymmetric information between originators and investors. While the subprime crisis is too recent to develop formal empirical tests of its causes, we can list a set of possible candidates.

Pricing versus rationing

One of the truly astonishing transformations of the mortgage market has been the increase in the access to mortgage credit. American Housing Survey data show that between 1997 and 2005, the number of households with a mortgage increased by 20 percent while the number of households increased by 9 percent. Nominal mortgage debt outstanding grew by 2.5 times over that time period (*Federal Reserve Bulletin*, 2006 Table 1.54.), while nominal GDP grew by 50 percent.

This market growth was in part a function of more efficient average cost pricing of credit or "rationing:" prime mortgages are now usually underwritten with logit models, and borrowers are either accepted or rejected based on these logits. Those accepted into the pool pay the same average-cost price, with the exception of those with loan-to-value ratios in excess of 80 percent who must pay mortgage insurance premiums The companies developing these models – Fannie Mae, Freddie Mac, Wells-Fargo, Citibank, etc. – hire econometric modelers and have millions of observations with which to work. Consequently, they estimate models with precise coefficient estimates and small residuals. These well-estimated models mitigate against adverse selection among the pool of borrowers who are deemed to be good credit risks. Indeed, econometric underwriting models have shown that two observables – loan-to-value ratio and credit history – have enormous power in predicting default risk. Lenders have also used automation to assure the integrity of both of these measures. Automated valuation models (following the pioneering repeat sales techniques of Bailey et al. (1963) and Case and Shiller (1989)) help in monitoring appraisers while attempted tinkering with Fair–Isaac Credit Scores leads to a reduction in those scores.

As models have become more precise, more borrowers have become eligible to receive prime mortgages. Certain potential borrowers, however, do not qualify for prime mortgages, usually because of poor credit history. And so, as these borrowers become pushed out of the prime market, lenders have used pricing to bring them

into the subprime market. Subprime originations increased from 8 percent of new loans in 2003 to 22 percent in 2005 (England 2006). (Additional growth including more aggressive negatively amortizing mortgages occurred in 2006 (Pavlov and Wachter 2007).) Chairman Greenspan praised this development, noting:

> . . . where once marginal applicants would have simply been denied credit, lenders are now able to quite efficiently judge the risk posed by individuals and price that risk appropriately . . .
>
> . . . Improved access to credit for consumers, and especially these more-recent developments, has had significant benefits. Unquestionably, innovation and deregulation have vastly expanded credit availability to virtually all income classes. Access to credit has enabled families to purchase homes, deal with emergencies, and obtain goods and services. Home ownership is at a record high, and the number of home mortgage loans to low- and moderate-income and minority families has risen rapidly over the past five years. Credit cards and installment loans are also available to the vast majority of households.

(See Remarks by Chairman Alan Greenspan at the Federal Reserve System's Fourth Annual Community Affairs Research Conference, Washington, DC, April 8, 2005. The ellipse is used for brevity: the remarks within the ellipse emphasize that consumer worries about the use of technology for underwriting are largely misplaced. Available at http://www.federalreserve.gov/boarddocs/speeches/2005/20050408/default.htm.)

Risk-based pricing became widespread in the subprime market in the late 1990s along with the development of private-label securitization of nonconforming mortgages. But while the algorithms for rationing credit became sophisticated, the algorithms for pricing subprime mortgages (to the extent such things even exist) faced a serious identification problem. From 1997 to 2005, the period in which the subprime market grew dramatically, nominal home prices in the USA rose rapidly and nearly ubiquitously. This meant that the incentive to default was extremely low – households had a strong incentive to sell their houses and preserve their equity rather than default.

At the same time, the subprime market developed new products whose features had never faced a market test. In particular, lenders introduced 2/28 and 3/27 Adjustable Rate Mortgages with prepayment penalties. These mortgages would have introductory teaser rates (for two or three years) that would reset to London interbank offered rate (LIBOR) or one-year Treasuries with a large spread. Borrowers would qualify for the loan based on the initial teaser rate, and then would be locked into the higher rate after the teaser expired. Pavlov and Wachter (2007) show how prices increased specifically in markets where subprime's market share grew, so that a portion of the price increases were credit-induced rather than based on fundamentals.

Past research originated in the 1980s on teaser-rate ARMs showed that borrowers had a strong propensity to prepay when rates adjusted to a market rate of interest plus a large margin (see Green and Shilling 1997). These ARMs did not have prepayment penalties, but research suggests that borrowers as a group understood

the product they were getting themselves into: they would take advantage of the teaser and then exit the mortgage at the moment when it became profitable for the lender.

Default is a much more serious credit event than prepayment. Yet, it should not be too surprising that borrowers would react to a payment shock. Indeed, originating this kind of mortgage is almost asking for adverse selection: for example, the rational borrower who uses a 2/28 will take advantage of the ability to live in a house at a below market rate of interest for two years, and will then compare the present value of the mortgage relative to the present value of the house at that point. Because the mortgage carries a premium interest rate (i.e., a rate whose foundation is a large spread over some benchmark), the chances are that the mortgage's value, from the borrower's perspective, will be greater than the value of the asset, and so there will be an incentive to default. Once good data are available, it will be useful to observe whether 2/28 borrowers or borrowers of negative amortization and optional payment ARMs – default more ruthlessly than others. As it is, we know from Federal Reserve data that almost all of the subprime delinquency problems arise from adjustable rate mortgages.

But let us return to the point. The lending industry attempted to use pricing to expand the market to borrowers not served by the prime market. The mistake the industry apparently made was offering a loss-leader price in the early years of a loan in order to get borrowers into the market, in hopes that they would make up the difference in later years. Though mortgage lenders attempted to enforce the higher price in the future through use of prepayment penalties, *prima facie* evidence suggests that this did not work.

Asymmetric information and adverse selection: Borrowers and lenders

Asymmetric information also arises because it is likely that mortgage originators understand mortgage pricing and risk better than borrowers. To make this concrete, consider the nature of mortgage disclosures. The Truth in Lending Act requires that borrowers be informed of the annual percentage rate (APR) on their mortgage. The APR rate is the internal rate of return on a mortgage based on its coupon rate, discount points, amortization, and term. The APR calculation assumes that borrowers never refinance, and makes no provision for fees other than discount points. As such, it does not give an accurate picture of mortgage cost.

Both borrowers and investors in mortgages are interested in yield, which is the internal rate of return on a mortgage. But of course, the yield is *not* the same thing as the mortgage coupon rate (the basis on which the mortgage amortizes) or the APR (a rate that amortizes the cost of discount points over the amortization period of the mortgage). The yield is rather the true return/cost of a mortgage. Even in the context of a fixed rate mortgage, disclosing effective cost is not straightforward.

Yield comes from six components: the note or coupon rate, discount points (upfront cash a borrower pays to lower the coupon rate), fees, prepayment penalties, the life of the mortgage (i.e., how long the borrower actually pays the mortgage before refinancing or selling it off), and frequency of amortization.

To give a sense of how these components interact, consider three fairly simple mortgages. Mortgage one has a 6 percent fixed rate, no points, no fees, 30-year amortization, and an expected life of three years. Mortgage two has a 4.5 percent

fixed rate, two points, 2 percent fees, a 2 percent prepayment penalty if prepaid within five years, 30-year amortization, and an expected life of three years. Mortgage three is the same as mortgage two, except that it has an expected life of 10 years. The regulatory APR for the three mortgages is 6.16 percent, 4.86 percent, and 4.86 percent, respectively. (APR assumes that discount points are amortized over the term of the loan. Fees and prepayment penalties are not included in APR.)

But these APR calculations do not reflect the true cost of the mortgages (nor, obviously, do the coupon rates). The true cost of the mortgage is a function of how the borrower behaves after the mortgage is originated. For example, the borrower of mortgage two decides to repay the mortgage after three years. This means that little time has passed to amortize points and fees, and that the borrower is subject to a prepayment penalty. As a consequence, while both the coupon and the APR on this mortgage are lower than the first mortgage, the actual cost to the borrower of the second mortgage, at 6.6 percent, is higher than the cost of the first mortgage, at 6.16 percent.

Now let us consider the third mortgage. The borrower pays off this mortgage in 10 years; consequently, enough time passes to substantially amortize the upfront mortgage costs and to eliminate the prepayment penalty. As a consequence, the cost of this mortgage to the borrower (4.86 percent) is substantially lower than the cost of the first mortgage.

The point of this illustration is to show that it is difficult to characterize exactly what a mortgage price is, and that the price is driven in part by the behavior of the borrower after the loan is originated.

Price revelation is elusive for subprime borrowers (Wachter 2003). This is exacerbated by the lack of a guarantee in pricing at the closing of all the terms, which adds complexity and reduces transparency. This means that even under the best of circumstances, disclosing true costs and risks to even well-informed borrowers is difficult; to a borrower without financial literacy, it is nearly impossible.

Asymmetric information and adverse selection: Originators and investors

The subprime crisis has revealed a number of puzzling aspects about investor behavior with respect to (i) the relationship between investors in securities and loan originators, (ii) the nature of diversification, and (iii) investor understanding about housing market risk.

The behavior of investors with respect to subprime mortgages is puzzling, to say the least. Mortgage originators had powerful incentives to originate loans, regardless of quality: every mortgage that was successfully originated and sold to an investor produced a fee for the originator. While companies originating the loan, such as New Century, could give representations and warrantees to investors that loans met some minimum standard, they were not capitalized well enough to make good on any promises in the event of large-scale default. It is difficult to understand why this was not clear to investors *ex ante*.

The second puzzle is that investors and rating agencies appeared to believe that diversification *per se* could cause systematic risk to disappear. It is of course the case that as a security becomes more diversified, unsystematic risk will become

smaller, but mortgages with 10 percent default probabilities will continue to carry such probabilities, regardless of the securities in which they are packaged (Coval et al. 2007).

The third puzzle is investors' seeming lack of understanding about housing market risk. Commentary in the popular press could be schizophrenic about potential risks in the housing market. On the one hand, stories about a potential housing bubble in the USA date back to at least 2002 (see, e.g., Schulte 2002). On the other hand, Fannie Mae and Freddie Mac came under severe criticism for having high current returns on equity in their guarantee business. The Fannie and Freddie guarantee business collects fees from holders of mortgage-backed securities in exchange for guaranteeing timely payment of principal and interest. Implicit in the criticism of Fannie and Freddie was a charge that the fees they collected were "too high" in light of how rare default and foreclosure were.

Indeed, Fannie and Freddie had credit losses of a basis point or less in every year between 1999 and 2004 (see OFHEO 2006). The reason for this is that home prices rose smartly and ubiquitously over this period of time. In past periods, however, when home prices fell in various regions of the country – such as in the upper-Midwest in the 1970s, in the Old-Patch in the 1980s, and on the Coasts in the 1990s (see Case and Quigley Chapter 19, this volume) – default costs were considerably higher. In fact, some FHA cohorts from the 1980s had a default rate of more than 19 percent (Capone, 2000). It is not clear what history of home prices investors were relying on when they decided the yields they received were acceptable in exchange for the risks they were taking on.

The *Wall Street Journal* reported (August 15, 2007) that rating agencies chose not to change the ratings of MBS which were more liberally underwritten until they actually began to fail. Moreover, when investors misprice risk, the result is the artificial inflation of housing prices. The pricing boom of 2006 was likely in part due to this unsustainable credit boom (Pavlov and Wachter 2007).

A theme across all these puzzles is the lack of transparency, which in turn led agents to make uninformed decisions.

18.4 Conclusion

We take away three lessons from our observations on the housing finance revolution. First, notwithstanding the credit crisis of the late 2000s, mortgage markets that are linked to capital markets are better for consumers and investors than are mortgage systems where the price and allocation of mortgages is determined by government. There are countries that do not have access to long-term capital and therefore do not have fully functioning mortgage markets. The development of such markets would allow borrower access to mortgages with long terms.

Second, nonetheless, among the alternative vehicles of depositories, covered bonds, and securitization, it is not at all clear whether there is one "best" channel for attaching mortgages to capital markets. The policy issue with respect to channels is determining how risk is best managed. *Depositories*, for example, manage interest rate risk by having such assets as adjustable rate mortgages. But if households, who

anticipate long-term occupancy, only have adjustable-rate mortgages available to them, they must balance their long-duration asset – their house – against a short-duration liability. This can expose homeowners to mortgage payment shocks and thereby induce macroeconomic instability. Nonetheless for some homeowners the adjustable rate mortgage is welfare maximizing.

The US *mortgage-backed security structure*, on the other hand, gives borrowers access to fixed rates over long terms as well as the option of prepayment. This means investors in mortgage-backed securities are exposed to interest rate risk regardless of how rates move: they take capital losses when rates rise and they must reinvestment in securities with lower interest rates at par when rates fall. While investors in agency MBS take on substantial interest rate risk, they do not take on much credit risk, which is instead born by the GSE intermediaries – Fannie Mae and Freddie Mac. With pass-through agency MBS, interest rate risk is borne by agency MBS holders and not the government, while default risk is borne by agency equity investors, as well as the taxpayer, as we have seen in the current conservatorship. A key issue is the relationship between the Government and the GSEs which has allowed Fannie Mae and Freddie Mac to develop and maintain uniform underwriting instruments, which in turn, has produced homogeneous mortgages that can easily be bundled into liquid securities. This uniformity and liquidity can be contrasted with private-label securitization which was neither regulated nor exposed to market accountability since much of the private-label securitization MBS was not traded, but rather marked to model by rating agencies.

The German *covered bond system* divides risk between investors and borrowers differently. Mortgages in Germany have long terms, but carry less market interest rate risk relative to American MBS for investors because borrowers are effectively prevented from prepaying their mortgages. German mortgages which are funded with covered bonds are also heavily overcollateralized, and consequently, carry little credit risk. Borrowers, on the other hand, while they have the benefit of knowing that their payments are fixed for a long period are faced with large prepayment penalties should they wish to refinance or even sell their house.

Third, underwriting is necessary. No amount of sophisticated structured finance can overcome the lack of sound underwriting. Indeed the complexity of structural finance vehicles limits their trading and the revelation of the market price of risk. Moreover the absence of underwriting means investors face uncertainty, rather than risk, making informed investor choice impossible.

In sum, there *has* been a mortgage finance revolution, driven above all by the integration of mortgage and capital markets. This is not, in itself, problematic; in fact it brings benefits to consumers. However, in the wake of a global recession the route to recovery does not mean "more of the same." The current US crisis is centered in the private-label securitization market and is driven by the uncertainty of credit outcomes in subprime and jumbo MBS. As a result of the crisis, bank originators of these loans may need to provide additional information on balance sheet funding. If banks fund these mortgages on balance sheets, they will face additional interest rate risk (unless either only short-term maturities are offered or prepayment is sharply curtailed), as well as credit risk. In future, there will need to be far greater attention to monitoring and managing risk, using less complex instruments and with a greater commitment to underwriting.

Notes

1. Germany primarily uses covered bonds to finance mortgages. The German system is funded both by commercial banks via deposits and by covered mortgage bonds directly funded via capital markets, with heavy restrictions on prepayment to limit the banks' interest rate risk. The bonds are structured in such a way that they largely keep risk with borrowers: the mortgages funded by the bonds are tightly underwritten and generally have substantial prepayment penalties.
2. The countries covered are Spain (ES), Ireland (IE), the United Kingdom (UK), The Netherlands (NL), Belgium (BE), the USA (US), Japan (JP), France (FR), Canada (CA), Italy (IT), Australia (AU), Sweden (SE), and Germany (DE). The data on Korea are based on a home price index compiled by Kookmin Bank. Data are not available for all countries for all years. The source interest rate data is Economy.com and for price indexes is the Bank for International Settlements (BIS) (see Kim and Wachter 2005).
3. Housing is less affordable throughout the industrialized world than it is in most of the USA. And while mortgage rate declines (and increased access to mortgage financing) have increased affordability in many markets, elsewhere, prices have increased more than interest rates have declined (in part due to other exogenous demand shifters). This shift is partly due to the improved access to mortgages, which increases demand from segments of the population who previously did not have access to financing. Ireland stands as a prime example of this phenomenon (Cox and Pavletich 2006).
4. In addition in South Korea a unique informal housing finance system, Chan Sei, developed. Households put up money for apartments for a fixed term which allows the owners of the apartment building to finance the dwellings. Green interviewed officers of both IDLC and BRACK while on a World Bank mission in May 2004.
5. The negative interest margins in the late 1980s are partly explained by: housing interest rates being capped until 1986, and the Government's announcement in 1988 that statutory reserve requirements would be phased out, with the banks agreeing to the *quid pro quo* that the savings be translated into lower lending rates (Gizycki and Lowe 2000).

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Part III
Mitigating Housing Risks

Editorial

Susan J. Smith and Beverley A. Searle

Housing: Risky Business

Across the opening half-decade of the twenty-first century, housing risks were a minority interest. The cost of borrowing was low; the returns on property were high. The opaque world of credit derivatives was a known threat to financial stability (Gibson 2007), but confidence in the housing economy was strong, and mortgage markets were still expanding. Accordingly, in the early years of the millennium, housing wealth was – as the essays in Part II demonstrate – generally seen as a solution to, rather than a source of, financial risk. This is not to imply that the housing economy was *in fact* risk-free, or that risk mitigation was not a concern for lenders and borrowers alike. It was. But what is curious is the unusual location of property in the rapidly changing risk-management infrastructure of the time.

With housing, as with any other leveraged investment, there are broadly two kinds of risk: capital (price and liquidity) risks, and credit risks. This much is clear from Parts I and II. Credit risks have a high profile and are handled in a variety of ways, using both traditional insurances and more innovative financial instruments. Investment risks, in contrast, have never been actively managed in a comprehensive or systematic fashion.

Neither of these positions is satisfactory. On the debt side, privately provisioned income and payment protection insurances can be costly, are riddled with exclusions, and tend to be most effective for those who need them least (Belsky et al. 2008). State safety nets, on the other hand – e.g., income support for mortgage interest in the UK – are somewhat threadbare (Ford et al. 2004). And capital-market solutions (the creation of mortgage-backed securities and collateralized debt obligations, "insured" with credit-default swaps), which appealed in theory, proved practically unworkable. As far as investment risks are concerned, neither states nor markets have a model for managing them, even though it is unlikely (and always geographically and historically contingent) that the financial returns on housing in the end exceed those of a more diverse portfolio. Certainly, the consensus among economists is that home prices are too volatile to justify

as "rational" the high proportion of personal wealth most families hold in their homes. And to the extent that this wealth is a welfare resource, these unmanaged risks incur social as well as financial costs. The essays in Part III address an impasse in the housing economy between a suite of credit risks, which have been ineffectively managed, and a range of investment risks, which have not been managed at all.

The importance of this is established in the opening chapter by Karl Case and John Quigley, which examines the mix of risks built into housing systems like that of the USA. This piece builds from an earlier paper which traced the detail of "How housing booms unwind" (Case and Quigley 2008), by tracking the propagation of housing market shocks into the wider economy by three related mechanisms. First, they consider the impact of a price slump on housing's previously documented "wealth effects." Thanks to downwardly sticky prices, the impact of depreciating values on consumption (an effect which, as the essays in Part I show, was marked as prices rose) may be small in the short run – at least relative to the other mechanisms under scrutiny. Second, there are income effects; and these (the impact on unemployment of recession in the construction and real estate industries) are substantial. Finally, they show that the dramatic loss of liquidity in financial markets during the summer of 2007 make for a gloomy future forecast. Irrespective of the finer details, it is clear that when housing booms unwind, their effects cascade across the economy – into consumption, employment, and, through financial markets, into the global flows of credit and cash on which so much of the world depends.

Writing a sequel for this volume, Case and Quigley turn attention to the more encouraging topic of "How housing busts (might) end." They show that the housing recession of 2005–8 in the USA is rather different from previous housing cycles, to the extent that the process of disequilibrium adjustment, which is unique to the housing market (and which has characterized the ups and downs of housing in the past), is much harder to identify. As a result, while the user costs perspective set out in the paper neatly explains why home-price appreciation in the USA during 2000–2005 was inherently unstable, conventional economic accounts struggle to predict whether and how these markets will recover. So any answers to the question posed in the title of their paper must be tentative. Case and Quigley do, however, identify two signs that US housing markets are starting to clear. First, they report an increase in the number of housing transactions (largely due to a rise in auctions, the traditional means of handling properties in foreclosure); second they note a rise in prices in nearly half the cities monitored by the Case–Shiller repeat sales index. Both of these trends serve as a reminder that the equity side of the housing equation is important.

As this book goes to press, there is little evidence of an early recovery, though there is uncertainty, which means there are hopes as well as fears for the future of the housing economy. Amid a wider effort to unravel the history and settle the future of the credit crisis, therefore, the remaining authors in Part III focus squarely on Case and Quigley's question, which is essentially about how housing market failures are resolved. The answers, for the most part, build squarely on the more hopeful – equity, or investment – part of the housing package.

That is not to say that credit risks should be set to one side; far from it. The story of mortgage debt, and its engagement with financial markets – the general

problem of regulation, the advent of subprime, the process of securitization (the debate on its alternatives), and the opaque world of credit derivatives – have still to be fully addressed. The urgency of doing so is clear from the flurry of workshops, think tanks, conferences, proceedings, and theme issues that have appeared in the space of two years. It is reflected too in a proliferating "grey" literature that is readily downloadable from the worldwide web. And of course, the theme is picked up in many of the contributions to this book. What commentators increasingly recognize, however, is that today's "mortgage meltdown" is unlikely to be stemmed without recognizing that credit and investment risks in housing are linked. And that, in a nutshell, is what the remainder of this collection does.

More specifically, the essays in Part III consider whether modern financial instruments can help manage the growing vulnerability of households to investment as well as credit risks in housing markets. In the past quarter century, the credit and investment risks that now characterize the housing economy have – for major assets other than housing – been handled by financial markets, using instruments invented for the purpose. What some find puzzling is the fact that where housing is concerned, this role has been limited in two ways. It has been geared mainly to the protection of large institutions; and it has been anchored primarily (and as it turns out catastrophically) around the management, or more properly the transfer, of credit risks. So despite the fact that residential property is the largest of the world's asset classes, and notwithstanding the extent to which the viability of lending institutions (as well as the financial well-being of home-occupiers) depends on that asset retaining most of its value, there has been practically no trade in instruments derived from home prices, or from any other measure of the value of property itself. It is curious that, despite the high value of the housing market (even in a slump) rather little research effort and very little of the policy literature refer squarely to the financial instruments now available to help share the gains and manage the risks of investing – as so many of the world's ordinary households do (and so many institutional investors as yet do not) – in an asset like housing. In short, housing assets – in marked contrast to mortgage debt – have practically no profile in the world's financial markets (see Smith 2009).

It could, of course, be argued that greater exposure to the workings of financial markets is the last thing the housing economy needs. Having weathered the worst excesses of complex, opaque, poorly accounted-for debt-management instruments, why would housing investors turn to financial markets to manage the asset that remains? The chapters in this section cast light on this in three ways. First, they describe the state of the art of the integration of housing and financial markets, identifying the powerful economic logic inspiring it, and considering why this has not yet been played out. Second, these chapters on balance make a case for the greater use of modern financial instruments to stabilize the housing market; to extend to ordinary households the protective benefits of financial instruments that are routinely (and on the whole successfully) used by large institutions to manage their risks. Third, the authors in this section consider the prospects for, and means of doing this: will the relevant financial markets gain traction; can the results be safely packaged for, and delivered to, home occupiers as well as large institutions; what is needed to achieve this end?

Housing Wealth: A Financial Anomaly?

Housing is, as we have seen, much more than an asset (this is what makes it so complicated to deal with in economics). But *as* an asset it is peculiar. This is true for many reasons, but prominent among them is the fact that housing investments are – for most intents and purposes – indivisible. That is to say, homes are generally available for purchase "as a whole" (or as a lumpy share); their investment dimension cannot be bought or sold incrementally. Moreover, once bought, property is costly to hold, and there is no guarantee that the market will be liquid when the time comes to sell.

There have in the past been numerous attempts to address this, within a policy framework that continues to valorize owner-occupation as the tenure *de rigueur*. One tactic is simply to make the lumpy investment of home purchase cheaper to access by lowering the cost of borrowing. This might, at the extreme, be thought of as a "securitized subprime," or USA model of supporting home ownership. It is risky, however, since even a small rise in interest rates (quite apart from a cascade of other economic shocks) make it hard to sustain housing outlays at the margins. It is hardly a way of minimizing risks, sharing investment gains or protecting home assets.

A more viable and interesting alternative – a more direct way to extend the affordability and sustainability of housing investments – has been vigorously, though not yet extensively, pursued in both the UK and Australia. This is a shared ownership, equity share, or equity-finance model. It is introduced and reviewed by Christine Whitehead and Judy Yates. Their essay sets out the various ways in which previously indivisible stakes in a single property can be shared among two or more investors: a household (the home occupier) and one or more institutions. These schemes were first developed more than 20 years ago, and their main aim is to improve access to home ownership (rather than create investment opportunities or manage investment risks). As a consequence, they tend to be public sector initiatives, which are attractive to governments for two reasons. They deliver affordable housing in settings dominated by the market sector; and they provide a means of widening access to housing wealth, expanding the population of property owners whose housing wealth might form an asset-base for welfare (particularly if they trade in their equity share later in life).

A notable conclusion from Whitehead and Yates' wide-ranging paper is that, in its traditional form – namely as a split in the direct ownership property between a household and an institution – the shared ownership model has never offered a mainstream solution. This is despite its superficial appeal to financial institutions (whose investment portfolios generally have too little housing in them), as well as its relevance to policy-makers (concerned as they are with affordable access to the majority housing tenure). One reason for this may be that while a "traditional" equity share model meets the needs of some (not all) households, it is less attractive to other investors – including the equity share partners. After all the market for equity shares is not large or liquid, and in the traditional model, investors can be vulnerable to moral hazard (if home occupiers do not keep the property in good repair), are generally the partner to marginal borrowers (thus incurring significant "reputational risk"), and are required to buy and hold their share for the long run.

Yet, some other forms of "equity share" have captured the public imagination. There has, for example, been a flurry of interest in "fractional ownerships" which fragment the physical housing stock into slices of real estate and units of time, offering it to investors to buy, hold, and rent out, or – sometimes, for a specified period – to occupy. In the form of extended-vacation homes, "cotels" (condominium/hotels) for business stopovers, and so on, these equity shares can be purchased with a loan or outright, and are spread between multiple fractional owners who each hold a title, bear the associated investment risks, and reap any investment gains. And this is not a new idea. Public real estate syndication was very popular in the USA in the late 1950s and early 1960s (particularly in Southern California) where parcels of undeveloped real estate were sold off to investors, driving up the price of rural land. Then as now these fractional ownerships proved more attractive to institutional investors – largely developers – than other styles of equity share. Then as now, the limiting factor is that all forms of fractional ownership remain "lumpy" as investments, they still attract high transactions and maintenance costs, they have never generated markets large enough to provide the liquidity many investors need, and they carry risks that cannot (or could not until very recently) be hedged.

As one solution to this, there have been several attempts to create secondary markets for residential property. "Proxy" markets have been in common use for a while: for example it is possible to invest, via the stock market, into the fortunes of the construction industry, or into housing companies of different kinds. These are all shares whose fortunes are tied in some way to the ups and downs of housing. But empirical studies generally suggest that this is not the same as using secondary markets to gain a stake in the housing market itself. As early as the 1920s, this was recognized as problematic, and concern was expressed in the USA that real estate (residential and commercial) was the only major industry with no securities index or exchange (Miller 1930).

The initial response to this was to establish the New York Real Estate Securities Exchange to boost the market in mortgage bonds (a tactic which failed catastrophically in the depression). Then a resurgence of property syndication into the 1970s prompted William Casey (1972), chair of the Securities and Exchange Commission in the USA, to argue for a national market in Real Estate Securities to standardize, regularize, regulate, and also ensure the sustainability of a new cycle of real estate syndication. The closest the UK has come to this is the attempt in 2005 to create a residential property stock exchange (a venture which closed in 2008). The only remaining option is to invest in residential real estate investment trusts (a way of buying shares in the rental returns on a portfolio of properties); an option which accounts for less than a fifth of the Real Estate Investment Trust (REIT) market in the USA, and which was introduced to Australia in 2006, and the UK in January 2007.

But none of these initiatives – whose primary aim is neither to enhance housing affordability, nor to manage risks, but rather to open up the residential property market to a wider range of investors – tackles the fact that the majority of residential property in the world regions covered by this collection is owned by those who occupy it. This limits the size, diversity, and liquidity of the secondary market place, while effectively preventing those home occupiers who hold virtually

all their wealth in a single owned home, from benefiting from a more diverse wealth portfolio.

Perhaps the most significant intervention in this impasse in recent years is the idea of "housing partnerships" developed by Andrew Caplin (Caplin et al. 1997). In essence the "partnership" is a conventional equity share scheme, not dissimilar in principle to some UK equity share initiatives. It takes the form of a partnership between a "managing partner" who lives in the property and a "limited partner" who is the investor (and whose liabilities are, as the name implies, limited). The difference between this and the traditional equity share model whose aim is to boost affordability, is that housing partnerships are conceived as a means of risk-management and portfolio diversification for the managing partner, and as a liquid investment for the limited partner. The liquidity in this arrangement comes from the most distinctive element of the partnership idea, namely that the partnership agreements would be securitized and sold into secondary markets which could themselves be used for investment and hedging.

One way to make this work, and a requirement of the many related housing finance and policy innovations that are considered in this Part of the book, is to make a link between housing (as distinct from mortgage) markets, and financial markets. In particular there is the possibility of creating a synthetic, or derivatives, market for housing. This alternative has been a "warm" rather than "hot" topic among economists for some years, but the consensus is that, in the current housing climate, it merits renewed and much more serious attention. The idea first surfaced in the 1980s; its most sustained exponent is Yale economist Robert Shiller, who listed housing derivatives as one of the prerequisites for his "new financial order" (Shiller 2003), and who is the co-author of perhaps the earliest substantial paper on the topic (Case et al. 1993). However, his is by no means a loan voice: other influential papers include early works by Dwonczyk (1992), Gemmil (1990) and Thomas (1996), as well as more recent pieces by Englund et al. (2002), Iacoviello and Ortalo-Magné (2002) and Quigley (2006) together with a flurry of new essays on derivatives solutions for the USA by Shiller himself (Shiller 2008a,b, 2009), and an impassioned argument in favor of derivative-driven models of equity finance for Australia by Caplin et al. (2003). For the present volume, it is Peter Englund who draws the thread of this concept together, explaining how housing derivatives can work both as risk management tools and investment opportunities. Englund argues that a liquid market in these instruments could work to the financial benefit of a wide range of home occupiers (renters as well as owners). He introduces the various past and current attempts to achieve these ends, and points to some key reasons why such markets are not yet flourishing. These themes are taken up by the chapters that remain.

The State of the Art

The idea of creating a synthetic, derivatives, market both for housing investment and mortgage debt is not new. In fact, measured against the growth of financial markets, it is in some senses quite old. Derivatives trading was probably invented in Ancient Mesopotamia (in the form of grain loans); it flourished in the form of

tulip forwards on the London Royal Exchange and as rice futures in the Osaka banking system in the late seventeenth century. It was institutionalized in the USA at the Chicago Board of Trade in 1848. But the scene was not set for these markets to dominate global finance until 1982. This was the moment when a series of regulatory shifts allowed derivatives contracts to be settled in cash rather than by the delivery of a commodity. And this opened up a host of new possibilities, including the use of contracts based on indexes – stock or home price indexes, composite indexes (e.g., consumer price or currency exchange indexes), even weather indexes – rather than on the real cost of a particular parcel of physical assets.

The end of cash settlement and the advent of index-based derivatives opened up a whole new financial world (see LeComte 2007; Millo 2007). If we discount early trading in bricks and stone derivatives, and forget that most physical housing transactions routinely invoke forward-type contracts, the first possibility to trade housing derivatives dates from this point. Housing was always the obvious candidate for derivatives trading (a large capital asset with few institutional investors, and an unhedgeable risk for the majority of ordinary households), and it is not surprising that, within a few years of cash settlement becoming established, not only were scholars writing about the possibility of trading home price indexes, but practical moves were in place to create such a market on exchanges in the UK and USA, and possibly also in France and Australia.

What is more surprising is the fact that these early housing derivatives markets failed; for reasons which have yet to be fully excavated (though see Reiss Chapter 22, this volume, and Smith 2009), In the meantime, derivatives trading as a whole has grown from a tiny base in the early 1980s (less than $1 trillion) to over $700 trillion today – that is, the value of outstanding derivatives contracts amounts to more than ten times the global Gross National Income. Housing – the world's largest single class of assets – is clearly anomalous in not driving a substantial part of this. Accordingly, the case for building a market in housing derivatives has never really been dropped, and, as the current housing cycle reached its peak, a new attempt to trade home price options and futures on a major financial exchange was launched.

Four of the contributions in this Part of the book are made by a panel of professionals working at the cutting edge of this financial innovation. They speak – from the perspectives of market-making (Jonathan Reiss), exchange-trading (John Blank), over-the-counter brokerage (Peter Sceats), and price indexing/product development (John Edwards) – about the challenge of matching investors and hedgers in sufficient numbers to make for a liquid market. The topics they address include: the question of benchmarking, or how to find a price-index sufficiently robust to trade; issues raised by licensing agreements and the structure of incentives; the problem of designing and pricing contracts; and the best route by which to trade them (on-exchange or over-the-counter). They also consider the challenge of building workable relationships between the institutions of the housing market (which are traditionally averse to complex financial instruments) and the world of financial markets (which knows surprisingly little about the idiosyncrasies of property). They touch too on the question of designing and delivering the retail products required to deliver these solutions to home occupiers. All four are cautiously optimistic: they see the trade in these instruments as logical, financially viable, and to an extent inevitable from the perspective of financial markets. The question that remains is

whether this development – whether for the long-term or as an interim solution – is desirable, feasible, manageable, and safe for housing policy and practice. This is taken up in the three final chapters.

From Theory to Practice

Although the current drive to create a market in residential property derivatives is propelled primarily by financial logic, the main arguments presented here are social. Most discussion thus focuses on the extent to which both renters and owners can benefit from a more diverse investment portfolio, and on the fact that owners and buyers could be better protected from financial risk. However, if households as well as financial institutions are to benefit from residential property derivatives something more than a liquid market is needed. Ways of delivering the really innovative insurance, or hedging, function – as well as the investment benefits – of this market to the "retail" sector have still to be found. Three papers address this.

Steve Swidler and Harris Hollans open the discussion by asking whether is it possible and feasible to hedge housing risk with the instruments that are currently available. In an earlier paper, Hinkelmann and Swidler (2007) had already established the need to use instruments derived directly from home prices to achieve this end: proxy-housing futures do not do the job. The new paper asks how effectively futures markets based on home price data might in practice manage housing risk; it considers, too, whether the options and futures contracts that are currently on the market can fulfill this role. These are both empirical questions, though of a rather different kind.

In tackling the first theme, Swidler and Hollans provide a highly accessible overview of precisely how a US householder might weigh up their hedging requirements in light of the city-specific futures contracts which are currently on the market. Turning to the second theme, these authors provide a detailed examination of how this might work for one city – Las Vegas. While the results of this analysis are mixed (in some districts the available contracts work well, in others they do not), these authors do not question the need for hedging instruments in today's housing markets. Their key point is that care has to be taken to design derivatives which can viably be used to that end.

Juerg Syz addresses a related question by asking whether and how it is practical for providers to deliver derivatives to end-users. What might financial engineers come up with to change the look and feel of everyday finance; how it might be possible to use housing derivatives to deliver effective risk management tools to home buyers? To that end, Syz outlines two possible products: a savings plan linked to a home-price index, which is a way of protecting first time buyers against rising prices; and a home-price-linked mortgage in which borrowers buy a form of home equity insurance. Both products can be delivered by embedding derivatives within savings accounts or mortgages, enabling homebuyers and homeowners to allocate their risks and returns more appropriately. Whether people want, need, or could manage such products is, as yet, an open question, since despite vigorous attempts to sell such ideas, mortgage markets on the whole retain their traditional

feel. Nothing this substantial by way of mortgage market innovation has occurred on a significant scale since the instrument was invented.

In the final paper of the book, Susan Smith asks what it might take for this to change. The question at the heart of this chapter is whether, in the wake of an unprecedented credit crisis, the aim should be to restore some version of "business as usual" in the mortgage market, or, more ambitiously, to entertain a different kind of financial future for housing. Both options are reviewed; the second is most compelling. It is based on the use of simple financial instruments to meet a range of hitherto-elusive housing and urban policy goals, and perhaps to change the character of owner-occupation itself. There is a round-up of the various policy ends to which a liquid housing derivatives market could contribute, and an analysis of why progress to date has been slow. The chapter also considers whether it is safe and appropriate to deliver these instruments to consumers, and asks whether households have the financial skills and competencies required to use such products effectively. Smith's conclusion is that what most limits the scope for an embryonic market in housing derivatives to flourish is governments' preoccupation with "evidence" to the exclusion of "ideas". The section ends, therefore, with the ironic thought that a financial innovation potentially well-placed to protect ordinary people from the vagaries of the housing economy might be limited by political struggles around both regulation and imagination.

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Chapter 19

How Housing Busts End: Home Prices, User Cost, and Rigidities During Down Cycles

Karl E. Case and John M. Quigley

19.1 Introduction

Property markets have always been cyclical, and many economists have explored the causes and consequences of cyclicality in housing and commercial real estate. Indeed, for more than a half century after the great depression, the National Bureau of Economic Research (NBER) regularly explored linkages among real estate investment, mortgage credit, and aggregate business cycles (see, e.g., NBER volumes by Wickens and Foster 1937; Blank 1954; Abramovitz 1964; Zarnowitz 1992). The regular boom and bust cycles in real property were important in their own right, but also as key components of the aggregate business cycle.

In previous work we have analyzed the way housing booms at the top of the business cycle tend to unwind, relying upon the experience of the USA over the past 35 years (Case and Quigley 2008). In that analysis we sought to emphasize the unique aspects of housing markets that contributed to the end of the boom in the US economy in the first decade of the twenty-first century.

But by 2008, however, the decline in the US housing and mortgage markets had moved far beyond the unwinding of a traditional and well-understood housing boom. We are in the midst of an unprecedented decline. Housing starts and existing sales are at record low levels, and the huge US mortgage market has collapsed in a sea of defaults and foreclosures, sending shock waves through the world financial system. Trillions of dollars in what were thought to be "safe" fixed-income investments have been wiped out in a short period of time.

Now the questions are: When and how will the current severe decline be arrested? When will the market return to some sense of normalcy? How far will prices decline? How large will financial losses be? Who will ultimately bear those losses? What can we do to avoid a disaster like this in the future?

This paper does not pretend to answer all of those questions, but instead to provide a framework emphasizing the economic factors that will ultimately determine those answers.

Our focus will be on the housing market and home prices. The second section presents a quantitative history of the movement of home prices in the USA between 1975 and 2008, including the impact of the boom-and-bust cycle of 2000–2008 on the national balance sheet, as well as the historical relationship between home prices and household income over the cycle.

We then go on to describe the traditional process of disequilibrium adjustment which is unique to the housing market, and which has played itself out during every previous recovery period. This housing bust of 2005–2008, however, is different in a variety of ways which make the task of predicting the timing and the character of the ultimate bottom more difficult.

The following section presents a perspective that helps integrate the effects of the important, but seemingly disparate, aspects of the current housing crisis in the USA. These aspects include home price changes, expectations about price changes, the demand for housing, and the diffusion of relaxed mortgage underwriting standards in the USA during the period leading up to the crash in the housing market. This perspective is the annual user-cost of housing capital – which drives the demand for housing and homeownership, the demand for housing finance, and the demand for liquidity in the housing market. This perspective also reconciles the demand for relaxed standards of mortgage finance and the profitability of those alternative mortgages to financial institutions. The final section is a brief conclusion.

19.2 Home Prices and Land Values in the USA

19.2.1 A brief history of housing cycles in the USA since 1975

There are several regularities in the course of home prices in the USA during the past 30 years. First, in nominal terms national home prices simply never declined until 2006. Second, in real terms national housing prices have been mildly cyclical, with long periods of ups and downs. Third, regional cycles and local housing prices have followed a number of quite different courses depending on variations in the elasticity of housing supply as well as regional economic performance. And, since 2006, prices have been falling very sharply across the country.

The Office of Federal Housing Enterprise Oversight (OFHEO) national quarterly repeat sales index, reported in Figure 19.1, rose nearly sixfold in nominal terms between the beginning of 1975 and the end of 2007. Figure 19.2 plots the Standard and Poor's Case–Shiller (CS) national index, arguably a more precise measure of price movement, but one that is available only after 1987. The CS index declined in only two quarters in 20 years: one quarter in 1990 and in another quarter in 1994. In both cases the decline was less than 0.5 percent. Nominal prices rose at an annual rate of 6 percent overall, but the data also reveal a rapid acceleration around the year 2000. Between 2000:I and 2006:I, the CS national index rose by 90 percent.

Table 19.1 compares the increases in home prices with income growth and inflation. For the same period, 1975 through 2007, the Consumer Price Index rose fourfold, implying an annual rate of increase of about 4.5 percent. Per capita personal income

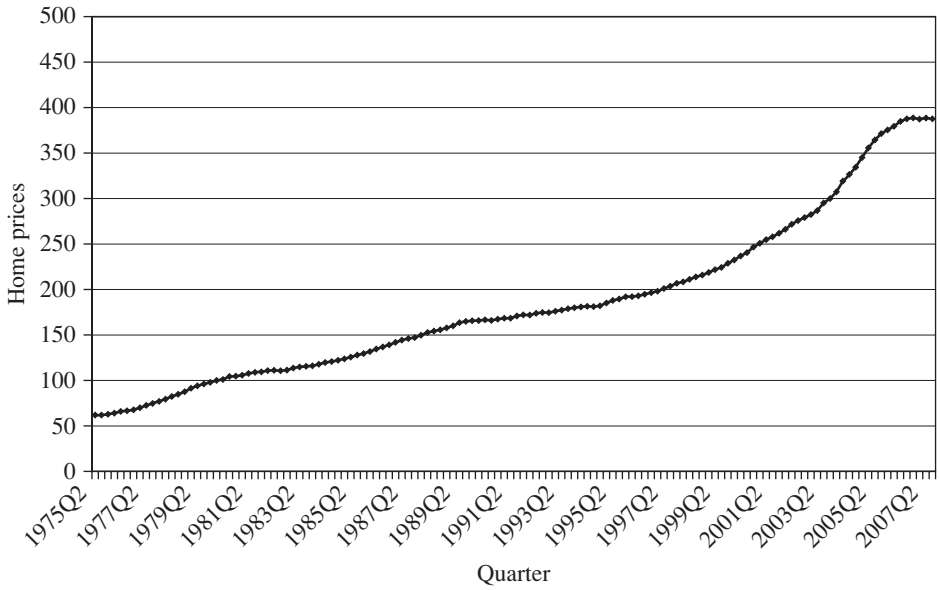

Figure 19.1 Nominal home prices.
Source: Office of Federal Housing Enterprise Oversight National Index

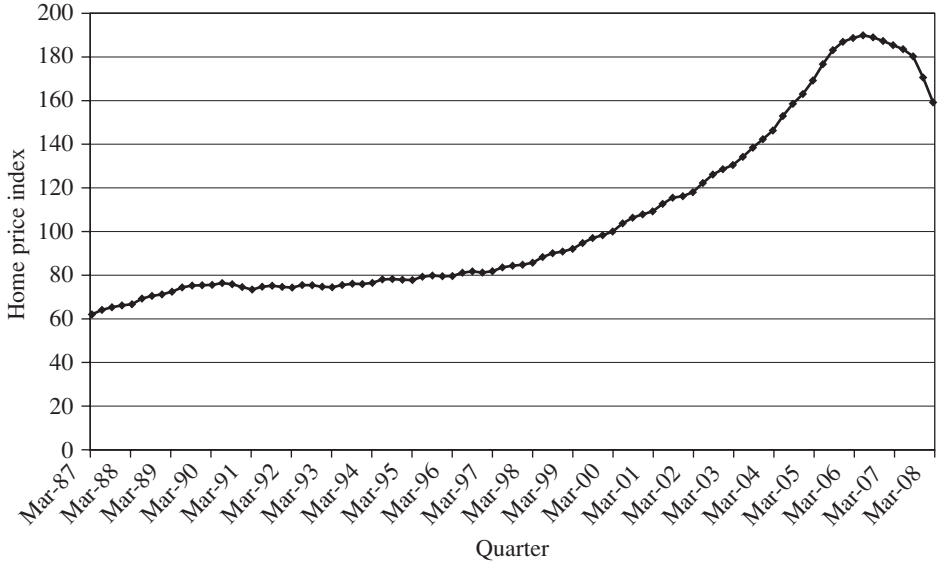

Figure 19.2 National Case–Shiller Home Price Index.
Source: Standard and Poor's Case–Shiller Index

Table 19.1 Home prices, income, and consumer prices 1975–2006

	Total changes (%)	*Annual change (%)*
OFHEO basic index of home prices	536	6.0
Median household income	294	4.6
Per capita personal income	546	6.0
Average hourly earnings	277	4.4
Consumer prices cpi-u	289	4.5

Sources: Office of Federal Housing Enterprise Oversight (OFHEO), Bureau of Economic Analysis, Bureau of Labor Statistics, Moody's Economy.com

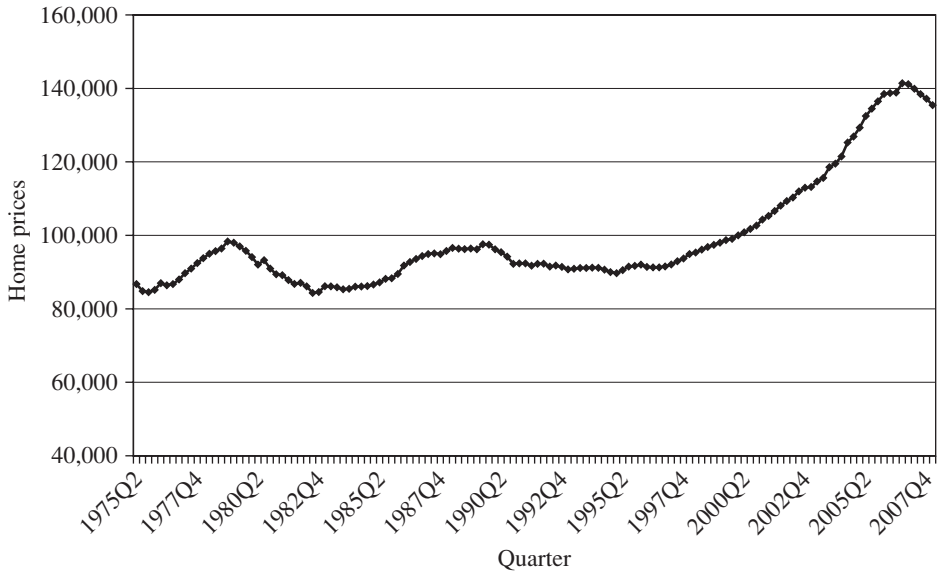

Figure 19.3 Real home prices.
Source: Office of Federal Housing Enterprise Oversight National Index

grew at the same rate as home prices while median household income did not keep pace.

Figure 19.3 reports the OFHEO national index in real terms. The data indicate four time periods when real prices declined. Until 2006, the largest decline was recorded in the late 1970s and early 1980s.

In a number of regions, boom and bust cycles led to more substantial periods of decline. Table 19.2 presents a rough chronology of the ups and downs of home prices in the USA based on CS metro area indexes (i.e., repeat sales indexes produced by Fiserv CSW). Between 1975 and the late 1990s, two major price booms occurred in California (twice) and one developed in the Northeast. Major busts occurred in Texas, the Northeast and in California.

In 1975, the economy was in recession. During the subsequent period of recovery, California experienced a substantial housing price boom, with nominal home

Table 19.2 Booms and busts since 1975

Period	*Event*	*Increase/decrease (%)*
1975–80	California boom I ending in recession	+139
	US National Index	+64
1980–85	Nominal prices in California hold	
	Deep recession/recovery	
	US National Index	+25
1985–90	US National Index	+27
	Texas bust (no real boom) 86–88	−14
	Bottom: 10 quarters	
	Oklahoma 83–88	−24
	Bottom: 24 quarters	
	New England/NY boom 84–88	+114
	New England/NY bust 88–92	−13
	Bottom: 14 quarters	
	California II boom 84–90	+91
1990–95	Only National decline 92:2 and 91:1	+4
	California II bust 90–95	−14
	Bottom: 20 quarters	
	San Diego	−17
	Bottom: 24 quarters	
	US National Index	+25
1995–2000	Housing prices all moving up	
	US National Index	+29
2000–2006	US National	+89
	Composite 10	+128
	Composite 20	+107
	Miami	+181
	Bottom tier	+241
	Los Angeles	+173
	Bottom tier	+239
	Washington DC	+151
	Bottom tier	+197
	San Diego	+150
	Bottom tier	+196
	Las Vegas	+134
	Bottom tier	+193
	Phoenix	+127

prices rising 139 percent. During the same period, home prices in the rest of the country rose about half as much, by 64 percent. That boom ended with the deep "double dip" recession of 1980 through 1983. At the time, the 30-year, fixed-rate mortgage carried an interest rate as high as 18 percent, and the overnight Fed Funds rate was above 20 percent. Demand dropped sharply, and many expected to see a sharp decline in home prices. However, nominal prices in California never fell. Instead, prices remained essentially unchanged from 1981 to late 1984 when the

Table 19.3 Standard and Poor's Case–Shiller Index – through September 2008: Released November 25, 2008

Metro area	*Peak*	*% Δ Since peak*	*% Δ Last year*	*% Δ from August to September*	*% Δ from July to August*	*% Δ 2000 to September 2008*
Phoenix	Jun 2006	**−38.5**	−31.9	−3.5	−2.9	+39.79
Las Vegas	Aug 2006	**−37.6**	−31.3	−2.6	−2.4	+46.58
Miami	Dec 2006	**−36.4**	−28.4	−2.6	−1.8	+78.72
San Diego	Nov 2005	**−34.4**	−26.3	−2.4	−2.3	+64.12
Los Angeles	Sept 2006	**−32.6**	−27.6	−2.5	−1.8	+84.54
Detroit	Dec 2005	**−29.0**	−18.6	−2.5	−0.8	−9.83
San Francisco	May 2006	**−33.4**	−29.5	−3.9	−3.5	+45.53
Tampa	Jul 2006	**−28.1**	−18.5	−1.8	−0.4	+71.24
Washington DC	May 2006	**−24.4**	−17.2	−2.2	−0.7	+89.90
Minneapolis	Sep 2006	**−17.9**	−14.4	−1.0	−1.0	+40.51
Cleveland	Aug 2006	**−11.0**	−6.4	−0.6	1.1	+9.87
Boston	Sept 2005	**−11.8**	−5.7	−1.1	0.1	+60.98
Chicago	Sept 2006	**−12.3**	−10.1	−1.1	−0.1	+47.84
New York	Jun 2006	**−11.4**	−7.3	−1.0	−0.2	+91.32
Atlanta	Aug 2006	**−10.1**	−9.5	−1.3	−0.3	+22.72
Seattle	Jul 2007	**−10.1**	−9.8	−1.4	−0.7	+72.84
Denver	Sep 2006	**−6.6**	−5.4	−1.3	0.0	+30.96
Portland	Jul 2007	**−9.0**	−8.6	−1.3	−1.3	+69.67
Dallas	Jun 2007	**−3.6**	−2.7	−0.8	−0.2	+21.96
Charlotte	Aug 2007	**−4.0**	−3.5	−1.3	−0.8	+30.40
Composite 10	Jun 2006	**−23.4**	−18.6	−1.9	−1.1	+73.25
Composite 20	Jul 2006	**−21.8**	−17.4	−1.8	−1.0	+61.56

Note: Δ = change in.

next boom began. In the nation as a whole, real home prices peaked in 1980 and did not return to this level until a decade later.

Between 1980 and 1985, the recession ended, inflation subsided, interest rates fell; by the end of the period nominal home prices had increased by 25 percent. But they were still substantially below their 1980 peak, at least in real terms.

From 1985 to 1990, regional variations in housing market conditions were substantial. First, the "oil patch" states, which had never experienced much of a housing price boom, experienced sharp declines. The "oil rich" states, including Texas, felt the economic effects of ten-dollar-a-barrel oil, declining employment, and aggressive bank examiners. Texas and the West South Central region as a whole saw prices fall 14 percent in nominal terms, reaching a trough after 10 quarters. But steeper declines were felt in states like Oklahoma where nominal prices fell 24 percent, and the bottom was not reached for two full years. The impact of the economic reversal on mortgage defaults in these markets was enormous.

But precisely as Texas and the oil-rich states were in decline, the Northeast and California housing markets were booming. Home prices more than doubled in the Northeast in a period of four years, beginning at the end of 1984 and reaching a peak at the end of 1988. The second California boom, which nearly doubled prices throughout the far west, was in full swing as the bubble in the Northeast burst in 1989.

Both the Northeast boom and the second California boom were followed by downturns of significant magnitude. Prices fell 13 percent in the Northeast where a bottom was reached in 14 quarters. In California nominal prices fell by 14 percent, and the trough was not reached for 20 quarters. As in the Southwest a decade earlier, there was considerable variation within the region. In San Diego prices declined by 17 percent, and did not hit bottom for six years. The timing of the "rolling recession" and the overlapping housing market cycles kept national home price indexes rising steadily, with only modest cyclicality overall. There were no expansions or contractions in the housing market at a national level until 2000.

But beginning rather suddenly in 2000, regional housing markets in the USA began to move together. Over the next six years, very rapid acceleration occurred at the same time in many regions, states, and metropolitan areas. At the national level, prices increased nearly 90 percent from 2000 to the peak in 2006. The CS composite indexes rose by more than 100 percent.

The last part of Table 19.2 shows just how strong the twenty-first century boom was. The largest home price increases were in Miami, where prices increased 181 percent between 2000 and 2006. Los Angeles was just behind at 173 percent, with both Washington D.C. and San Diego recording price increases of over 150 percent. Note also that the largest increases were in the lowest tiers of the home price distribution. In Miami and Los Angeles, the average property in the lower tier more than tripled in price. Just behind them were San Diego, Washington, and Las Vegas.

Home prices in some cities and regions were less volatile. Cleveland, Dallas, Atlanta, Denver, Detroit, and Charlotte had steady home-price growth of 23 percent (Atlanta) to 40 percent (Denver) – but with no real boom in their local economies. However, prices in these cities declined later, at the same time that prices declined in other more volatile cities.

Table 19.3 reports data released in November 2008, indicating the extent of home price declines since the peaks of the local markets (which occurred at different

times in different cities). The current decline began in September 2005, in Boston. Since that time, prices have declined by over 11 percent in Boston. Overall prices in Boston have declined in a pattern that seems to be similar to the bust that occurred in 1988–1992. The pattern in New York is similar.

The most severe declines have been in Las Vegas, Miami, and Phoenix where prices have declined by almost a third from their peaks in late 2006 and May 2008. Next comes California with prices in San Diego, Los Angeles, and San Francisco all down 25–30 percent from their peaks. Home prices declined by more than 20 percent in Tampa, Detroit, and Washington DC. Holding their own, but still in decline, are Charlotte, Dallas, Portland, and Seattle. Denver and Atlanta have experienced price declines of 10 percent or less.

For the first time in many decades, US home prices are declining virtually everywhere – the Standard and Poor's CS national index is down 18.8 percent from the peak through the first quarter of 2008.

19.2.2 Housing on the national balance sheet

Another way to view housing prices and asset values is through the lens of the national balance sheet. Case (2007) has recently provided a rough estimate of the value of land and residential structures in the USA over time. The methodology employed estimates the total value of the residential stock from Census and OFHEO data on the total number of housing units and prices at the state level. Asset data reported independently in the Flow of Funds (FOF) are generally consistent. In 2000, total housing assets were about $14.8 trillion.

To distinguish between capital and land, the replacement cost of housing capital is estimated each year from construction cost data assembled by the Residential Construction Branch of the Census Bureau. The difference between replacement cost and market value is the value of land.

Table 19.4 reports the course of asset values in housing in the USA since 2000 using the FOF methodology. Between 2000 and 2004 a total of $10 trillion was

Table 19.4 Changes in the value the US housing Stock, 2000–2008 (billions of current dollars)

	Total value	*Structures*	*Land*	*Land as % of total*
Stock 2000, Q4	14,772.3	10,436.5	4,335.8	29.4
Change 2000–2005	10,075.0 (68%)	4,949.9 (47%)	5,125.2 (118%)	
Stock 2005, Q4	24,847.3	15,386.4	9,461.0	38.1
Change 2005–2008	279.9 (1%)	1,957.7 (13%)	(1,677.8) (–18%)	
Stock 2008, Q1	25,127.2	17,344.0	7,783.2	31.0

Note: Gross private residential investment for 2006, 2007, and first quarter 2008 totaled 1,538 billion.
Sources: US Flow of Funds Accounts, Board of Governors, Federal Reserve System, tables B100, B102, and B103, for fourth quarter 2000, fourth quarter 2005, and first quarter 2008

added to residential assets – the result of a substantial and sustained building boom. This new construction added over 9 million units. In addition, there was substantial spending on home improvements as well as large increases in land values. The division between new capital and new land was about $5 trillion each.

The bottom row of Table 19.4 shows changes in the value of the residential stock as of the first quarter of 2008. The combination of new residential investment and the revaluation of capital (due to increases in replacement costs) implies that the aggregate value of residential structures increased by $1.96 trillion since 2005. At the same time, land value has declined by $1.68 trillion. If we confine the analysis to *owner-occupied* homes held by households, the aggregate value was $19.82 trillion at the end of 2005. Despite the fact that homebuilding and renovation were extensive in 2006 and 2007, the aggregate value of the owner-occupied stock declined by almost $100 billion to $19.72 trillion. The home mortgage liabilities of the household sector increased from $8.61 trillion to $10.60 trillion during the same period. Over two trillion dollars in additional debt was added to the household balance sheet – with no corresponding increase in collateral.

19.2.3 Income and home prices

One of the key determinants of effective final demand in the housing market is, of course, income. In this section, we describe the movement of home prices and local income over the cycle. One view is that prices will stop falling when home-price-to-income ratios return to "normal levels."

In many states, these ratios were quite stable over long time periods. Case and Shiller (2003) used state data to explore the relationship between changes in home prices and one measure of income. From 1985 though 2002, they found a relatively stable relationship between per capita personal income and housing prices in 43 states. In the remaining eight states, the relationship was quite cyclical and very volatile.

Volatility seems to have increased. In 2008, metropolitan area housing markets fell neatly into one of three regimes: the flat markets, the single-peak markets, and the markets exhibiting regular economic cycles. In most of the country, markets are flat. Figures 19.4 and 19.5 show this pattern for five metropolitan markets: Chicago, Charlotte, Dallas, Memphis, and Pittsburgh. In these cities, home prices have not increased markedly relative to income. On the contrary, prices have fallen relative to income in most time periods. The ratio is relatively constant, except in Chicago.

The single-peak states are Miami, Phoenix, and Las Vegas. Figures 19.6 and 19.7 indicate a remarkably similar pattern for Phoenix and Miami. Phoenix is perfectly stable with a ratio of housing prices to income of five from 1989 through 2000. The ratio then rose slowly to a value of six in 2004 before jumping up to nine in 2006 and falling immediately back to six in 2008. Miami was stable at a ratio of six until 2000, after which it rose slowly to a value of seven in 2004 before jumping to a high value of 12 in 2006 and falling back to eight by 2008. This same pattern is present in Las Vegas.

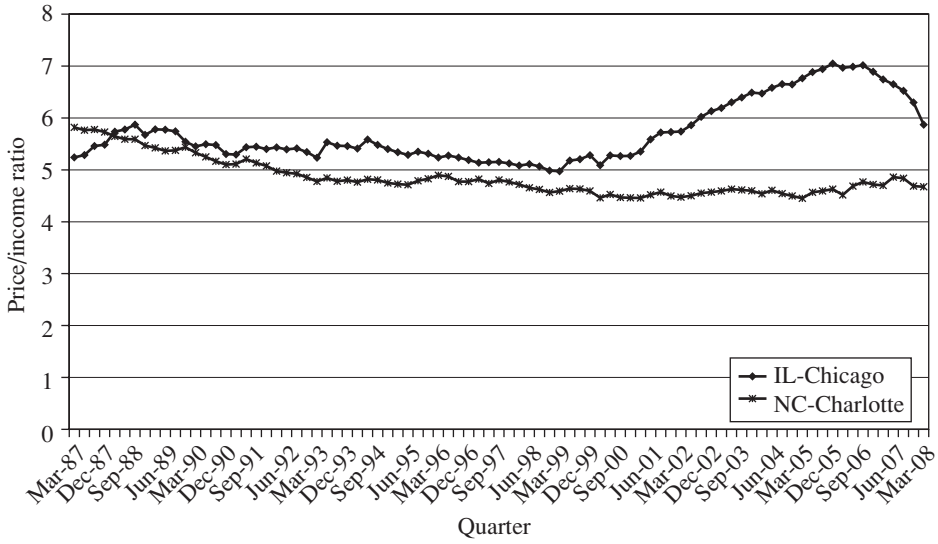

Figure 19.4 Homes sales price/per-capita income ratios for Chicago and Charlotte metropolitan areas.
Source: Standard and Poor's Case–Shiller Index, Census Bureau, Bureau of Economic Analysis, Moody's Economy.com

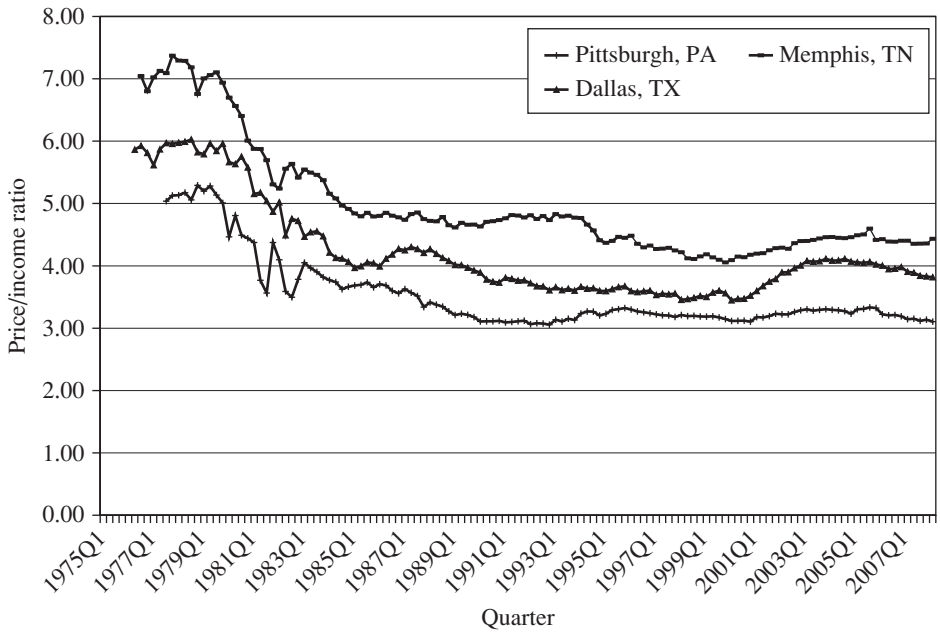

Figure 19.5 Homes sales price/per-capita income ratios for Memphis, Dallas, and Pitsburgh.
Note: Median sales price of existing single-family houses in 2000 deflated with the OFHEO purchase-only price index for the metropolitan area.

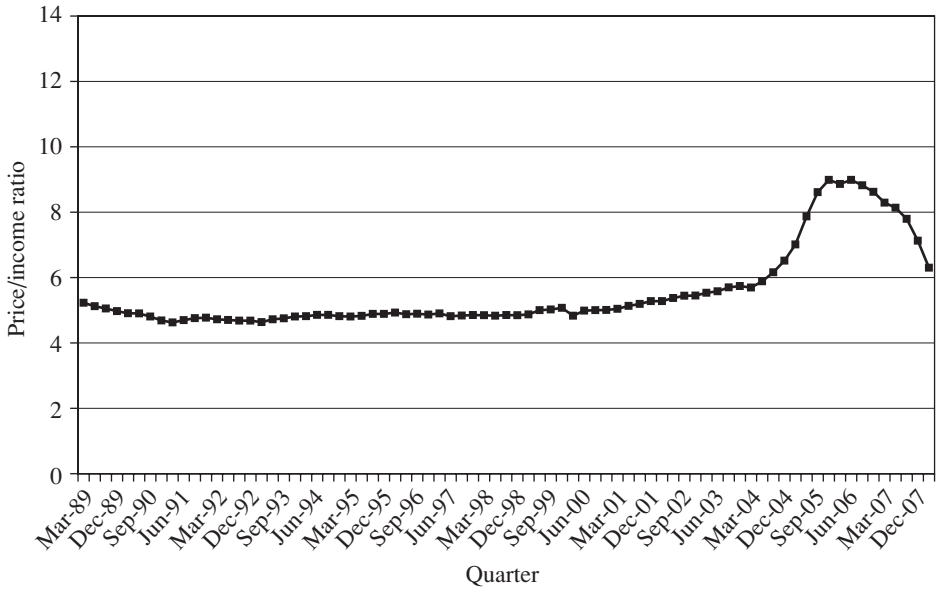

Figure 19.6 Homes sales price/per-capita income ratios for Phoenix metropolitan area. *Source*: Standard and Poor's Case–Shiller Index, Census Bureau, Bureau of Economic Analysis, Moody's Economy.com

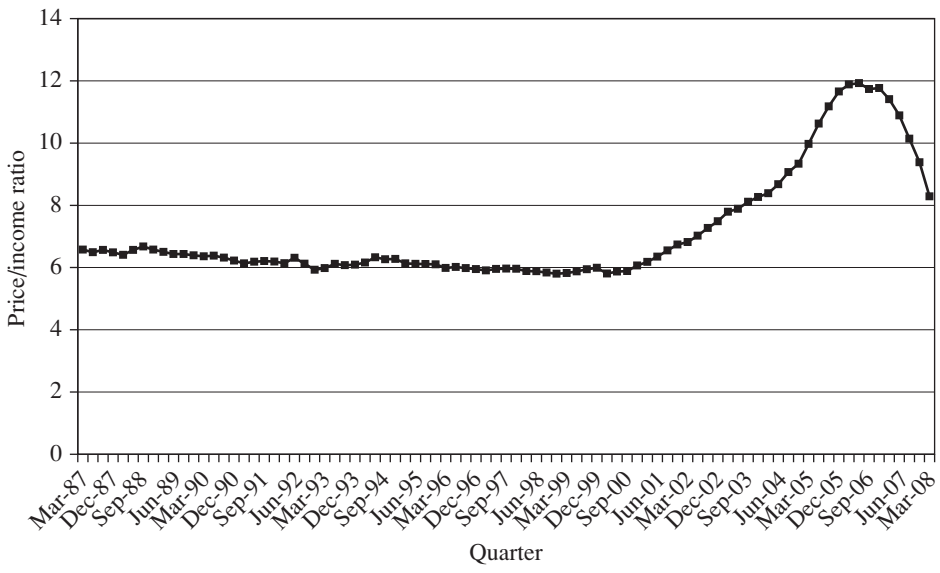

Figure 19.7 Homes sales price/per-capita income ratios for Miami metropolitan area. *Source*: Standard and Poor's Case–Shiller Index, Census Bureau, Bureau of Economic Analysis, Moody's Economy.com

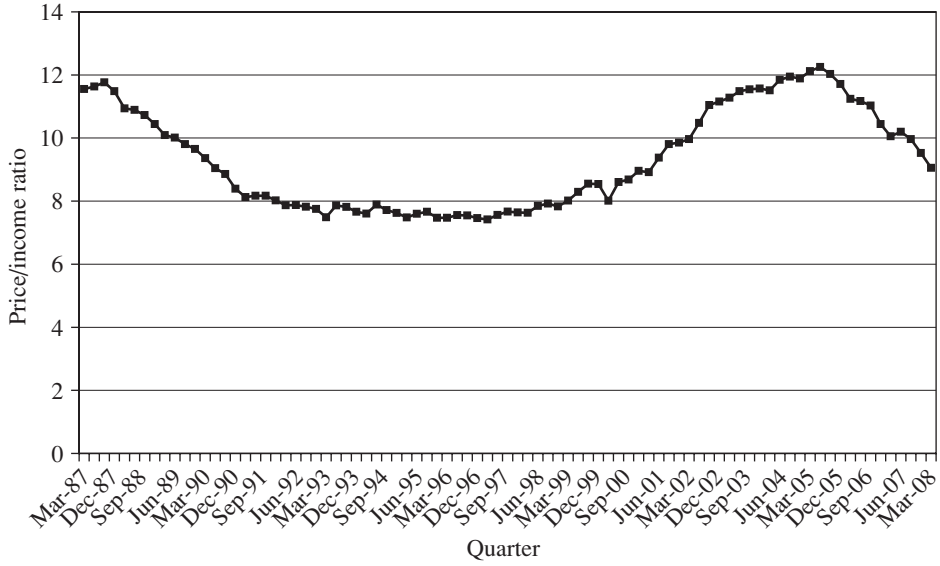

Figure 19.8 Homes sales price/per-capita income ratios for Boston metropolitan area.
Source: Standard and Poor's Case–Shiller Index, Census Bureau, Bureau of Economic Analysis, Moody's Economy.com

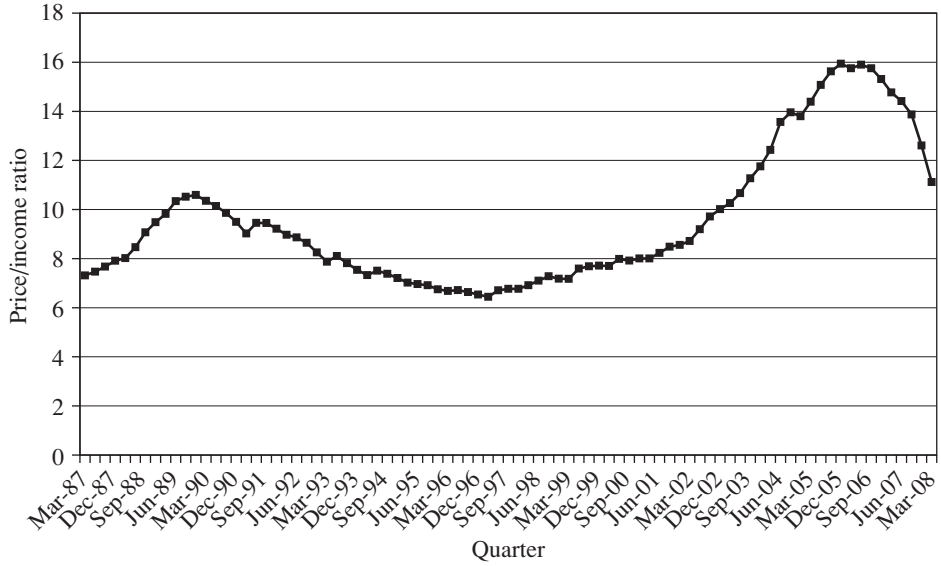

Figure 19.9 Homes sales price/per-capita income ratios for Los Angeles metropolitan area.
Source: Standard and Poor's Case–Shiller Index, Census Bureau, Bureau of Economic Analysis, Moody's Economy.com

In the Northeast and in California (Figures 19.8 and 19.9) the boom–bust cycle has been virtually continuous. The ratio of home price to per capita income in Boston rose from seven to 11 during the boom which ended in 1988. This was followed by a decline back to a value of just above seven by the mid-1990s. Beginning in 1999, the ratio again rose sharply – peaking at the end of 2005 at a value of 12. By the end of the first quarter 2008, it was back down to a level of 10. A similar pattern can be found in data for New York and for the New England region.

In Los Angeles, the pattern is the same but the ratios are higher. For California, the ratio of home prices to income started at about seven in the mid-1980s, then rose to just under 11 by 1990 before beginning a seven-year decline back to six by 1997. From 1997 to 2001, it rose slowly and then accelerated to 16 by the peak in 2006. Finally the California ratio fell back to 11 by mid-2008.

Certainly, the very high ratios in California and the Northeast suggest that increases in the price of housing preceded the course of income growth. Since the peak, prices have fallen quite significantly, however, and they are likely to continue falling into the future.

19.3 The Market Clearing Processes in the Housing Market

By August 2008 housing markets were plagued by an excess supply of property for sale. Demand has declined in some regions simply because of an ailing economy. Turmoil in credit markets led to a credit crunch and higher longterm interest rates. In many cities there was a glut of speculative vacant units; in others, the market was flooded with foreclosed property as the result of mortgage defaults or tax arrears. Pessimism about the course of home prices was discouraging demanders.

Regardless of the cause, two kinds of market clearing processes were at work as the markets searched for a bottom: the *price clearing* auction process and the *quantity clearing search process.*

Certainly, in any market there exists a schedule of prices that will clear the market. If all the houses currently for sale were auctioned each day and sold to the highest bidder, the market would clear every day. Price would simply fall until every property found a satisfied bidder. In the fall of 2008, a large number of auctions were taking place. In fact in early 2008, about a fifth of sales of existing homes were foreclosures, and most of those were sold at auction.

In a quantity clearing process, the market again starts with a high inventory of unsold homes. Prices are sticky as buyers bid low and sellers hold out. Housing production falls. Since homes "do not sell," the inventory of unsold property remains high. Household formation continues and new households and immigrants eventually absorb the inventory at softer prices. Production eventually rises, with only small declines in recorded transfer prices.

Combined with the well-documented fact that the housing market is likely to generate bubbles (see, e.g., Case 1986, 2007; Case and Shiller 1988, 1989, 1990, 2003), the quantity clearing process generates a cycle which has played itself a number of times.

With price inertia, home prices increase and overshoot, demand slows, presaging the next cycle. The process is self-reinforcing because housing production is a large

component of aggregate demand. When production falls, it slows the economy which slows demand growth. Case and Quigley (2008) report quite large income effects from the contractions in housing production that the USA has experienced over the recent past.

An essential component of the quantity clearing process in the housing market has been sticky prices. Strong evidence of this stickiness can be found simply in the inventory of unsold homes which rises invariably at the beginning of every downturn. Many properties remain available on the market for months and sometimes years. Direct evidence can also be found in the responses of housing market participants to survey questions. Buyers who sold properties prior to buying in four metropolitan areas (Orange County California, San Francisco, Boston, and Milwaukee) were asked, "If you had been unable to sell your home for the price that you received, what would you have done?" In the first survey in 1988, of the total of 254 respondents, 37 percent said that they would have "left the price the same and waited for a buyer, knowing full well that it might take a long time." Another 28 percent answered that they would have taken the house off the market or rented it. In addition, 30 percent answered that they would have "lowered the price step by step hoping to find a buyer." Only 5 percent (12 respondents out of 254) answered that they would have "lowered the price until a buyer was found."

The same survey was conducted two decades later in the same metropolitan areas. In the spring of 2008, the survey showed that individual sellers had become much more likely to reduce price when demand declined, but a surprising number were still prepared to hold out. While five percent said they "would have lowered the price until they found a buyer" in 1988, more than 20 percent would have adopted this strategy in 2008.

Downward stickiness has been most evident when declines in demand are triggered by mortgage rate increases, and when most potential sellers have nonassumable fixed-rate mortgages. A clear illustration could be observed at the end of the California boom which lasted to the third quarter of 1980. During the boom, home prices in the state rose dramatically, increasing 170 percent. But in 1980, interest rates increased sharply. The double dip recession had dampened housing demand in the state, but the combination of high interest rates and the recession caused the housing market to contract sharply. But prices in California never fell in nominal terms in the ensuing period. One reason was that, with nonassumable mortgages, house sellers would have lost the economic value of low fixed-rate mortgages. Note, in contrast, that Vancouver, British Columbia, experienced similar price increases at roughly the same time. But long-term fixed-rate mortgages do not exist in Canada. As a result, the increased interest rates led quickly to higher required house payments. Demand declined quickly, and nominal prices declined by about 60 percent in a very short period of time.

It is important to note that when demand shifts and prices stick, some agreements are nevertheless reached and some properties do sell. The buyers are those whose incomes or wealth allow them to participate in the market and whose preferences for specific units are strong. The market is thin, but the sales prices recorded are genuine.

Figure 19.10 and Table 19.5 illustrate the quantity clearing process at the macrolevel and show just how regular the cycle has been. Since the early 1970s we have witnessed four major housing cycles. Housing starts peaked in 1973, 1978,

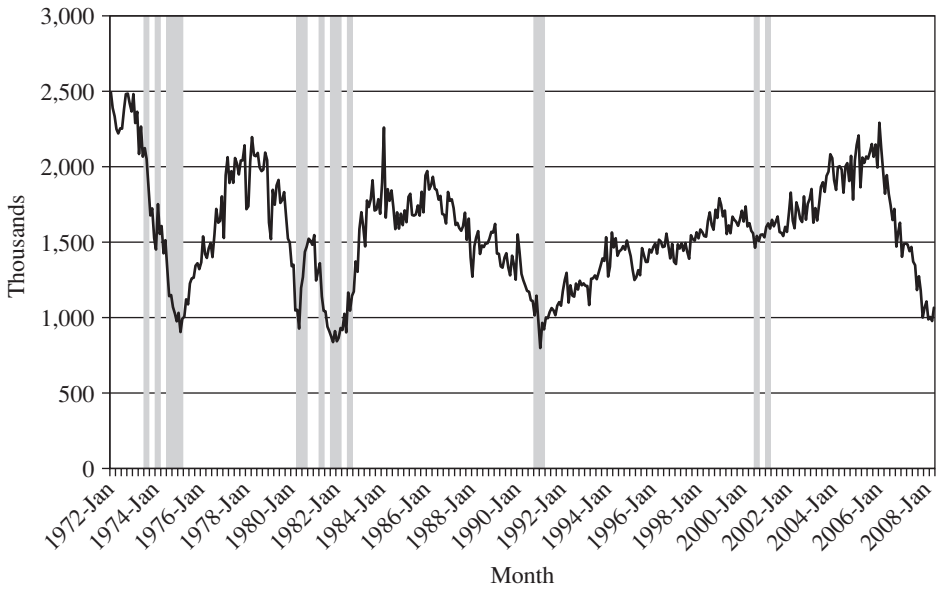

Figure 19.10 Housing starts.

Table 19.5 Gross residential investment and housing starts in down cycles 1973–2008

Cycle I	*Peak 1973:1*	*Trough 1975:1*	*Percent change*
Gross residential investment (billions of $2,000)	$310.60	$189.20	−39
Percent of GDP	5.7	3.6	
Housing starts (millions of units)	2.481	0.904	−63
Cycle II	*Peak 1978:3*	*Trough 1982:3*	*Percent change*
Gross residential investment (billions of $2,000)	$356.60	$182.90	−49
Percent of GDP	5.5	3.5	
Housing starts (millions of units)	2.141	0.927	−61
Cycle III	*Peak 1986:4*	*Trough 1991:1*	*Percent change*
Gross residential investment (billions of $2,000)	$355.90	$250.00	−30
Percent of GDP	5.6	3.5	
Housing starts (millions of units)	2.26	0.798	−65
Cycle IV	*Peak 2006:1*	*2008:3*	*Percent change*
Gross residential investment (billions of $2,000)	$607.20	$350.50	−42
Percent of GDP	5.5	3.0	
Housing starts (millions of units)	2.265	0.791	−65

Note: Peak and trough dates are for gross residential investment. For housing starts, peak and trough dates are: Cycle I, January 1973 to February 1975; Cycle II, December 1977 to August 1981; Cycle III, February 1984 to January 1991; Cycle IV, January 2006 to October 2008.
Source: US Bureau of the Census Construction Reports, November 19, 2008; Board of Governors of the Federal Reserve System, Flow of Funds Data, table F10, Line 19; Bureau of Economic Analysis, GDP release October 20, 2008, table 1.1.6.

1986, and 2006. In the first three cycles starts then fell by over 60 percent to less than a million. Historically, the trough is reached at about one million housing starts. In the most recent cycle, starts hit exactly a million in December 2007 and then declined to about 791,000 one year later.

Table 19.5 indicates the regularity of past housing cycles. Historically, real gross residential investment has been about 5.6 percent of real GDP at the top of the cycle. At the bottom of the last three cycles, the same ratio fell to about 3.5 percent of real GDP. More recently (October 2008) real gross residential investment declined to 3.0 percent of GDP, and it shows no sign of rising soon.

The homebuilding sector is the only major industry that in a normal contraction loses over 60 percent of its business. In 2007, the average cost of a new home was roughly $300,000. After subtracting land and imports, roughly $240,000 in new residential construction is added to GDP for each housing start. When housing starts were reduced to 791,000, a total of 1.47 million housing starts were foregone. That is a reduction in demand of $350 billion. This reduction confirms the magnitude of the reported decline in gross private residential investment, from a peak at $808 billion to $479 billion (nominal). With a multiplier of 1.4, this yields a decline in aggregate demand and a loss in GDP of 3.2 percent.

If the current decline were like past declines, the bottom would be in sight. It is not. The reason is that a large current inventory of delinquent mortgages threatens to flood the market with additional units to be auctioned out of foreclosure.

19.3.1 What is different about this cycle?

The events that unfolded in the US financial markets beginning in 2000 were unprecedented. Figure 19.11 chronicles the period. It relies on the work of Greenspan and Kennedy (2005, 2007). The national housing boom between 2000 and 2007 described earlier has roots in the prior turmoil in financial markets. The rapid decline of high-tech industries, the stock market collapse in 2000 and 2001, and the slow level of technology investment led to a relaxed monetary policy in an attempt to stimulate the economy. In January 2001 the Federal Reserve cut the target Fed Funds Rate by 50 basis points from 6.5 percent to 6 percent. By the end of the year, the target Fed Funds rate had been cut 11 times to 1.75 percent.

At the time the easing of credit began, the 30-year fixed conventional mortgage rate was 7.17 percent, down slightly from the 8.3 percent that it had averaged for the first nine months of 2000. By the time the Fed Funds rate hit 1.75 percent in the fourth quarter, the conventional fixed rate mortgage was down to 6.39 percent. The Fed Funds rate continued on its downward trend until it hit 1 percent in June of 2003 – where it stayed for over a year. By that time, the conventional 30-year fixed-rate mortgage carried an interest rate of 4.6 percent. This easing was accomplished with a massive injection of liquidity, which in turn put pressure on yields and margins everywhere.

In terms of affordability, a $300,000 conventional 30-year fixed rate mortgage with 20 percent down at 8.3 percent requires the monthly payment of $1,811 before tax benefits. With the mortgage rate at 6.4 percent, the monthly payment is $1,500. With a 4.6 percent interest rate, the monthly payment is only $1,230. Thus, the

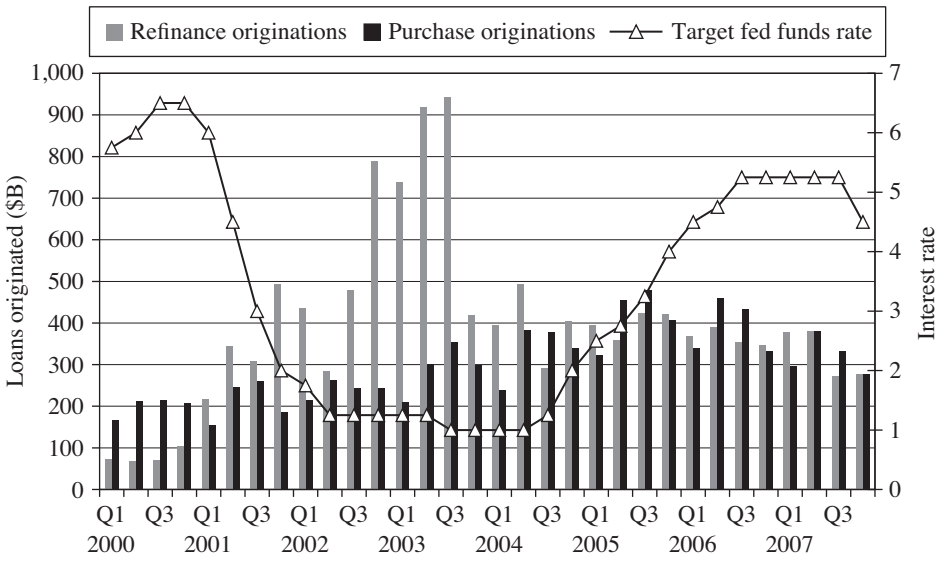

Figure 19.11 Mortgage originations and interest rates, 2000–2008.
Source: Updated estimates provided by Jim Kennedy of the mortgage system presented in "Estimates of Home Mortgages Originations, Repayments, and Debt On One-to-Four-Family Residences," Greenspan and Kennedy 2007

expansionary policy pursued during this short period reduced the monthly cost of buying a home by almost a third.

If the point had been to stimulate the mortgage and housing markets, it certainly worked. Housing production and sale of existing homes boomed. In October of 2001 there were about 1.52 million housing starts annually. By the end of 2003 housing starts had increased by a third, to well over 2 million. Existing home sales were 5.2 million annually at the beginning of 2001 and were 6.5 million by the third quarter of 2003. There is little doubt that the housing market kept the economy out of recession through the turbulent times of the early and mid-2000s.

As indicated in Figure 19.11, at the end of 2002 home sales and mortgage volumes exploded. First, low interest rates stimulated demand for refinance. Between the fourth quarter of 2002 and the fourth quarter of 2003, $5.5 trillion in mortgages were originated, and $3.7 trillion were paid off. In five quarters, the total of new mortgage originations was about the same as the entire stock of mortgage debt outstanding in 2001. Seventy-five percent of the originations were for the refinance of existing homes.

In June of 2003, mortgage rates began to rise, moving from 4.60 percent to 5.97 percent by August. The third quarter of 2003 saw the highest volume of refinances, with originations of *$942 billion in a single quarter*. Then the boom in refinance was over. In the fourth quarter, refinances fell by 56 percent.

During the expansion of credit up to the end of 2003, the industry grew and became highly competitive. The sector generated fee income of about 2.5 percent of the $4 trillion in total originations in 2003 – over $100 billion.

With low default and foreclosure rates and high home prices, lenders competed vigorously for the business of home buyers. Purchase originations doubled from $239 billion in 2004 to $478 billion in 2005. Much of this business was directed at low-income neighborhoods and subprime borrowers. Between 2002 and 2006, the market originated $14.4 trillion in mortgages, retired $10.3 trillion in debt, and increased the stock of outstanding mortgage debt to $10.3 trillion from $6.2 trillion.

Needless to say, a credit expansion of this magnitude had a major impact on the housing market. First of all, prices rose. As the data in Table 19.2 reveal, between 2000 and 2006 prices in the bottom tier increased the most – in Miami by 241 percent, in Los Angeles by 249 percent, and by 200 percent in Washington, D.C., Las Vegas, and San Diego. The CS composite indexes more than doubled, and the national index increased by nearly 90 percent.

At the end of 2005 and finally into 2006, the housing market began to soften. Interest rates rose, and the 30-year mortgage interest rate was back to 6.6 percent by the last half of 2006. Gluts of speculative building occurred in Florida, Arizona, and Nevada. Home prices in California and in the Northeast had become very high relative to incomes. The manufacturing base of the Midwest fell into recession. As expectations turned gloomy in 2006, sixteen of the CS metropolitan areas had price declines in 2005 or 2006. By 2007 all were declining. This had never been reported before.

Inventories rose. In the past, when markets overshot the mark, prices were sticky and adjustment was orderly. With home prices falling nationally, and with the bulk of the newly written mortgage debt in high loan-to-value loans, the mortgage defaults rate rose sharply.

What about underwriting? Over the past 30 years, statistical models of default and foreclosure were developed which seemed to "explain" differential default and foreclosure incidence as a function of borrower and loan characteristics. These models were used by all market participants, sometimes without even knowing it. The most widely known underwriting tools were "Loan Prospector" and "Desktop Underwriter," developed by Fannie Mae and Freddie Mac respectively. Their low cost and ease of operation made them the industry standard, and as these models diffused in the market, originators and mortgage insurance companies that did not accept their decisions got little new business.

Their stated goal was to transform the current patchwork risk-allocation process into a more efficient and accurate risk-based pricing system. But it was hard, and ultimately impossible, to use information from a 30-year period of rising home prices in the environment which had changed so rapidly.

Between 2000 and 2005 there was a boom of historical proportions, and it has been described in some detail above. That boom had a credit market underpinning unlike any other in history. Indeed the period 2000–2008 has been one of the truly important economic episodes of the past century. The result was a flood of bad mortgages with millions headed for foreclosure.

By August of 2008, roughly 20 percent of all existing home sales were sold in foreclosure procedures. The result was a large increase in the number of properties thrown into the price clearing auction market, but 80 percent of properties were still trading in the traditional sticky price quantity clearing market process. The

extent of housing price decline as the USA approaches a bottom depends on the mix of properties actually hitting the market place.

19.4 User Costs, Price Expectations and Demand, and Mortgage Finance

The linkage between housing prices, housing demand and the demand for mortgage credit is more complicated than for many goods because housing represents an investment good as well as a consumption good. The annual flow of services, R (the "user cost") to a homeowner from an infinitely-lived housing asset, V is a simple function of the interest rate i, $R = iV$. Recognition of depreciation at an annual rate d and residential property taxes at rate t yields the rent relationship

$$R1 = (i + t + d)V. \tag{19.1}$$

But property taxes and mortgage interest payments are deductible at rate T from household income for federal tax purposes, at least in the USA The interest rate can also be expressed as the real rate j plus the rate of inflation k. Thus,

$$R2 = [(j + k + t)(1 - T) + d]V. \tag{19.2}$$

How do changes in the prices of housing affect the annual cost of housing services? By owning the dwelling for a year, the consumer receives the capital gain or loss at the real rate of g. A gain, i.e., an increase in housing prices, reduces the user cost by $(g + k)V$. Moreover, the capital gain is essentially untaxed at realization. This implies that the net user cost to the homeowner in any year is

$$R3 = [(j + k + t)(1 - T) + d - (g + k)]V. \tag{19.3}$$

Equation (19.3) represents the after-tax user cost of owner-occupied housing. (See Quigley (1998) for an extensive discussion.) Note that at higher real interest rates, the annual cost is higher, but at higher levels of inflation, the user cost is lower. Higher property tax rates increase the user cost, but higher marginal tax rates on income reduce the user cost. Importantly, increases in the price of housing during any year reduce the average cost of homeownership by the extent of the capital gain.

Changes in these parameters can have large effects upon the annual cost of owner-occupied housing for example, at plausible values of the variables in Equation (3) – say, $j = g = 3$ percent, $t = d = 2$ percent, $T = 30$ percent – a decrease in the inflation rate from 5 percent to 1 percent doubles the after-tax user cost of housing. At $k = 3$ percent, an increase of real housing prices from 2 percent to 2 percent reduces the after-tax housing cost by three-quarters.

During periods of high inflation (when nominal interest rates and nominal home price increases are high), there is great concern about the "affordability" of homeownership. As equation (19.3) demonstrates, these concerns are not about the cost of housing services at all; rather they reflect apprehension about the inability of

potential homeowners to qualify for home finance using conventional underwriting standards. An increase in the interest rate implies a more-than-proportionate increase in monthly payments on a level-payment, fixed-term, self-amortizing mortgage contract. Under conventional underwriting criteria, the income required to qualify for a mortgage increases linearly with the required monthly payment.

It is clear that increases in housing prices make existing homeowners better off. These increases in housing prices also reduce the user cost of housing to potential homeowners, increasing their demand for owner-occupied housing. This increased demand typically cannot be realized, however, as a result of the constraints imposed by conventional mortgage underwriting standards.

This perspective indicates how the newly synchronized national boom in housing prices in 2000–2005 affected expectations about future price changes. With regular national increases in housing prices recorded, market participants expected price increases in the future. This reduced the user cost of housing for existing homeowners, increasing their demand for housing. It also increased the demand for homeownership among renters, and it reduced their user costs if they could qualify for mortgage finance. Expected price increases in housing also reduced the risks to lenders of relaxing their historical underwriting standards. With expected home price increases, renters who were offered riskier loans to purchase housing were nevertheless good risks for mortgage originators and underwriters. A riskier mortgage loan under conventional underwriting standards (as measured by the income of the borrower or the loan-to-value ratio of the contract) could be more than offset by a rapid increase in asset values and collateral. Loans with low initial interest rates and reset provisions could be attractive to borrowers and lenders, because expected increases in house values could allow the borrower to refinance the loan in a short period at better terms. The same principle made it appear less risky to offer cash-out refinances to owners of existing properties.

The user-cost perspective also suggests why the system came to an abrupt halt in a short period of time. Note, from equation (19.3), that the user cost varies directly with the increase in the price of housing. If housing prices increase less rapidly this month than last month, this is an increase in the user cost. This depresses demand and reduces the demand for homeownership. Thus, the dynamic implications of the price boom of the 2000–2005 were inherently unstable. Anything – any exogenous circumstance – that caused home prices to increase less rapidly could cause prices to decline in the future. The bubble in the housing market was poised to burst.

Conclusion

What can we conclude about the when and how the housing market is likely to return to some semblance of normality?

First, two market clearing processes are in full swing. Sales of existing homes rose in July 2008, to an annual rate of 5 million. Auction sales currently account for about 20 percent of transactions through the fall of 2008. The August 2008 release of Case–Shiller Indexes show that, in nine of the 20 cities covered, prices rose – some (Boston) for three consecutive months. On the other hand, in the glut cities of Miami, Phoenix, and Las Vegas, prices were still falling in June. It is clear

that the market is working, but very slowly. The excess supply which had built up over the decade is beginning to work through the system.

How long will it take? All eyes are on California. Representing about 25 percent of the housing value in the country, the national figures will be determined by events in that single state. Prices were still in decline through the middle of 2008, while the rate of decline slowed markedly. Existing home sales in California were up substantially, to an annual rate of nearly half a million. As we have seen, the California economy has witnessed declines before, and it has always managed to come roaring back. But further price declines through the end of 2008 do not suggest that the end is in sight in California.

The extent of the losses cannot yet be determined. This will depend on the speed of the legal process, and the rate at which traditional buyers and sellers adjust their bids and asking prices closer together to produce agreements. The two kinds of market clearing processes are both working and average home prices remain in the middle.

It remains to be determined who will bear the costs and who will reap benefits. Clearly those who made their living in the home building sector and in the mortgage markets have been hurt severely. Shareholders in Fannie and Freddie, real estate and mortgage brokers, and countless others were hit hard. Homeowners have lost trillions in equity. For some, who bought at the peak, it was their life savings or worse. Many turned to bankruptcy; for others who bought years ago in boom cities, it was simply an asset ride. But on the other side, millions of renters – many who have been struggling with no prospect of buying a house – can now see homeownership at more affordable prices.

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Chapter 20

Is there a Role for Shared Equity Products in Twenty-First Century Housing? Experience in Australia and the UK

Christine Whitehead and Judith Yates

20.1 Introduction: the Question

An important aspect of traditional housing markets has been that the equity in the home tends to be held by a single individual. Owner-occupiers, in particular, while they stake the full value of the asset as collateral to mortgage institutions for funding purposes, remain as owners of the dwelling. This housing asset is usually the largest single asset in the households' portfolio. Moreover, ownership, especially in the early years, tends to mean that the household portfolio is heavily geared and is subject to significant risk from home price volatility. This is in sharp contrast to most other larger, more lumpy, assets in the business sector where values and risks are spread among a large number of owners who are at the same time enabled to access more balanced portfolios. The more the household's wealth is concentrated in their housing and the higher their borrowing requirement the greater the risks they face.

In this scenario it might have been expected that the market would develop a range of products to enable households better to manage their risks. However, in most financial environments the only options available, other than owner-occupation, are to remain as a tenant with no investment in housing or to invest in housing as a small-scale landlord, with similar risks to those faced by the owner-occupier. Equally, given household aspirations to owner-occupation and the extent to which governments favor the sector, it might be expected that they would develop policies to help those most exposed to risk (Maclennan et al. 2002; Berry et al. 2004; Whitehead et al. 2005). In practice across the world there have been a range of innovative products introduced by both governments and the market but none have become mainstream.

This chapter examines innovations in two of the countries that have made the most progress in developing a range of shared equity and shared ownership products – Australia and the UK. The next section clarifies the definition of shared equity and the attributes of the available products. The chapter then goes on to examine the rationale for shared equity in more detail and to link that rationale to product attributes. The third section looks at government sponsored schemes, while

section four examines market-based developments. Finally the paper compares the experience between the two countries and assesses the potential for mainstream provision of shared equity products.

20.2 What is Shared Equity?

The terms shared equity and shared ownership cover a range of products that make it possible to divide the value of the dwelling between more than one legal entity. (While these terms are often used to refer to very specific products and have not been used consistently over time or across countries, in this paper they will be used interchangeably as an umbrella term to cover the broad range of government and market led products that have emerged in a number of countries. Hereafter "or shared ownership" is dropped when generic products are being described.) These products enable the main purchaser (often called the primary owner) to reduce their outgoings at the expense of giving up rights to part of the equity in their home. At the same time they share the risks associated with home ownership between the owners (legal entities).

Three main attributes of a shared equity product can be identified. These relate to: (i) how it is funded; (ii) how the value is allocated (which can be affected by whether or not they are subsidized); and (iii) the nature of any transfer rights between the primary and secondary owner. The different ways in which these attributes are packaged together is what distinguishes one product from another.

The majority of shared equity products that exist at present are in the form of mortgages, with the primary owner (the purchaser) giving up the right to a proportion of equity in the dwelling to the mortgage company for the period for which the mortgage is outstanding. The terms for this arrangement, and therefore the allocation of value, vary considerably between products – from a simple shared equity arrangement where both parties benefit or lose in proportion to their share of the equity as dwelling prices change; through shared appreciation mortgages where the primary owner carries all the downside risk; to mortgages where the primary owner also pays an interest rate (or rental element) to the secondary owner, which may be paid in the form of an increase in the equity forgone.

More traditional shared equity products involve an element of direct ownership by the secondary owner who may or may not charge a rent to the primary owner. In this form there is little or no finance market innovation involved. The primary owner takes out a traditional mortgage on the share of the dwelling they are buying, usually backed by 100 percent of the value of the property. The secondary owner's property rights are then subordinated to the mortgagee. The secondary owner may fund the arrangement from their own equity; by a traditional unsecured loan; or by securitizing a package of loans. Not surprisingly, these types of shared equity products tend to be government sponsored and to be targeted at lower income employed households entering owner-occupation for the first time. Thus they involve some element of partnership with the public sector and often some additional subsidy in order to make such products affordable to target groups.

Finally, the rights the primary owner has in relation to changing their share also vary enormously. At one extreme, unless the secondary owner decides to sell, the

primary owner may have no right to become a full owner of their property. The most usual example here, especially in the USA but also important across much of Europe, is the Community Land Trust where the Trust keeps a proportion of the equity (often, but not always, directly related to the land value) either for a period or in perpetuity (Davis 2006). At the other extreme, the shared equity element is part of the mortgage – so that when the mortgage is paid off, the full rights lie with the primary owner. If the property is sold before term end, the mortgagee takes their share of the realized value. In between there is a whole range of products where the secondary owner has direct ownership of their proportion of the property but gives the primary purchaser rights to purchase under certain conditions. The most usual example here (known as staircasing) is where the primary owner may, whenever they wish, buy additional equity up to 100 percent at the then going market price. In some instances they may also reduce their share if they so wish.

These shared equity products may be taken out by first time buyers to reduce the costs of entering the housing market; by more mature owners who wish to diversify their housing equity risks; by older households who are looking to release equity; or by other specific groups where there are other reasons, such as ensuring effective management, which may make shared ownership efficient. They may be provided by traditional mortgage lenders; by special purpose vehicles that access the wholesale market for equity funding; by developers; or by the public sector.

20.3 The Rationale for Shared Equity Products

The main reason why shared equity products are in the forefront of discussion at the present time is that housing affordability has been declining, primarily because home prices have been rising faster than incomes in many industrialized countries (OECD 2005; Demographia 2008). As a result, new entrants to the owner-occupied market are finding it increasingly difficult to purchase. Moreover problems of access and affordability are putting pressure on governments who both wish to meet aspirations for homeownership and have an incentive to limit public sector commitments. Shared equity can help to reduce initial outgoings and so enable lower income households to enter the housing market. In so doing, it makes it possible to use shallow (that is, relatively low level) subsidies to help additional households into owner-occupation and to meet government objectives. Thus affordability, rather than market efficiency, has been the primary reason for the development of shared equity products. For government a related objective has been to provide a cost-effective way of levering a given amount of government funding to meet housing policy goals.

A very different rationale and more general rationale for shared equity products, is that owner-occupation carries with it the risks of price variation, which cannot normally be efficiently borne by individual households. Given the extent of such volatility, if such a market could be seen to be efficient it might be expected to develop as a mainstream market product (Caplin et al. 1997, 2007).

Owner-occupation involves households investing in a single asset which is large in relation to their overall assets; has a history of significant variation in value; has the additional complications of being in a particular location (so that the

capital value is affected by local conditions); has large transactions costs; as well as timing difficulties associated with realizing the asset. These problems are exacerbated when a significant proportion of the purchase price is funded by debt finance, as the impact of price variation on the individual's capital and security increases with leverage.

Theoretically, the owner should transfer some of the risks of owning this specific housing asset to others better able to bear this risk, such as financial institutions or large-scale investors. This would both give the household greater financial flexibility and free-up funds from the housing asset to allow them to invest in other investments with different risk profiles. This rationale suggests that shared equity products should be suited to a much wider market than simply first time buyers.

A further rationale is that shared equity provides the capacity to release equity for consumption purposes. For most households the largest asset over which they have control (unlike their pension fund) is their home. Older people in particular may want to supplement their pensions by running down their investments. However, many do not want to move to release funds. The alternative is to realize part of the asset either by borrowing against that asset or by transferring part of the value to another entity that wishes to invest in owner-occupied housing. Shared equity products enable this transfer while the primary owner remains in the family home.

A very different reason for the existence of shared equity products arises when owners/developers want to keep some control over the land they own and/or the estate they are developing by keeping an equity stake in the properties they sell. This particularly applies in the context of public/private partnerships for the provision of affordable homes. In particular, the public sector may want to keep control over who gains access to affordable housing to ensure that some of the benefits are passed on to future purchasers. A shared equity arrangement for a specified time period or into perpetuity can be a way of doing this. The same rationale may apply to private providers, especially in large-scale mixed developments where suppliers want a direct equity involvement in the value of the overall asset for both investment and management reasons. A shorter term reason is when markets are depressed but developers think prices will rise. In this case they can sell some of their stock but maintain some rights to future gains by selling only a share of the dwelling.

The development of shared ownership products thus has potential benefits for all relevant stakeholders – purchasers; equity investors; the mortgage and investment industries; and government. For purchasers it provides a new mortgage class with lower repayments. This gives them access to higher valued, larger or better located property and, in some cases, provides the only opportunity they have of becoming an owner-occupier. Later on it enables the possibility of equity release. Throughout the contract period, it can reduce the household's exposure to risks both with respect to interest rates and capital value variations. For the equity investor it enables greater diversification through access to a residential asset that is not fully correlated with other investments and which can be made tradable and divisible. For both the mortgage and investment industries it provides an opportunity to expand into new markets and access to a different asset class. For the government it helps to lever in private finance and to provide shallow or even no subsidy products to households who would benefit from becoming owner-occupiers but face

cash flow constraints or are particularly concerned about housing risk. By expanding owner-occupation it also reduces the numbers of households needing assistance in the rented sectors.

These benefits depend significantly on access to financial markets where risks can be better managed and thus interest costs can be reduced. This in turn is likely to depend on the development of a secondary market with appropriate derivative products so that the equity from a wide range of dwellings with different risks can be packaged and sold. Eventually, the successful launch of such markets at scale could have the capacity significantly to reduce the costs of financing owner-occupied housing.

However, partly because shared ownership products are relatively new and partly because they have complex attributes, they also involve major costs and potential market failures. These are reflected in higher transactions costs; asymmetric information between the purchaser and provider of the shared equity product; the potential for post-contractual opportunism (notably moral hazard with respect to the upkeep of the property and its resale value); the need for a price index against which to benchmark payments (especially where a secondary market is developed); the likely thinness of resale markets for products which continue to be partially owned; and many unavoidable contractual complexities.

The potential for the development of different types of shared equity products depends on the extent to which benefits can be realized to offset the costs involved in these more complex products. It also depends on what alternatives are available. For example, interest only mortgages can reduce outgoings while enabling the purchaser to maintain 100 percent of the residual value. Equity release mortgages have very different risk characteristics for both primary owner and their partner from those where interest is foregone in return for a disproportionate share of capital gain after a specified period of time. What works best depends on the legal and administrative system that applies to both the housing and finance markets. In some countries for instance it would require legislation to enable partial ownership, and in most countries an appropriate regulatory framework for the financial instruments employed would have to be developed. Successful expansion of the market also depends on the way shared equity products are treated by the tax and benefit system. This is likely to depend on the specific characteristics of each shared equity product and may not be clear on a priori grounds, thus adding to uncertainty and to the costs associated with developing new products. These points suggest that there must be government commitment to facilitate the growth of a shared equity market and to provide an environment in which potential participants can obtain the necessary risk–return balance. Most fundamentally, development depends upon there being demand among both new entrants and more established households to share the equity in their home.

20.4 Government Sponsored Developments in Australia and the UK

Shared equity products exist in a number of countries, particularly those with "Anglo-Saxon" legal frameworks. Pinnegar et al. (2008) provide an overview of some of

these schemes. Davis (2006) and Jacobus and Lubell (2007) give an indication of the current status of shared equity products in the USA which, in their terminology, are all subsidized. Equally the concept of shared equity or shared ownership as a means of managing portfolio risk has been developed in the US literature, notably by Caplin and his colleagues (Caplin et al. 1997, 2003, 2007). In other countries, such as France and Germany, there are legal constraints on the development of shared equity products. In many others, in countries as widely separate as Sweden, South Korea, and China there is growing government interest in developing appropriate instruments often based on the use of the planning system to provide affordable housing (Whitehead and Scanlon 2007). However, the two countries that lead the world in the use of shared equity products are Australia and the UK.

The vast majority of initiatives in both Australia and the UK have been aimed at improving access to owner-occupation rather than at risk management. They have also mainly been sponsored by government. In both countries early steps tended to be local, as increasing inflation in the 1970s generated "front loading" cash flow problems for lower income households taking out traditional mortgages. The Birmingham "half and half" scheme – funded by central government subsidy on half the costs of the dwelling and a mortgage provided by the local authority; targeted at local authority tenants and applicants on their waiting lists; and based on a subsidized rent and unsubsidized mortgage – was an early example. London and a number of other local authorities developed similar schemes (Booth and Crook 1986). In Australia, their introduction was delayed because of more widespread use of inflation-indexed lending arrangements which kept mortgage repayments constant in real rather than nominal terms. These partly addressed the constraint imposed by the front-loading problem that arises when inflation is high.[1] Such schemes existed in both the private and public domains but those that provided the greatest access to home ownership for marginal borrowers were the publicly provided schemes (see, for example, Pinnegar et al. 2008).

The idea of shared equity became embedded in national and state policy in both countries in the early 1980s. An overview of these early schemes can be found in Allen (1982) and Booth and Crook (1986) for the UK and in Yates (1992) for Australia. Details of similar early schemes in other countries can be found in Harloe and Martens (1990). In an environment of high and variable inflation with the standard variable rate mortgage dominant, households faced both strong financial constraints and significant interest rate risk. Shared equity products were one way of improving access and affordability as well as reducing risks to the purchaser.

In both countries the shared equity product of the 1980s and 1990s, more often than not called *shared ownership*, involved provision of dwellings by the public sector, partial purchase, and subsidized rents on the equity share owned by government. In the UK, purchasers obtained a standard variable rate mortgage and the product was only available for newly built or renovated properties (Bramley and Morgan 1998; Whitehead et al. 2005). In Australia the purchaser funded their equity share through a government provided inflation indexed mortgage which put a greater constraint on their effectiveness (Yates 1992). In both countries the purchaser had the right to staircase up in tranches to 100 percent whenever they wished to do so at a price based on the then current value.

This type of product put little pressure on financial institutions to do anything other than provide existing mortgages instruments based on security of 100 percent of the capital value of the dwelling. From the point of view of financial institutions, there was a trade-off between accepting people with somewhat lower incomes but with less exposure because of smaller mortgages and lower outgoings. There were, however, significant transactions costs, particularly because of the lack of standardization of contracts, and the fact that institutions dealt with relatively few cases each year. The risks of home price volatility lay asymmetrically with the government as purchasers could use their right to staircase up at will.

The model worked well in periods when incomes were growing steadily. However there were significant problems, especially in Australia during the recession of the late 1980s and early 1990s, that arose primarily from design weaknesses in the state-based lending schemes that were used to fund purchaser equity (Breen 1994). (In the NSW scheme, for example, loans were securitized and investors who purchased the mortgage-backed securities were guaranteed a fixed interest return at the peak of the interest rate cycle. Repayments for borrowers also had escalation rates that were fixed at the high point of the inflation cycle and which exceeded subsequent income growth.) These problems impacted on both purchasers and suppliers so that only since the turn of the century has interest taken off again but in a very different economic environment of low inflation and rapidly rising home prices.

20.4.1 The current position in the UK

The principles of shared ownership and shared equity have been embedded in the UK system for over two decades. The terms, however, define very specific and different products – the first involves a social landlord directly owning part of the dwelling while the second is a shared equity mortgage.

Shared ownership

Shared ownership products were introduced by central government in 1980 and have been an element in subsidized housing provision ever since. They are now an increasingly important aspect of policy both because they directly target the growing problems of affordability for first time buyers and because they play an important part in expanding the provision of affordable housing through the planning system (through Section 106 of the 1990 Town and Country Planning Act). Under this policy, introduced in 1990, developers can be required to provide a proportion of affordable housing on all larger residential developments. Currently, government data suggest that well over 50 percent of all affordable housing is provided through S106 and that this proportion could well rise to over 75 percent in the next few years. Shared ownership has increased from around 12 percent of S106 affordable housing in England as a whole in 2001–2002 to one-third by 2005–06 (DCLG 2007a). Under this policy the local authority has a right to negotiate a proportion of affordable housing on larger sites which can be in the form of social rented housing or shared ownership. Shared ownership involves shallower subsidy than social rented housing and therefore can provide more affordable housing units. Equally, shared ownership accommodates lower income employed households,

notably key workers, rather than those in priority need, which makes it more comfortable for developers. The UK government is looking to expand provision significantly as part of their policy to increase overall housing output by more than a third by 2016 (ODPM 2005; DCLG 2007b).

Shared equity mortgage products

In the late 1990s, the UK government turned to the development of mortgage instruments that could allow the purchaser to pay for their home through a mix of interest and shared equity payments. *HomeBuy* involved a government provided shared equity mortgage – funded from public funds – where the eligible purchaser could choose their own dwelling on the market and obtain an interest free equity mortgage on 25 percent of the value of the dwelling (Jackson 2001; Housing Corporation 2003). Again the purchaser had a right to pay back that mortgage at any time, based on the then current valuation and so become a 100 percent owner. The product helped overcome purchasers' deposit and initial cash flow problems as well as enabling them to share the home price risk with the government. Eligibility has generally been restricted to existing social tenants and those on the waiting list, especially key workers and a small number of other priority households.

This product avoids many of the difficulties associated with a broader based market scheme because government provides the money and the first charge on the dwelling goes to the financial institution providing the traditional mortgage. The valuation of the property for sale or mortgage repayment is administratively determined by the district valuer and tends to favor the purchaser.

More generally, both schemes are funded by public expenditure, so the private market incurs few additional default risks and these are offset by lower repayment risks. However, schemes are necessarily small-scale and only available to a narrow range of potential purchasers who meet the governments' criteria. As such, while the schemes effectively assist a small number of households into owner-occupation, they do little to improve the efficiency and offering of the housing finance market (Shared Equity Taskforce 2006).

In 2006 the government introduced a new form of HomeBuy involving a 12.5 percent loan, interest free for the first five years, from private lenders who also provide the traditional mortgage, called *Open Market HomeBuy.* The objective was to stretch the public funding available but also directly to involve the financial institutions in taking up equity products. The process proved extremely difficult, in part because the Financial Services Authority (FSA), which regulates financial institutions, required a complex form of "hybrid" mortgage. Only five main lenders signed up as providers for the original product and the terms and conditions – e.g., in one case shared appreciation rather than shared equity – were not good value for money and there was very little take-up.

As a result a less generous form of government funded HomeBuy (with a 17.5 percent equity loan) was reintroduced. This could then be supplemented by a 15 percent equity loan provided by Yorkshire Building Society. At the same time a challenge was issued to the industry to develop more structured and longer term products (DCLG 2007b; Housing Corporation 2007).

The results of this challenge were announced in March 2008 and the winning schemes replaced all earlier Market HomeBuy products. Table 20.1 sets out the

Table 20.1 Current open market homebuy products in England

Ownhome	Provided by a partnership between Places for People (one of the largest HAs) and the Cooperative Bank. Equity loan up to 40% of value. First five years free; thereafter 1.75% rising to 3.75% by year eleven. Remainder funded by traditional mortgage from Cooperative Bank
My Choice HomeBuy	Provided by a consortium of eight HAs. Equity loan of up to 50% of value. Interest rate 1.75%. Remainder funded by any FSA registered lender.

Source: Housing Corporation 2008

details. The most important elements of these two products are: (i) it is now the social sector that provides the equity loan backed by recycled government subsidy; and (ii) the proportions of equity loan funding involved are now much higher. This reinforced the view that neither developers nor financial institutions were prepared to take on significant equity risks.

It is not yet clear whether they will be as popular as the original HomeBuy product which assisted many households to achieve the homes they wanted even though they are apparently more generous (Cho and Whitehead 2006). Continual reinvention of the products makes them less transparent to consumers, while the credit crunch has impacted on demand. However, in principle these new products appear to be better designed in that they provide enough benefit actually to help potential purchasers and they share risk more effectively than earlier products. The main lesson from developments in the past few years is that financial institutions are not yet prepared to take on equity.

20.4.2 The current position in Australia

Publicly initiated shared equity products in Australia are only just beginning to re-emerge after the collapse of the state-supported shared equity schemes linked to low-start loans that were the primary solution to the increasing problems of access to home ownership that emerged in the 1970 and 1980s.

Currently all of the various state and territory governments in Australia are showing a renewed interest in the potential of shared equity schemes as a means of assisting lower to moderate income households into home ownership and all but Queensland and NSW have some form of state subsidized shared equity scheme. The states and territories with the most established schemes are those that maintained their previous lending programs (Pinnegar et al. 2008).

Many of the schemes are targeted to current public housing tenants or to those on public housing waiting lists. One of the earliest and more established of these is the Western Australian Department of Housing and Works Goodstart Shared Equity Scheme which has been taken up by over 1,000 households (Table 20.2; this is

Table 20.2 Good Start shared equity: an example of state provided shared equity schemes

- Purchase 70–100% of equity. Homewest retains other proportion but charges no rent. May staircase to 100% at any time
- Own tenanted property of Western Australia property made available by Homewest identified on the web
- Deposit of A$2,000 or 2% must cover all transactions costs
- May be combined with A$7,000 First Home Owners Grant
- Homewest Keystart loan available – market rate but no ongoing fees/insurance payment

now one of many schemes available from the Western Australia Government. Details can be found at http://www.keystart.com.au).

Since 2006, embryonic state and territory government assisted schemes targeted at low to moderate income working households have also been put in place. These vary according to the maximum equity the government is prepared to take (generally 30 to 40 percent), the maximum property value permitted (reflecting significant differences in regional home prices in Australia), the level of subsidy provided and on whether the government takes a proportionate or disproportionate share of any capital gain. Current take up is still low (less than 2,000 households across all schemes by the end of 2007) and budget allocations limit projected take-up over the next three or so years (Pinnegar et al. 2008).

Overall, there is increasing government and state interest in expanding the availability of new-build shared ownership products and in finding ways of using public sector land to support the provision of affordable housing. Charitable providers are also involved in schemes aimed at enabling them to use their own equity to expand supply through a range of shared ownership products. All of these schemes aim to lever in private finance in order to stretch available public funding and to sweat public and charitably owned assets.

20.5 Market-Based Developments

20.5.1 Very limited progress in the UK

In the UK the extent of market interest in developing shared equity products has been very limited. Banks and building societies have been prepared to fund the mortgage element of shared ownership using traditional mortgages. Even in the context of such limited involvement they have raised concerns about the lack of standardization and the small scale of the product – both of which increase transactions costs and make it difficult to move the mortgages off balance sheets.

The conditions necessary for the emergence of a specialist secondary market do not exist. First, there is simply inadequate business in the subsector, with tiny numbers of true equity shares. Banks and building societies can fund their existing levels of exposure through their normal processes. Second there is little known about the incidence and timing of staircasing, so that knowledge of prepayment

risks is very limited, making securitization more difficult. In the context of the credit crunch there seems little prospect of looking to special purpose vehicles for what will remain a tiny element in the overall mortgage market.

These conclusions have lately been reinforced by the Pomeroy review of the prospects of private sector shared equity (DCLG 2008). This stressed that: (i) there had been very little development over the past two years; (ii) there is some interest among potential providers but certainly not until the current credit crisis is resolved; (iii) the main problem is finding investors. The Treasury in its broader based housing finance review further stated that a liquid secondary market would be required for an effective market but that the development of business at the scale necessary is not currently envisaged (HM Treasury 2008).

What examples there are of market-based shared equity products are basically self-funded. There were a number of developer initiatives during the recession of the early 1990s, where the purchaser was enabled initially to purchase less than 100 percent and to staircase up as their circumstances improved. These were basically provided to improve developer cash flow while at the same time maintaining values on the developer's balance sheet and providing a discount to the part purchaser. Thereafter, until 2007, these types of product have been out of favor because market conditions have made it easy for developers to sell at full price. In the past few months new examples have begun to emerge as demand becomes less buoyant. However, these are all regarded as short-term measures. Moreover developers in the end did not offer any feasible schemes in response to the government's challenge.

There has only been one example of an unsubsidized scheme offered by a financial institution in the past two years. Flexishare was offered by Advantage (a subsidiary of Morgan Stanley) with an 80 percent traditional mortgage and an additional loan of 15–35 percent. This offer has now been withdrawn (Mortgage Finance Gazette, December 11, 2007).

There are a large number of shared equity products offered by mortgage institutions as part of their overall portfolios (various mortgage institutions wesbites). Most of these are remortgaging arrangements, aimed either at older households looking to realize some of their equity or, to a more limited extent, at those with equity who are having cash flow difficulties. These are not standardized products; in particular the basis on which capital values are determined where the mortgage is repaid without sale are specific to each product and the funding comes from the general pool. Moreover, there has been considerable adverse publicity relating to problems for older people in downsizing after taking out shared equity and shared appreciation mortgages.

The market product which has the most capacity to enable consumers to diversify their investment in housing is the property bond. This enables people to invest in a managed portfolio of properties where the value is based on a defined and relevant price index (Tsolacos 2004; IPD 2006). In principle the assets behind these bonds could include owner-occupied housing equity, although at present there are only a few examples; one is that by Abbey, based on the Halifax House Price Index (Abbey 2006). These bonds allow people to invest in a range of properties rather than a specific dwelling. As such they enable tenants to buy a share in potential residential capital appreciation. The market for such products has been growing

– but it has been badly affected by the recession in commercial property, to the extent that a number of asset managers are freezing withdrawals from small savers in the face of liquidity problems. These difficulties will not be rapidly overcome and will further reduce the likelihood of developing a residential-property-based market in the short to medium term.

The evidence in the UK is that it is only government sponsored shared equity and shared ownership products that are viable. At the levels provided these do not require specially identified streams of private finance – they are simply part of institutions' general mortgage portfolios. The situation may change where either developers or institutions find themselves with large-scale equity on their books. But as yet there has been very limited appetite for market innovation and no sign of an unsubsidized instrument emerging which is directly based on shared equity.

20.5.2 More innovation in Australia?

The situation in Australia appears far more dynamic with both government and private initiatives. The starting point for market interest was the report of a Taskforce set up by the Prime Minister, which reported in 2003 (Caplin et al. 2003). The recommendations in this report were based on the Housing Partnership model first put forward by Caplin in the USA and using the economic principle that individuals should want to use financial markets to transfer some of the risk associated with the owner-occupied home to others. The Caplin et al. (1997) book on Housing Partnerships had a subtitle "why the second half of your home may be the worst purchase you will ever make." Its proposal took as a starting point the premise that, for a given level of risk, expected investment returns will be maximized by a diversified portfolio. The portfolios of most homeowners, however, are dominated by a single asset – namely, the family home, seen as a risky asset because of its illiquidity. In the authors' view, this risk is exacerbated by property price volatility. Their solution to the perceived problems associated with this illiquidity is to create a market that will assist households to diversify their portfolios and, as a result, reduce the risk associated with volatility in home prices. This market will trade in liquid financial instruments that are backed by the equity held by passive investors in owner-occupied housing. In other words, these instruments would be an equity equivalent of the debt-based mortgage backed securities that have underpinned much of the recent innovation in housing finance markets.

The model put forward by the Taskforce suggested that the purchaser should fund their part of the property with a conventional loan together with any subsidy (such as the first-time buyer grant available to some households in Australia). The investor (that is, the secondary owner) would receive a return made up of any increases in capital value together with a rent/dividend on the equity owned which would be deferred until sale. This element would be paid for by increasing the share of the equity owned by the investor – so for instance an investor might own 30 percent at the time of the agreement but 50 percent 20 years later when the property is sold.

The benefits of such a model are seen to arise from the reduction in portfolio risk as housing as an asset class is relatively uncorrelated with most other assets. Such a model provides flexibility for both lender and borrower and reduces the

Table 20.3 Rismark – an example of a market based product

- Shared equity loan of up to 20% of the value in return for up to 40% of the capital value over a 25-year period
- Zero interest payments
- Lender takes up to 20% of realized losses associated with negative equity
- Primary owner pays all transactions and repair/improvement costs
- Use of specialist price index developed by Rismark to determine capital gains and returns on unit trust
- Traditional home loan from specific bank

borrowers' outgoings at periods when they are cash constrained. However, it also increases the home price risk faced by the borrower because reductions in prices are not transferred (Berry et al. 2004).

The report provided a stimulus for a range of innovative potential products. The three products that have made the most progress are those from Macquarie/Rismark, Greenway, and Firstfolio/Residex. The first is most closely related to the Taskforce proposals and is the only one that had been launched by the end of 2007.

Rismark announced their intention to develop a shared equity product in late 2005 and, after tentative partnerships with a number of different financial institutions, finally launched their "equity finance mortgage" (EFM) in 2007 through the Adelaide Bank. The product, developed by the key contributors to the Prime Minister's Taskforce, is true to the principles articulated in that report (see Table 20.3). In order to fund these EFMs, Rismark plans to launch a new unit trust, the Rismark Active Property Trust (RAPT), with returns linked to the future capital values of [residential] properties. Home price indexes specific to the scheme have been put in place. Towards the end of 2007, Rismark International took out patents over the shared equity home loan it invented in order to stop its larger rivals breaking into the market. In principle, the product is targeted at first time buyers as well as other aspirational purchasers facing cash constraints. In practice, press reports suggest that the wealthier end of the market, focused on houses in the $1 million to $2 million bracket (two to four times median values), is turning out to be one of the biggest users of the product.

The Greenway Equity Mortgage (GEM) has also been aggressively marketed. It is a shared equity product targeted both at asset-rich retired people (as an alternative to a reverse mortgage), intending retirees (who could use their housing equity to boost their superannuation contributions), to those wishing to upgrade to a bigger home, and to those wanting to extract equity for other purposes, including providing support for family. Assistance to first home buyers was not included in the intended target group. The product is to be an interest-free loan for up to half the value of the property. Borrowers must agree to repay the original amount of the loan and a set percentage of any increase in the value of the property, where a percentage increases as the size of the initial loan increases. The examples given in one media report were a 20 percent loan would be available for a Greenway share of capital gain of 30 percent. For a 50 percent loan, Greenway's share would be as much as 75 or 80 percent. There is a no negative equity guarantee built into the

mortgage so that the most that can be owed is the full market value of the home. Greenway aims to raise $1 billion to begin funding equity mortgages. In the first instance, this will be collected in an "originating trust." When sufficient equity mortgages have been written, the plan is to securitize them and on-sell to a "term trust" (at which point the original investors will earn a return on their investment).

The Firstfolio/Residex product, a shared appreciation mortgage (iSAM), was originally proposed in early 2005. It was based on the idea of reducing the rent/dividend element of the return on the equity share by increasing the proportion of capital value transferred – with that capital value determined by a local home price index. The issuer's intention was to raise significant finance from the market to fund the offer and to target first time buyers. Towards the end of 2006 an executive involved in the financing side of the initiative was reported as saying that the group's strategy was to establish a niche position in the high value end of the residential market. However, there is still no information available about progress on the initiative and a search on both the Firstfolio and Residex websites provided no information on iSAM.

Based on a series of interviews with potential lenders and institutional investors in Australia towards the end of 2007, Pinnegar et al. (2008) report that shared equity is being regarded by these lenders "with cautious interest" and is seen as a response (albeit a complex one) to well-understood market failure. Lenders saw the risks with such products as arising from the costs involved in bringing products to the market; from the uncertainty about how loans would perform in the absence of any experience with such products; and to lender reputation if they were unsuccessful. They also expressed the view that, for the market to be developed, there was a need for financial regulatory structures to take account of the specific issues raised by shared equity products; for taxation issues (on how and when capital gains are to be taxed) and accounting issues (on how potential uplift is to be treated) to be addressed; for information on the regulatory capital treatment in terms of Basel II Revised International Capital Framework guidance; and for guidance for the advice that lenders and brokers should provide for products when the cost of these will not be known for some years. Government assistance with the creation of a home price derivative that could be used to offset the risk of a downturn in home prices was also seen as something that would assist in the development of the market. (A list of those interviewed and their affiliations is provided in Pinnegar et al. (2008).)

A recent research report released by Genworth Financial, based on a survey of 2000 individuals in June 2006, indicated that 30 percent of respondents would be willing to use shared equity products if these were available (Genworth Financial 2006). The willingness to do so increased with household income. The results are interpreted as indicating the aspirational nature of those in middle income brackets and providing support for shared equity products targeted to those wanting to upgrade their homes. A supplementary survey of 1,300 recent graduates undertaken at around the same time suggested 43 percent of this higher and potentially higher income group would be interested in a shared equity product. However, the majority (57 percent) said they would not be interested. Of these, equal proportions (39 percent) said they would rather save the deposit or that the lender is more likely to benefit while 20 percent felt it was too risky.

20.6 Is there a Potential Mainstream Market for Shared Equity Products?

The key conclusion that can be drawn from this analysis is that it is unlikely that shared equity will successfully be developed as a mainstream private sector activity. Its prospects are greatest when it is used as a mechanism for leveraging government assistance to assist marginal home purchasers into home ownership.

The evidence on shared equity products in Australia and the UK shows that they can be important government sponsored instruments to assist households into owner-occupation through mixing shared equity with traditional loans, sharing home price risks, and providing shallow subsidy. There may also be potential to develop these as instruments to help owner-occupiers in financial difficulty.

The UK leads on government sponsored schemes in part because there has been consistent central government interest since the 1980s and because the approach has been integrated with other policy developments, notably affordable housing through the planning system. Australian experience of instruments sponsored by state governments has varied more with the economic cycle and has been on a much smaller scale. In both countries, increasing problems of access to owner-occupation over the past few years have led to greater interest and innovation on the part of government, but the financial institutions' role remains one of lending traditional mortgages protected by government subsidy.

Australia has led the way on market developments, following on from a government initiative identifying a potential gap in mainstream product provision. Even so, after six years, there has been very little practical progress. What has become clear is that the most likely markets for the products are either for those with high incomes and high debts or those with large-scale assets that the householder wishes to realize. Thus the market products are in no way filling the same gaps as the government sponsored instruments.

In some ways the evidence from Australia is relatively positive: interest is highest not among younger and cash limited households but rather among those in the highest income quartile who are looking to balance their portfolios more effectively, while provider interest is for reverse mortgages or particular niche markets.

There are a number of obstacles still to be overcome, notably with respect to increasing concerns about regulatory risk. The products are complex and consumers need to be well informed. The potential for mis-selling and the possibility of poor valuation processes is considerable while more general experience in the mortgage market tends to make institutions risk averse.

Linked to this issue is the potential for moral hazard behavior where the occupier runs down the value of the property and through limited incentives for improvement investment. This already appears to be an issue for older households who are releasing equity for other purposes and who do not want to use cash flow to maintain and increase prices.

Most importantly, long term investors are proving difficult to find in both countries, in part because of skepticism about the possibility of continuing capital appreciation; in part because of the uncertainties about tax treatment for

particular instruments; and in part just because scale is necessary to generate significant cost reductions and risk transfer – and it is simply unclear that there is enough demand to make this possible. Generating significant benefits of lower cost funding involves the use of both secondary markets and transfer instruments based on capital values that are not dependent on the sale of the specific property. There must therefore be robust price indexes in place before investors will come forward. Such price indexes present major problems, especially in countries where properties have very individual attributes. In this context even repeat sales price indexes cannot solve quality adjustment problems.

Where there have been innovations using special funding mechanisms – in the commercial property market – there are already emerging problems with respect to cash flows which are likely to undermine the already limited confidence in such instruments. Market failure issues with respect to pricing and post-contractual opportunism have yet to be addressed.

Most fundamental to the long-term development of a mainstream product is that consumers do not seem to regard shared equity products as comparable to traditional mortgage indebtedness. People are happy to see themselves as owners, even when they have mortgages of 90 or even 100 percent of the value of the property. However, this mindset does not transfer easily to a part ownership product where the secondary owner is a financial institution.

Finally, the current credit crunch and its fallout are likely to have a major negative impact on the development of more innovative products. Home price falls will make many of the instruments which are based on shared appreciation highly undesirable for both sides. Problems associated with pricing and contractual conditions are likely to emerge more strongly. Many of the products have subprime attributes while securitization, even of prime loans, is very much out of favor and likely to remain so for some time.

Overall therefore shared equity still appears to be an idea whose time has not yet come. Yet there is continuing interest and there is some evidence of progress both in terms of improved government-sponsored products for first time buyers and, once the credit crisis is resolved, the possibility of growth in niche products in the market sector.

Note

1. When shared ownership schemes are financed with indexed or low start mortgages (as in Australia, but not in the UK), much of the increase in servicing capacity brought about by increases in nominal income over time has already been taken into account. Under such circumstances, the schemes introduced are not a surrogate for financial innovation (as is the case when front-loading problems induced by inflation are addressed by staircasing in a shared equity scheme); they are an extension of it. In these cases, the scope for shared ownership to lower the constraints on access to home ownership arises only when rental (or interest) costs on the partner share are lower than what would have been the low start mortgage costs on a 100 per cent mortgage. Likewise, the potential for a household to purchase increased shares and ultimately to fully own its dwelling is limited by the extent to which it experiences increases in income over and above the escalation rate imposed on mortgage repayments. See Yates (1992).

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Chapter 21

Trading on Home Price Risk: Index Derivatives and Home Equity Insurance

Peter Englund

21.1 Introduction

Recent developments of public sector welfare systems and financial markets offer new incentives as well as new opportunities for households to make active financial decisions. New financial instruments and better functioning markets facilitate hedging health and income risks. The well informed and rational individual can now actively trade-off risk against expected returns. Still some of the major risks in life remain difficult to affect, those associated with housing choices being perhaps the most conspicuous example. For most households buying their home is the major investment in life and the home is the major asset in the wealth portfolio of most households. But this is an investment driven by consumption motives rather than by risk-and-return considerations. Households choose to own because the ownership market offers them more flexibility of choice and because owning solves some basic agency problems that are not well handled by a rental contract. Households choose the amount of housing investment out of consumption needs rather than by thinking about optimal portfolio composition. As a result many households end up with very unbalanced portfolios with several hundred percent of their net wealth invested in real estate. While this might be optimal from a risk-and-return perspective for some households, it is certainly not universally so.

Modern financial technology should be useful also for trading in housing risk. In this chapter I will discuss how financial derivatives could be used to enable households to disentangle consumption from investment decisions and to adjust their exposure to housing risk without any consequences for their consumption of housing services. The next section gives a short introduction to the importance of housing in household wealth portfolios. This is followed by a characterization of the risk and return properties of housing as an investment object. The third and fourth sections provide a brief analysis, drawing on the recent academic literature, of the potential gains if households could trade in financial instruments related to home price indexes. The fifth section reviews current market experiences and

proposals to create new home insurance products and index derivatives markets. The final section concludes with a brief discussion of likely future developments.

21.2 The Owned Home in Household Portfolios

In economic analysis, we typically distinguish between investment and consumption decisions. For housing, however, these two decisions are intertwined. In principle, they can be disentangled by making the consumption choice through renting housing services and the investment choice by purchasing some form of real estate securities. In practice, most households aspire to own their home for reasons not primarily related to investment returns. In industrialized countries six out of ten households are homeowners. This average conceals large differences across countries, from lows of 30–40 percent in Switzerland and Germany to highs of round 80 percent in Spain and Ireland. In many countries – such as the USA – a high rate of home ownership is an explicit political goal and tax policies and mortgage market institutions are directed at easing access to home ownership. In other countries – like Sweden – stated policy objectives indicate neutrality towards the choice between owning and renting.

In practice, transaction costs and the availability and cost of mortgage finance are probably the most important factors explaining the differences in home ownership across countries (see, e.g., Hilber (2007) for a study of the determinants of ownership rates across Europe). In many countries the tax deductibility of mortgage interest payments is not fully offset by property taxes or other taxes on the returns to home ownership, whereas the taxation of the rental sector tends to be approximately neutral. In most countries the fraction of homeowners has been increasing in recent decades, largely as a result of improved borrowing opportunities following deregulation and technological innovations in the financial industry. This development has probably been welfare-enhancing by allowing access to home ownership for many low-income households previously locked out from this market by high down-payment requirements. But, as witnessed by the current subprime mortgage crisis, it has exposed many of these households to new risks that they are ill-prepared for.

21.3 How Risky is Housing?

Homeowners are well aware that home prices fluctuate. Under normal conditions this may not be a major concern for current owners, as long as it does not directly affect their housing expenditures. In fact, rising prices may even be seen as bad news insofar as they affect the base for property taxes. Home price fluctuations do, however, become of more direct concern for anybody who considers moving from one area to the other, as price movements are often not well coordinated across regions. In fact, it seems that variations in overall housing price levels coincide with variations in relative prices. As one illustration, Figure 21.1 depicts an index of the relative price between a Scotland and a London one-family house. During the two periods (1983–88 and 1996–2002) when home prices in general sky-rocketed in all of the UK, the London price level doubled relative to that of Scotland. In the years in between, on the other hand, both absolute and relative prices moved

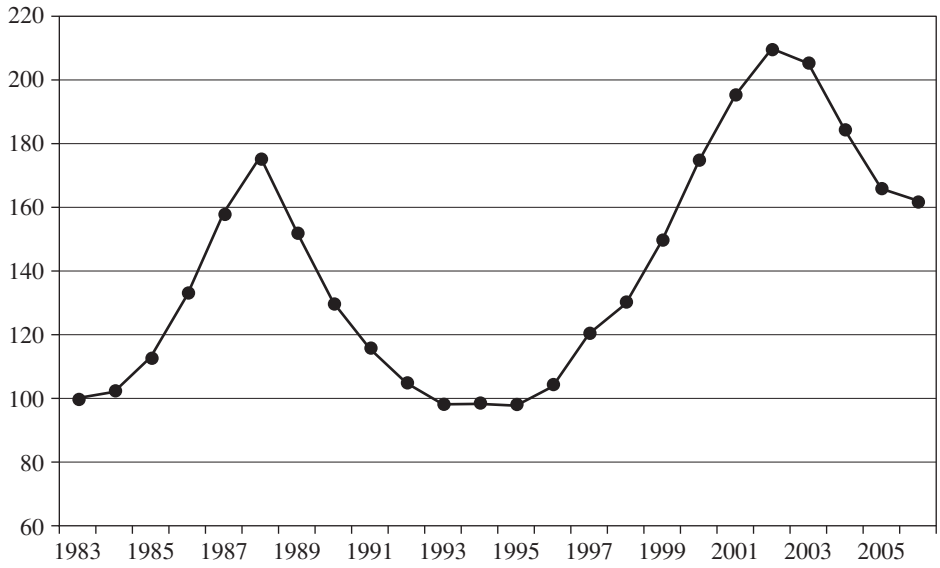

Figure 21.1 Index of relative price of a residential house in Greater London versus Scotland, 1983 = 100.
Source: Halifax House Price Index

in the opposite direction. In 1993 the price of a London home relative to a Scotland home was back at the 1983 level. Clearly, such fluctuations represent substantial risks with an enormous impact on the distribution of life-time resources across households with different patterns of mobility.

In order to analyze the riskiness of home ownership in more detail, we need to first discuss how to measure the returns to owning a home. The returns consist of two main components: the capital gains (and losses) and the value of the housing services enjoyed by living in the house (the implicit rent that the homeowner "pays to himself"). The capital gains cannot be observed with any precision until the house is sold and the gains (or losses) are realized. Yet, they make up an important and risky part of returns and to assess the full risks of housing we need to measure the gains per period as they accrue during the holding period. Returns can be measured using (the log difference of) price indexes constructed based on observed transaction prices. In such indexes, the heterogeneous nature of houses is accounted for either by hedonic regressions or by repeat-sales estimates (or with some combination of the two). It is important to emphasize that home price indexes are statistical constructs valid for a representative house. They are not exact measures directly applicable to an individual house, nor do they measure the price and returns of a well defined continuously traded portfolio of properties analogous to, for example, stock price indexes. Rather, they should be interpreted as measures of the development of expected sales prices for a representative house.

There are at least three important differences between a home price index and a stock index that are important to keep in mind when comparing return properties and discussing the viability of various index-related derivatives. First, it is not possible to trade directly in the portfolio of properties underlying the home price

index. While this problem may not matter for index construction, it is a strong deterring factor in developing a market in index derivatives. Second, home price indexes are always measured with error. Third, the returns as indicated by price index changes do not account for the idiosyncratic risk associated with an individual house due to unique characteristics of the house as well as the special nature of the transaction when a house is traded.

The other component of returns, the implicit rent, is also fraught with measurement problems. The natural approach would seem to be to use market rents, in which case the measurement problems would "only" be those related to the heterogeneity of dwellings, i.e. in principle the same problems as with price indexes. Unfortunately, rent indexes have the added problem that rental markets are often regulated or otherwise poorly functioning. In fact, they may be close to nonexistent for one-family houses in many countries. Furthermore, even in unregulated rental markets observed rent variations are restricted by long-term contracts, and fluctuations in vacancies is an important equilibrating mechanism. In practical calculations of housing returns, implicit rents are often measured by simple rules of thumb, such as a fixed percentage of market prices. As a result, the variability of housing returns is likely to be understated. This may not be too serious, however, since the "cap rate" that translates prices into implicit rents is likely to have a low variance relative to the capital-gains component of housing returns. In terms of providing inputs to a portfolio choice problem, it is probably more problematic that the level of rents, and hence expected returns, is based on such *ad hoc* assumptions.

Bearing these caveats in mind, a number of authors – e.g. Goetzmann (1993), Flavin and Yamashita (2002) for the USA, Englund et al. (2002) for Stockholm, Iacoviello and Ortalo-Magné (2003) for London, and le Blanc and Lagarenne (2004) for Paris, have computed the means and variances of housing returns. Generally speaking, they all find that housing is an average asset with mean returns and variance higher than for bonds but lower than for stocks. Estimates of mean return vary quite a bit across studies, however, partly reflecting the particular sample period. As an example, the London data used by Iacoviello and Ortalo-Magné (2003) refer to an extended boom period. Furthermore, housing returns appear to have a generally low correlation with other assets, making housing attractive in a well-diversified portfolio. Measures of correlation should be interpreted with caution, however, as they are likely to be biased toward zero because of measurement errors in the underlying price index.

21.4 The Gains from Being Able to Invest in a Housing Index – A First Look

The return characteristics reported by the authors referred to in the previous section indicate that housing is not an unattractive asset from a portfolio perspective. Applying standard mean-variance analysis to the data presented in the studies mentioned in the previous section yield optimal housing portfolio shares in the minimum-variance portfolio on the order of 30–70 percent of the net wealth (assets minus debt). This can be compared with observed portfolio shares. According to Flavin and Yamashita (1998, table 2) the average US homeowner

has a portfolio share around 150 percent with many young households at much higher levels. Compared to the benchmark provided by the mean-variance model, the average renter is underinvested and the average homeowner is overinvested in housing. Both household categories would stand to gain from access to a market that allowed them to freely adjust their housing portfolio share.

How costly is the absence of markets that would allow households to adjust their exposure to home price risk? What are the costs of today's market incompleteness in terms of excessive risk taking or returns foregone? Let us make the following thought experiment. Consider a representative highly leveraged homeowner with, say, 400 percent of her net wealth invested in a house (typical for less wealthy homeowners in countries with well-developed mortgage markets) and a representative renter with zero housing investment. Now, assume that we introduce the possibility to trade in the housing index and ask how this opportunity would impact on the combinations of expected return and variance that are available to our hypothetical household.

Answers to this thought experiment in the form of attainable combinations of risk and return – efficient frontiers to use the language of portfolio theory – are depicted in Figures 21.2 and 21.3, constructed based on Swedish data as reported

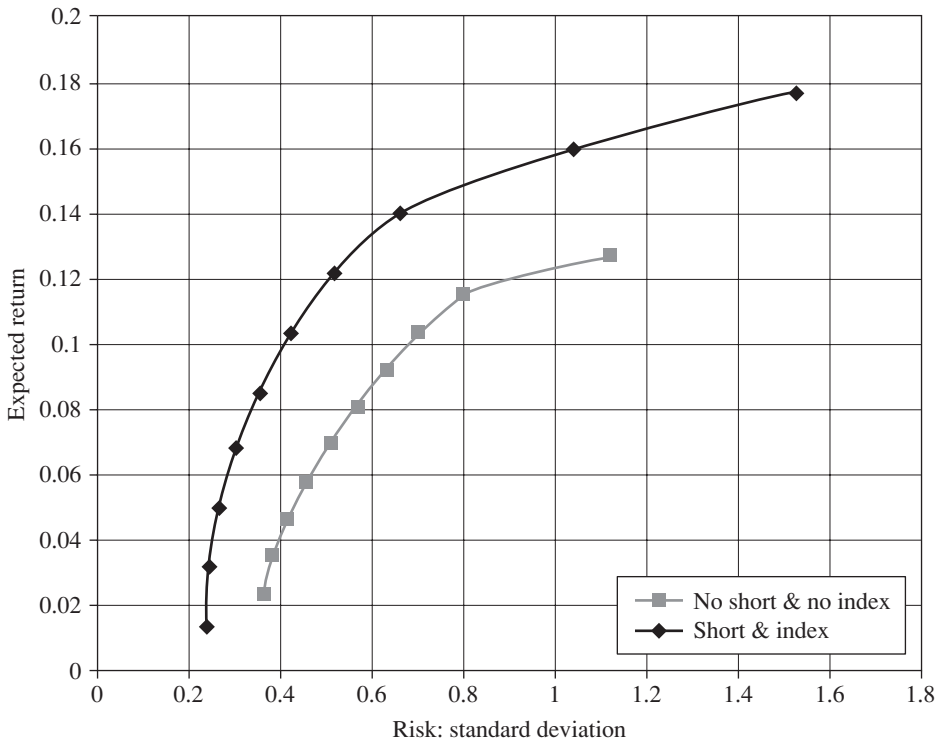

Figure 21.2 Efficient frontiers for homeowner with house value/net worth = 4.
Source: Englund et al. 2002

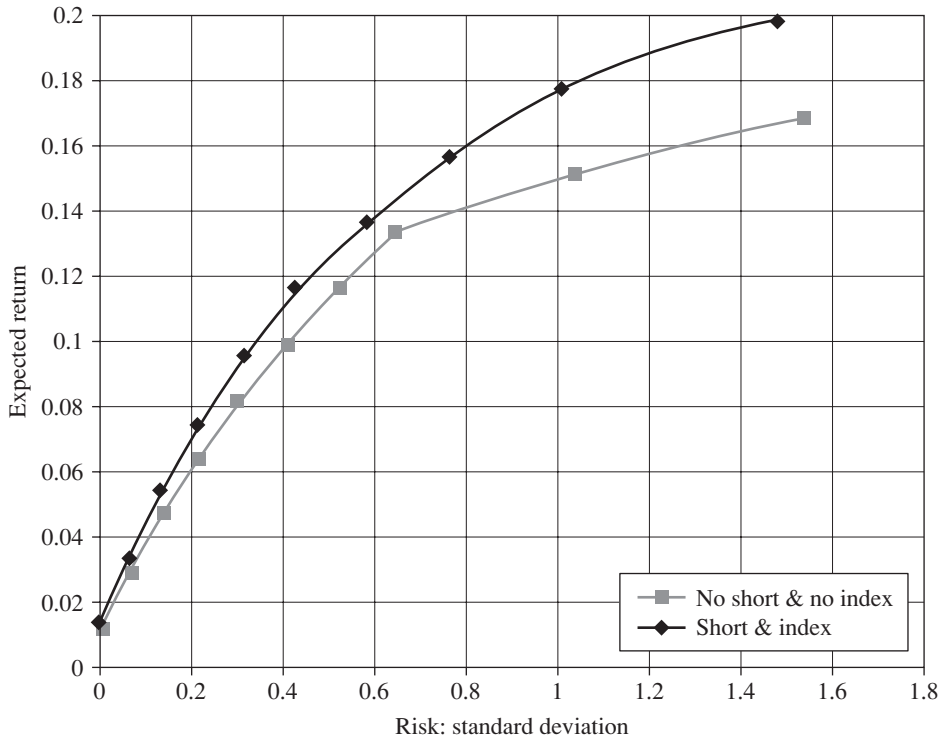

Figure 21.3 Efficient frontiers for renter.
Source: Englund et al. 2002

in Englund et al. (2002). Before discussing the graphs, there are two things to note. First, this example accounts for the availability of other marketable assets, apart from the home price index, that are correlated with home prices. In particular, the menu of assets includes shares in property companies quoted on the Stockholm stock exchange. In the USA and other economies, real estate investment trusts (REITs) would be a natural investment alternative. Second, the calculations account for the fact that the returns to an individual house include an idiosyncratic component that is not captured by the price index. The variance of this component – as estimated by Englund et al. (1998) – is quite large. According to those estimates the quarter-by-quarter variance of the returns to an individual house is about five times as large as that of the price index. The relative importance of the idiosyncratic component diminishes over time, however, and at a five or ten year horizon the variance in return to an individual house is only about twice that of the index. (Other studies, such as Goetzmann (1993), find more persistence in the idiosyncratic component.)

Figure 21.2 depicts two different efficient frontiers for a hypothetical homeowner with 400 percent of her net wealth invested in her home. It holds the housing investment fixed and allows the investment in other assets to vary so as to attain the best

possible combinations of risk and return. The curve to the right illustrates the situation when our homeowner is restricted to a standard set of investments apart from the own home – treasury bills, bonds, common stocks, and property company stocks. It shows how she may trade-off reductions in risk against reductions in expected returns. Because of the leverage effect due to the combination of a large housing investment with indebtedness, our homeowner cannot avoid facing quite a bit of risk. In fact, it is not possible to bring down the standard deviation below 37 percent, at which level the expected return is only 2.3 percent. With some more appetite for risk it is possible to increase the expected return, e.g. to 8 percent at 57 percent standard deviation. The curve to the left illustrates corresponding combinations of risk and return when it is also possible to trade in a home price index. (For simplicity the calculations assume direct trade in the index itself rather than in an index-linked future or option. Presuming that liquid such markets exist, futures and option prices should be highly correlated with the underlying index.) The homeowner now wants to take a short position in the index in order to hedge against the risk of falling home prices. A very risk averse homeowner can now reduce the standard deviation down to 24 percent. At a 37 percent standard deviation – the minimum possible without index trading – she can now get an 8 percent expected return, compared to 2.3 percent in the absence of index trading.

Having access to index-related products is also attractive for renters. Analogous efficient frontiers for a hypothetical renter with zero house investment are depicted in Figure 21.3. At very low risk levels the difference between the two frontiers is very small. The reason is that it is possible to achieve virtually zero risk by only investing in treasury bills. At higher risk levels, however, renters also stand to gain by investing in an index. At 20 percent standard deviation the expected return increases from 6.3 percent without index trading to 7.1 percent if the renter is allowed to invest in a home price index. All these calculations cannot be taken as more than illustrative, but they do suggest that opening a market for trade in housing price indexes should have positive welfare consequences, for renters as well as owners.

21.5 A Richer Framework

The static mean-variance model allows us to have a first shot at understanding the risk exposure of homeowners, but it is strongly oversimplified in crucial respects. An obvious limitation is that the return is only evaluated in terms of end-of-period wealth. But in a dynamic setting owning one's home offers insurance against future housing consumption risks, as emphasized by Sinai and Souleles (2005). For a household planning to stay in its current housing market the entire life, the development of home prices may not be much of a concern. An owner could afford to stay in the same house no matter what the development of home prices. A renter, on the other side, would have to cut down on the consumption of other goods as a consequence of future rent increases.

In general one needs to distinguish two types of risk: an investment risk and a consumption risk. The investment risk can be hedged by a short position in the current housing market (by selling a price index), whereas the consumption risk would be hedged by taking a long position (holding property) in those markets

where the household expects to live in the future. For a household that assigns zero probability to an ever changing housing market these two hedging demands exactly cancel each other. On the other hand, a household that is certain of moving next year would obtain an investment hedge by shorting its current market and a consumption hedge by going long in the market of destination. In general, rational households should assign probabilities to a variety of housing careers and adjust their exposures according to these probabilities. A recent working paper by Voicu (2007) provides a detailed analysis of optimal portfolio choice with investment and consumption risk in the presence of housing index derivatives.

Another shortcoming of the standard application of the static model is that it disregards other sources of uncertainty than the returns to the various financial assets included in the portfolio choice problem. It treats the house as a predetermined "background" investment, but it does not account for other sources of background risk. The most important such risk is related to future labor income streams, i.e. to the returns to human capital. Omitting income risk from the analysis may lead to misleading conclusions, since human capital and housing tend to be positively correlated. This correlation is likely to be particularly strong in "company towns," where the labor and housing markets are dominated by a particular industry or even a single employer. The standard calculation underlying Figures 21.2 and 21.3 portrays housing as a rather attractive asset, since it is essentially uncorrelated with stocks and bonds. But an individual working for the main employer in a company town is already exposed to local labor market risk. By owning his home he would get doubly exposed. Hence, this would cause his hedging needs to be even stronger than the standard analysis suggests.

Interestingly, it seems that households tend to take the correlation between housing and human capital into account in choosing mode of tenure. Research by Davidoff (2006) and Jansson (2009) indicates that the stronger this correlation the less likely households are to own their homes. Jansson employs data on a large panel of Swedish households to estimate the risk of becoming unemployed (the most important human capital risk). Using the estimated equation, he computes a time series of unemployment risks for each household based on the household head's age, education, place of residence, etc., and uses this series to calculate, for each household, the correlation with a local home price index. It turns out that for the great majority of households this correlation is negative (implying a positive correlation between the returns to human capital and housing). The median correlation is as high as -0.6. Jansson then estimates a probit equation of household choice of owning versus renting and finds that the correlation between home prices and unemployment has a significantly negative impact on the probability of being a homeowner. The quantitative effect is rather small, however, and many households remain overexposed to local labor market risks.

Accounting for mobility and income risk is certainly very important in understanding the potential severity of home price risk at the level of an individual household. The simple one-period portfolio model is indeed seriously incomplete. The implications of the suggested modifications for portfolio choice go in different directions, however. Taking a longer time perspective, accounting for the possibility that the household may not be moving, suggests that owning your home may be less risky than indicated by the static model, whereas adding income risk to the

model suggests it is more risky. The general conclusion therefore remains unaltered: allowing households to trade in index instruments has a strong potential to improve risk–return trade-offs.

21.6 Completing the Markets in Practice

There is apparently a lack of well functioning markets that allow households and investors to adjust their positions in the housing market. Despite the rapid developments in recent years, financial markets remain incomplete in this important sense. From the discussion above we conclude that introducing such markets may not be of major importance for all, but should offer welfare improving opportunities for many households. Specifically: (i) current homeowners with a high probability of moving in the near future would like to short their current housing market of residence and go long their market of destination; (ii) current renters who are contemplating owning in the future would like to long their market of destination; (iii) investors in general – current renters in particular – would like to add some housing market exposure to their investment portfolio.

Over the past couple of decades economists have made a number of different proposals to create new markets and institutions that would allow households to alter their housing market exposure. Some of these are institutional arrangements or insurance products directed primarily at satisfying the hedging needs of current homeowners, category (i) above, whereas others are traded financial instruments that should be equally useful for anybody wanting to take a positive or negative position in the housing market. It is convenient to discuss these proposals under three separate headings: (a) new institutional arrangements for home ownership; (b) traded derivative instruments; (c) nontraded insurance and mortgage products.

21.6.1 New forms of home ownership

From one perspective the basic problem is the indivisibility of housing units. Today, households face the all or nothing choice between owning an entire dwelling and not owning any housing at all, whereas optimal risk sharing would suggest owning just a fraction and having outside investors own the remainder. Making this possible is the basic idea behind the proposal of housing partnerships as launched by Caplin et al. (1997), and indeed behind the wide array of traditional shared equity arrangements discussed by Whitehead and Yates (Chapter 20, this volume). The resident household would naturally be the managing partner and have the full right to take day-to-day decisions and also decide on when to sell. Other details – e.g. regarding decisions about major investments and sales procedures – would have to be specified in a contract between the parties.

In principle, the partnership idea is a perfect solution to the homeowner's problem, as it allows offloading any fraction of the risks associated with a particular dwelling, not just those related to home prices in general. The problem is to ascertain that incentives for maintenance and sales effort are well aligned between the partners. To mitigate moral hazard problems – e.g. that the managing partner

neglects maintenance – there is need for a relatively detailed contract between the partners. Even so, any contract would necessarily be incomplete and there would remain elements of the agency problems that make renting a cost-ineffective mode of consuming housing services (Henderson and Ioannides, 1983). Nevertheless, this is quite an interesting proposal as it addresses the central problem of home ownership head on. But since it may require new legislation, and in any case is likely to take long to get consumer acceptance, it is not of major importance in the foreseeable future.

21.6.2 Traded index derivatives

The idea of setting up markets for index derivatives, see e.g. Case et al. (1993) and Shiller (1998), is a very natural one. The exact form of the derivative – whether it be futures, options, swaps, or some other contract – may not be so important. The general idea is simply to introduce an asset that would allow households and investors to change their exposure to housing market risk without altering the amount of direct ownership. It may be most straightforward to think in terms of a futures contract. A future is an agreement made today to exchange a certain item – e.g. a number of shares or a quantity of pork bellies – at a certain future date at a price that is fixed today. In practice, there is rarely any exchange of shares or pork bellies at the settlement date. Instead the deal is settled in cash, i.e. by a transfer of the difference between the agreed-upon futures price and the settlement price (the market price of the underlying asset at the settlement date). Most futures contracts are related to underlying traded assets, where direct physical settlement would be possible, but there is nothing in principle preventing trade in futures contracts where physical delivery is not possible, such as a property price index.

The first example, to my knowledge, of an exchange traded market for property price index futures was the London Fox market in the early 1990s. These futures were based on the Nationwide House Price Index. Unfortunately, the market was closed after only a few months of low trading activity. Patel (1994) ascribes this failure to the announcement of fictitious trading prices in an attempt to give an inflated impression of market activity, though as S. J. Smith (Chapter 25, this volume) points out the failure was somewhat more complex than this implies. More recently, in 2005, the Chicago Mercantile Exchange (CME) started trade in futures and options based on Case–Shiller home price indexes for ten metropolitan areas in the USA as well as a composite of them all. Recently, indexes for another ten metropolitan regions have been added. So far, trade has been limited in quantity, but active enough to generate daily price quotations. The financial panel discussion in this volume (Chapter 22) gives more details on the development of this market.

While the CME futures and options may be the only example of exchange traded housing index derivatives, there has recently been an increasing activity in over-the-counter (OTC) trading related to commercial price indexes, primarily in swaps. The most active market is in swaps between London interbank offered rate (LIBOR) and total returns on the UK Investment Property Databank (IPD) index. The notional value of all contracts currently outstanding is around £8 billion. While this is only 1 or 2 percent of the total value of all commercial property in the UK,

it is still enough to maintain a liquid market. There is also a somewhat less active swap market in the UK Halifax residential index. The relative success of these markets has generated a considerable interest from the financial industry, and it appears that new markets are now starting to develop in many countries. (See, e.g., *Risk and Manage. The Newsletter of the Property Derivative Market* (www.tfsbrokers.com/pdf/RISK&MANAGE/2007/Oct-07.pdf).)

21.6.3 Insurance products

The development of new index derivatives markets discussed in the previous section is very exciting. It is not likely, however, that traded derivatives will attract much attention from the average homeowner (though see S. J. Smith, Chapter 25, this volume). Derivatives contracts may seem difficult to understand, and many individuals may perceive them as risky, even if they actually serve to mitigate risk. Further, the contracts that are traded today (e.g. at CME) are for large metropolitan areas with limited relevance for the individual homeowner. Neither the inhabitants of Bronx nor of Nassau County may find the New York metropolitan area index suitable for hedging. Insurance type contracts should be more familiar and easier to understand for most homeowners. Furthermore, such contracts could be linked to more local price indexes or perhaps even to the transaction price of an individual property.

The individual homeowner would ideally like to sign an insurance contract against fluctuations in the value of his own house. For obvious reasons, as discussed above, such contracts would meet with serious problems of moral hazard and adverse selection. They have only been offered under very special conditions. To name one example, a Swedish broker, Ragnar Bjurfors AB, was for some time in the early 2000s offering a guarantee to cover any loss in connection with the sale of a house. The guarantee, however, was conditional on the sale being forced by outside shocks like a divorce or the death of a spouse. It was offered in a generally booming market and was in all likelihood used in very few cases.

Another example of a product directly tied to the value of an individual property is the shared appreciation mortgage, offered by the Royal Bank of Scotland in the mid-1990s. This is a mortgage loan where the lender agrees to an interest rate lower than the prevailing market rate in exchange for a share of the appreciated value of the collateral property (settled at sale). Offered in a booming market, shared appreciation mortgages were not ex-post beneficial to the borrowers and are not commonly available today.

In general it seems that products directly related to the price of an individual house will be too expensive, or surrounded with too many special clauses, to be broadly attractive. Products related to an index are likely to have more potential. A well publicized example of such a scheme is a federally supported pilot project, called Home Equity Protection, started in Syracuse, NY, in 2004 (see Caplin et al. (2003) for a detailed description). Home Equity Protection offers insurance against losses in market value from the date of house purchase to sale, based on a zip-code-specific home price index. Insurance can be bought for an arbitrary base value up to the purchase price of the house, i.e., the payment at the time of sale

is equal to the base value times the percentage index decrease during the holding period (or zero in case of a price increase). Despite the careful design of this project, and the local indexes that it is based on, it has not been a great success, perhaps because it was introduced in a booming market, when households did not assign much probability to falling home prices.

21.7 The Future

The idea that index derivatives are useful devices for hedging residential home price risks has been put forward by economists for a couple of decades. So far, however, one cannot point to a single example of a successful launching of such instruments, neither as traded derivatives nor as insurance products directly geared at households. Recent market developments – in particular in swap contracts for commercial price indexes, but also the CME market in home price derivatives – suggest that the time may now be ripe for housing derivatives to succeed. So it is worth asking what problems have to be overcome in order to make home price insurance more widely available.

A key issue is whether households are really interested. Products offered have to meet specific household needs. In principle, it would seem preferable with contracts that disentangle home price risks from other risks like interest risks. In practice, however, it may be easier to sell combined products, like index-linked mortgages for those who want to go short and index-linked savings accounts for those who want be long in a housing market. Marketing is also important. There are two natural channels: real estate agents and mortgage lenders. Perhaps real estate agents may appear more neutral and could have larger credibility (at least today, in the aftermath of the subprime mortgage crisis). For long contracts connected with savings accounts, banks would appear to be the natural marketing channel.

Derivatives markets for professional actors and insurance contracts geared at individual households should not be seen as competing solutions, but rather as complements. Financial institutions offering home price insurance would need to hedge their risks. For a reasonably balanced portfolio of contracts across sub-markets, metropolitan-wide futures or options markets should offer good hedges. But in the absence of well functioning and liquid derivatives markets insurance prices would have to include hefty risk premia, making them less attractive to households.

Household interest would also depend on the relevance of the index. Traded derivatives are naturally limited to rather few indexes covering large markets. Insurance products could be tailored to much smaller areas, making them more attractive to individual households. But relevance also depends on the quality of the index. This is related to the quality of the underlying data. In many European countries, there is detailed public information about house characteristics, making it possible to estimate good hedonic indexes. In the USA, on the other hand, only sales prices are available, making repeat-sales indexes the only viable alternative. It is also desirable to maintain arms-length distance between the insurance provider and the index producer. Ideally, the index should be produced by a government statistical agency. For all these reasons, the preconditions for hedging markets are generally

better in Europe. Even so, there is an unavoidable conflict between index relevance and statistical precision. A broad index can be based on many sales and hence be estimated with high precision but has limited economic relevance. The narrower the index area is the fewer are the number of sales and the more sensitive is the index to idiosyncratic variations in sales prices. The key question is whether it is possible to strike a balance between the Scylla of a metropolitan or nationwide index estimated with high precision and the Charybdis of a neighborhood index excessively sensitive to individual transactions.

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Chapter 22

Hedging Housing Risk: A Financial Markets Perspective

John Blank, John Edwards, Jonathan Reiss, and Peter Sceats with Susan J. Smith

22.1 Introduction

Susan J. Smith

For almost two decades, a small group of leading academic economists have been fascinated by the possibility of creating a "synthetic" housing market to spread the risks and share the gains of home price volatility. The theoretical case is well-made; it was introduced earlier and is summarized by Englund (this volume). Its significance is hard to overstate at a time when the risks embedded in the housing economy are laid out more starkly than ever before.

There are, of course, debates concerning the wisdom of looking to financial markets to cure a problem that was, in part, precisely of their own creation. In the popular imagination there is little recognition of (or interest in) the distinction between complex credit derivatives and the much simpler financial instruments discussed in this section of the book. There are also suggestions that risk-mitigation for housing markets can be achieved by making traditional instruments (such as state safety nets, private insurances, and conventional shared ownership) work better. But analysts generally agree that these "usual suspects," whilst clearly working for some, are least effective for those who need them most.

Today, therefore, it might be argued that there is an urgent need for innovation and imagination. What options are there to resolve a crisis rooted in the misguided notion that acquiring (a revenue stream from) mortgage debt might work as a proxy for housing investment? Was the "credit crunch" triggered because housing markets are (through their integration with mortgage markets) too closely linked to capital markets, or was it exacerbated because that link is ineffective and uneven? (There was, after all, no link at all on the equity side of the equation between housing and financial markets). Is there an ethical argument that home-owners should be enabled to make the most of their largest investment – an asset whose future price may be saleable even if its current value is low; a resource which may be used to offset debts or build a more balanced portfolio? And how can institutional investors (builders, developers, social and private landlords, as well as banks) manage their property risks more effectively?

One answer, in theory, to all these questions is to create (and regulate) a market for housing derivatives; instruments based on the purchase and sale of contracts linked to house price indexes. In practice, in the rush to debate the merits and limitations of this suggestion, a critical issue is sometimes overlooked. That is, notwithstanding a powerful economic logic, and a compelling social case, in favour of these markets, there is no evidence as yet that such a platform can be created. Early attempts failed, and today's embryonic markets are small and show no sustained momentum. Theoretical elegance and policy relevance aside, a number of deeply practical issues remain. And who better to address them than the professionals whose job it is to build a new financial order for housing?

Derivatives markets are built around three kinds of activity, or styles of practice: hedgers, who seek to manage risk by selling their interest in price variability; speculators who buy that interest, anticipating an investment return; and – crucially – the people and platforms that bring these two sides of the market together. Most analytical writing focuses on the first two activities, but the key to creating new markets lies in the energy, effectiveness and resources of the third – those individuals and organizations who literally make the market. Here, there are broadly two approaches. On the one hand, housing derivatives can be traded as standardised products (generally options and futures) which are designed, priced and listed by financial exchanges. Theoretically any actor can participate in this market, but in practice, liquidity depends on the work of professional "market makers." Then there is the "over-the-counter" (OTC) market, run by brokers and other institutional intermediaries (for example investment banks), which work with a wide range of more customized deals (using forwards, swaps and more "exotic" derivatives, as well as exchange-traded contracts as appropriate).

The first contribution to this suite of papers is written by a market-maker – Jonathan Reiss – who has worked energetically to build the market for housing derivatives in the USA, primarily by using options and futures on US home prices (as measured by the S+P Case-Shiller index) traded on the Chicago Mercantile Exchange (CME). It may be significant, given the emphasis in this section of the book – which is on the risk-management role of housing derivatives – that Jonathan Reiss's company (analytical synthesis) seeks to "foster useful financial innovations . . . provide unbiased financial advice . . . promote financial literacy and understanding . . . [and] work with other institutions to provide helpful quantitative and financial tools" (www.analyticalsynthesis.com, April 2009). Reiss sees housing derivatives as part of a portfolio of "finance for a just and prosperous society" and his paper provides a thought-provoking analysis of why, so far, the market has failed to gain traction, either on-exchange or over-the-counter.

The next two contributions are in the form of interviews. The first is an interview with John Blank who – at the time it was recorded – was head of financial research at CME. It is hard to overstate the importance of the intervention of CME in May 2006, when it became only the second financial exchange in history to list housing derivatives. Electronic trading opened in Chicago exactly fifteen years after its predecessor – a market launched by the London Futures and Options Exchange, which failed within months of opening. The difference is that CME was, and (as the heart of the CME group) is, perhaps the world's largest and most diverse financial exchange, which has enormous symbolic capital as the location around which derivatives markets have traditionally formed. John Blank talks about this

tradition, and puts forward his own ideas about why the new market was slow to start, and where it might go in the future.

The second interview in this section is with an experienced trader – Peter Sceats – who works as a broker in the UK over-the-counter market for housing derivatives. Although early attempts to trade property derivatives on a UK financial exchange failed, UK institutions have led the field in building an OTC market, first for commercial property and more recently for residential property. It is still the case that the only substantial trading in these instruments occurs in the UK (although the picture is changing rapidly). In this interview Peter Sceats talks about the role of the OTC market as a catalyst, both for the creation of new markets, and as a way of encouraging governments into a – perhaps uneasy, but nevertheless, potentially fruitful – "housing partnership."

The final piece in this panel of professionals is written by John Edwards, CEO of the Australian residential property information specialists, Residex. Edwards recognizes that an important element of a successful housing derivatives market hangs on the design and distribution of products for end-users of all kinds. Discussing the options currently available, he hints that one of the much-vaunted features of housing derivatives – that they are purely a way of trading price volatility – is also perhaps a factor that has prevented the market from "taking off." He argues that it is the total (price and rental) return on property that is attractive, and that the success of property derivatives may depend on traders recognizing this. More critically, Edwards suggests that whilst a market for housing derivatives is almost certainly in the interests of the home-occupying public, it is very much an interim solution. There are, he points out, rather more pressing challenging for the long run.

The four "panellists" in this section are financial professionals, all of whom have some interest in the success of a market for housing derivatives. They do, nevertheless, offer a candid view of what such a market could, and could not, achieve; and they present a fair view of the barriers and incentives associated with this. They draw attention to the merits and limitations of the different (on-exchange and over-the-counter) trading platforms, to the problems of benchmarking, and to the problems of not only designing usable derivatives but also satisfactorily embedding them in retail (mortgage, insurance and other) products. These authors are also realistic in recognizing that sustainable housing futures demand a mix of initiatives, together with a complex system of regulation and incentivisation, not all of which have to do with financial innovation. There is no single panacea for the troubled housing economy; but the contributions that follow identify some methods for making the future more manageable.

22.2 Creating Housing Futures: a View from the Market

Jonathan Reiss

Jonathan Reiss is a futures market-maker and a consultant to buy-side investors who would like to use property derivatives for hedging or to gain exposure to the asset class. His contribution reviews the progress and problems of recent efforts to launch trading in home price derivatives in the USA.

22.2.1 Introduction

It is clear from previous chapters and the wider literature that there is a cogent case for creating markets in house price derivatives. But why have such markets have been so slow to develop; what factors have promoted and inhibited their success to date; what obstacles remain and how might they be overcome? It is worth addressing these questions because, even though this market has had a slow start, such experience as there is encourages us to think that this idea does indeed have great value. This is not just our opinion; it is a view held by many people at diverse institutions who show genuine interest in participating in the market. The caveat is that they need liquidity – and that is the major challenge.

To address the issues faced in starting the market and achieving liquidity, it is helpful to understand the characteristics of both the financial instruments involved and their potential users. So, we start with a discussion of the indices and the instruments that trade, and with a round-up of who the natural participants in these markets are. Then we will discuss the central problem in creating a market – developing liquidity. In light of that understanding, we will go on to review recent efforts to develop these markets, considering what the obstacles have been and why progress has been slow. An important consideration here is the incentives and frictions faced by early participants. Finally, we will look forward to consider what can be done next to foster development of these markets.

We draw four basic conclusions from this story. First, the primary obstacle is that illiquidity is self-reinforcing. That is, few want to participate in the market until it is liquid. Overcoming that hurdle is a large and multifaceted problem. Second, compounding this is the lack of incentives, and the presence of impediments, to early movers. To address this, we believe that the "owner" of the market needs to jump-start trading. Third, the attempt to develop a derivatives market would benefit from a closer connection to those who need to hedge housing risk such as housing developers and commercial banks. To date, these constituencies have not been engaged in the market. Finally, housing is quite different from other financial assets. Ultimately, this will make the creation of hedging vehicles extremely valuable because they will allow individuals and institutions to manage risks that cannot be addressed today. But, it also makes the process of creating this market more difficult.

22.2.2 The nature of home prices and derivatives based on them

The first noteworthy feature of housing as an asset class is that it is not easily traded. This fact has important implications for the relationship between the home price indices and the futures prices.[1] Longer-term contracts have a great deal of latitude regarding where they are priced because market participants cannot arbitrage between the futures and the underlying market.[2] While there is latitude for more distant contracts, the futures do reliably converge to the index as they approach expiration because of the final settlement mechanism. But, when they have a long time to final settlement, they can be priced anywhere in a large range around the current index value. Where they will fall in this range depends on expectations and on the supply and demand balance. If the outlook for home prices is poor and

buyers are demanding a large premium for taking on home price risk, the longer-term contracts will be substantially below the current index and even below the market's expected price. They will price in a significant excess return to buyers of the futures (a point discussed at greater length in Reiss, 2008).

A second notable feature is that home prices and, particularly, aggregations of home prices, have a strong tendency to trend (see Case and Shiller, 1989). That is, they tend to have long streaks of above-average appreciation (such as 2000–2005). When they decline, they do so persistently for months or years. This is very different behaviour than that of more actively traded and efficiently priced asset classes such as stocks.

Figure 22.1 contrasts the quarterly returns on the S&P/Case-Shiller Los Angeles Home Price Index to that of the S&P 500 stock index. You can easily see the long streaks of positive and negative returns in home prices. Viewed quantitatively, the correlation between successive quarterly returns is +80 percent for the home price index in contrast to −6% for stocks. Since this measure ranges from −100 percent

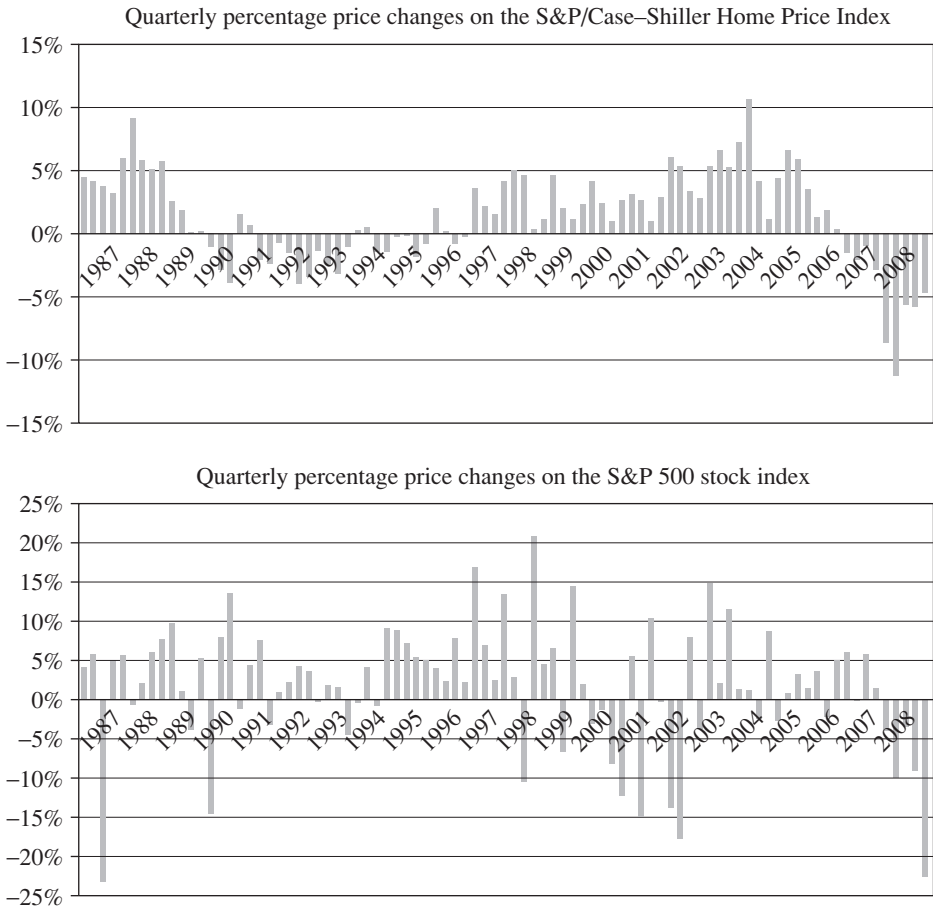

Figure 22.1 Home price changes exhibit strong trends, in contrast to stocks.
Source: Bloomberg and Standard and Poor's

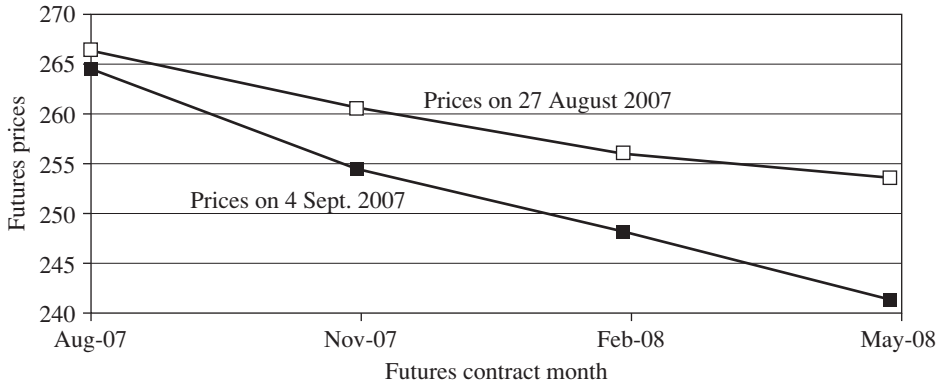

Figure 22.2 Longer-term futures react more because of index momentum.
Source: Bloomberg

to +100 percent, the reading for home prices indicates an extreme amount of trendiness while stocks exhibit very little. The practical implication of this is that large price changes do take place but, unlike stocks, they take years to occur. These features have important implications for the derivatives markets.

The futures market recognizes the streakiness of home prices and reacts accordingly. For example, in Figure 22.2 you can see the result of a surprisingly large drop in the Miami index. The index declined causing the August 2007 contract to settle below its last market price. The decline was 2.5 percent but most of that was anticipated so the August 2007 future only dropped 1 percent. But, as you can see, the May 2008 future dropped about 5 percent. This is because market participants know that home price movements are very persistent. When they drop, they typically drop for a number of months or even years. When the price decline accelerated, the market anticipated that this would continue and futures market participants priced further declines into the longer-term contracts.

This behaviour means that it is important for hedgers to match the horizon of the futures contract to the horizon of the hedge. Unlike many financial contracts, you cannot hedge housing effectively by rolling over a series of shorter-term contracts. Speculators and investors are also more interested in longer-term contracts. The price movements are larger so they are more attractive for speculation. And the longer contracts have a larger risk premium which makes them more attractive to investors.

22.2.3 Potential participants in the market

Many individuals and institutions could benefit from a market to transfer home price risk. Home builders, mortgage bankers and investors, Fannie Mae and Freddie Mac as well as others have direct exposure to home prices. It has become clear during the mortgage crisis of 2007–08 that many other institutions have indirect exposure. Most of this hedging interest would look to sell futures short. To attract the long (investment) side, the market needs to offer a return inducement to participate. But that should not be a problem. Just as stocks are priced to offer

a return premium to investors, home price derivatives will naturally do the same. Hedgers understand that they need to sacrifice return in exchange for risk reduction and that mechanism works in many markets. For example, a bank would be willing to sacrifice some expected return to reduce their exposure to home price declines. Experience confirms this. US home price futures offered a return premium to long investors in the period which they traded most actively even though the underlying market had begun to decline (Reiss, 2008).

What is more, the return premium needed to attract investors, once the market becomes liquid, need not be very large because home prices have very favorable risk characteristics. House prices generally have very low correlations with other major asset classes,[3] and, they are positively correlated with inflation. Therefore, home price futures would be an attractive addition to global investors' portfolios even if the return premium it offered were fairly modest. This is particularly true for those, such as endowments, who are concerned about inflation-adjusted returns.

Currently, individuals are the primary holders of home price risk and should be the largest beneficiaries of instruments to hedge that risk. They should not be expected to trade futures or other derivatives directly. Rather they should be served by more tailored products that would be easier to understand and to trade. For example, one group of individuals who are subject to home price risk is, perhaps surprisingly, those who do not yet own homes but who plan to. A couple saving for a first home purchase is exposed to the risk that home prices rise faster than their savings. The house they planned to buy may move beyond their reach and the down payment may become insufficient. While this doesn't seem like a big risk today, looking forward, it precisely describes the experience of people in many areas from 1995 to 2005. A savings vehicle that rises in value when home prices do would help them reduce this risk.

The simplest vehicle that would serve this purpose is an exchange-traded fund (ETF) that holds cash plus a long position in housing futures based on a metro-area home price index. If home prices rose rapidly, their savings would keep up. If home prices declined, they would lose money on the ETF but that loss would be offset by the likelihood that they could buy a house more cheaply. In effect, they are buying a portion of tomorrow's home, today – forgoing the possible windfall of a drop in prices in exchange for insuring against a rise in the cost.

Once a liquid futures market is established, it would be very easy to create such ETFs for different metro areas. This would be a very attractive savings vehicle. Because it is futures-based, the return would benefit from the discounted prices of more distant futures (backwardation) plus a cash return. So, its effective yield would be higher than traditional savings accounts.[4] Plus, it would actually be less risky than savings accounts. While its price would fluctuate, it would move in sympathy with home prices in their area.

It might seem that in the markets of 2008–9 with home prices nearly universally forecast to decline, it would be impossible to attract buyers for home price futures. However, because the futures prices incorporate the market outlook, it need not be difficult at all. In April 2009, the May 2010 futures contracts are priced about 15 percent below the latest index values. They offer a positive excess return as long as home prices decline less than 15 percent. At that price, it is quite likely that buyers could be found if the market were liquid. An ETF in this market could

be structured to pay out the discount as a dividend. An ETF that paid the realized home price appreciation plus 15%[5] would probably attract some buyers even in the current environment.

The openness and transparency of ETFs have a number of advantages to which we later return. It is, moreover, only one of a number of innovations that would serve individuals' needs. Home equity insurance, shared appreciation mortgages and other products would also be useful. Those products have been tried before without substantial success. However, if they were developed in conjunction with futures, then the creators of those products could offer more attractive pricing. Experience in the UK suggests that the development of derivatives market would be fostered by the simultaneous development of retail products.

To date, institutions that are exposed to home price risk such as commercial banks or home builders have not been engaged in the market. A concern raised is that the MSA-level indices are not perfect hedges for the risks of home builders, mortgage banks and others. While it is true that the hedges are not perfect, these instruments can still substantially reduce risk if used well. Metropolitan price movements do explain a large portion of home price movements, particularly over periods of a year or more. Swidler and Hollans (this volume) show that hedges are effective in many cases even for very specific applications. Hedging effectiveness should improve as the portfolio being hedged becomes more diversified and the time horizon lengthens. The derivatives market would be helped by more outreach, education and other efforts to engage those constituencies.

The fact that there has been little trading in these markets should not be taken evidence that these innovations are not valuable nor as a lack of interest on the part of potential participants. Actually, as an active participant in this market, we have seen great interest in it from many and diverse institutions. Rather, as we will argue in the next section, it is simply a rational response to the lack of incentives for early participation and the presence of impediments to entering the market.

22.2.4 Liquidity, liquidity, liquidity

The central challenge in starting a new market is to get to critical mass. Illiquid futures contracts are of very little value and are hard to trade. For example, think about a homebuilder considering selling a future to hedge and an endowment considering buying the future. The homebuilder is willing to sacrifice some return in order to reduce their risk. The endowment is looking to earn a reasonable return in a diversified way. Because of the nature of home price movements, both parties will be best served by contracts with a term of two years or more (for reasons described above). Now consider the impact of illiquidity. If both sides know they will not be able to close their positions until expiration it will create a large impediment to initiating a position. Clearly, the homebuilder will be less willing to enter the trade in the illiquid market. While they may plan to hold the position for two years, circumstances can change. They would be less willing to sacrifice return for the hedge if they are locked in. Similarly, the endowment would demand a higher return in compensation for the illiquidity. If the contract is illiquid, the seller will demand a higher price while the buyer will bid a lower one. Many fewer trades

are likely to occur and, when they do, less value will be produced. In other words, illiquidity begets illiquidity.

Therefore, it is likely that there are *two* stable equilibria – one with an active futures market and one without. Clearly, we are currently in the illiquid state. But that doesn't mean that a liquid futures market, if it did exist, would not attract substantial interest and provide significant value. In fact, the two biggest surprises in this effort have been first, how difficult it is to get the process started and second, how many institutions great and small are actively interested in participating in this market if it does get off the ground.

The problem is that no one wants to go first. Having gone first, we have discovered that no one wants to go second, either. This is not surprising. There are significant start-up costs to new participants in the areas of research, systems, compliance and others. And, there is little incentive to be a first mover. In other words, waiting on the sidelines for the market to develop is, unfortunately, a perfectly reasonable position for potential participants to take.

Many technology entrepreneurs face a similar problem. There too, the benefits of the innovations are often only significant once participation reached a critical mass. The successful ventures have invested significant resources to push participation over critical mass. Once that was accomplished, use of the product became self-reinforcing and participation often grew exponentially. For example, today, many people look to eBay if they have something to sell because they know buyers will be there. And buyers look because they know they are likely to find what they want. But, it took time and effort to get to that point. eBay had to get a critical mass together. Early sellers didn't get any benefit from being early; neither did early buyers. Some early buyers may have gotten a few good deals, but mostly there were many failed auctions. The entity with a big incentive to jump-start it was eBay. Once they got it going, they owned the marketplace and could make a fortune charging small fees.

Similar to auctions, the housing derivatives market needs a strong push to get it from the current illiquid state into a liquid one. Just as in the case of auctions, the entities with the largest incentives to jump-start housing derivatives are those that would "own" the market if it does get started. For the listed futures and options, those owners are the Chicago Mercantile Exchange and the licenser (originally MacroMarkets but now Standard and Poor's). For the over-the-counter products, the owners are the market-making banks and the licenser, Radar Logic or S&P. Currently, the only over-the-counter products traded in the USA are based on the Radar Logic 'daily price-per-square-foot' indices. But S&P/Case-Shiller instruments have traded in the past and could easily do so again.

Housing derivatives are harder to start than other derivatives contracts for three reasons. First, because of the nature of house price movements, the natural horizon for trading is 2–3 years, substantially longer than most futures contracts. This makes the lack of liquidity a larger impediment. It is harder to convince participants to enter trades in which they might be locked in for years.

Second, the underlying market is not tradable and no close substitutes exist. Often, a new market can draw liquidity from a related market. For instance, credit default swaps (CDS) could be arbitraged against the corporate bond market. So, before CDS were liquid, market-makers and others could hedge their exposure using

corporate bonds. The Chicago Mercantile Exchange has repeatedly indicated that the absence of an available hedge has been a significant impediment in signing up market-makers. Our solution to this problem is discussed in the section on market-making below.

Third, many of the natural participants are not active users of financial derivatives. Home builders do not typically have expertise in futures trading. Individuals will only use the markets indirectly through the creation of retail products such as those described above. Even sophisticated institutions that are accustomed to hedging, such as mortgage originators or commercial banks, face significant impediments. They need the cooperation and allocation of significant resources from several different departments – research, trading, compliance and systems – and in some cases regulatory approval to use these instruments. To overcome those hurdles takes significant effort. These institutions will not make that effort unless there is a large incentive to do so.

The next section discusses the efforts to overcome these hurdles.

22.2.5 Launch of the US housing futures

Karl Case, Robert Shiller and Allan Weiss developed reliable home price indices in the late 1980s. They did so with the express intention of creating markets based on them because they saw the value these instruments could have. For various reasons, it took more than a decade to convince an exchange to list such instruments. In the end, the Chicago Mercantile Exchange (CME) launched futures and options on the S&P / Case-Shiller Home Price indices in May 2006. The contracts were originally listed for 10 cities plus a composite contract representing the weighted-average of the ten cities. Their terms were restricted to less than one year.

At the outset of the market, the CME signed up Bear Hunter as market maker. They set the initial pricing in the market significantly above the index levels. As we have noted, the pricing of housing futures should reflect the outlook for home prices as well as the balance of long and short hedging interests. While home prices were still rising when the futures were launched, the pace of increases had subsided considerably from that of 2000–2005. The excess building was recognized and homebuilding activity had already begun to decline. As noted above, the short hedging interests are much larger than natural long positions. Therefore, the initial pricing was far above market equilibrium. Figure 22.3 graphs the price movement of the longest Miami contract over time. You can see that the market moved quickly to a discount.

Unfortunately, the adjustment was not quick enough. The losses incurred by Bear Hunter caused them to cease market-making. Analytical Synthesis had been trading in the futures and options since their inception. We began formally making markets in July 2006.

Futures and options trading got off to a reasonable start. Figure 22.4 graphs the open interest of futures and option contracts. Figure 22.5 graphs monthly trading volume. Open interest rose to about 4,000 contracts in total, by the ninth month of trading, representing over $250 million notional. Futures trading averaged about 600 contracts monthly for the first six months which represented about $40 million

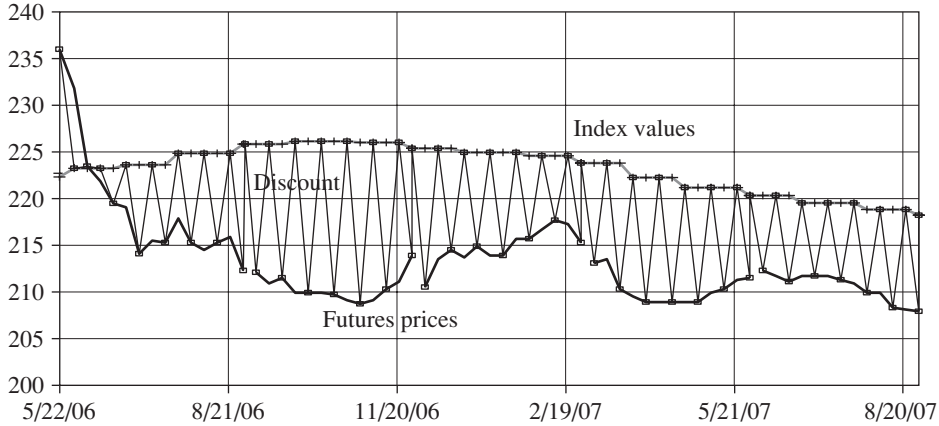

Figure 22.3 Futures prices quickly adjusted to a discount.
Source: CME Standard and Poor's, Bloomberg, Analytical Synthesis estimates

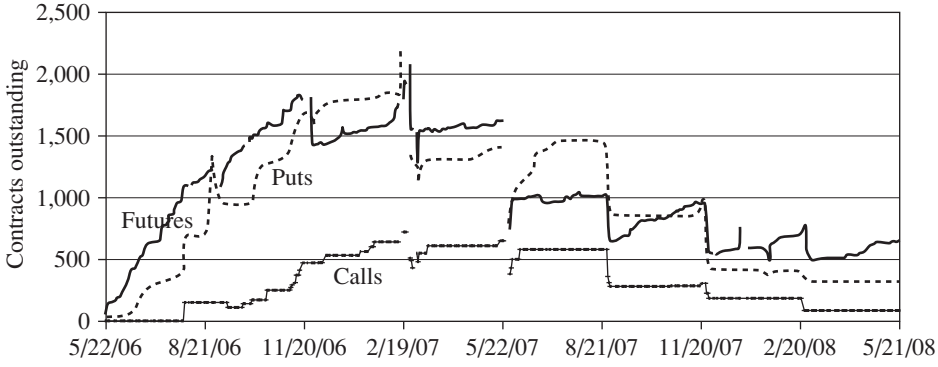

Figure 22.4 Open interest reached reasonable levels but then dropped sharply.
Source: Bloomberg and Analytical Synthesis estimates

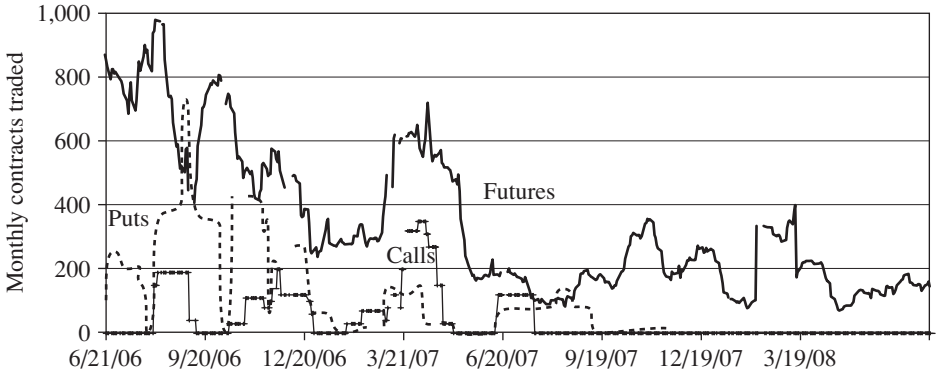

Figure 22.5 Futures, put and call volume was promising at first but then tailed off.
Source: Bloomberg and Analytical Synthesis estimates

notional. Unfortunately, volume never grew beyond its initial level and after nine months it dropped dramatically.

Since the US housing downturn began in 2007, it is tempting to attribute the decline in liquidity to the housing crisis. However, a review of the timing indicates that this is not the case. Volume declined sharply well before the liquidity crisis occurred. In fact, prices rose while liquidity tailed off suggesting that hedgers and other short sellers exited the market before buyers did.

We believe that the development of the market was inhibited by a design flaw in the contract. Unfortunately, the longest-term contract that was allowed to trade expired in less than one year. This was a substantial handicap to the market. Because of the nature of home price movements, as noted above, most participants in the market are likely to be interested in contracts with 2-year horizons and longer. Considering that the data is reported with a lag the futures horizon was severely limited. For example, in July 2006, the longest contract trading was May 2007. Final settlement of this contract would be based on home sales closing during the first quarter of 2007. So it was really only about six months forward, which is a very short horizon for housing.

The limited term was not a design error but a deliberate handicap. The licensing rights were held by a company called MacroMarkets. Their strategy was to reserve terms longer than one year for over-the-counter trading that they expected to generate higher fees. Whatever merit the business strategy might have had was squandered because MacroMarkets was unable to come to agreement with investment banks to create an OTC market. When their efforts were initially unsuccessful, MacroMarkets considered extending the futures terms. But that was put on hold for a year when Goldman Sachs signed an OTC license in September 2006.[6] Goldman did not execute any trades under the agreement for several months (Beales, 2007), and never executed many. So the main impact of the agreement was to delay the listing of long term futures contracts during a crucial period for the market.

In addition, trading volume declined simply because it did not reach a high enough level to be self-sustaining. We, as market-maker, were able to foster the level of trading that occurred. But we could not increase the size of our markets as volume grew. And, the level it reached was still short of the critical mass where it would become self-supporting. Early participants entered expecting that liquidity would grow. When this did not occur, they lost interest.

There is still very substantial interest in the market. But nearly everyone is waiting for liquidity to develop before participating. However, they want to be able to trade in tens of millions or more. Until that is possible, they have no incentive to enter.

22.2.6 Market-making in housing futures

One way to jump-start the market is to have a market-maker post markets at reasonable bid-asked spreads and in significant size. Unfortunately, it does not make business sense for most market-makers to do so when the market is new and trading volumes are low. A market-maker makes a profit either from high volume or from wide bid-asked spreads. So, if volume is low the natural tendency is to set bid-asked spreads wide and this inhibits development of the market. The problem is

that doing so impedes the market's growth. This is profit maximizing behavior for the market-maker as they do not benefit greatly from market growth, but it would be extremely valuable if the market-maker could be incentivized to foster growth.

Analytical Synthesis served in that capacity for more than a year and our experience demonstrates both points. When we set narrow spreads, there was a marked increase in trading by outside participants on both sides of the market. However, our capital and other resources are quite small and we were unable to increase this effort as the market grew. It might seem that our involvement contradicts the argument that market-makers will be unwilling to serve in this capacity. However, it actually strengthens it. Analytical Synthesis is very unusual in that it has a mission to foster new hedging markets as its mandate. In addition, our long-term intention is to act as a consultant, rather than as a market-maker, and therefore we will derive more long-term benefit from getting the market established. The CME has been trying to attract other market-makers for more than two years and has not been able to do so. This demonstrates that traditional market-makers are not naturally interested in pioneering this market and need to be given tangible incentives to do so.

Analytical Synthesis's market-making has been more in the nature of proprietary trading. We post two-sided markets but it is rare that we buy and sell the same contract in short order. Much more commonly, we accumulate offsetting positions in multiple different contracts. Figure 22.6 displays our exposures as of February 2007 when activity was at its peak. Each row represents a contract month and each column a city (Boston, Chicago, Denver and so on, corresponding with the CME contracts, including the composite of ten cities). The circles are solid for long

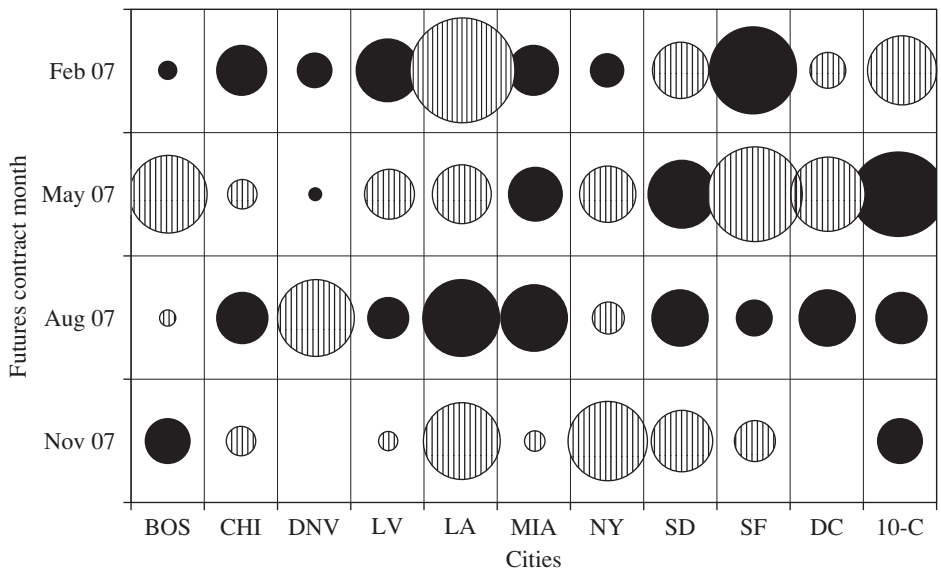

Figure 22.6 Futures and options exposures were well distributed.
Note: Long exposure solid, short exposure shown as patterned. Size represents magnitude.
Source: Analytical Synthesis LLC

exposure and patterned for short. The size of the circles reflects the amount of exposure. This table includes both futures and options exposure. The details are not crucial. The important points are that we had positions, either long or short, in almost all contracts. But they were largely offsetting. That is, in most cities we were long in some months and short in others. Also, we were net long in some cities and net short others. We did have a net short position because the market had been rallying and we were willing to take on short exposure at those levels.

The CME has indicated that other prospective market-makers are reluctant to enter the business because they look for a liquid market to hedge their positions against. For example, market-makers in the relatively new VIX stock volatility futures were able to hedge their positions against index options which already had a liquid market. So, the new futures could draw liquidity from an existing market. There is no liquid market that is reliably related to home prices. Rather than looking outside the market, Analytical Synthesis has hedged the S&P/Case-Shiller home price futures against themselves. This has worked quite well but the market-maker has to be willing to take on positions that are likely to be held until expiration. Traditional market-making firms are very reluctant to do so.

We achieved the balance by adjusting prices actively in response to trades based on a risk-return framework. We have a forecast for the index values but that forecast is not crucial to price setting. Rather, prices are set by the flow of buyers and sellers who transact with us. For example, suppose someone buys from us significant position in 1-year LA puts. That means we have taken on long exposure to LA housing in one year. That will increase the marginal risk estimates for 1-year LA. In reaction to this increased exposure to 1-year LA we become more reluctant to buy additional contracts (and more willing to sell). Accordingly, we will adjust prices downward for that contract. In addition, we will adjust prices for all related contracts depending on how similarly they move. We will make smaller impacts on other contracts, depending on how related they are to LA. So, San Francisco and San Diego would be adjusted more than NY or Chicago. At these new prices, any additional trades we make will either be risk-reducing to us (if we sell futures) or, if we buy, it will be at more attractive prices.

Robert Shiller (2008) also has offered a useful discussion, from the perspective of behavioural psychology, of some reasons that the development of this market might have been slow. From the above discussion it should be clear that, while we agree that behavioural factors have played a role, we think institutional issues have been more important. Market-making at this stage is more like proprietary trading than like traditional market-making. Therefore, the exchange needs to attract untraditional firms to play this role. The traditional incentives that they use of waving fees are of less value to these firms and so no one has stepped forward. The exchange needs to create more effective incentives to fill this crucial gap.

22.2.7 More recent developments

In early 2007, another house price index provider entered the scene. Radar Logic provides indices on a similar set of cities to the tradable S&P/Case-Shiller indices. Radar Logic uses a complex method but in essence it is an index of median

price-per-square-foot for all of the transactions they can get timely data on. Radar Logic was much better at courting the investment banks and at making their data accessible. They also were more skilled at creating the needed infrastructure. Six dealers signed license agreements and began trading in September 2007. There are now markets quoted on a composite index and four cities for terms out to five years. The market was originally traded as swaps but after a few months the dealers recognized that end-users preferred forward contracts which are more similar in structure to futures. Both swaps and forwards are now quoted but the forward market is more active. Options have not yet traded in the over-the-counter market.

Recently, there have been some significant infrastructure improvements in the S&P/Case-Shiller index markets. Futures and options terms were extended out to five years in late 2007. Standard & Poor's bought the rights to license trading on the indices from MacroMarkets in early 2008. While we look forward to reinvigorated efforts to get these markets started, it remains unclear as this book goes to press whether either market will reach critical mass. The bulk of the trading is in the Radar Logic forwards but only two dealers are still actively quoting markets. The next section discusses how either futures or forwards might reach critical mass.

22.2.8 Listed and OTC markets

Another important theme in this story is the tension between listed futures and over-the-counter forwards or swaps. There are very successful markets in which related products like these co-exist successfully. For example, Eurodollar futures and interest rate swaps are both hugely successful. In this model, the listed market handles the most generic part of the market while OTC agreements provide more customization. This combination allows users of these products a range of choices in liquidity, cost-effectiveness and flexibility. One would hope that this model could have been followed for housing derivatives.

Unfortunately, the investment banks seemed to view the listed market as a competitor. They have provided no support for the futures and options markets. In fact, they seem to have worked to undermine its success. Radar Logic, to their credit, has provided some voluntary disclosure of indicative pricing and standardization. However, in general they and the dealers have not provided any transparency regarding actual transaction prices or volumes. They have not been receptive to outside firms such as inter-dealer brokers introducing prospective clients.

This may be a good business strategy for the dealers. But it is unfortunate for the development of the market as a whole. It has slowed the growth of housing derivatives in general. Even more important, it is a long-term detriment for the product. Individuals and other end-users of the market have a strong interest in the market developing in the most liquid and open form. When transactions and volumes are visible, it attracts interest in the market. What is more, working with potential investors, we know that many have a strong preference for a more open platform. However, since they are not involved in the creation of the market, they have no influence in the direction it takes. The incentive structure described in the previous section pushes the market towards over-the-counter trading even though it has much higher frictions, less transparency and serves users less well. Once

a market gets to critical mass, it will difficult to displace it, even with one that ultimately would be cheaper and more liquid.

This is unfortunate because this market will produce substantially more value if frictions can be kept low. It is clear that low expenses are an important feature that attracts people to ETFs. In addition, the smaller the fees, the more beneficial the product is. So, lower frictions lead to instruments that provide more value to more people. One benefit of the otherwise greatly regrettable crisis of 2007–08 is that the value of openness has become clearer. As a result, the prospects for a listed market have improved.

22.2.9 Need for a champion and a jump-start

The market needs a substantial jump-start. Sophisticated institutions such as banks, pensions or home-builders need to clear a number of hurdles before they can use the market. They need to do a significant amount of research to be sure they understand the market, indices and other aspects of the market. They also need the cooperation of trading, risk, compliance and systems departments. In some cases, regulatory approval is necessary. They will not begin this process until they are confident that they will be able to trade in sufficient volumes to justify the commitment of resources.

So, someone needs to push it to the point that institutions are willing to enter the market. As we have noted, the only entities with incentives to do so are the owners of the market and, to a lesser degree, the index licenser. This makes it much more likely for over-the-counter products to gain traction. Because an over-the-counter market is less open and transparent, the investment banks will earn larger spreads. So, they have larger incentives to provide the jump-start. In addition, they tend to be more entrepreneurial organizations.

Robert Shiller cited the following comment. "At the futures exchanges, they joke about the 'spaghetti theory' of innovation. Chefs are said, when cooking spaghetti, to throw a piece against the wall: if it sticks, the spaghetti is done. Trying new futures markets is like that: one must just launch them and see what happens. We will never fully understand why some succeed and some do not . . ." (2007:5). While we will never *fully* understand why some succeed and some do not, we surely do have *some* insight. We think that the spaghetti theory quote gives an indication of an important part of the answer. Just launching futures and hoping they will succeed is very unlikely to work, especially for genuinely new markets such as housing. The exchange officials fully understand this and *as individuals* seek to provide the support that is necessary foster the market. However, organizationally, the exchange has not yet been able to mobilize the needed resources.

22.2.10 Potential synergies between retail products and hedging vehicles

Another way that the market could be spurred would be the development of a market similar to what took place in the UK. The UK market for property derivatives

has traded approximately £30 billion in notional value since 2004. Although only a small proportion of this pertains to residential property, it is clearly a model to consider. Peter Sceats (later in this chapter) amplifies this for the UK; here we will discuss how it illustrates an approach that would be helpful but has been absent so far in the US.

Individuals will ultimately be a major beneficiary of home hedging innovations. However, we would not expect them to trade housing futures, options or forwards. Rather they will benefit from the creation of products more tailored to their needs such as home equity insurance (see the chapters by S. J. Smith and Syz, this volume). The issuers or creators of these products will, in turn, use the futures or forward markets to manage their risk. There are synergies between these two markets, as we see very clearly in the UK.

In the UK, banks began issuing savings bonds whose return was linked to the Halifax home price index. The issuers of those bonds took on exposure to rises in that index. This led them to create the forward market so that they could manage their risk. The issuance of the savings bonds created a demand for liquidity in the forward market and, importantly, natural buyers in that market which normally has an excess of sellers over buyers. You can see the synergy between these two markets. The issuance of linked bonds encouraged the development of the forward market. The forward market, in turn, allowed the banks to hedge their exposure and, therefore, led them to offer better terms on the bonds. Better terms on the bonds presumably broadened their appeal and further improved liquidity in the forward market.

The ETF's described above would serve a similar constituency as the savings bonds and might well be more attractive for two reasons. The savings bonds guarantee a minimum return of zero, that is, savers are sure to get their principal returned. This might seem attractive but it is not. Since it is a hedging vehicle, savers can afford to lose money if the cost of the home they are going to buy also declines by as much or more. More importantly, the principal guarantee comes at a significant cost. The saver is effectively buying a put option that they do not need. And the banks charge handsomely for that protection as well as the marketing and other costs of issuance. If the underlying futures market is liquid, the ETF should be more attractive than the savings bonds. This should expand the market which would further improve the liquidity of the futures.

It is clear that there is genuine interest in this market. Three interdealer brokers have had staff dedicated to this market for more than two years. The investment banks have also made a clear commitment to the market. It is notable that they have maintained that commitment despite undergoing great trauma in other areas of their business. They would certainly not have done so without good reason. So, we continue to believe that these efforts will come to fruition.

22.2.11 How will the market get started?

It would help the US home price derivatives market considerably if they could be developed in conjunction with other products that create synergies as occurred in the UK. The early entrants in the US have been investment banks rather

than commercial banks. The market development might well take off when commercial banks begin to get involved. Unfortunately, there seem to be regulatory obstacles to their participation.

Another possible spur to market development may be the housing crisis and government efforts to resolve it. After the savings and loan crisis in the 1990s, the government created the Resolution Trust Corporation. It took on the assets of bankrupt S&Ls and was charged with disposing of them. In the process of doing so, it appears to have sold billions of dollars of commercial mortgage-backed securities (this at least is the figure listed in Wikipedia). This created the market for commercial MBS that has become a very important source of real estate financing.

We may be seeing the beginning of a similar evolution today in the US. The Dodd-Frank housing bill that was passed in July 2008, had a number of provisions that could indirectly lead to tradable instruments related to home price risk. The FHA will receive rights to share in the appreciation of homes when it guarantees modified mortgages. It is possible that similar rights will be given to lenders of second mortgages who agree to forgive their loans. If so, they might look to package a sell these rights, which would create securities linked to home price appreciation. The bill also makes reverse mortgages more attractive – lowering fees and raising the amounts that can be lent under the HUD's HECM program. If the reverse mortgage market grows, it would create a need to hedge home price risk that could foster trading in futures or forwards.

The experience in this market to date makes it clear that there are very large obstacles to launching a genuinely new instrument such as home price futures. However, it also leaves us more convinced than ever that the idea is sound. A large number of substantial institutions have expressed sincere interest in using this market and some have dedicated resources as well. The benefits that the market can create are very large. In short, the problem has not been a lack of interest so much as a lack of pioneers. As of now, most institutions are on the sidelines, waiting for liquidity to develop. The overriding conclusion is that the market has great potential but also urgently needs a catalyst – either a market owner, or government – to move it from the current illiquid state to a liquid one.

22.3 Residential Property Derivatives: Exchange-Traded Futures and Options

John Blank

John Blank, in conversation with Susan Smith, discusses the problems and prospects of a new generation of housing options and futures launched in May 2006 by the Chicago Mercantile Exchange (CME). These extracts were recorded in London, in June 2007, just as the scale of the US subprime crisis was becoming apparent. At the time John Blank was in charge of financial research at CME.

SJS CME is the world's largest and most diverse financial exchange; it is the home of derivatives trading. But why *housing* derivatives and why now (as the housing cycle peaks)?

JB Why "housing" probably reflects the energies of Yale economist Robert Shiller, who has been promoting the idea for some time. Why "now" is because there's a global property bubble, in all developed countries. Furthermore, now that we've seen the over-maturation of the securitisation of mortgages, banks and other organizations have found that they – as well as homebuyers – carry much of the price risk.

So, as the foreclosure rate rises, banks are trying to sell homes off into a market that's already oversupplied and in which prices have collapsed. Sale prices are sticky but they aren't sticky forever and then you get a whole chain of events that dramatically shifts the investment risk back to the banks. It's a perfect storm scenario: affordability is driven by six or seven factors, and if those strike in unfavourable ways, risks are going to be widespread even in the most wealthy parts of the wealthiest economies.

SJS I wonder why somebody didn't introduce options and futures to the CME six years ago?

JB Bob Shiller's been beating this drum for at least 12 years. But financial markets have been doing other things. The other opportunities at that time were more attractive, and without electronic trading the housing contracts would never have worked. To put a pit together, real real-estate, real locals, all of that, you know, you'd have to invest a lot and make a much stronger argument. It didn't happen. But it's not a new idea and it seems historically to have surfaced whenever things came to a head. When there was speculation in land in the 1920s in California, the idea popped up. When people who had to buy houses around military installations worried about the bases closing in the 1960s, the defence department put home equity insurance into place. When racial integration was on the agenda in Chicago, the Oak Park experiment included the same kind of equity protection to prevent white flight, and stop home prices collapsing. This time we are dealing with the speculation that emerged from the early 80s and the drive to securitize mortgages: easy finance created a price bubble which has gone way too far.

SJS Why are these instruments being marketed on an exchange like CME rather than using the over-the-counter marketplace, as has been the trend in the UK?

JB Well exchanges are usually brought into the game because they offer common clearing, and they offer transparent pricing for standardized instruments. So all of that is valuable or at least it's perceived to be valuable in this context.

SJS But is exchange-trading suited to housing derivatives? After all, CME has seen a slow start to the trade in housing options and futures.

JB It has, but part of the problem is that the contracts were not quite right. The futures were short-dated (by agreement with the index provider) but the market has recently been telling us that long-dated derivatives are what they want. So there was a mismatch between what the exchange was supplying and what the demand-side wanted. This has now been fixed. Frankly we should have had longer dated contracts from the beginning. But you know, in these areas where people come from different backgrounds – the housing people have no background in derivatives, and the derivatives people have little housing

experience – I don't think it's surprising that we had a period where the two sides had to figure out how the other business really works.

Long-dated derivatives are the future for this industry, even though this runs counter to the trends in other areas of the exchange. The market clearly wants long-dated futures, and options on futures. Houses sell and buy in a much more intermittent fashion than (for example) interest rates, and the price risk experienced by home dwellers is at least a three or five year time frame or even longer. So that's a whole new way of thinking, and for housing derivatives – if we're right, and the market's telling us the truth – the liquidity's in the back months.

SJS So housing is quite unusual

JB If that's what happens [liquidity in the back months] it would be unique. It would be different to any other derivative, and that's why it's interesting, because what you are effectively doing in that context is creating a standardized home equity insurance contract. Without calling it insurance, that's what you've created. The term hedging generally refers to ameliorating short-term risk but what we're talking about here is price risk in houses over the longer term. It's a bigger risk than interest rate risk and it's a longer period risk because of the way housing markets work. So it's about insurance. For housing derivatives, the trend really is your friend. Things turn very intermittently in the business of property and therefore shorter dated contracts are not needed for hedging because there's more certainty in the short end.

SJS So if it were to work, this idea of long-dated futures, would it mean that housing is altering the way exchanges traditionally work? Would that be an overstatement?

JB No, it's not an overstatement. I think it is true and it could embrace insurance of other kinds too. Long-dated contracts make sense. It certainly makes sense to me as a home owner. I look at the time horizons and the home equity concerns that I would have are all long-dated; unless I want to move in the next six months to a year I am not interested in the short term.

SJS In this new financial world that housing derivatives will create, is volatility as critical as it used to be?

JB Volatility is important, but it's volatility measured over years and not quarters that matters. It's still volatility that you have to apprehend, but you have to price for a different pattern of volatility. Black-Scholes doesn't price well when you have this type of trend behaviour, for example; you can't use Black-Scholes to price housing options because the nature of the uncertainty is different. Ironically, older pricing models work better for housing.

SJS There are a lot of exchanges around the world; indeed there are several in Chicago. Given that it was a UK exchange that tried it all those years ago [the London Futures and Options exchange in 1991]; why was it the CME that took this idea forward for the twenty-first century?

JB CME revenue is attached to different "quadrants" of business: namely, interest rates, equities, currencies and commodities. But there is one big asset class missing, namely property. Property is the next big piece of any financial pie. So adding property to equities, bonds, currencies and commodities is a

logical extension of CME's long held and effective strategy of being vertically integrated across a diverse set of platforms. That's the idea.

SJS So you're saying that there is a CME way of looking at the world which makes it easy to take property on board.

JB Right. If you're making money from trading in four areas, then if one area falls back down, the other three pick it up so there's always something happening to keep the volume up. You've got diversification of your revenue streams across four giant parts of the financial economy, and adding a fifth increases this range.

SJS So you look at equity and bonds and you say, real estate is worth as much . . .

JB It's worth more. So you say: "Look the way we'll add new businesses is to scroll through the biggest opportunities and work at them first." And housing is clearly the biggest asset class out there that's missing. It's a giant asset class which no-one has yet brought on board. And that is the challenge.

We've tackled Eurodollars and interest rates; we're done with big currencies. There's nothing else to look at. In expanding the operation we don't ask "where can we earn another line extension within the equity business;" we say "what is the really big asset to draw in." And that's clearly real estate. So what we hope is that electronic trading allows the marginal costs to fall and that some kind of structural change is underway in the market and that the exchange can wait long enough for trade to pick up. Which it will. Price risk will shift back into the banking system in such a fashion that finding a way to get rid of that risk becomes the issue of the day. And these contracts contain the solution of that issue and the market will takes off.

The funny thing, though, is that, in many ways, because of developments in the banking system around commercial real estate indexes, that – commercial property – is really a far more logical starting point than housing. There is much less leg-work and a much greater chance of success in the world of commercial real estate derivatives. But there is a finite number of players and the decisions they take can really change who moves first and who moves at all.

SJS Aren't the best housing indexes better than the best commercial property indexes?

JB In the United States context housing indexes are difficult. The United States is so big that we have a lot of regional variability in regulation and data availability. For example Texas is a non-disclosure state. You can't get housing data from Texas. The better indexes may be for jurisdictions outside the US because the US is simply too big to get the indexes right, even on a national level.

SJS So can we have a minute on indexes. What I'm curious about is this. For the purposes of a market like this working, really taking off, to what extent is the accuracy of the index important *vis-à-vis* perhaps some other considerations around the benchmarking process?

JB Well, accuracy is a recent pre-occupation. Early stock indexes were not that accurate, for example. But we have had a revolution in the ability to collect data through the internet and computers and the complex modelling that has been invented to fill in the gaps will soon no longer be needed. Look at the UK.

You have a homogenous system and a system of government that's securely functioning over the entire area in which the data are collected, you have land registry data available every month and within three months of a sale, 99 percent of the data are in.

SJS It's curious then that the only derivatives trading so for in the UK uses the Halifax index; a hedonic index based on the loans provided by one lender.

JB Which is true. But this reflects a mismatch between the language of housing derivatives trading today and the longer dated "insurance" derivatives that I'm proposing here. People who trade the HBOS index are traders and speculators in house prices. It's really not the same crowd that's going to trade in a long-dated future. In name they are all housing derivatives; but in practice they are two different types of product which are not really in competition. The liquidity I'm talking about is coming from mortgage insurers, mortgage insurance providers, and home owners with principal risk. Contracts using the HBOS index probably won't be useful for long-dated housing insurance contracts, first because it only gives you the mortgage footprint of the lender, and then because the proportion of the mortgage market it accounts for has been shrinking.

SJS You're the first person I've spoken to that has questioned the Halifax as the index *de rigueur* for UK housing derivatives.

JB HBOS is not the hero here. The house price index is from a different period in time, and was never designed to be traded as a derivative. It would have to be reformed in order to be successful in the new world we are discussing. In the long-dated context the HBOS index has serious problems, in my opinion. Because you will have to bet not only on the price index itself but on the composition of the data that underpins it, and that will be prefaced by the business model of the bank – all of that would have to be factored into a settlement going out 3 or 5 years. The index developments that have emerged in the past few years are going to enable a totally different market.

SJS So what you're saying is that lender-generated hedonic indexes are not the kind of indexes that will support long-dated exchange-traded derivatives that have an equity insurance role?

JB Correct. We are looking here for a different set of players to provide the liquidity. We are not looking at the short-end speculators; we want something to protect housing providers, in a long-dated context. So the answer is to look to land registry data where you can get practically 100 percent of the transactions after just three months. You don't need a model; you have all the data, in enough volume to divide it by type – terraces, and detached and semi-detached – and by fine-grained geographies. So you're looking at a very different world to that constructed by Halifax / Nationwide indexes. What's happening sounds the same by virtue of its name – a trade in housing derivatives – but it's a totally different business.

SJS And in this context are people interested in trading, for example, Nottingham versus Bradford, or are they interested in Nottingham today versus Nottingham tomorrow?

JB Both. Furthermore, in the commercial context we're trying a list of indexes – a transaction-based index, a valuation index, maybe a rent index, and so on – and I don't see any reason that we wouldn't pursue this same approach to

housing benchmarks. I'm not convinced that where we are with the "gold standard" on housing indexes in the United States is anywhere near where we need to be. And I am increasingly convinced that the non-US areas may move first because the problems in data collection and acceptance are much lower, simply because smaller housing markets are less complex. In many ways the complexity associated with benchmarking housing derivatives the United States has overwhelmed the scale and value of the market. So the first sustained move may yet come from a smaller country with a more uniform government system that is able to supply the data in a more complete fashion. England could be the leader once again; it's certainly achieved this in relation to commercial real estate. The market in the United States may pick up by mimicking it; the UK experience may help resolve data problems in the USA.

SJS Isn't that curious?

JB Yes, it is. It's fascinating. But it makes sense. In the US you either have to eliminate massive chunks of the housing market, or let people see that the data footprint you're working with is very incomplete. This is way behind where the UK land registry is as a data resource today.

SJS So opening up the land registry could be a deciding factor for the UK market?

JB Yes. It's a good example of a key role for governments in creating markets – a role that people tend to overlook – namely, the provision of information. Government-led improvements in information can help catalyse markets like this. And then the dinner-party discussions will change. People will worry less about buying at the top of the market. They will close the deal and sleep easy at night. Your adviser will say: "Well, we're looking at your portfolio of assets. You're a home owner and you've got 60 percent in real estate, lets go short 5 percent of that just for diversification."

You can see that happening. Or you could see somebody, you know, buying futures to cover some period over which they will sell their house but want to retain some exposure to the market – so they stay with a contract for a year or two without losing their place on the housing ladder. And it will go further. You could easily imagine people saying: "Let's lose the downside risk, and, you know pay 3 percent premium on the upside." And so on. Language like this will enter people's vocabulary and housing assets will trade in a different way.The market will become more rational and less risky for households.

At the moment, home buyers select property on the assumption that if it's going up, the price will continue to rise; and if it's going down, they decide it's too risky to buy. Whereas institutions do the opposite: they stay out of things that are too high and buy assets whose price is too low. Institutions are comfortable with the idea that markets mis-price and they take advantage of it. In the future, home buyers will – by following the recommendations of their lawyers and advisers, and those who provide retail products using derivatives – be in a better position. Lawyers will say (for example): "OK, you're going to buy this big house in Chelsea for £2m, but did you know that the futures market is predicting a 30 percent drop in the next three years? That means £600,000 will disappear from the value of your house." Even if the buyer is happy the bank will not be, and some form of home equity protection will have to be developed.

SJS We've been talking about hedging, but do you think there's interest in the other side of the equation – in the idea of buying into the performance of housing markets without holding the property?

JB Actually, I don't see that at this time, mainly because of inertia. Property has so many intermediaries already, and with a recent breakdown of trust, there's confusion about what can be done and how you can do it. The home owner is in a long chain of intermediaries, brokers, advisers and contacts; when they get to the end of it, are you going to tell them: "Ok, so you went through 20 signatures to get your house; guess what – I've now got to train you in the language of finance so you can figure out how to insure the risk!?" Obviously, they're going to glaze over and say, "forget it, no thank you." People don't yet realize they can circumvent all that intermediation with these contracts. When they do, the market may take off.

SJS What about big institutions? I mean, they're notoriously under-exposed to property aren't they?

JB Futures contracts would work for them as an investment. I expect they are among the players out there who are asking for longer dated futures. But we still haven't found the tool that brings property professionals and financial markets together in a way that links the two and gets everybody comfortable. When we do it, it will mark perhaps the last major reform of the macro economy. It will tackle the biggest asset class with the greatest problems today. You know, if you got rid of bubbles in real estate, so that people were not the victims of speculation in their house purchase, in the acquisition of a home – imagine the social significance of that. It's huge; in a modern world, it's probably the most important issue. What you're doing is reforming a pricing system that doesn't really work. It may, or may not, feel as if the housing system has been broken by recent events; either way, housing is a market that needs to be fixed.

SJS Are you saying that if this market took off, it would change the way the underlying market works?

JB Yes. In ways that would improve everyone's life because you would be able to invest in your home without taking on the risk that has been added by speculators, whose competition you didn't ask for or want. You wouldn't have to buy at a high price just because you needed a home in a neighborhood where prices have been driven up for other reasons. And you wouldn't see your sale price sink too low because buyers lost confidence and values went down for three years more than they needed to. The highs would be lower and the lows would be higher; there would be less stress for buyers and greater certainty for lenders as well as a more equal distribution of wealth that's not skewed by speculation. How fair is that?

SJS It's an intriguing vision. The big question, of course, is can it ever work? It's been tried before, and failed; and the CME's new attempt has been slow, for reasons you've outlined. What next?

JB Well, I'm pretty certain that commercial property derivatives will take off. To an extent they already have: partly because the indexes are better and more comprehensive; and not least because the commercial property industry provided the impetus and incentive for this. You might say: "why didn't this happen for home owners; why aren't they outraged by being exposed unnecessarily to

massive speculative frenzies in their asset base?" The answer is that they previously had no alternative; and in the long run things worked out. So the banks let them carry that risk and the government took no interest in the imbalance. So there is historical inertia. And, as I mentioned earlier, there are issues around data which, again, are not just technological. In fact, they are probably more political than technological. But we always knew that half a century of long-run growth would end sometime soon, and that banks and home-occupieres would ask questions, and that governments would need to respond.

So hopefully they will. To which end, in my view, it is the insurance need that is the driving force – the social welfare aim; the noble purpose story. The investment side – the speculators – they are part of a different tradition, and that side that will need to come into line. Part of the appeal of long-dated futures is that contracts closely match the kind of decisions that home-buyers and small investors have to make. I don't buy for five years; I don't sell for five years. The contract intervals need to match my life events. You know, you get married, you get a bigger house; you have kids, you get a bigger house; the kids leave, you get a smaller house. Those things happen over a life-course, so longer dated futures are what the market needs.

SJS What will be the catalyst for this to happen?

JB That is the big question; how to pull it off. Well, the Syracuse (home equity protection) experience has shown that the banks will contribute; they will pay part of the premium. This is the kind of partnership you need to build a retail market. Your bank will call you up and say: "your loan to value ratio: as far as we're concerned, it is getting too low because of price pressure; let's split the cost of managing it." That's the call you will get in that new world of housing finance. I phone you up at home and say: Susan, I own your mortgage, and you didn't know – but I do – that home prices in Durham are going to go down by 5 percent over the next year and in two years time, your loan to value ratio – which you thought was 25 percent – it's going to be 15 percent and I highly encourage you to act." And the way I encourage you is to split a premium on a put option so we can both get rid of that risk. That's the conversation we have.

SJS But will this really work; will it build liquidity and make for a viable market?

JB Well you certainly need a big authority – probably a government – to step in. And lenders too need to recognize that they do (and should) carry price risk. I guess you could imagine a mix of three scenarios: the home buyer who needs protection against a volatile market; the concerned government; and the banks. But there is some way to go. Will an exchange like CME keep the opportunity open? Well in the past, they have kept trading open on slow markets for three or four years. But any more than five, and you're getting into a grey area: and it's not just the costs; people get bored and move on. I think we need to mix US, UK and European initiatives and concentrate on both residential and commercial. You need to offer seven or eight indexes and keep them on board even if one or two are not trading. The role of the exchange then is to provide the common clearing context to accommodate a rising tide of activity.

SJS And how much does it matter from the point of view of a big exchange like CME whether it happens or not? It's a big class of assets, so I can see why it's appealing. But for a major financial exchange – is it a passing interest?

JB Well a lot else is going on. But then it's not that expensive to keep the market open. So if it takes off, we'll get the resources to build it further. Action on the Exchange's part creates reaction! But if it's not going anywhere, at some point they will pull the plug. Personally, I don't think, given the size of the opportunity, the markets will pass it up. Key will be finding success in the commercial property sector and using this to boost the much, much bigger issue – residential property derivatives. That would be an advantage for the exchange, but a benefit also for society as a whole. So: go in with the commercial, learn from the index providers, let liquidity commingle, and then get some spread from one (commercial) to the other (residential). That's the vision I have at this point.

22.4 Residential Property Derivatives: The Role and Relevance of Over-the-Counter Trading

Peter Sceats

Peter Sceats of Tradition Property, one of the key architects of the market for residential property derivatives, talks about his role as a trader and broker with Susan Smith. In these extracts, Peter Sceats explains his views on the importance of over-the-counter trading for the development of a viable (liquid) market for residential property derivatives. Drawing primarily on the experience of the UK he describes how significant the innovation of commercial property derivatives has been in stimulating interest in the residential sector, and he argues that over-the-counter brokerage is more likely than exchange trading to bring this market to life.

Background

SJS You are a broker for over-the-counter trades in residential property derivatives. How does this work?

PS In most asset classes, you have the possibility to trade a simplified on-paper representation of the asset, rather than the asset itself. One does not need to buy physical gasoline on a tanker in New York Harbour or buy a stockpile of coal in Rotterdam in order to speculate on the oil or coal price. Instead you can enter into a standardized contract with a counterparty, that is, with someone who has the opposite interest to you in whether prices go up or down.

In housing, one counterparty may own a residential property portfolio and see the trade as a hedge against falling house prices. The other may believe house prices are not going to fall and see the trade as simply a bet. Such a deal – essentially a speculation on future house prices – is called a derivative. Residential property derivatives are literally "the on-paper representation of house price risk." They are, in effect, "virtual property."

In an over-the-counter setting, two counterparties with opposing views are brought together by a specialist broker. This over-the-counter transaction is the only vehicle for residential property derivatives trading in the UK at the moment. There is no futures exchange with traders in colourful jackets shouting their bids and offers, neither is there a trading website or electronic exchange for UK home prices apart from occasional bursts of interest from one spread-betting company or another. So the UK residential property derivatives market is exclusively an over-the-counter (OTC) market, meaning that it takes place over the phone between dealers and the counterparties take care of their own credit risks. The broker provides anonymous price discovery and an effective dealing hub where transactions can privately take place.

At the Think Tank on Housing Wealth that sparked the idea for this collection, two very different ideas were put forward as to how house price risk may be handled in the future. Some promoters of the housing futures contracts in the USA anticipate that individuals will play a key role trading around their home value on their own account. Those on the OTC side of the tracks, on the other hand, see banks and other large institutions as key to trading in the residential property derivatives market. These larger institutions, in turn, can use the flexibility derivatives bring in order to offer increasingly creative products into the retail market, such as mortgages whose payments reduce when house prices fall and savings accounts linked to house price inflation.

It is therefore important to note that the OTC market in UK residential property derivatives is almost exclusively set at the wholesale level, which means it is designed for institutions such as banks, pension and insurance companies, house-builders, developers and other companies experienced in trading on financial markets. With the smallest deal size being £5 million, one can see the market is not, and should not be, open to the general public.

The feasibility and appeal of residential property derivatives

SJS So why are housing derivatives attractive to someone like you? After all, housing is mainly owned and traded by ordinary people.

PS Property is the biggest asset class in the world, and risk exposure in property historically is not managed. People think derivatives are risky, but the most speculative thing you can do in relation to property is buy the building! A much more risk-averse approach would be to buy the physical residential portfolio (as an investment) and sell the equivalent amount of residential swaps as a hedge. So in themselves, derivatives are not risky or (necessarily) speculative.

Being a derivatives person, that's been engaged in developing new derivatives markets – and I've done them both in coal and electricity, and to a certain extent oil when I was younger – the chance to work to develop a derivative form for what is the end game of asset classes (property) is a chance not to be missed. When you look at the four main uses for property derivatives – hedging, investment, speculation and gearing – you can see that derivatives are really about flexibility. In any kind of investment endeavour, flexibility is value. That's why property derivatives are not to be missed.

SJS So why didn't you do property before you did coal or oil?

PS It was about the bounds of possibility. I was at the forefront of developing the coal derivatives market, and at the time I could see that it was well within the bounds of possibility. Electricity liberalization meant that there was competition on the sales side of it, and that kind of volatility had to flow back through the power station asset into the feed stock fuels. There was already a working derivatives market in gas; and a very well established one in oil (not that oil is used quite as much as it used to be for power generation). The last one left was coal which was responsible for 50 percent of the world's power generation. So electricity liberalization brought the coal derivatives market within the bounds of possibility.

Now, I can remember looking at the potential for property derivatives for the first time in 2002. I looked at it then and discounted working in it further, principally because by that time there was already a spread-betting market that was failing to grow. So I figured that there must be other kinds of areas and institutions better placed to play the derivative market. So back in 2002 I didn't see property derivatives as commercially within the bounds of possibility. If in 2002 I'd have taken the same kind of stand that I did in 1997 with coal derivatives – and for a while there I was just about the only person in the market that thought the world needed a coal derivatives market – would it have got things off the ground earlier? Well, I don't know, but I would guess probably not.

SJS 2002 was the wrong time?

PS Yes. In the UK there were a couple of hurdles that needed to be cleared to basically lay the foundation for a property derivatives market and those things happened in 2004 and 2005. There was an accounting change that allowed derivatives to be expressed on balance sheet, and there was also a FSA [Financial Services Authority] rule-change that allowed insurance companies to hedge with derivatives. And so, those things – although I guess at the time they probably looked like quite innocuous regulatory changes – when you trace it back, you can see they were potential hurdles to getting the property derivatives market going.

Commercial property derivatives as a first step?

SJS Where does commercial property fit into all this?

PS The attractive thing to a derivatives market builder, like myself – a builder of markets in property derivatives – is that the ownership of commercial property is quite centralized and consolidated around a few large players, and there's a very dominant benchmarking company. And you know, having an acceptable benchmark, that most people broadly believe in, is the precursor to getting a cash-settled derivatives market going. In commercial property we're blessed with the company, IPD [Investment Property Databank] who are very much part of the fabric of the business and I think that's why the commercial derivatives market has probably had a bit more focus and has led the way.

Furthermore the input and work of (banking) groups like Barclays in this whole thing should not be underestimated. They were out there with their property investments, their PICs (property investment certificates); and that was as early as the mid 1990s. And although that (a PIC) is actually a fully paid up floating rate note, it was the first such product that used a property index. So there is a bit of a natural progression, from PICs into cash-settled derivatives of a form that somewhat replicates real estate ownership, into residential property derivatives. Because "resi sits next to commercial." Everyone knows that.

So the point is, we wouldn't have the same kind of focus on the residential derivatives market if there wasn't a commercial market sitting next to it . . . Those accountancy and regulatory changes that took place basically gave a kick towards the commercial side, but this made people additionally focus on what might be possible with residential property.

Matching the heartbeat of the market

SJS Can you talk to me a bit about the question of appropriate derivatives; about the design of derivatives, and what's likely to work for the residential sector?

PS Well being someone that started off in the futures market, and came to the OTC market, I've got experience of both. And my more recent experience tells me that the derivative form to choose is the one that matches the heartbeat of the underlying asset class. And as such, I could have told you that FOX (the London Futures and Options Exchange) would have failed in its attempt to sell residential property futures in the early 1990s. In fact I was in the markets during that time and was one of many people who forecast that that would fail. This is because futures markets have a very fast heartbeat. They need the oxygen of hourly turnover so they don't stagnate.

SJS Does that have to be the case for futures markets?

PS No it doesn't. You can launch a futures market and have it sit there and only deal once every month or once every two weeks. But the growth of futures is very much linked to how much focus there is on that price, or on that screen, at any one time. And if you've got the focus of 60 companies and 120 traders all on a set of prices, and they have reasons to change their position intra-day, then you'll undoubtedly get turnover on a futures market.

That's what you see in oil. In oil the pricing is daily, you know there's index price fixes daily and physical oil deals happen daily. Large ships can be unloaded into smaller barges during one day. And as such, people's physical risk positions in the oil market change on an hourly or daily basis. That gives oil traders a reason to be in the market, changing their own hedge positions on an hourly or daily basis too. Further you've got the oil fundamentals, or news reports about the oil fundamentals, feeding into the market each minute. And sometimes, with those news stories, oil traders will have again a reason to change their position.

Now with that type of market, where you have got a global benchmark for crude, it makes sense to have a futures market from the "get go," because the underlying market place has got a very high heartbeat, you know, a very high rate of physical activity, taking place in small lots, and you've got a futures market that replicates that – that gives people a hub upon which to express their risk appetite.

So oil is a market that's got a daily heartbeat and intra-day reasons to change your position. But residential property probably has something approaching a monthly heartbeat, in that the index varies monthly. And commercial property, up until this last year anyway, has had an annual heartbeat. So it's clear that the larger portfolio players would not have a reason to change their positions daily, or hourly. And so, if you had launched a futures market from the moment (residential) property derivatives became viable from a regulatory point of view, in 2004 – if that futures market [rather than the OTC sector] had done the first UK deals – then I think that the market would probably have gone the same way as FOX.

A futures market in residential property is still on the cards. In fact, at some point we could have a very interesting futures market on home prices, because arguably the amount of participation you could get – the amount of opinions that there are on the direction of home prices – when expressed through orders down onto a financial exchange, could create a very interesting market. But not at this point. It costs quite a lot of money to get a futures market on the road, and, you know, futures is the derivative form that most needs the energy of high frequency turnover. There is a time in the evolution of these markets where the faster derivatives form works well. But we haven't quite got to that point yet. And even then, a viable property derivatives market could never be built only on exchange-traded futures.

SJS So what does an effective over-the-counter derivative look like?

PS There are many types of derivative but the form chosen for the residential property derivatives market is the most simple. It is a "fixed for float" swap or contract for difference, or in plain language, a simple bet on the future out-turn of the house price index. For example, if the current house price index (hpi) is 640.20, this means the average UK house price is £197,817. If you think the index will be higher than this in, say, five years time, then you buy an hpi swap. Conversely, if you think the index will be lower than this in five years time, then you would *sell* the swap.

SJS So for these early days, where does exchange trading fit. Do you need an exchange to be involved at all?

PS I would say that we do not necessarily need exchanges involved in this market because it's not clear that they bring anything to the party aside from centralised clearing of derivative positions. And in 2009 with a largely state supported banking sector I am not convinced the market needs a third party agency standing between banks and clients.

We have been working day to day, week to week, to *build* the market; and if exchanges simply turn up, lift a contract and hope, I don't see them as adding much. In fact, if I could ban the electronic trading of property derivatives,

I probably would. Voice broking is so much more appropriate for these instruments, which need education and risk management consultancy as well as the exchange of risk.

What could most help us bring liquidity to the market is further exposure . . . Basically if I were able to double the amount of banks that are active, you know, in residential derivatives now, I would probably quadruple the amount of business that we do.

SJS So it's a matter of getting the big players in?

PS Exactly. Yes, we just need more big players, really. And as I have said before major players in big asset classes are often wary of change. It was the case in oil, coal and electricity and it is the case in property too. But this is completely understandable, and an accepted part of the fabric that I, and people like me, work with. Pension companies, asset managers and hedge funds are making very conservative entries to the market at their own pace. And there are lots of firms both on the commercial and residential side who won't ever touch the derivatives. The property companies have been largely absent from the market build and are paying the price for not hedging right now. But I have worked in emerging derivatives markets nearly all my career, and it is my judgement that property derivatives have better ingredients than all of these, and will go on to become a major market place.

SJS And the effect of the current uncertainties?

PS Generally, the thing that kills derivatives markets is a lack of volatility. If you want to take the wind out of a derivative market's sails, you have a price that doesn't move. So I think we're in a very interesting time in the housing market, which has increased people's awareness of, and focus on, price. Volatile prices are a better backdrop for derivatives. I quite like the volatility and the downward moves of late because I run a broking desk and personally sold my house in September 2007. Well I am meant to be an expert!

As a catalyst that makes people think about where home prices should be in three year's time – that makes the big actors think about how to make housing markets more efficient in the long run – volatility is a good thing.

SJS So would you say today that a market for residential property derivatives remains in the bounds of commercial possibility, or will it have to be shelved while the markets sort themselves out?

PS Well of course we already do have an OTC market, and if only those with institutional house price risk were more open-minded it could have helped in this down turn. But if your question pertains to futures then I would say that such a contract developed and owned by one of the established big named Exchanges is beyond the bounds of commercial possibility. Those firms are simply not as equipped as those of us in the OTC sector to deliver what is needed. And in any case we are mid-recession and everything any investor ever owned is worth a third or a half less than it was two years ago. It is rough time to launch new stuff.

There are other ways to approach the building of the property derivatives market, based on over-the-counter dealing. We at Tradition Property are working on some of these right now. And the government could help by making hedging with derivatives mandatory when residential lending reaches

a pre-agreed risk limits. In fact, we have proposed to government a cap and trade scheme similar to the one used in the carbon emission limitation market.

Our idea is that the UK and EU can avoid a recurrence of over-lending by adopting something similar to a cap and trade approach in the real estate lending space. Banks would be able to lend up to a specific percentage of their worth (adjusted by their *de facto* real estate exposure), and should they wish to lend additional sums they would need to enter the property derivatives market to reduce their property exposure by hedging. The price at which others would buy property derivative exposure would tell the would-be lender what a free market really thinks about forward property prices. This would facilitate a transparent forward clearing price for Europe's biggest asset class and act as an early warning and the basis of a forward planning system.

22.5 An Interim Solution?

John Edwards

John Edwards is a founding shareholder and CEO of Residex, a company established in 1990 which is dedicated to providing quality information on the residential real estate market to government, financial institutions, valuers, real estate agents, accountants, solicitors and individuals. As well as monitoring house returns over time and across Australia, Residex is involved in product development using housing derivatives. In his overview of the "state of the art" in Australia, John Edwards argues that while households have something to gain from a market in residential property derivatives, this is an interim solution. It should not deflect attention away from more fundamental questions and goals concerning the planning and provision of affordable, sustainable housing.

22.5.1 Introduction: back to basics

The key function of housing is to provide shelter: to meet the accommodation, subsistence and support needs of individuals and families; to offer security of tenure, contribute to safekeeping, and provide the basics of home life. All of this comes at a price, and the challenge for countries like Australia is to keep these costs manageable. In this, there is limited success. Currently, for example, there are only three State capitals in which housing outlays for home buyers account, on average, for less than a third of households' gross incomes (Table 22.1). In Sydney, the figure is close to forty per cent. This is the cost of the high capital returns on housing investments that property owners have accrued across the nation in the last half of the twentieth century.

This period of high capital growth followed a period of very high rental yields and un-affordable rental housing. A gradual freeing of credit markets from the 1950s brought about the change. It became cheaper to buy by borrowing (with a mortgage) than it was to rent. By the late 1990s, however, rental yields had become

Table 22.1 Housing affordability in Australia

Area	*Median value ($)*	*Estimated loan*		*% income*	*Rent ($)*	*% income*	*% rent yield*
		Income ($)	*Repayment ($)*				
Houses							
ACT	457,500	96,020	2,358.14	29.47	1,793.79	22	4.71
Adelaide	368,000	73,661	1,896.82	30.90	1,280.07	21	4.17
Brisbane	442,500	80,822	2,280.83	33.86	1,504.42	22	4.08
Darwin	450,500	101,524	2,322.06	27.45	2,056.96	24	5.48
Hobart	349,000	64,672	1,798.89	33.38	1,300.99	24	4.47
Melbourne	471,000	76,969	2,427.73	37.85	1,620.26	25	4.13
Perth	480,000	86,215	2,474.12	34.44	1,473.68	21	3.68
Sydney	556,500	87,740	2,868.43	39.23	2,084.07	29	4.49
Units							
ACT	369,000	96,020	1,901.98	23.77	1,648.78	21	5.36
Adelaide	283,000	73,661	1,458.70	23.76	1,061.64	17	4.50
Brisbane	344,000	80,822	1,773.12	26.33	1,350.73	20	4.71
Darwin	344,000	101,524	1,773.12	20.96	1,666.56	20	5.81
Hobart	252,500	64,672	1,301.49	24.15	1,058.37	20	5.03
Melbourne	363,500	76,969	1,873.63	29.21	1,416.96	22	4.68
Perth	372,500	86,215	1,920.02	26.72	1,313.99	18	4.23
Sydney	398,000	87,740	2,051.46	28.06	1,829.70	25	5.52

Note: As at 31st January 2009.
Source: Compiled by Residex Pty Limited from data collected by Residex

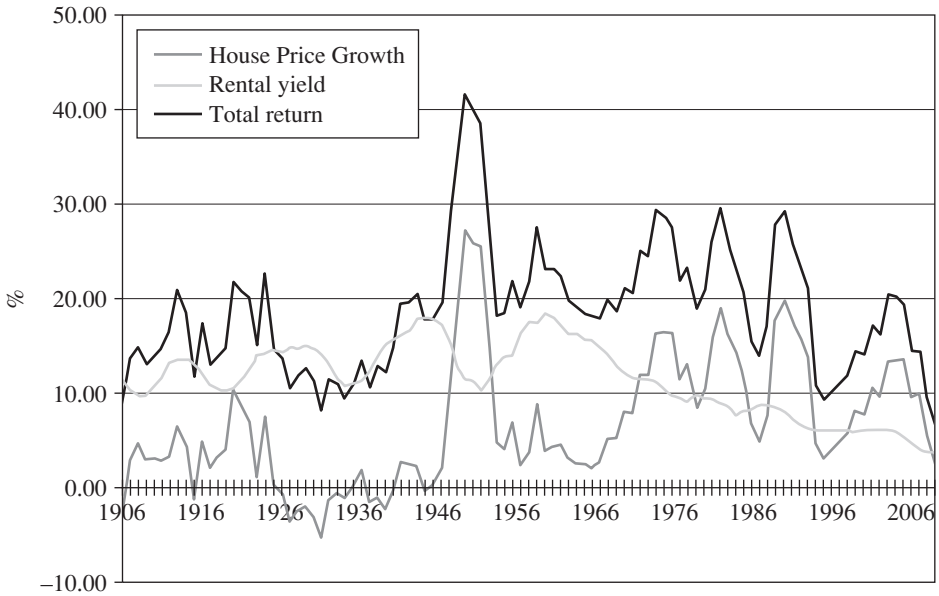

Figure 22.7 Sydney houses 1906–2008.
Source: Compiled by Residex Pty Limited from data collected by Residex. As at January 31 2009

the lowest in recorded history (see Figure 22.7, which illustrates this for Sydney) and home purchase was no longer the cheaper option. The saving available from renting in fact represented better than 10 percent of gross income across Australia.

Notwithstanding this situation, the ability to borrow, buy and have security of tenure together with the wider benefits of home ownership continue to cause the Australian public to take the higher cost option (owner occupation). It can only be assumed that the public's remembered history of house price growth, and perhaps the insecurity generated by Australia's short term lease tenure[7] arrangements for renting, drives the population to be prepared to pay the current premium for ownership.

Remembered history is most often a few decades and can provide misconceptions about the return characteristics of housing assets. Figure 22.8 tracks house-price changes in one State capital, Melbourne (the capital of Victoria), across almost a century and a half. The two graphs are striking in two ways. First, it shows that, while housing values have not always appreciated rapidly, the total return is usually very good (better than fifteen per cent per year before costs). The second presents two particularly steep and sustained periods of price appreciation: one in the late 1860s; another from the 1950s. Both are periods where credit constraints were less limited, and notably relaxed compared with a previous period.

A further feature of Figure 22.8 is the indication that while, in recessions, home values generally mark time or suffer only slightly, in a depression prices can fall precipitously. Note, the two price slumps on the graph correspond first, to the 1890s depression when values fell by 61 percent in a six year period; and second to the depression of the 1930s, when prices fell by just over a third (35 percent) over ten

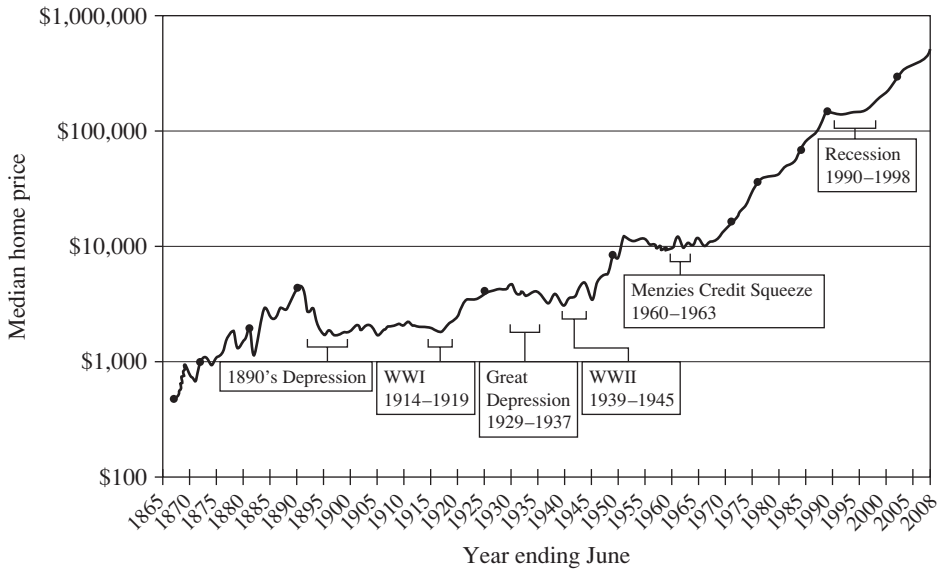

Figure 22.8 Melbourne median house prices (index).
Source: Compiled by Residex Pty Limited

years. So as well as showing good total returns in the long run, the housing market contains substantial investment (price and liquidity) risk at times.

Although economists wrangle over the finer details, house prices in aggregate are driven primarily by supply (on the one hand) and ability to pay (on the other). This is why in a supply-constrained situation (like that of Australia's major urban centres), an era of cheap, easily-accessed credit underpins such steep house price inflation. There may well be emotional drivers – fear, greed and so on – but these would not figure if the fundamentals were not favourable. There are two obvious ways of tackling the problem of affordability that such a long-wave of price appreciation created. Both are likely to occur only in a situation of a serious economic down turn. These are represented in Tables 22.2 and 22.3, which suggest that for the average mortgage with a loan-to-value ratio of 80 percent, a strategy which *either* reduces prices by 35 percent *or* halves interest rates from 6 percent to 3 percent would bring the costs of owner-occupation more into line with the costs of renting. At these levels, housing outlays would be between a fifth and a quarter of incomes; and on average, they would be affordable. It is arguable that both would potentially have no beneficial impact on rental costs (to tenants). The former in the medium term would probably reduce the investor's appetite for investment (in properties to let), reducing the size rental stock, while the latter would probably, in the medium term, put upward pressure on house prices and hence generate the need for higher rentals to maintain acceptable returns.

While the serious economic downturn is a current situation in most of the world neither of the above events in Australia look particularly likely. Even if home loan rates did fall to this low level they would not remain there. The fall in house prices

Table 22.2 Price adjustment for affordability: the impact of a 35% reduction in values

Area	*Median value ($)*	*Estimated loan*		*% income*	*Rent ($)*	*% income*	*% rent yield*
		Income ($)	*Repayment ($)*				
Houses							
ACT	297,375	96,020	1,532.79	19.16	1,793.79	22	7.24
Adelaide	239,200	73,661	1,232.94	20.09	1,280.07	21	6.42
Brisbane	287,625	80,822	1,482.54	22.01	1,504.42	22	6.28
Darwin	292,825	101,524	1,509.34	17.84	2,056.96	24	8.43
Hobart	226,850	64,672	1,169.28	21.70	1,300.99	24	6.88
Melbourne	306,150	76,969	1,578.02	24.60	1,620.26	25	6.35
Perth	312,000	86,215	1,608.18	22.38	1,473.68	21	5.67
Sydney	361,725	87,740	1,864.48	25.50	2,084.07	29	6.91
Units							
ACT	239,850	96,020	1,236.29	15.45	1,648.78	21	8.25
Adelaide	183,950	73,661	948.15	15.45	1,061.64	17	6.93
Brisbane	223,600	80,822	1,152.53	17.11	1,350.73	20	7.25
Darwin	223,600	101,524	1,152.53	13.62	1,666.56	20	8.94
Hobart	164,125	64,672	845.97	15.70	1,058.37	20	7.74
Melbourne	236,275	76,969	1,217.86	18.99	1,416.96	22	7.20
Perth	242,125	86,215	1,248.01	17.37	1,313.99	18	6.51
Sydney	258,700	87,740	1,333.45	18.24	1,829.70	25	8.49

Table 22.3 Interest rate adjustments and affordability: from six to three per cent
Compiled by Residex Pty Limited from data collected by Residex. As at 31st January 2009

Area	*Median value ($)*	*Estimated loan*		*% income*	*Rent ($)*	*% income*	*% rent yield*
		Income ($)	*Repayment ($)*				
Houses							
ACT	457,500	96,020	1,735.61	21.69	1,793.79	22	4.71
Adelaide	368,000	73,661	1,396.08	22.74	1,280.07	21	4.17
Brisbane	442,500	80,822	1,678.71	24.92	1,504.42	22	4.08
Darwin	450,500	101,524	1,709.06	20.20	2,056.96	24	5.48
Hobart	349,000	64,672	1,324.00	24.57	1,300.99	24	4.47
Melbourne	471,000	76,969	1,786.83	27.86	1,620.26	25	4.13
Perth	480,000	86,215	1,820.97	25.35	1,473.68	21	3.68
Sydney	556,500	87,740	2,111.19	28.87	2,084.07	29	4.49
Units							
ACT	369,000	96,020	1,399.87	17.49	1,648.78	21	5.36
Adelaide	283,000	73,661	1,073.61	17.49	1,061.64	17	4.50
Brisbane	344,000	80,822	1,305.03	19.38	1,350.73	20	4.71
Darwin	344,000	101,524	1,305.03	15.43	1,666.56	20	5.81
Hobart	252,500	64,672	957.91	17.77	1,058.37	20	5.03
Melbourne	363,500	76,969	1,379.01	21.50	1,416.96	22	4.68
Perth	372,500	86,215	1,413.15	19.67	1,313.99	18	4.23
Sydney	398,000	87,740	1,509.89	20.65	1,829.70	25	5.52

needed to provide long run affordability would have to be more than the 35 percent, and the economic impact on the nation would be politically unacceptable. In this situation governments could be expected to take action to avoid such an outcome. The more likely outcome, in my view, is stagnation in house price growth with increasing rentals for the next decade.

The real medium term solution, however, lies in the fact that the total[8] return from a portfolio of housing is very acceptable with low levels of risk. Further, the asset presents an unusual feature, namely that the very attributes which make it unattractive as an investment for large fund managers can be turned to the advantage of the investor if the asset becomes a collective group of houses – a basket of properties rather than a single indivisible structure. The small unit size makes it easier to spread location risks; the user of the property can be the manager of the asset with aligned interests; and the cash flow credit risks become widely spread providing obvious benefits. Yes, the political return risks remain but in reality each asset group contains these risks of some type via our environmental, taxation and consumer protection legislation of today.

Hence the real medium term solution to the financial risks of housing addresses the equity side, and is most appealing. It reduces the need for credit, however cheap or costly it may be. It will be based on the use of new financial instruments to reduce monthly tenure costs. And it is an interim solution. The longer-term solution turns on reducing the costs associated with the production and occupation of homes, in the interests a more sustainable housing future. These options (medium and long-term solutions) are discussed in turn. However, there is a bottom line to which both must operate; and that is their accessibility and appeal to the public. On the whole householders eschew complexity. Active financial management is not the centrepiece of family life; nor should it be. So if the status quo is to change, it will have to use innovations that are easily understood, require little thought, and can be wrapped into a single monthly payment.

22.5.2 Derivatives: an interim solution

A medium term solution to the problem of housing affordability is offered by instruments that have been specifically designed to enable home occupiers to share, with a range of public and private institutions, the benefits, risks and costs of house price dynamics. The instruments in question are housing derivatives; and the idea is not new. Developing such a solution was, in fact, behind the genesis of Residex nearly twenty years ago. To that end, a tradable repeat-sales house price index was first released in 1988 by the founders of Residex; it featured in a paper presented to the International Actuarial Conference in 1992 by Dean Dwonczyk, the other original shareholder of the company. This index underpins one of the world's earliest housing derivatives transactions – a 20 year swap/insurance arrangement between a portfolio of Sydney housing and the consumer price index (CPI). It was executed in 1990. A version of the index is now produced monthly down to a suburb-by-suburb scale: it has been adjusted to remove the inherent problems of the repeat sales calculations; it is non revisionary and is released within 15 days of month end. Today it is recognized as the leading indicator of house price

movements and is used by governments and most major financial institutions. It was the precursor to the development and release of the various house-pricing technologies used by Residex and the public electronic valuation platform offered via FindMeaHome.com.au.

Working towards an "interim solution" to the challenge of housing risk, there will be two different types of derivatives. The first will be a group of short-term instruments, linked to one aspect of the return equation of the housing asset. These will, in all probability, allow holders to bet or cover the short-term future with respect to either capital growth or rental returns. The second will be a group of derivatives, which will be linked to the long-term total return on the asset. This group will present very much in return terms as a house does, that is, with both a rental yield and capital growth linked to market.

Housing derivatives are desirable because they offer institutional investors with an equity interest in residential property the option to shelter their risks. They also make it possible to include property – which provides high returns with low risk – in a balanced and liquid investment portfolio. Housing has always been considered a separate asset class – one that offers diversification and a good return. However, it has not hitherto been regarded as a sensible option for institutional investors due to the small unit size, illiquidity, high management costs and the potential for political interference. There are times and places, for example, where the price mechanism in housing is suspended or managed by legislation (rent control in the 1940s), so that it can be accessed according to need rather than ability to pay.

In theory, derivatives provide a way round these problems. What, in practice, is required to achieve this end? Contrary to popular wisdom, the key issue is not technology, knowledge or intellectual property. It is, instead, counter-party interest; an appetite and need to transfer risks on both sides of the transaction. Investors large and small may be interested in the returns on residential property (in buying housing risk), but they need to be matched with the main holders of such property (those with an interest in selling their exposure), who, in a country like Australia, are households and Government via public housing. In essence, however, the only large-scale housing portfolio holders in Australia are State Governments, and their stock tends to under perform the general market. Hence they are unlikely to readily come to this market due to the pricing risks they are likely to suffer.

The public, the only other large holder of direct housing risk may be inclined to speculate in house price growth derivatives if such an instrument were to be provided on the stock-market. Their activity would in all probability be a mix of simply gaming, and cash flow generation to reduce housing costs. But given the recent stock market corrections the above is largely academic as it is unlikely sufficient of the public would be inclined to venture into new areas of speculation at this time. Then there is the question of whether this market could anyway be large enough without the institutional investors? The answer is probably not. Furthermore, institutional investors would be unlikely to participate significantly in trading an instrument that is built around a single aspect of the total return character of the asset, particularly where that return aspect is under pressure due to increasing un-affordability.

Hence if we are to find counterparties to make a market they are not going to be within the existing group of individual or institutional homeowners, at least in the short term. What is needed are parties with large direct interest in property

across the board. Thus the building blocks of any new derivatives market may have to include the creation of a group of companies or trusts with a direct housing investment portfolio.

The conventional argument is that derivatives should be used to create a vehicle which provides investors with an interest in property (price dynamics) without the associated costs of owning, managing and holding the physical entity that is a home. The usual starting point for a solution is to create a trust or company to provide shared equity mortgages. These vehicles have been around for a few years but have not spawned the derivatives. They have simply not been able to get enough traction from investors to allow them to become large enough to require this added level of liquidity and risk minimization. This, in turn, is a consequence of the perceived risk and return from the vehicle, which is dependant on the underlying asset investment structure. The traditional equity share instrument generally is based around the single return aspect of the asset; that is, capital growth. The home occupier gives up a percentage of their ownership of the asset and in return makes repayment on that portion of their loan. In the future (when the property is sold) they also give up the capital growth on that portion plus growth on some additional portion, which is owned by them. In essence the homeowner may own 60 percent of the property but be entitled to only 30 percent of the growth in the property when it is sold. Assuming house prices continue to increase as they have in the past then the investor will win. The homeowner has lower repayment obligations and hence has affordable housing.

So why has this market been of limited success, with so little traction? The idea seems so appealing in principle that it might reasonably be expected that shared equity solutions would take over the entire home loan market!

One factor is that homeowners have yet to accept that security of tenure can be obtained other than by full ownership. There is little public engagement with the possibility that the cost of ownership is limiting and not necessarily the best method of growing future wealth. Further house price growth, in recent memory has been so good that greed leads to a view that no matter what the cost, it is important for households to own 100 percent of the property they live in.

On the investor side my interpretation of the lack of traction in the equity share market is not that there is a problem of liquidity, technology or interest, but rather that investors are not attracted by the prospect of basing their returns on just one aspect of the character of housing – capital growth. Why would they be, when the very essence of residential property is that its value consists of both housing services and investment returns? This is illustrated in Figure 22.7, which shows that, although the volatility in the total return on housing matches the volatility in prices, the rental yield both adds buoyancy and has a smoothing effect, maintaining returns even when the capital price trend is downwards. A far more attractive financial instrument would be one, which captures both the capital growth and the rental return.

This solution invites an obvious criticism – that it reintroduces some of the problems that derivatives were invented to skirt round. In particular it runs the risk that shared equity schemes built from it will not reduce the costs to households (below that of "whole" home purchase) when rental returns are high. This however presumes that derivative instruments are as "lumpy" as their real-world counterparts, and this is not the case or need not be the case. On the contrary, derivatives extend

a great deal of flexibility in practically every respect, including in the timing and degree of "switching" between rental yields and capital gains.

It should also be remembered that the professional investor has a significantly higher capacity to manage and off set risk than the ordinary householder. Further, the small unit size allows the professional investor to spread the risk across differing areas of a market, which will not be operating in unison.

It should also be recognized that in Australia the long-term lease that provides security of tenure is not normal. But in a more limited and stricter credit environment with low levels of affordability, rental arrangements will become more normal and needed as a real alternative to owning. The shared equity structure can meet this need, providing the leasing arrangements required to provide housing solutions that are not currently available in Australia.

Creating instruments to achieve these ends is an exercise in financial engineering. It is challenging but possible. The critical issue is packaging this solution to meet the key criterion introduced at the outset – it must be easy for households to use. This is achieved in products that I am engaged with by wrapping all the elements into a single monthly payment (into an instrument which feels like a mortgage), which is guaranteed never to exceed an agreed proportion of a households' monthly gross income. This ensures that housing will always be affordable.

In practice the proportion of the value in (investment return on) any home that the occupier actually owns, and the proportion that they effectively rent will vary; though they will always hold the title and be allowed to do those things they could do if they in fact owned the property with a mortgage. They will be on a path from mortgage-to-rent or rent-to-mortgage depending on their changing circumstances, though the most likely use of these instruments will be to enable households progressively to purchase a growing equity share of the property they occupy. So these equity-share buyers will, to all intents and purposes, experience life as a traditional owner-occupier. The objective over the long run will be to achieve a situation where they can afford, at retirement, a property without a mortgage that will meet their, by-then, smaller, needs. The accounting happens when they sell when, just as with a traditional mortgage, people keep what they own, and pay off what they owe. The difference is that the way payments are structured will effectively enable (indeed, it requires or causes) households to manage and anticipate both credit and investment risks "as they go along" rather than in the shape of a single, unmanageable, shock. From this structure we can generate institutional investments that have return characteristics,which are not tied to only rent yields or capital growth, but to both.

Basically, then we are talking about an instrument that is an equity, which has returns linked to both capital growth and rent, and which is (ultimately) liquid and listed on the stock market. We have the long-term derivative and it can be combined with other long term instruments that are progressively sold by the shared equity vehicle to provide the necessary equity capital to allow the vehicle to purchase shares in the shared equity mortgages over time. Each of these long term instruments will have either no maturity date, as does a traditional share, or a maturity date which is in the order of 15 years plus. Flowing from these long term investments will be the short term derivatives which will be used by investors to smooth, balance risk and take investment returns from either capital growth or rental yields.

These instruments are designed primarily to allow the provision of affordable housing, whilst also ensuring that the professional investor receives acceptable liquid returns on, and access to, a class of assets which is otherwise denied. In essence part of what is happening is the transfer of risk from homeowners – who are unable sensibly to balance their investments simply because they are holding residential property and have too large a portion of their overall portfolio devoted to this – to professional investors. These professional investors need to hold this asset class to provide portfolio balance, but are currently denied access to it because real (as distinct from "synthetic") property does not meet their investment needs.

The shared equity model proposed to address this is rather different from those which have previously been developed. It is not only different in its cash obligations (they are there and ongoing via rental obligations), but is also a model that prevents people having to decide "up front," based on current circumstances, how much equity to hold in their home. Historically, households involved in shared equity arrangement have generally parted with too much equity at transaction commencement, in an effort to buy as much as they can at the outset. But what they need today is not what they will need as their situation changes in the future (what is needed to be sold at one point, is not the same as what might be sold later). The new model recognises this, offering the flexibility households need to adjust their equity shares over time, and providing a transparent account at any one time of what home occupiers own, should they decide to sell. This is in contrast to existing shared appreciation products which requires buyers to give up a fixed proportion of the capital gain – a figure that is hard to calculate in advance, and which, when extracted at the point of sale, always feels too high.

For the medium term, establishing shared equity vehicles of the type outlined above is the route to mobilizing a range of risk-sharing financial instruments – a trade in derivatives – which can be used to enhance housing affordability and mitigate housing risks. In the end delivering comprehensive and inclusive financial services based on such instruments will depend on the involvement of institutional investors; but in the meantime, proceeding by experiment on a small scale may be the best means of "growing into" a more sustainable style of derivatives solution.

This is not however a "stand-alone" fix, or a panacea for the longer term. It will certainly produce liquidity in a sector, which is historically illiquid and highly sticky; and it will cause a shift in the ownership in housing assets, which makes for a more rational use of household resources. But in the end, it will stimulate prices and exacerbate the original problem. Some argue that a derivatives market will reduce volatility in housing markets; but I suggest it will increase that volatility, as house price dynamics start to behave more like stock markets. And for this reason – whilst derivatives may provide an interim solution – it is worth asking are there other measures that could be used to create a more settled housing future in the long run?

22.5.3 Affordable housing: the long view

The cost of housing has to do with the supply of land, and with the cost of materials and construction. These costs, especially the first, tend to detach prices from

incomes in the largest urban centres, particularly when credit is in good supply. There are several measures than can help contain this: credit rationing, for example and taxation. But the long-term solution turns on decreasing the nation's dependency on high-density, energy-intensive and potentially higher risk pandemic urban settlement, now that technology can facilitate this. The aim should be to use smaller dwellings and modern methods of construction to create less sizeable, more affordable communities of environmentally sustainable dwellings, based on renewable energy and spread to ensure minimum health risk management but always aiming for carbon neutrality.

To this end, there is much to be learned from a round-up of international experience; together with a review of existing experiments (in the global South as well as the more developed North). It is also time to properly measure the costs of urban agglomeration and to recognise that they are becoming too high: the extent of risk and insecurity; the excess of surveillance; the erosion of civil liberties; and so on. It is worth arguing too that the benefits of "green" alternatives could be better specified and measured, in terms of the amenity they create, the carbon they save, and the wellbeing they generate.

The question that remains is how to move from the interim solution to the longer-term goal. There is no pocket-sized guide to this route. But the short answer is that affordable, therapeutic and sustainable communities may, in part, be achieved by encouraging a partnership approach to housing – a context in which households, governments and other institutions all have an interest in the future of residential property. To that end the awkward juxtaposition of two rarely-combined themes – a financial market for housing derivatives, and a carbon-neutral rethink of the future of cities – may turn out to be something more than a marriage of convenience.

Notes for section 22.2 by Jonathan Reiss

1. For most of this chapter, our comments regarding futures also apply to forwards and swaps. We only make a distinction in the section titled "Listed and OTC markets."
2. If stock index futures were priced 20% below the underlying index, arbitrageurs would buy the futures and short the underlying stocks – locking in riskless profits. This mechanism keeps futures prices in a tight relationship with the index and makes longer-term futures redundant assets. Since it is not possible to short housing and extremely difficult and costly to buy a diversified portfolio, there is more latitude to the futures curve and the longer-term contracts are interesting and valuable.
3. The correlation was elevated in 2008 when home price declines became a focus of the broader credit crisis. However, we would expect that episode to be unusual and would project that correlations will return to more moderate levels in the future, even during future periods of systemic stress. This has been the case in earlier crises.
4. The ETFs would largely hold t-bills plus a long futures position. So, it would pay out t-bill rates plus the futures discount. I am assuming that the futures trade at prices below the current index value. This has been the case for almost all of the short experience we have had with these instruments. If the market anticipated rapidly rising home prices, the futures would trade above the index value but below the expected home price so that there would still be an expected excess return.
5. The yield on the ETF would be the futures discount plus t-bill yields minus ETF fees. For the success of this product, it would be important to keep fees low.

6. Standard and Poor's announced this because they had branded the indexes. However, licensing was controlled by MacroMarkets until S&P purchased the rights in early 2008.

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Chapter 23

Hedging Housing Risk: Is it Feasible?

Steve Swidler and Harris Hollans

23.1 Introduction

For many individuals, their home is a significant portion of their net worth and the single largest asset in their portfolio. In the USA, for example, investors store roughly equal shares of their wealth in stocks, bonds, and residential real estate (Labuszewski 2006). At the end of 2005, HBOS (Halifax Bank of Scotland) (2006) estimated that the value of residential real estate in the UK equaled 3.4 trillion pounds. Given the size of this asset class, it follows that investors are exposed to substantial home price risk. However, until recently there were few exchange traded (financial) instruments that investors could use to manage this risk.

The analysis in Hinkelmann and Swidler (2008) suggests a need for a real estate derivatives instrument to manage home price risk. They consider the use of existing futures contracts to reduce the risk exposure from home price volatility. Hinkelmann and Swidler examine futures on agricultural commodities, precious metals, energy, foreign currency, stock indexes, interest rate securities, and inflation and find little evidence of any systematic relation between national home prices and existing contracts.

Responding to the need for real estate derivatives, the Chicago Mercantile Exchange (CME) has recently introduced a family of options and futures contracts based on home prices in the USA. The contracts include derivatives on home prices in 10 major metropolitan areas as well as on a composite (national) real estate index. Whether these contracts provide an effective means to manage home price risk is mainly an empirical issue that we consider below (and see the discussion in Chapter 22, this volume).

The CME real estate derivatives are not the first example of housing securities. Stocks and bonds started trading on the New York Real Estate Securities Exchange (NYRESE) beginning in 1929, but the Securities and Exchange Commission (SEC) later decertified the NYRESE as a result of the collapse in the real estate market during the Great Depression. Subsequently, residential and commercial real estate futures contracts briefly traded in London, but they too

ultimately failed, possibly due to the public's lack of understanding of the derivative real estate market (Case et al. 1993). Thus, the feasibility of hedging housing risk is really a two part issue. First, how do you use financial instruments such as futures contracts to hedge risk? Second, do existing real estate futures contracts provide an effective vehicle to manage home price volatility? In the subsequent analysis, we address both questions.

23.2 Hedging Home price Risk with Futures Contracts

Fearful of a decline in prices, it is easy to conceive of homeowners wanting to hedge the value of their house. However, home price risk is not a matter of falling price levels, but rather it is an issue of volatility. For individuals that do not like risk, it is the uncertainty of future home prices that causes disutility or unhappiness. Thus, even if it is widely *expected* that home prices might increase 5 percent this next year, individuals might choose to hedge the uncertainty of future price changes.

To further understand home price risk, consider the developer wishing to build a residential project. He or she needs to put together a business plan to obtain funding, and as part of that plan, forecast future prices of the new homes when they are sold. If the market anticipates annual gains of 10 percent, the developer might assume this in their project evaluation and incorporate the assumption in their business plan. However, if home prices only rise 6 percent per year, after three years when the project is complete, a home will only sell for 19 percent more than today's price instead of the compounded 33 percent increase that was assumed. Rather than being a lucrative business venture, the difference in home price appreciation could lead to an unprofitable project.

Futures hedging can mitigate price risk faced by individuals. A futures contract is an exchange traded derivative instrument that can either be bought (a long position) or sold (a short position). In a traditional futures contract, the buyer is *obligated* to purchase the underlying asset or commodity at the agreed upon futures price at the expiration of the contract. Similarly, the seller must deliver the underlying asset at the contract's expiration.

An alternative derivative instrument that may be used for hedging is an option contract. Options give the owner the *right* rather than obligate the owner to buy or sell the underlying asset at some point in the future. While the CME lists housing option contracts, the underlying asset is actually the futures contract. Moreover, trading of real estate options on the CME has virtually been nil. Because exercising a CME option yields a position in the futures contract and trading volume is miniscule, we focus our hedging discussion on the use of futures rather than option contracts.

If the futures is based on an index, such as the CME's housing contract, the contract is typically cash settled, and there is no exchange of physical property. Instead the payoff is the difference between the futures price at the beginning and end of the contract. As the futures price rises (falls), the long position is credited (debited) with the profit (loss), while the short position is debited (credited). Thus, a futures contract is a zero sum game where the profits of one party equal the losses of the counterparty.

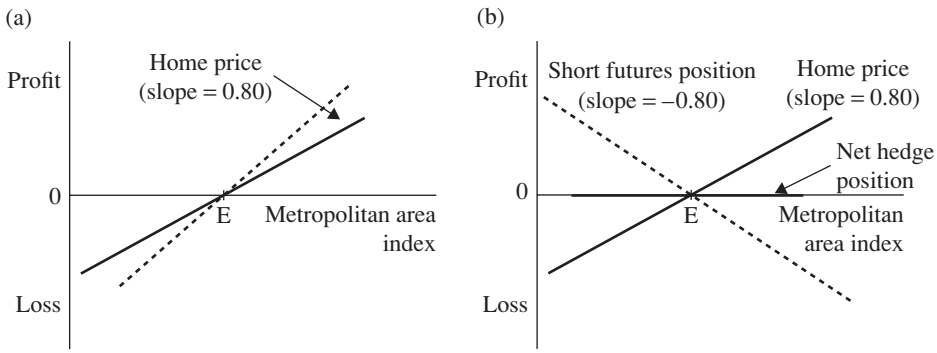

Figure 23.1 (a) Home price change versus metropolitan area. (b) Futures hedging of home price risk.

For the homeowner, personal wealth rises and falls with home prices. Since the individual is *long* the asset, in this case owns the home, any hedging would require taking an opposite (*short*) position in the futures contract. This is true because the asset price and corresponding futures price are positively correlated. If, for example, home prices fall, the profit from the decline in the related CME housing futures price will offset the capital loss. The opposite is true as well; any appreciation in home prices will be offset by a loss in the short futures position. Thus, futures hedging tends to lock in a level of (net) wealth whether prices rise or fall.

Futures hedging strategy can be better understood by considering Figure 23.1a. The horizontal line graphs housing prices, and the vertical line denotes futures profits as well as capital gains or losses from changes in house values. Let E be the current futures price for a contract that expires at the end of the hedge period. The homeowner sells a futures contract based on a real estate index for the metropolitan area. While futures profits move one for one with futures prices (represented by the dashed line), the price of the house being hedged may change at a different rate. As an example, suppose that the home price changes at a rate that is 80 percent of the appreciation of houses in the metropolitan area. Thus, for every 1 percent increase in local housing prices, the individual's home increases 0.80 percent. This implies the solid line with a slope equal to 0.80 in Figure 23.1a.

The number 0.80 is referred to as the hedge ratio and determines the number of futures contracts to use in the hedge. Practically speaking, Kolb and Overdahl (2003) show that the risk minimizing hedge ratio can be estimated from the following regression:

$$P_t = \alpha + \beta(F_t) + \varepsilon_t \tag{23.1}$$

where, P_t is the percentage change in the home price in period t, F_t is the return on the CME housing futures contract in period t, α is the constant regression parameter, β is the slope coefficient for the risk minimizing hedge using the CME housing futures contract, and ε_t is an error term with 0 mean. As Ederington (1979) demonstrates, β is the risk minimizing hedge ratio, and the regression R^2 represents the percentage of the dependent variable's risk eliminated by holding

the futures contract. An $R^2 = 0.92$, for example, implies that 92 percent of the variance in the individual's home price is eliminated with a futures hedge. Thus, the regression's coefficient of determination indicates how effective futures contracts are in hedging home price volatility.

Having estimated the appropriate hedge ratio, the homeowner sells the appropriate number of futures contracts. Thus, if β equals 0.80, the homeowner hedges by selling CME futures contracts equal to 80 percent of his (her) home value. Figure 23.1b illustrates the short futures position and the anticipated home price as functions of the metropolitan real estate index. The net result is the bold line that is the horizontal axis and implies that the homeowner locks in the value of their house over the hedge period.

In addition to the basics of futures hedging, there are institutional features of the derivatives market that are important from a practical standpoint. First, when entering a futures position (either long or short), the individual must deposit money in a margin account. This is typically 3–15 percent of the notional amount of the contract. Thus, a homeowner wishing to sell futures contracts on $250,000 of housing (the notional value) would first have to initially deposit 3 percent of $250,000 or $7,500. Then, every day the futures position is open, the margin account is either credited for the daily profit or debited for the day's loss. This is referred to as marking the account to market, and if losses continue to accumulate, the investor may have to deposit more money in the margin account.

A second consideration is the length of the hedge period. A homeowner may be worried about the value of their house over the next five years. Starting in September 2007, the CME has listed futures contracts going out 60 months. While homeowners could use these long-term contracts to manage risk, hedging effectiveness might suffer due to the lack of liquidity in the market.

Alternatively, the individual might choose a contract with an expiration that is shorter than the hedge horizon and rollover their futures position from one expiration to another. Thus, a five year hedge horizon might require entering into a futures contract with one year to expiration and rolling this position over five times. However, this would entail paying five separate commissions and thereby add to the expense of the hedge.

Finally, there is the matter of the futures' underlying home price index. Currently there are CME futures contracts based on 10 metropolitan areas including: Boston, Chicago, Denver, Las Vegas, Los Angles, Miami, New York, San Diego, San Francisco and Washington, DC. In addition, there is a composite real estate index that is a weighted average of the 10 metropolitan areas. If, for example, an individual wishes to minimize price risk for houses in Las Vegas, then choosing the CME's Las Vegas contract will likely provide the highest correlation, and therefore, is the best contract to use for hedging. On the other hand, if an individual owns a house in Atlanta, there is no natural choice of CME housing futures contracts. Moreover, none of the CME's 10 metropolitan areas or the composite index may be highly correlated with Atlanta home prices, and therefore, it may not be possible to effectively hedge this risk with existing futures contracts.

Ultimately whether it is possible to effectively hedge home price risk with futures contracts is an empirical issue. The above analysis implies that effective hedging of home price risk with an index of the same metropolitan area is a necessary, but not sufficient condition for hedging price risk of housing anywhere in the USA.

In the subsequent empirical work, we examine home prices in Las Vegas and see whether or not it is feasible to hedge this risk.

23.3 An Example of Hedging with Real Estate Futures

23.3.1 Data

To consider hedging feasibility, we analyze tax records from Clark County, Nevada. This region encompasses the fast-growing metropolitan area of Las Vegas and is one of 10 cities with a traded CME futures contract. The analysis examines home prices from 1994 to mid-2006 in six different tax districts including Las Vegas City (district 200), North Las Vegas (district 250), Sunrise Manor (district 340), Spring Valley (district 417), Paradise (district 470), and Henderson (district 505). To adjust for outliers, we use a filter to form a final data set that includes 247,137 transactions within the six tax districts.

Table 23.1 illustrates the new housing boom experienced in Clark County. From 1994 through 1999, the median year built is equal to the sales year and implies that new homes made up more than half the transactions in the mid- to late 1990s. Although new houses continued to be built at a healthy pace, their numbers fell as a percent of total home sales each year. By 2006, the median home transaction was for a home built in 1999.

Figure 23.2 shows that housing stock changes also influenced sales price over time. Initially, the median home price was $119,000 and appreciated approximately 2 to 3 percent annually. Starting in 2001, prices increased more rapidly, rising a dramatic 36.7 percent in 2004. This pace moderated somewhat in 2005 before slowing to near zero in 2006. By the end of the sample period, the median house in Las Vegas sold for $287,000.

Table 23.1 Distribution of year built for houses sold in Las Vegas

Sales year	*Median*	*25th Percentile*	*75th Percentile*
1994	1994	1993	1995
1995	1995	1993	1995
1996	1996	1993	1996
1997	1997	1994	1997
1998	1998	1993	1998
1999	1999	1992	1999
2000	1999	1993	2000
2001	1998	1993	2001
2002	1998	1992	2002
2003	1998	1993	2003
2004	1999	1993	2004
2005	2000	1993	2005
2006	1999	1991	2005

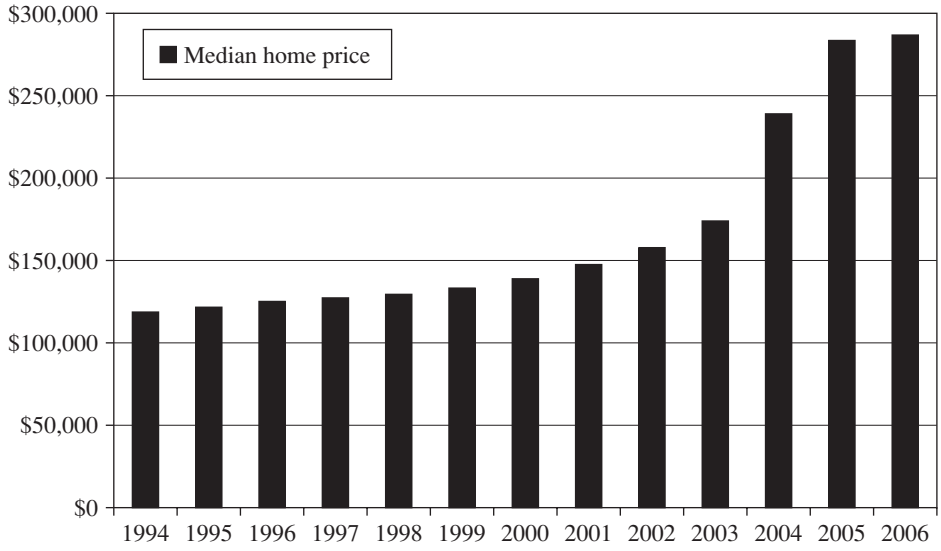

Figure 23.2 Median home price of Las Vegas sample.

Home price appreciation is ultimately a function of local demographic and economic factors, and Table 23.2 reveals the relevant statistics for each of the six tax districts. Las Vegas is the largest city in Clark County with just under 600,000 residences. It is followed in size by the cities of Henderson and North Las Vegas and then the three unincorporated tax districts of Sunrise Manor, Paradise, and Spring Valley. From 2000 to 2006, each of the six districts experienced significantly different growth rates. The population of North Las Vegas increased 75 percent, while Paradise, which includes part of the Las Vegas "Strip" is virtually built out and grew only 2 percent. In terms of population density, North Las Vegas is at the low end (2,580 people/square mile) and Spring Valley is at the high end (5,257 people/square mile).

Income also drives home prices and it widely differs from district to district. Per capita income ranges from $16,023 in North Las Vegas to $26,815 in Henderson. These figures closely follow the split between the white and Hispanic populations. North Las Vegas is 60 percent white and 38 percent Hispanic, while Henderson is 84 percent white and only 11 percent Hispanic.

23.2.2 Methodology

Given the heterogeneous demographics of the six communities, the subsequent analysis examines whether home price changes occur at the same rate within the metropolitan area. We first estimate simple correlations between quarterly returns of any two tax districts as well as between tax districts and the entire sample. Quarterly returns equal the percentage change of the median home price in the relevant region.

In a second part of the analysis, we estimate the minimum variance hedge regression found in equation (23.1), and regress a district's quarterly returns against the

Table 23.2 Las Vegas metropolitan area – descriptive statistics

Tax district	*City/town*	*2006 population*	*% population growth (2000–06)*	*% single family housing*	*% White population*	*% Hispanic population*	*2006 density (population/square mile)*	*Per capita income*
200	Las Vegas City	591,536	24	67	70	24	4505.2	$22,060
250	North Las Vegas	202,520	75	79	60	38	2579.9	$16,023
340	Sunrise Manor	195,727	25	55	65	26	5123.7	$16,659
417	Spring Valley	175,581	50	60	73	14	5256.9	$26,321
470	Paradise	190,129	2	43	73	23	4036.7	$21,258
505	Henderson	256,390	46	75	84	11	2713.1	$26,815

Sources: US Census Bureau, Clark County Department of Comprehensive Planning, Wikipedia

CME's Las Vegas futures contract. Because the CME real estate contracts only began trading in 2006, we proxy the return to the futures contract by calculating the quarterly percentage change in the S&P/Case-Shiller® Las Vegas Real Estate Index. The index forms the basis of the Las Vegas futures contract, and given that futures prices converge to the index value at contract expiration, this should provide a reasonable futures return estimate. The approach of substituting index returns for returns on the futures is consistent with the methodology first employed in Herbst (1985).

In addition to measuring the hedging effectiveness of futures contracts, the regression also estimates the minimum variance hedge ratio, β. However, individuals may lack the necessary sophistication of estimating the hedge regression. Moreover, even if presented with the regression results, the estimates are based on past performance and may not adequately predict the subsequent relation between spot and futures returns. Thus, the last part of the analysis considers the stability of the minimum variance hedge ratio over time. As a related matter, we also examine the hedging effectiveness of a naïve hedge where β equals 1, and the investor takes an equal but opposite position to their stake in the cash market.

23.3 Correlation and Hedging Results

Table 23.3 lists the correlation coefficient for quarterly returns between tax districts. Although returns between any two districts are highly correlated, the correlations are far from perfect. The results suggest that for short intervals, each community experiences a significant amount of idiosyncratic price movement. Sunrise Manor, in particular, has relatively low correlation with the other communities. Its correlation coefficient with Spring Valley equals 0.4722 and with Paradise is 0.4918. On the positive side, the returns of each tax district are most highly correlated with the market as a whole. For each district, the highest correlation is with the returns to the median house in all of Las Vegas (ALL). This result bodes well for using a futures contract based on home prices in the metropolitan area.

The right-hand side of Table 23.3 presents estimates of the minimum variance hedge regression. Consistent with the correlation results, hedging effectiveness is high, but not perfect. For the typical house in the city of Las Vegas (district 200), more than 84 percent of the variation of house returns can be hedged with CME futures contract ($R^2 = 0.8422$). On the low end is (again) Sunrise Manor; little more than 50 percent of its price risk can be explained by movements in the Las Vegas index. Thus, individuals with homes in Sunrise Manor would only have been able to reduce half of their price risk using CME futures contracts.

The regression results also reveal that the average hedge ratio (β) is less than 1. This suggests that over the period of analysis, home prices in our sample moved at a slower rate than the S&P/Case-Shiller® Las Vegas Real Estate Index. This is due, in part, to differences in the universe of home transactions used in each data set. Whereas our data set includes new home prices, the S&P/Case-Shiller® Index only uses repeat sales (see Standard and Poor's (2007) for a complete description of index methodology.) The important point here is that any risk management strategy must adjust for any differences between the asset being hedged and the derivative's underlying index.

Table 23.3 Correlation of returns for houses in Las Vegas metropolitan area

	Correlation coefficients between districts						*Minimum variance Hedge regressions**	
	Dis 250	*Dis 340*	*Dis 417*	*Dis 470*	*Dis 505*	*ALL*	*Hedge ratio (β)*	R^2
Dis 200	0.8674	*0.6963*	0.7113	0.7805	0.7995	0.9515	0.8901	0.8422
Dis 250		*0.6983*	0.7407	0.6850	0.7556	0.9366	0.8848	0.7190
Dis 340			*0.4722*	*0.4918*	*0.5299*	*0.7087*	0.7065	0.5014
Dis 417				0.7841	0.7423	0.8197	0.8267	0.6757
Dis 470					0.7321	0.7862	0.9291	0.6917
Dis 505						0.8364	0.8977	0.7495
ALL							0.8461	0.8850

Notes: District (Dis) 200, Las Vegas City; 250, North Las Vegas City; 340, Sunrise Manor; 417, Spring Valley; 470, Paradise; 505, Henderson; ALL.
Full sample: $n = 247{,}137$

* $I_{k,t} = \alpha_k + \beta_k F_t + \varepsilon_{k,t}$

where, $I_{k,t}$ is the percentage change in the median home price in district k in quarter t, and F_t is the return on the CME Las Vegas Real Estate futures contract in quarter t.

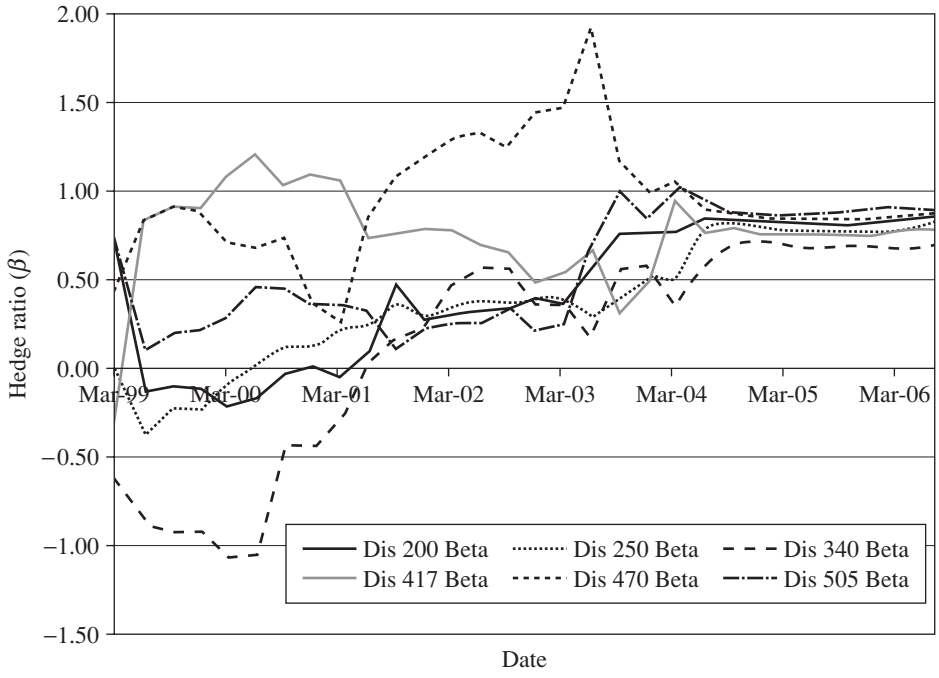

Figure 23.3 Minimum variance hedge ratios (β) by Las Vegas tax district.

Hedging effectiveness also depends upon the stability of the hedge ratio (β). Use of a hedge ratio based on historical data assumes that the future relation between the asset price and the futures contract will be the same as the past. If, on the other hand, β is continually changing, choosing the correct hedge ratio is inherently difficult. The regression-based hedge ratios may be incorrect after the fact (ex-post), and their use may do little to reduce the home price risk exposure of the investor.

Figure 23.3 presents the minimum variance hedge ratios of the six tax districts over time. The hedge ratios are based on five years of quarterly data, with the end of the five year period graphed on the horizontal axis. At least three notable results appear in the figure. First, early period hedge ratios are much lower than one and suggest that home prices in our sample changed at a slower rate than the S&P/Case-Shiller® Las Vegas Real Estate Index. In a few cases, the estimated beta is negative and further implies that to hedge homes in some of the tax districts, an investor should have taken a *long* position in the futures contract. Second, the hedge ratios change dramatically over time, and their instability suggests that it would have been difficult to effectively hedge during the early years of our sample. Finally, in the last years of our sample, the hedge ratios all settle down in the 0.6 to 0.9 range. This may be the result of a maturing housing market in Las Vegas. After a building boom in the 1990s and early part of this decade, the majority of homes sold were existing homes whose prices more closely followed the repeat sales index used by the CME.

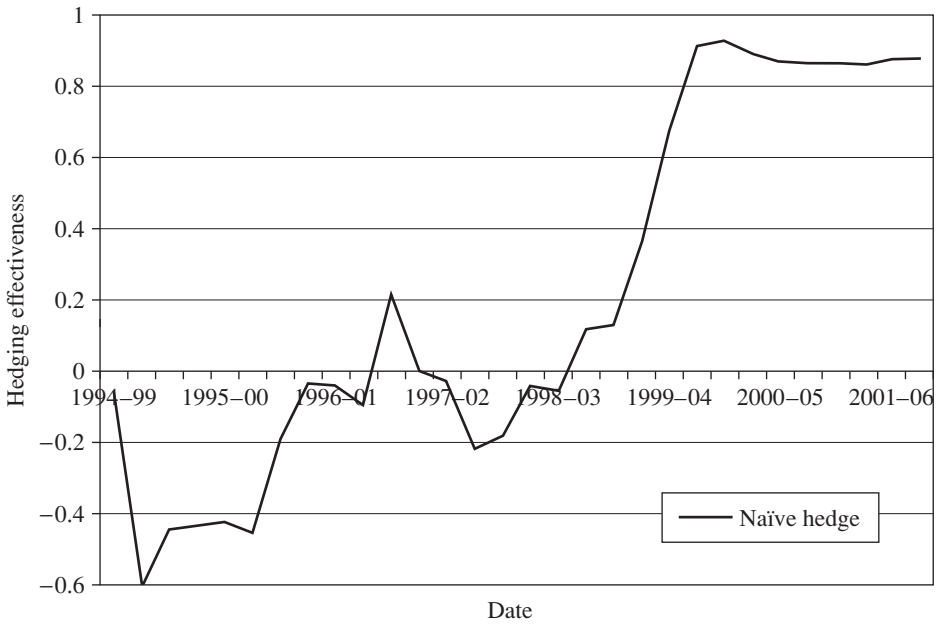

Figure 23.4 Hedging effectiveness of a naïve hedge ($\beta = 1$) for the Las Vegas sample.

Changing β values over time suggest at least one more practical hedging question. If historical-based hedge ratios are volatile, how effective would a naïve hedge be? In a naïve hedge, the investor takes a futures position that is equal but of opposite sign to his or her home (portfolio) value, i.e., the hedge ratio is 1.

Figure 23.4 illustrates the percentage of volatility reduced over a five year period if an investor uses a naïve hedging strategy. In the mid- to late 1990s, hedging effectiveness was negative implying that a naïve hedge actually *increased* home price risk. From Figure 23.3, during the early sample years, the appropriate minimum variance hedge ratios for the different tax districts were less than 1, and in a few cases were negative. If an investor entered into a naïve hedge, their futures position would have been too large and overall price volatility would have grown.

Once again, the hedge results are much better for the latter part of the sample period. A naïve hedge starting from the year 1999 onward would have reduced price volatility by approximately 90 percent. As before, these results are mainly due to the maturing house market in Las Vegas. In this decade, people were mainly reselling their homes and the price changes largely mirrored the S&P/Case-Shiller® Las Vegas Real Estate Index.

23.4 Conclusion

Given the size of the residential real estate market, the need for financial risk management instruments is substantial. Previous analysis has shown that existing derivative contracts are not highly correlated with home prices, and therefore,

provide little in the way of offsetting home price risk. However, the Chicago Mercantile Exchange has recently begun trading real estate futures and options contracts to fill the void in financial markets and provide a means to manage home price volatility.

Whether hedging home price risk is feasible using the CME contracts is really a two part question. First, what are the institutional and practical issues in hedging with a futures contract? The homeowner begins by estimating a minimum variance hedge ratio. Because of the idiosyncratic elements of a home, its value might change at a different rate than the futures' underlying real estate index. The standard practice is to use regression analysis to estimate the hedge ratio (β) and assume that past correlation between the home price and futures index will be the same in the future. Having estimated β, the individual would multiply this number times the home's value to find the position that should be taken in the futures contract. Institutional features are also important as an individual would have to keep their margin account current and rollover their position if it is a long-term hedge.

The second question is whether the CME contracts will be successful and provide an effective hedging instrument for home prices. Here the evidence is mixed. Using data from the Las Vegas residential real estate market, there are tax districts whose home prices are highly correlated with the index underlying the CME futures contract. High correlation of prices is a necessary condition for effective hedging. On the other hand, prices for houses in some areas in metropolitan Las Vegas have relatively low correlation with the CME index and homeowners may only reduce their risk by 50 percent. Perhaps more importantly, the relationship between home prices and the index (futures prices) has not been stable over time. This suggests that there are periods where futures contracts may provide only limited risk management opportunities. Moreover, if homeowners were to enter into a naïve hedge and have a short futures position that is equal to the initial value of their house, at the end of the hedging period they might find that they actually increased risk.

Finally, there is the issue of consumer education. For the real estate futures contracts to be successful, homeowners must be knowledgeable consumers of risk management tools. They must not only know how futures markets work, but then must understand how their home price will change relative to the futures. Given the idiosyncrasies of each individual house, the latter requirement makes hedging difficult, and perhaps the ultimate users of real estate derivatives will be financial intermediaries who package this risk in a diversified portfolio. To date, trading of the CME real estate contracts has been modest, yet earlier financial derivatives that eventually proved successful also had a slow start. Only time will tell whether the CME contracts survive; however, one thing is certain, the considerable size of the real estate market suggests that there is a real need for these financial products to exist.

Acknowledgments

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Chapter 24

Housing Risk and Property Derivatives: The Role of Financial Engineering

Juerg Syz

24.1 Introduction

As reflected upon throughout this book, prospective and current homeowners are exposed to housing risk. While the former bear the risk of rising property prices, the latter are concerned with falling home prices. To mitigate housing risk, they should engage in a long and, respectively, a short hedge. That is, they should buy or sell financial instruments that offset the price risk of properties.

The academic literature has forcefully attempted to encourage the introduction and the use of property derivatives as a hedge against home price risk (e.g. Shiller and Weiss 1999). In practice however, most of the property derivatives available have been targeted to meet the needs of institutional investors, not those of current or future homeowners.

S. J. Smith (Chapter 25, this volume) considers why this might be the case; to address it we propose two applications – tailored to retail clients – that combine a traditional financial instrument with a property derivative: an indexed building savings plan and an index-linked mortgage. The funds in the savings plan grow with a home price index, in order to keep purchasing power with regard to housing stable. The due payments of the index-linked mortgages on the other hand are reduced in an environment of falling home prices.

24.2 Indexed Building Savings

In many countries, tax authorities treat building savings favorably, in order to incentivize homeownership. Spending less on taxes might be a good motivation to start saving for a home, but it does not align the savings plan to the targeted object in any way.

Prospective homeowners typically start to save early to make their dream of an own home come true. Once the decision to buy a home is made, an initial amount is put aside, dedicated to that purpose. Subsequently, periodic savings, for

example a constant part of the monthly salary, are added to the funds reserved for the home. Depending on the amounts, on the interest rate, and on the price of the targeted property, it often takes some years until the purchase can be completed.

However, the prospective buyer is chasing a moving target. Home prices may rise and the targeted home could turn out to be more expensive than expected. In this case, the result is a shortfall in cash at the end of the scheduled savings period and the period needs to be prolonged. During that additional savings period, prices can rise even further, causing again a shortfall in cash. Alternatively, a smaller than desired house can be bought, probably not satisfying the buyer entirely. If prices fall on the other hand, the purchase can be completed earlier than expected, or a bigger house could be afforded.

A solution that addresses home price risk can be provided by using property derivatives. If the savings amount is linked to a local home price index, purchasing power with respect to housing in that region is locked in.

24.2.1 Linking the savings plan to a home price index

We consider an example that illustrates the variation of home prices and, as a result, the variation of the savings horizon. The home price data are based on real transactions in East Anglia, measured by the Halifax House Price Index. Prices experienced a similar development all over the UK.

In early 2000, family Smith has savings of £10,000 and decides to buy a home in East Anglia within the next couple of years. The dream home would cost about £400,000, anticipating long-term home price inflation of say 4 percent per year, in five years time. Eighty percent of that amount is to be financed by a mortgage. As first-time buyers, the Smiths require £80,000 in equity. They can afford to put aside £1,000 a month. We assume that a constant salary and a constant monthly savings amount. At an interest rate of five percent, it takes about five years until the targeted £80,000 is reached.

However, home prices have more than doubled, i.e. risen by 111 percent during the savings period, 89 percent more than anticipated by long-term housing inflation. The house now costs £690,000. Keeping the mortgage at 80 percent, £138,000 of home equity is now needed. To save the additional £58,000, it takes the Smiths about three and a half additional years of saving. After the additional period, the house can only be afforded if home prices remained stable or weakened. If prices appreciate further during that time, the savings period is again prolonged. Financing the unexpected price increase by a higher loan-to-value (LTV) on the mortgage would further leverage housing risk and strain the budget of the family. Banks do not easily grant high LTVs. Figure 24.1 illustrates the divergence of the savings plan and home prices in East Anglia, as well as the projected home price inflation.

We use historical simulation to get a likelihood of how often this had happened in the past. In particular, we use the Halifax House Price Index for East Anglia, from 1983 to 2007. We keep the expected saving time, assuming normal home price inflation and interest rates as above, at five years. Approximately 64 percent of savers needed to save longer than expected and the ones that started saving after

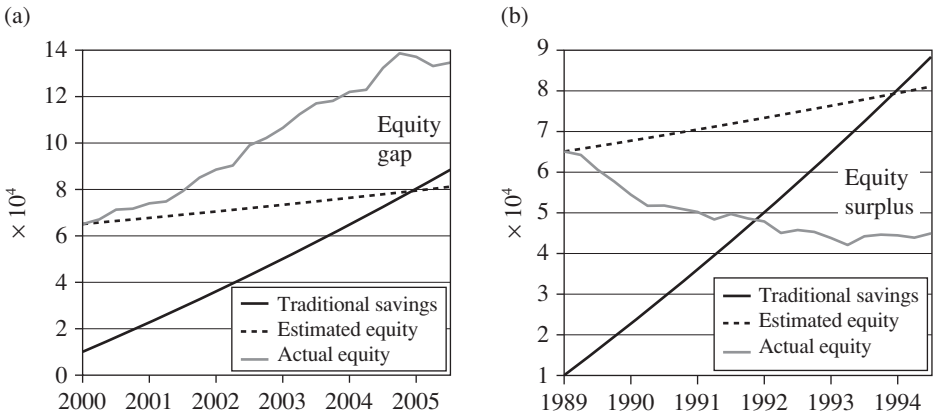

Figure 24.1 Divergence of the savings plan and home prices in East Anglia.
Note: From 2000 to 2005, home prices have risen much more than expected, and the dream home cannot be afforded (a). A decade earlier, home prices were falling, resulting in an equity surplus in the savings plan (b). Home price inflation is assumed to be 4 percent and the interest rate on the savings account is assumed to be 5 percent. We further assume initial equity of £10,000 and monthly savings of £1,000.

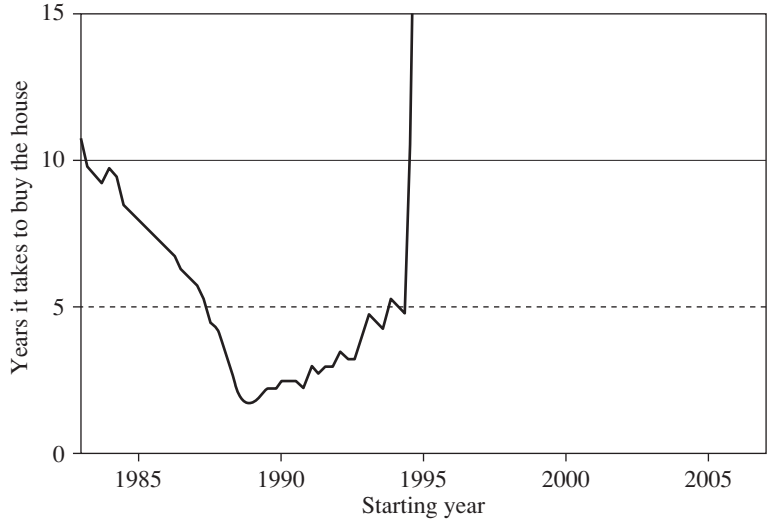

Figure 24.2 Realized saving time.
Note: It often took much longer than expected: the graph displays the number of years it took to save the required equity along the starting year of saving.

1995 could have never afforded the dream home until today. Figure 24.2 shows the realized savings time in years along the starting year of saving.

Suppose that the Smiths participate in an index-linked building savings program, where the savings are tied to the Halifax House Price Index for East Anglia. We assume the same savings scheme as in the above example, i.e. £10,000 initial

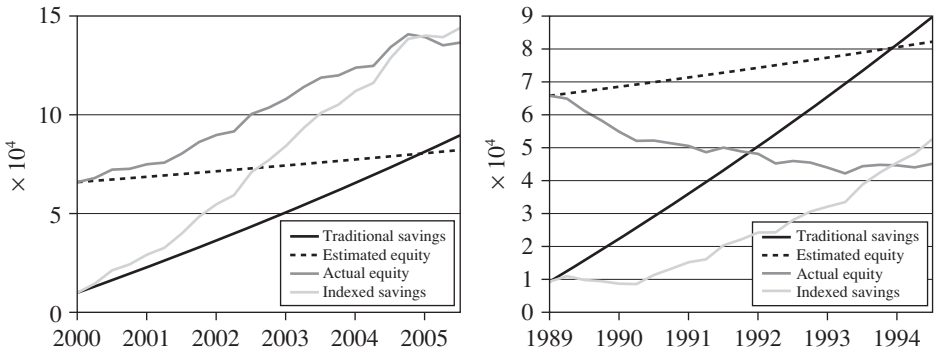

Figure 24.3 Index-linked savings in relation to rising/falling home prices.
Note: Index-linked building savings make sure that the dream home can be bought as scheduled. There is no longer an equity gap or surplus anymore.

savings and £1,000 monthly thereafter over five years. At the given interest rate of 5 percent, the savings plan has a future value of about £80,000 at the end of the saving period. In addition, they could engage in a financial contract that returns the development of home prices, measured by the East Anglia index. In particular, they could enter a five-year forward contract on a notional amount of £80,000, valued at zero cost at the start (we assume that forward prices are inline with expected housing inflation). If such an index-link is established on this notional amount, purchasing power with regard to home prices is locked in from the very beginning of the savings period. The index-link can be implemented in the form of a scheduled index-linked savings account that replaces the traditional savings account. At a normal rate of 4 percent of home price inflation, the amount will still be at about £80,000 in five years. However, should home prices experience a steeper price increase, the savings account will gain in value accordingly, e.g. to about £138,000 as in the above example.

If home prices drop, as they did for example from 1989 to 1994, the savings plan shrinks accordingly. However, the originally targeted home can still be afforded, since houses are cheaper and less cash is needed to buy the home. Figure 24.3 shows the development of the index-linked savings account, in a scenario of rising/falling home prices. In summary, an index-linked savings account reduces realization risk to purchase a home at a future date significantly: an appropriate reference index related to home prices defines the account's growth rate. An index-linked account makes the purchase of a targeted home much more calculable and the savings horizon more predictable. Table 24.1 shows the savings account balances for an index-linked and a traditional savings account.

24.2.2 Engineering a suitable savings plan

We first look at a typical savings plan and then add the property derivative that is required to establish a suitable index-linkage. Generally, a savings plan consists

Table 24.1 Aligning home price development through an indexed savings account: levels at the end of the savings horizon

	Rising prices: 2000–2005		*Falling prices: 1989–1994*	
	Traditional account	*Index-linked account*	*Traditional account*	*Index-linked account*
Home price development (%)	+111	+111	−32	−32
Price of dream home	690,000	690,000	223,000	223,000
Equity needed (20% of Price)	138,000	138,000	44,600	44,600
Account balance	80,000	138,000	80,000	44,600
Surplus (gap) in equity	(58,000)	—	35,400	—

of four variables, of which three can be chosen. The fourth variable is the result of the choices. The variables are:

- initial saving amount
- periodic saving amount
- targeted saving amount
- time horizon.

We assume that the periodic saving amount is constant and paid with discipline, i.e. there is no period in which the saving payment is missed. Further, for reasons of simplicity, we assume constant interest rates. In the above example, the initial, the periodic, and the targeted saving amounts have been chosen, making the time horizon the residual variable. At an interest rate of 5 percent, the time horizon turns out to be approximately five years. In total nominal amounts, the Smiths save £70,000, i.e. £10,000 as initial amount and £1,000 periodic savings over 60 months. The future value of the savings plan, however, due to interest accumulation, is at £80,000, corresponding to the targeted savings amount. Based on that amount, which reflects the expected home equity that is required in five years, the property index-link should be established. That is, a long hedge on a notional value of £80,000 is implemented by entering a long forward contract. The forward contract is the financial translation of the purchase of the dream home in five years time.

However, the forward contract will fall in price if home prices weaken, eating up some of the savings. Although houses can also be purchased cheaper in that case, many people do not want to lose any of the saved nominal amounts. To address this desire, the Smiths could alternatively participate in a program where the saved cash amounts are fully capital protected. To finance the protection of the £70,000, something else must be given up, e.g. by setting a cap on the upside. In our example, that cap would be at £94,000, i.e. the program would track a price appreciation up to 18 percent on top of the expected home price inflation. (For the pricing of the capital protection and the cap, we assume an annual volatility at the historic level of 13.3 percent and a property forward rate that is inline with housing inflation of 4 percent.) In return, if home prices drop sharply, the Smiths

could afford to buy a bigger home, thanks to the protection of nominal capital while the house became cheaper. An indexed buildings savings account could be structured in many more ways, and could be tailored to individual clients' needs.

Finally, depending on the contract's reference index, there is little idiosyncratic risk in indexed building savings. Typically, a buyer has a targeted region in mind, where he intends to buy his future home. A specific object is only searched when the savings amount is sufficiently large to buy a home in the desired standard. While hedging an individual object with a regional index leaves the homeowner with basis risk, indexed building savings cover the price risk of homes in the targeted region very accurately.

24.3 Index-Linked Mortgages

Once a home is purchased, the sign of the housing risk a household is exposed to turns upside down. Homeowners are typically heavily exposed to home price risk and there are no suitable possibilities to unload it. This leads to suboptimal allocations for most households. Englund et al. (2002) show that most Swedish homeowners up to an age of 50 hold a strongly unbalanced portfolio. Flavin and Yamashita (2002) report similar findings for the USA where households below 30 years of age invest more than three times their net wealth in owner-occupied housing.

Property derivatives can help to efficiently allocate the risk in housing. However, homeowners' interest in the publicly traded housing futures and options at the Chicago Mercantile Exchange has been limited. Typically, individual homeowner interest gravitates towards longer maturities than the ones offered on a futures exchange. As derivatives markets are notoriously complex and not tailored to the needs of homeowners, large financial institutions or banks are expected to use them to develop home-price insurance programs and offer them to residential buyers alongside traditional property insurance.

Probably the earliest modern project on home equity protection was the launch of the home equity insurance program in 2002 in Syracuse, New York. The project was jointly implemented by local and national nonprofit community development organizations, financial institutions, and the Yale School of Management. However, the local program remained a pilot project and was not extended to other areas. Only a few homeowners participated in the program.

We propose an alternative approach that involves the use of property derivatives: index-linked mortgages. The payments of these mortgages depend on the corresponding housing market performance. The resulting effect is a stabilization of homeowner's net wealth and a decrease in the mortgage default risk achieved by immunization effects. For the full paper on index-linked mortgages, see Syz et al. (2008).

This new type of mortgage could enable homeowners to reduce housing risk substantially. The basic idea is to link the mortgage to an index of home prices. More precisely, the interest payments and/or the principal are linked to the underlying index movements. If home prices deteriorate, the households have to pay either lower interest on their mortgage or, alternatively, the price decrease is directly subtracted from the mortgage's principal value at its maturity. In both cases the

volatility of a household's home equity is smoothed. Hence, this type of property derivative reduces the homeowner's exposure to home price risk while reducing the credit risk exposure of the bank through asset-liability immunization. Index-linked mortgages thus provide Pareto improvements by allocating collateral risk more optimally and by reducing the number of default and related costs.

The theoretical findings of Iacoviello and Ortalo-Magné (2003) support this approach. The authors investigate the benefits of giving households the possibility to adjust their portfolio holdings through the use of property derivatives. They show that hedging could greatly improve welfare, especially in the case of poorer homeowners who face the highest net wealth volatility and shortfall risk. According to Englund et al. (2002) renters would equally benefit from gaining access to housing index investments.

Case et al. (1993) advanced the introduction of futures contracts tied to regional home price indexes in the USA. However, in practice it is difficult for poorer households to enter into short positions of such contracts. But poorer households typically face the highest leverage, i.e. their investment portfolio is significantly out of balance. With index-linked mortgages, households need not enter into short positions since the mortgage is directly linked to a property derivative on a regional home price index.

24.3.1 Using mortgages to insure home equity

Most homeowners bear a very high amount of property risk. This may be due to a lack of perception, as owner-occupied housing is often regarded as a consumption asset only and is as such excluded from the financial portfolio context. However, even risk-savvy homeowners lack the opportunity of financial instruments enabling them to unload housing risk. Furthermore, as mentioned before, poor households would be likely to benefit most from hedging instruments as they have to bear the lumpiest risk in housing. However, it is typically hard for these households to access over-the-counter hedge contracts. It thus appears reasonable to link the hedging instruments to mortgages, such that all homeowners with leveraged housing risk are automatically confronted with the dimension of housing risk and hedging possibilities. Moreover, the expected loss on the mortgage is reduced thanks to the housing hedge. Hence the client can benefit directly from a reduced credit spread on the package "index-linked mortgage." We exclusively consider recourse mortgages, as they are typical in Europe. (With a recourse mortgage, the lender has the right to take recourse not only on the collateral, but on all assets of the borrower.)

Rent or buy?

Today's standard decision when it comes to housing is commonly referred to as "rent or buy." In other words, an individual does either bear a large, lumpy property risk (usually leveraged by mortgage financing), or she rents and is thus not exposed to any property risk. (The adjustment of rents is typically heavily regulated and is rarely purely driven by property performance.) Figure 24.4 shows the impact of leverage through a mortgage on home equity. The graph in (a) shows

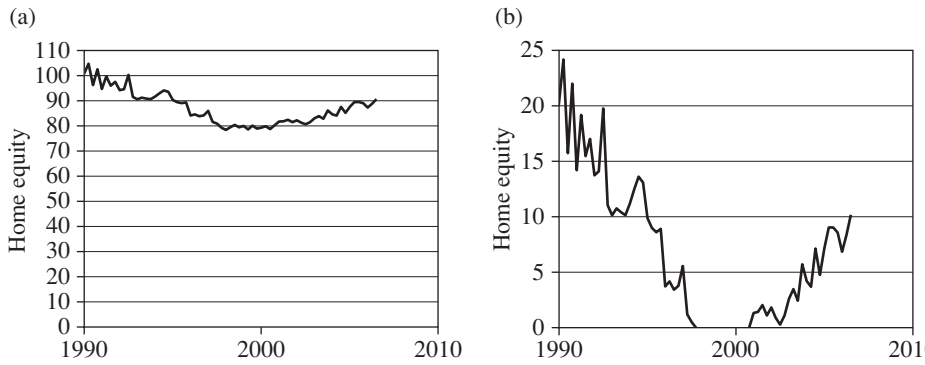

Figure 24.4 Home equity (a) without and (b) with leverage.

the unlevered home price development in the Canton of Zurich, Switzerland (measured by the index for owner-occupied housing in the Canton of Zurich, ZWEX); the graph in (b) illustrates the effect of a five-times leverage on home equity for the same home price development.

Considering property risk in a portfolio context, it makes a priori sense for a homeowner to partially unload the property risk, while renters might reasonably take on some property risk.

We look at a homeowner's overall financial situation. A typical homeowner finances her house partly with a mortgage that comes with fixed nominal and fixed or floating interest payments. In addition, she may also hold securities such as stocks or bonds in her investment portfolio. Still, the exposure to housing may easily exceed total net wealth, as long as the liability, i.e. the mortgage, is not linked to the price of the property. The result is a poorly diversified overall portfolio of the homeowner. An index-linked mortgage is used to offset housing exposure and therefore significantly contributes to a more efficient portfolio allocation. The following example illustrates the risk associated with current property financing that leads to a suboptimal portfolio allocation.

A Swiss-based homeowner buys a house in the Canton of Zurich in 1994, at a price of CHF 500,000. He takes on a five year mortgage with a notional value of CHF 400,000 (an LTV ratio of 80 percent) and puts down CHF 100,000 in equity. He further possesses a portfolio consisting of various liquid assets amounting to CHF 60,000. We suppose that within five years, home prices in the region decline by 15 percent, and so does the value of his house, which is then worth only CHF 425,000. After said five years, the mortgage is due and the house value is reassessed. The bank offers a renewed 80 percent mortgage finance, i.e. is willing to provide CHF 340,000. Since the due mortgage amounts to CHF 400,000, the difference of CHF 60,000 needs to be paid out of his other funds. *Ceteris paribus*, the adverse development of home prices leaves him with zero liquid assets and home equity of CHF 85,000, i.e. his net wealth has almost halved. A further depreciation of home prices in subsequent years makes the situation worse. Figure 24.5 illustrates what happens to the LTV ratio if home prices move over a

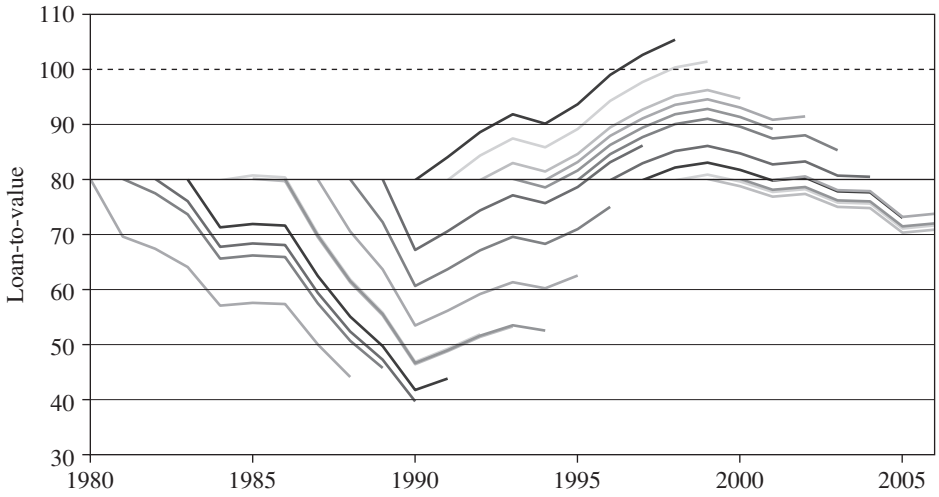

Figure 24.5 The evolution of LTV ratios for Swiss residential properties over eight years.
Note: The different lines refer to the respective quarter and year of origination.

eight year horizon. Starting at a LTV of 80 percent, it can rise quickly to 90 percent or in some cases even above 100 percent.

If the homeowner would have financed his house with a mortgage linked to the local home price index, e.g. by including a put option on that index, his net wealth would have been stabilized considerably. Instead of losing 15 percent on the total house value, he would only incur a loss on the equity part of the house plus the cost of the put option of, say, 3.5 percent on the mortgage's principal. (The price of the put option is in line with the pricing practice in Switzerland.) This would leave him with a net wealth position of CHF 131,000 instead of CHF 85,000, whereof CHF 46,000 are in liquid assets.

In sum, he would have reduced his housing exposure from 312.5 percent of net wealth to 62.5 percent, which is a much more reasonable level. But still, the share invested in housing might be too high to achieve optimal diversification. Due to reduced risk, the bank may grant a higher borrowing level, which in turn unloads even more housing risk and makes funds available for investments in other asset classes to further optimize the homeowner's overall portfolio. In this sense, index-linked mortgages greatly improve the risk profile and welfare of many households.

Figure 24.6 shows the impact of a homeowner's portfolio if the housing asset class is considered. Due to the low correlation of its returns with those of traditional assets, the housing asset class is attractive for diversification. We focus on the return and standard deviation as well as the correlations of all involved assets, as displayed in Table 24.2. (The cash and bond indexes are calculated as total returns. To obtain the total returns of the stock and the housing index, we include the average income component, i.e. the net dividend, respectively net rent yield, over the corresponding 20-year period.)

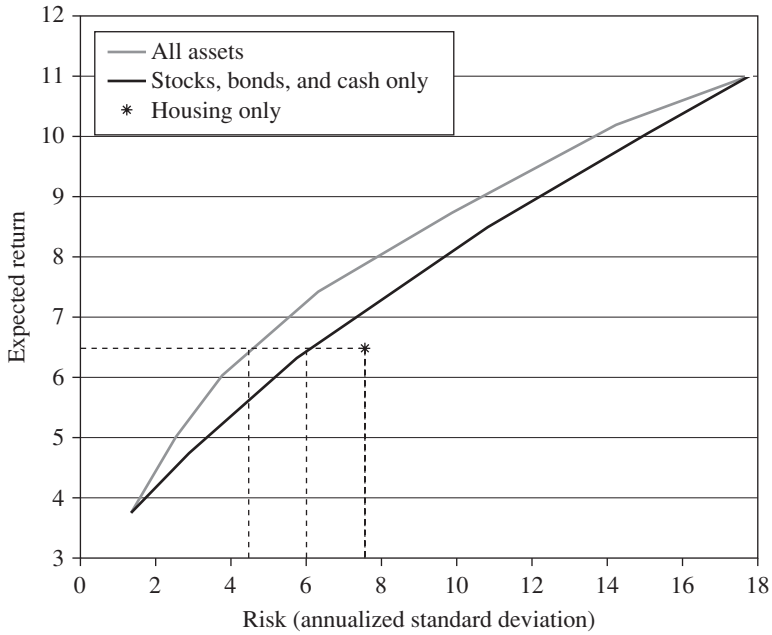

Figure 24.6 Combining the house with other assets is superior to renting or buying.

Table 24.2 Returns, standard deviations, and correlations of all involved assets. All numbers are based on quarterly observations during the period from Q4 1985 to Q4 2005

1985–2005	*Yearly return (%)*	*Std deviation (%)*	*Correlation matrix*			
			Stocks	*Bonds*	*Cash*	*Home prices*
Stocks	11.01	17.79	1.000			
Bonds	5.41	5.53	0.105	1.000		
Cash	3.75	1.35	−0.075	0.140	1.000	
Home prices	6.48	7.56	−0.163	−0.051	0.048	1.000

Sources: the MSCI Switzerland for stocks, the 10-year Swiss Government Bond Index for bonds, the J. P. Morgan Switzerland 3-month cash index for cash and the index for owner-occupied housing in the Canton of Zurich, ZWEX, for home prices.

Figure 24.6 shows (on an unlevered basis) the risk/return situation of a buyer's portfolio (100 percent invested in the house), of a renter's portfolio (100 percent invested in an optimized portfolio containing stock, bonds, and cash) and of a portfolio with a partial exposure to a property, optimized in context with the other investable assets. Besides the usual caveats of the standard mean-variance portfolio approach, we ignore differences in liquidity between housing and other assets, as well as considerations involved with the fact that housing is held not only as an investment but also for the housing service stream it generates. To make housing

returns comparable with pure investment assets, we include a net rent yield that corresponds to the saved rental expense net of maintenance cost.

In this setup, portfolio risk can be reduced considerably using a combined portfolio. In the context of portfolio theory, any risk-averse individual should invest on the efficient frontier to maximize utility. For a given level of return, the buyer (who invested all wealth in the house) bears a risk in terms of standard deviations of almost 8 percent per annum. The renter on the other hand invests in an efficient portfolio consisting of tradable assets. This leaves him with standard deviations of 6 percent per annum. However, he has zero percent invested in housing. With a partial investment in both housing and the liquid asset portfolio, risk is only around 4.5 percent.

Designed to avoid liquidity constraints

Homeowners' characteristics are typically very heterogeneous. Their mortgage financing decisions and their risk affinity depend upon their net wealth as well as on their income streams and borrowing constraints (Campbell 2006). As such, the design of the mortgage is crucial when it comes to liquidity constraints and solvency risk of individual homeowners.

We link the principal of the mortgage to the home price index, protecting homeowners against declines in home prices over the life of the mortgage. In order to avoid a liquidity constraint in the case of strongly increasing prices (unrealized gains on housing), we propose an asymmetric payoff profile: a put option is incorporated in the mortgage, such that the principal is directly reduced by a potential negative index performance. The put premium is added to the periodic interest instalments. We estimate the put premium to be approximately 0.7 percent p.a. over a five-year term, according to market conditions in the first quarter of 2006.

Alternatively, if the principal linkage is symmetric, i.e. the principal rises and falls with the index, then the interest to be paid is typically lower than on a fixed principal. This is because the principal is expected to rise on average with home price inflation. In other words, not the notional amount but the LTV of the mortgage is kept constant. Of course, several more structures of index-linked mortgages would be able to address the constraints.

Index-linkage improves credit quality

Traditional asset and liability management targets an immunization effect that smoothes the volatility of the equity position and thus reduces the default risk for the debt position. The lower the risk that the equity position of a borrower turns negative, the lower the risk of default on his debt. The same effect applies to homeowners. Property derivatives can be used to reduce the volatility of home equity and thus the mortgagor's default risk. This has a direct impact on the mortgage terms, as the mortgagor's creditworthiness improves.

To price default risk, it is common to split debt instruments into a risk-free part and a derivative on the market value of the collateral. This derivative is often referred to as credit insurance, and its premium is charged as a credit spread on top of the risk-free rate. An index-linked mortgage additionally includes a put option on a home price index that serves as additional collateral. If home prices fall, the value of this put option increases, considerably reducing the probability that the borrower

defaults, i.e. that his credit insurance is exercised. The effectiveness of this credit risk reduction depends on the correlation between the individual home price that underlies the credit put option and the home price index that underlies the index put option. If this correlation is high, the default risk can be considerably reduced. Consequently, a lower credit spread is charged to homeowners.

24.3.2 Collateral thinking

We consider an index-linked mortgage with an embedded put option such that the principal is directly reduced by a potential negative index performance. Further, a comparison of creditworthiness of the index-linked mortgage to their traditional counterparts is of interest.

A mortgage can be decomposed into the following securities: an unsecured loan, a credit derivative and, for the index-linked mortgage, a put option. This decomposition follows the logic that an index-linked mortgage equals an unsecured loan plus a credit enhancement through a collateral, i.e. a credit derivative, plus an index put option. From a risk perspective, the risk factor in the unsecured loan is given by the default risk of the borrower, the risk factors of the credit derivative and of the put option are a combination of default risk and home price, i.e. collateral risk (see Akguen and Vanini (2006) for loan pricing).

For the index put option, it is important to note that this option is not valued in its entirety *per se*, but we are interested in the affect of this option on the mortgage conditions. That is, if the borrower buys such an option, it would amount to an effective increase in the collateral if the bank is contractually able to make use of the option payoff in case of default. We therefore calculate the amelioration in the mortgage conditions that is brought about by this put option. For this, it is assumed that both the effective collateral and the index follow correlated processes, which are then simulated to determine the expected additional payoff from the put option.

The prices of traditional mortgage contracts for eight different rating classes, with class eight the defaulted class, are summarized in Table 24.3. (We assume the nominal value of the borrower's note to be CHF 200,000. See Syz et al. (2008) for details on the pricing of index-linked mortgages.) There are two main conclusions from the table. First, the lower the creditworthiness of a borrower, the more expensive the terms for the unsecured loan. Second, the lower the creditworthiness of the borrower, the more is the bank (as protection buyer) willing to pay for collateral.

If we consider index-linked mortgages, the standard case described above is modified as follows. First, the automatic amortization of the principal if the put ends in the money, i.e. if the property index declined over the mortgage's life, is equivalent to additional collateral. Second, the client pays a put premium. For the best two rating categories one and two, the put premium is approximately 0.7 percent per year for a five year term. For borrowers with lower creditworthiness, i.e. a higher risk that they will fail to pay the put premium periodically for the full contract period, the put premium is higher. The variation of the premium is shown in Table 24.4.

Table 24.3 Pricing of traditional mortgages. The final price consists of the unsecured loan and the collateral enhancement for the bank as a protection buyer. Amounts are in thousands of Swiss Francs

Rating	*Loan principal*	*Estimated value of property*	*Unsecured loan (%)*	*Collateral enhancement (%)*	*Terms of mortgage (%)*
7	500	625	14.21	3.53	10.68
6	500	625	8.20	1.52	6.68
5	500	625	5.55	0.59	4.96
4	500	625	4.43	0.19	4.24
3	500	625	4.25	0.13	4.12
2	500	625	4.04	0.06	3.99
1	500	625	3.95	0.02	3.93

Table 24.4 Pricing of traditional mortgages and index-linked mortgages. Index-linked mortgages are always more expensive than traditional mortgages. But the lower a homeowner's creditworthiness, the less are the relative additional costs for the index-linked mortgage compared to the traditional one

	Traditional mortgage			*Index-linked mortgage*		
Rating	*Unsecured loan (%)*	*Collateral enhancement (%)*	*Terms of mortgage (%)*	*Index put (%)*	*Further credit enhancement (%)*	*Terms of mortgage (%)*
7	14.21	3.53	10.68	1.09	0.99	10.78
6	8.20	1.52	6.68	0.95	0.67	6.96
5	5.55	0.59	4.96	0.88	0.26	5.58
4	4.43	0.19	4.24	0.81	0.09	4.96
3	4.25	0.13	4.12	0.72	0.06	4.78
2	4.04	0.06	3.99	0.71	0.03	4.67
1	3.95	0.02	3.93	0.71	0.01	4.63

The table compares the index-linked mortgage with the traditional one. The parameters are the same as for Table 24.3 with the following additional data for the put: correlation between the index and the collateral is estimated at 75 percent and the strike of the index put is set equal to the initial value of the index, i.e. at 100 percent.

The table further shows that – uniform in the borrower's creditworthiness – the terms of the index-linked mortgage are more expensive than for the classical one. But one observes that the bank is willing to pay slightly more for the credit enhancement to lower rated borrowers than to borrowers with a high creditworthiness: the difference in the final terms between the two mortgages for the rating

class seven is 0.10 percent whereas the put premium is 1.09 percent. It follows that the lower the creditworthiness of the borrower, the more valuable the index put option as additional collateral.

Today, individual homeowners are often largely overexposed to the asset class of real estate. An index-linked mortgage provides the possibility to improve the balance of individual portfolios and reduce the systematic risk of real estate in these portfolios. Banks will have to offer a menu of options to cater for the individual needs of property owners and investors. Reasonable structures of index-linked mortgages include the linkage of the principal while keeping interest payments fixed or fixing the principal while linking interest payments. Financial engineering will allow the creation of any combination of these structures.

However, it is unclear whether the number of home price observations will be big enough to create the demanded regional focus of indexes, addressing idiosyncratic aspects appropriately. We next discuss whether an index-hedge is appropriate to hedge a single object.

24.3.3 Is an index-hedge appropriate?

The price of housing is subject to considerable fluctuations over time, which in turn lead to significant fluctuations in wealth. As pointed out by Sinai and Souleles (2005), the effects of home price risk on consumers' choices are ambiguous. For a household with utility defined over housing consumption, homeownership acts as a hedge against changes in the cost of consumption, i.e. against rent risk. Housing market risk may thus increase homeownership rates. The extent to which hedging considerations affect tenure choice is mitigated by the existence of frictions on the real estate and on the mortgage market. Transaction costs coupled with borrowing constraints restrict the number of house trades and investors' ability to implement first-best strategies significantly (Cocco 2000). In this context, the existence of home equity insurance is of great interest to investors. However, the extent to which an investor may take advantage of the property derivatives market is limited by its effectiveness for hedging purposes, i.e. by the amount of the idiosyncratic risk of individual properties compared to the risk of the respective index.

Results from previous research indicate substantial variability in returns to particular properties relative to the market. For the Swedish market, Englund et al. (2002) report a standard deviation of the returns of individual properties of 11.3 percent, compared with 7.6 percent for the market as a whole. Goetzmann (1993) also documents a substantial higher variation for individual properties, with standard deviations 1.5 to 3 times higher for four US metropolitan areas. For New Zealand, Bourassa et al. (2005) find standard deviations 1.4 to 2 times higher than the ones of the general market. They relate the degree of variation in price changes among houses within a market to their characteristics and to the prevailing conditions of the housing market at the time of the sale. Atypical houses and houses with characteristics in limited supply, for example waterfront houses, are generally more risky.

Iacoviello and Ortalo-Magné (2003) find a weakly positive correlation of 0.13 between the London housing returns and simulated individual returns at a short

horizon (1 quarter) but a very strong correlation (0.87) at a 10-year horizon. The capital returns to a single housing unit, r_t^{h} are defined as

$$r_t^{\mathrm{h}} = (p_t^{\mathrm{I}} + v_t) - (p_{t-1}^{\mathrm{I}} + v_{t-1}), \tag{24.1}$$

where p_t^{I} is the log of the home price index and v is the idiosyncratic noise term with $E(v_t) = 0$ and $E(v_t^2) = \sigma_v^2$. Syz et al. (2008) perform an analysis on idiosyncratic home price risk in the greater Zurich area. The availability of geographically disaggregated indexes allows the returns on individual properties to be approximated. They assume that the idiosyncratic variation of individual housing returns is captured by the variation of the local index returns around the returns of the market index. Note that this method is likely to underestimate true idiosyncratic risk, as the regional segmentation only represents one source of idiosyncratic risk. The estimated idiosyncratic volatility of the returns σ_v is equal to 0.082 while the volatility of the yearly index returns σ_I is 0.054. The correlations are indeed very high, ranging from 0.77 for 4-year, to 0.89 for 8-year and 0.96 for 12-year periods. These results confirm the importance of designing hedging instruments with maturities of at least five years, as correlations are higher at longer horizons.

24.4 Conclusion

Housing is one of the biggest financial assets that most households will ever own. However, management of housing risk is difficult, since there are virtually no instruments that insure against rising or falling home prices. The financial solutions which we describe in this chapter, would be able to allocate risks and returns more appropriately.

Linking the financial instruments that are commonly used in the context of housing, building savings, and mortgages, to a home price index addresses the issues naturally. The result of their application is a reduction in the risk that a prospective owner cannot afford the dream home if home prices rise, or that a current owner is forced to sell his home if the mortgage is no longer covered. Moreover, the proposed instruments improve the allocation of wealth significantly.

The accuracy of the hedge, however, is fundamentally different for the two instruments: while a regional home price index may reflect perfectly the needs of a prospective homeowner, it will always create a tracking error when used by a current homeowner to hedge his individual house. However, especially for longer hedge horizons, the bulk part of housing risk can still be eliminated.

Providing insurance to the common man is the *raison d'être* of financial institutions. There is no reason for them to abandon that role when it comes to housing.

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Chapter 25

Housing Futures: A Role for Derivatives?

Susan J. Smith

25.1 Introduction

Readers of the popular press might be forgiven for thinking that the entire fallout from the current banking crisis can be laid at the feet of a poorly-regulated US mortgage market. Or, at the very least, that it should be blamed on the excesses more generally of lending on residential property. This is probably an exaggeration. Nevertheless ongoing financial turmoil is certainly, in part, a crisis of mortgage lending and borrowing. It reflects the failure of complex credit markets whose unprecedented expansion enabled governments to favor owner-occupation, turning it into the tenure *de rigueur* for the more developed world. So it is hard to escape the fact that housing is deeply entangled with both the origins and effects of the "credit crunch" of mid-2007. Likewise, while there is no quick fix for the global balance sheet – notwithstanding the efforts of a G20 summit hosted in London during April 2009 – it may be that the housing economy contains the seeds of a solution. To that end, the governments of countries whose housing systems are anchored on owner-occupation face a new challenge: whether to repair the damage, in an effort to restore "business as usual"; or whether, more ambitiously, to entertain a different kind of financial future for housing. That decision is the subject of this chapter.

The integration of mortgage and financial markets which underpins the "mortgage finance revolution" (Green and Wachter, Chapter 18, this volume), and whose disintegration is at the heart of today's financial disarray, merits attention for many reasons. Critically, however, this connection is one which linked households' budgets more extensively and more inextricably than ever before into global flows of credit and cash. This fundamentally changed the mix of financial risks to which households were exposed without any parallel shift in the way such risks are managed. So at a time when so much attention is focused on the impact of economic shocks on large institutions and whole economies, it is also worth asking whether enough is being done to recognize and mitigate the financial risks of individual home occupiers. The financial beliefs, behaviors, circumstances, and

decisions of households are, after all, one key to the stability and recovery of the housing system as a whole.

As we have already seen, owner-occupation is the style of accommodation that between two-thirds and three-quarters of households rely on for shelter; it is the form in which they hold most of their wealth; and it is the security against which they anchor the majority of their debt. Phrases like "safe as houses" pepper the English language, underlining the extent to which – in the English speaking world – ploughing money into owned homes has been regarded, by households and government alike, as a hallmark of wise money management and a sign of responsible citizenship (Smith 2008). However, this *status quo* has been undermined by the economic shocks of the late 2000s. These have, as they spill into falling incomes, sliding prices, and a new generation of credit constraints, drawn attention to just how risky the majority housing position is for households' financial fortunes, for family welfare, and for social wellbeing more broadly.

Some of the financial risks associated with housing and mortgage market dynamics have, to be sure, been apparent for years; but others are newly emerging, or at least their impact is becoming more marked. For example, they extend beyond the problem of unsustainable debt, to include the price and liquidity risks that erode many households' major store of wealth. Recognizing this, the opening section of this chapter argues that current methods of risk management and mitigation are limited by their exclusive preoccupation with the credit side of the equation. The second substantive section of the paper asks whether the equity-based methods and instruments of risk management introduced in previous chapters can more effectively be used to meet key policy goals. The final section asks what practical and ethical barriers remain.

25.2 Owner-occupation: Managing a Risky Business

Owner-occupation may be the dominant tenure type, but it is a strange mix of money and materials. It is a style of accommodation that is simultaneously a service (shelter), a highly heterogeneous consumption good (home), and an investment vehicle (residential real estate). It is also the only leveraged investment that is widely available to the general public; and it is financially attractive because the returns (over the medium term) can be high and are usually tax-advantaged. Furthermore, until very recently, these returns could be used as collateral for substantial amounts of extra mortgage borrowing – loans that are secured against owned homes, but used to fund consumption of all kinds. All this helps explain the degree of "buy-in" to home ownership, and to mortgage debt, that countries like the UK, USA, and Australia have seen in recent years.

Turning housing into a financial instrument is nevertheless risky – as risky as engaging with many other types of investment, and every style of debt. But although two kinds of financial risks are widely encountered in relation to housing; only one is routinely profiled and actively managed. *Credit risks* are in the news; they refer to the prospect of mortgage default, arrears, and repossession – events triggered by systemic shocks (rising interest rates and growing

unemployment) or biographical disruptions that impair earnings or increase costs. These risks have been underlined in recent years as the advent of low interest rates, risk-based pricing, and a (US-style) use of securitization extended mortgage borrowing, and therefore home ownership, into previously "underserved" markets. They have been heightened, too, by a (UK–Australia-style) inclination to consolidate and accumulate debts into mortgages, where borrowing is cheap (compared with secured loans), tax-efficient, and relatively well-regulated; but where loan-to-value ratios can be high, and the income multiples required to sustain the average debt have been rising.

But owner-occupiers are also exposed to price and liquidity or *investment risks* in housing markets. These are less widely discussed, though they are, arguably, increasingly critical for the financial wellbeing and wider welfare of home buyers. This is because – as the chapters in Part II of this book have shown – in settings like the UK and Australia, housing wealth has *de facto* become a financial buffer and an asset-base for welfare, not just in older age but, thanks to equity borrowing, across the entire life-course (see also Benito 2007; Smith et al. 2007, 2009; Parkinson et al. in press). In the current housing cycle – as in previous booms and slumps – it has become clear that home prices can fall quite rapidly (in real and nominal terms), raising the spectre of negative equity, especially for recent buyers. Even those who have a substantial equity cushion are vulnerable if their owned home (which usually accounts for the majority of personal wealth) performs below average, or less well than other financial assets.

Critically, as recent events starkly show, these credit and investment risks are closely linked. Even a small rise in mortgage default can depress prices, limiting the options to manage debt by trading down or selling up. New credit constraints (a new round of mortgage rationing) add to the stickiness of the housing market, shutting out first-time buyers who, ironically, might otherwise wish to take advantage of newly-affordable prices (and, in the current slump, low interest rates). These decreasing property values can, at the same time, undermine households' key financial buffer, and may produce negative equity or "debt overhang." Given how vulnerable households in the owner-occupied economies are to a *mix* of credit and investment risks, it is perhaps surprising how squarely risk mitigation in relation to owner-occupation has hitherto turned on just one side of the equation – the management of debt. This, implicitly, is cast as the route to mitigating the full range of housing's financial uncertainty.

25.2.1 "Business as usual:" the management and mitigation of debt

Unsustainable debt is a pressing problem for home-buying households as well as for governments and financial markets. This is underlined in recession, but has been apparent for many years. Even in the UK, where there is at least some state support for those mortgagors who lose all their earned income (under a scheme known as "income support for mortgage interest"), and where there is notable lender forbearance in the face of repossession, researchers consistently show that

mortgage payment safety-nets are at best threadbare (Kempson et al. 1999). There are social (health and welfare) as well as financial consequences of mortgage stress (Ford et al. 2001), and little comfort to extract from the most comprehensive review to date of the state of the art. Ford et al.'s (2004) analysis of risk-mitigation – drawing from a range quantitative and qualitative sources – found that little more than one in ten (12 percent) of UK home buyers have adequate short-, medium- and long-term cover to protect them against the risks of mortgage default and repossession. In a country like the USA, where the welfare safety net has never been well-developed, risk-mitigation arrangements are less available still. The same might be said of Australia, which for a time seemed insulated from the 2007 downturn, but where housing wealth has always been expected to fulfill a significant welfare role as an alternative or supplement to State support.

An enduring awareness of, and sensitivity to, unsustainable debt by researchers and policy-makers is nevertheless what forms the basis for action as mortgages default and foreclosures (repossessions) rise. Worst hit is the USA where, in 2008 alone, 1.5 million foreclosure actions were taken, putting nearly 3 percent of all home loans into foreclosure by the end of the year. Nearly three-quarters of repossessions are clustered in Arizona, California, Florida, and Nevada where as many as one in 76 households have entered the process. In the UK, the repossession rate is very much lower – less than 0.4 percent, or 1 in 290 mortgages at the end of 2008 – a figure sustained not least because lender forbearance is higher and borrowers are better protected (Kempson 2008). In Australia, where mortgagors generally have flexible, variable rate loans, mortgage stress reduced as interest rates fell between 2008 and 2009 (North 2009). Though some debts clearly are not sustainable, it is not yet known how the credit risks encountered by Australian home-buyers will play out.

What *is* apparent is that although theoretical innovation has advanced understandings of the way credit risks are produced for, and managed by, borrowers (see, e.g., Langley 2008), and while new interdisciplinary research is improving our appreciation of the international reach of such crises (Retsinas and Belsky 2008), in practice the patchwork of state safety-nets and private insurances introduced to manage these risks has more loopholes than ever before. Public funds are tight and private solutions tend to be riddled with conditions, ratings, and exclusions that compromise their scope and leave the system of debt mitigation in urgent need of repair (Belsky et al. 2008).

It is the challenge of repair – of getting back to "normal" in relation to the sustainability of housing costs and the operation of lending systems – that infuses the various mortgage rescue packages that were, in 2008–9, rolled out across the home ownership societies of the English-speaking world. The overriding aim is to support those who can to stay in their homes by helping them service their loans. To this end the common tactic is to find ways to postpone, or exceptionally to reduce, borrowers' monthly debt repayments.

Australia's mortgage rescue scheme, announced in April 2009, is of this kind. Available to those who have loans with one of the four major lending banks and who suddenly lose their income, this scheme takes the form of a "payment holiday" which can be enjoyed for up to a year. Few details are yet available, but it seems likely that the loan and the interest will simply roll up in that time. The

UK has a more developed five-point plan to prevent repossessions, but at its core is the homeowner mortgage support scheme, announced in December 2008, for implementation in April 2009. Underwritten by eight large lenders, who together cover about 70 percent of the market, the initiative is aimed at households in short-term difficulties, for example where one of two incomes has been lost, or when an earner is temporarily underemployed. It is a means tested benefit, with tightly defined eligibility criteria (which practically no one, at the time of writing, seems to have met). As in Australia, the scheme allows borrowers to roll up their interest payments (up to 70 percent, over a maximum of two years) deferring rather than reducing debts on the assumption that individual's financial fortunes, like those of the economy as a whole, will recover. (The plan also includes income support – a concession to households who lose all income, reducing (from nine to three months) the waiting time before the state picks up their mortgage interest payment – as well as financial advice and help for jobseekers.)

The USA, where the current credit crisis first appeared, has considered a range of ways of helping mortgagors in distress. The homeowner stability plan, announced in Phoenix in February 2009, is innovative in that it offers a genuine reduction in monthly housing outlays for two groups of borrowers. This will be achieved by applying lower interest rates, through a mix of refinancing and loan restructuring. Like its counterparts in the UK and Australia this plan requires the co-operation of lenders; but in contrast to these other jurisdictions, the task will be achieved largely by an injection of cash into the Government Sponsored Enterprises, Fannie Mae and Freddie Mac, enabling them to fund low-interest rate loans.

Part of the plan is to help the four or five million "responsible homeowners suffering from falling home prices." These are borrowers who are feeling the pinch from high loan repayments, and who might previously have been able to refinance to take advantage of the recent fall in interest rates (e.g., because they have good credit histories). They are prevented from doing so by falling property prices which take their loan-to-value ratio over the 80 percent threshold that lenders now require. The more innovative part of the plan, however, is to help those with subprime loans whose home is at risk. Here, lenders must work to reduce debt-to-income ratios to at least 38 percent; then government funding will reduce it further to a sustainable 31 percent for a period of at least five years.

The aim of all these schemes is to keep borrowers in their homes by helping them manage their debts: some roll debts up in the anticipation that, in the medium term, incomes will increase, or the market will recover, enabling homes to be traded on. None of them reduce the capital people owe.[1] And none of the traditional debt-mitigation solutions, none of the newer government-backed schemes, and none of the risk-sharing schemes currently under development directly addresses investment risks. Nor do they make use of the fact that housing is – not withstanding its highly mortgaged state – a significant financial asset. Even households in negative equity hold the title to any future price gains that may be reaped; and in theory these could be bought and sold as easily (or more so) than the property to which – in a conventional housing market – they are attached. Nevertheless, solutions to housing risks inspired by the equity side of the equation have never occupied center stage.

25.2.2 Innovative instruments: an asset-based approach

The starting point for an alternative way of handling the financial risks of housing is in the concept of equity share, introduced by Whitehead and Yates (Chapter 20, this volume). As part of a plan to support the construction industry through recession, as well as to promote its low-cost home ownership programme, the UK government in particular has actively promoted shared ownership schemes and shared equity mortgages. This has created a style of home-occupancy which feels quite similar to owner-occupation, but which is less costly to residents simply because the investment returns are shared with a non-resident partner. Yet, as Whitehead and Yates point out, this kind of arrangement, which is a potentially innovative approach to the management of housing investment risks, has in practice been seen (and used) as an affordability aid, to enlarge the margins of home ownership, not as a risk-sharing vehicle.[2] The exception, perhaps, is in the UK's new "mortgage rescue scheme," which offers a minority of vulnerable households the possibility to manage arrears (and possibly, in future, negative equity) by entering a shared ownership arrangement with a social landlord.

An aversion to engaging more generally and directly with investment risks contrasts with the approach to financial risks routinely used by large institutions as they manage their mix of assets and debt. Large institutions rarely use traditional insurances or debt mitigation products; generally they employ a range of innovative cost-effective financial instruments which were invented as an alternative. These instruments, known collectively as derivatives, are contracts (forwards, futures, options, and swaps) which effectively separate the investment returns (and losses) on an asset from its ownership and use. While the value of derivatives depends on the performance of underlying assets (or indexes), the contracts can be traded independently, providing both an investment opportunity and a means of transferring risk. The resulting markets are large and (for the most part) liquid. In essence, moreover, they are markets for risk management, not for speculation (though investors as well as hedgers are needed for them to work).

Juxtaposing the words "derivatives" and "housing" has, over the past two years, generally been the prelude to a thorough-going critique of the follies of financial markets. And as previous chapters have shown, the loosely regulated packaging of mortgage debt into tradable assets (and derivatives thereof) has clearly gone badly wrong. It has been a source of risk *for* households, not a source of efficiency or a solution to uncertainty. Yet there is a compelling logic behind the idea of creating a market for *housing* derivatives – that is, for engineering an encounter between housing (not mortgage) and financial markets. This innovation has often been talked about but its impact is still very small.

The idea of creating a market for residential property derivatives has become closely associated with the work of economist Robert Shiller, who has, amongst scholars, probably done most to advance the idea theoretically and in practice. But the concept has a variety antecendents (LeComte 2007), and even its modern formalization is at least a decade-and-a-half old (Gemmil 1990; Dwonczyk 1992; Case et al. 1993; Thomas 1996). Such a market was not feasible prior to 1982, the year in which it became possible to settle derivatives contracts in cash rather than by physical delivery (Millo (1997) provides a fascinating account of this shift).

What is intriguing about this idea is that it contains the possibility to build the notion of equity (and risk) sharing into the mainstream housing system in ways that could benefit both owners and renters. In fact, such instruments could transform the way housing is experienced, providing home-occupiers with the flexibility to determine how much of their wealth they hold in their homes, how much of their home they own, and how much of their income they wish to spend on, or invest in, other things. And all this without changing the style or cost of their housing services. This, perhaps, is why the arguments in favor of trading these financial instruments have always been as strongly rooted in social arguments as in economic logic.

The economic logic is in itself compelling, as previous chapters have shown (see also Shiller 2008a). Housing is a major asset class which, in physical form, is expensive to hold, costly (and slow) to trade, and has complications which close it off to the wider investment community. These complications include the fact that most residential property is owned by small investors (often individual households) and is simply not available for others to buy. Housing is also "lumpy." Notwithstanding the option to buy equity shares, and other kinds of fractional ownership, residential property cannot be traded in small increments, so it is not like other common investment vehicles. The consequence is that large institutions (insurers, pension funds, hedge funds, and so on), like the majority of individuals looking to enter the housing market at some time in the future, have little residential property in their investment portfolios. This is anomalous in a business sense, because residential property performs well in the long term (HM Treasury 2003) and may be a key means of portfolio diversification (Labuszewski 2006).

On the other hand, those who *do* hold residential property (homeowners, buy-to-let landlords, builders, and property developers) tend to make it the centerpiece of their wealth-holdings. They are therefore vulnerable to the kind of price and liquidity risks which are not conventionally insurable (and the few attempts to make them so – for example home equity insurance schemes – that do not use derivatives, have not worked effectively). Derivatives, however, make it possible to hedge housing risks in ways that have not previously been available. The possibility to "go short"[3] on housing can protect owners against price instability, while also proving attractive to a group of professionals known as "market makers," who are instrumental in creating liquidity.

The economic case, in sum, is this. With a liquid market in housing derivatives, those overexposed to property can sell off their risk (home buyers no longer need to keep all their financial eggs in a single housing basket, for example). Those underexposed to property, including renters, can buy into home price appreciation, even if they do not own a home of their own. That is they buy into the fortunes of the housing market without incurring the cost of acquiring, holding, and selling property. Equally, home buyers who want the use of housing, but not the volatility of prices, could own and occupy their home, retaining only a portion of the associated investment risks. There is also an incentive (for market makers) to take positions between these two. Derivatives are, in short, a potentially creative solution to some of the financial insecurities associated with home ownership.[4]

Importantly, though, there is a *social* argument in favor of this arrangement. Empirical studies suggest that housing derivatives can benefit poorer, as well as

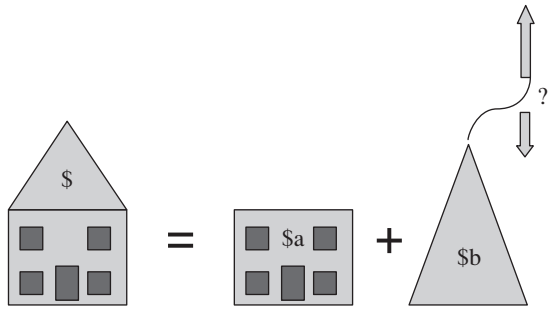
better off, households (Iacoviello and Ortalo-Magné 2002; Quigley 2006), while Andrew Caplin and colleagues have shown that the "partnership" principle is at least as attractive for managing investment risks as it is for managing credit crises in housing (Caplin et al. 1997). In a later work (Caplin et al. 2003) dub housing derivatives as "the human face of capitalism" because they extend the financial instruments that protect large institutions into the homes of ordinary people. Yale economist Robert Shiller, whose longstanding intellectual and professional interest in housing derivatives revolves around the vision of "a radically new risk-management infrastructure" (2003, p. ix), equally sees these instruments as part of the "democratization of finance" (Shiller 2007), and therefore as part of the "subprime solution" which he has most recently proposed (Shiller 2008b).

25.3 Putting Theory into Practice

Notwithstanding the combination of economic logic and social imperative driving so much academic interest in residential property derivatives, attempts to build the liquid market that might transform the housing system have yet to succeed. In May 2006, the Chicago Mercantile Exchange – at the time the world's largest and most diverse financial exchange – listed a range of options and futures based on the performance of a US home price index (Labuszewski 2006). It had a promising start, but quickly faltered, and at the time of writing there was open interest but no active trading. At the same time, the UK – whose pioneering attempts to nurture exchange-traded housing derivatives in the early 1990s failed almost before it was launched (options and futures on the Nationwide House Price Index were traded on the London Futures and Options Exchange in 1991, but the market closed after a few months) – had built a fledgling over-the-counter trade in contracts based on the Halifax House Price Index (see Chapter 22, this volume). There are several other initiatives currently in train: arguments in favor of a new round of exchange-trading in the UK, the growth of the over-the-counter market in the USA, indexes that could trade in Canada and Australia, and a scattering of interest in other jurisdictions. So it is worth asking what, should these markets gain traction, it may mean for the future of housing policy, housing finance, and home ownership.

Housing derivatives are constructed by financial engineers, priced by economists, and traded by experts. All of these positions are set out in previous chapters. In the remainder of this essay, I suggest that one way of appreciating how derivatives might mark a change of policy and culture for "home ownership" societies is to use a relatively simple thought experiment, based on the "equation" represented below. This is not – with apologies to the discipline of economics – a real equation. Thought experiments are "devices of the imagination, used to investigate the nature of things" (Stanford Encyclopedia of Philosophy). This particular "device" is offered simply as a means of thinking systematically about the way housing derivatives could work to help manage the risks and share the gains associated with owning or occupying residential real estate.

The left-hand side of the equation (H_{si}) represents the cost of the "package" which home seekers currently buy: a mix of housing services, indivisibly tied to an investment vehicle (a price that could rise or fall in the future). The right-hand side



represents what financial engineers can do to separate: (i) the cost of owning and using the home (H_s); and (ii) the price of the investment vehicle (H_i) attached to it. There is already a market for the package on the left-hand side (H_{si}); that is the physical housing market as it exists today. What could be gained for policy and practice by creating a market for H_s and H_i separately?

One such market already exists, since renting comes with no investment risk (or gain) to home occupiers. Similarly, traditional shared ownership and shared equity schemes of the kind introduced earlier are precisely about enabling people to enjoy the full range of housing services contained in their property, while only owning or buying a fraction of it. Traditional equity share is, however, limited mainly by the fact that few investor "partners" outside the social sector are attracted to this style of housing investment. This may be a question of liquidity, but it is more likely to reflect the fact that holding part of a physical property is very much like holding the entirety of a property (a lumpy asset that is costly to acquire, hold, and sell), but is less flexible and carries substantial "reputational risk." Such investors also face the difficulties of adverse selection and moral hazard (Shiller and Weiss 1998).

These are precisely the problems that index-based housing derivatives were invented to address. What, then, are the merits, practicalities, and policy implications of developing a "synthetic" housing market, or a trade in housing derivatives? Insofar as the answer to this question has previously been aired, examples are scattered across a wide-ranging literature whose concern is more often with the *idea* of housing derivatives than with their practical application beyond the financial market place. Table 25.1 is an attempt to collate more systematically the range of applications that might be developed from these ideas; it offers a systematic overview of what a liquid market for housing derivatives could, in theory, achieve for housing, urban, and social policy.

Put simply, derivatives make owned housing "divisible:" they separate the cost of housing services (the ownership and use of homes) from the price of the investment vehicle attached to them (something the physical market can do only partially and clumsily, by way of a tenure divide). The investment returns (gathered

Table 25.1 Some policy applications enabled by residential property derivatives

Investing into a home price index	*Selling, or hedging, housing investment risks*
Savings gateway into owner-occupation Down-payments "insured" against home price inflation	*Affordability* First time buyers can "sell" part of their future investment return, lowering entry costs
Promote financial inclusion House-price linked savings are available to renters as well as owners	*Mortgage rescue* Borrowers in arrears unlock future investment returns to finance short-term debts (as an alternative to foreclosure/ repossession)
Alternative to buy-to-let Reduces pressure where home-buyers are out-competed by property investors; property investors still secure investment returns	*Portfolio balancing* Owner-occupiers exchange future housing gains for a wider range of investments
Enhance labor mobility Movers from high-price location acquire cheaper home at destination; invest the difference in vehicles indexed to higher prices at origin; avoid being priced-out on return	*Home equity insurance* Protects home values: prevents urban flight; enhances buy-in to regeneration; keeps whole market liquid
Flexible equity share Wider buy-in from investor-partners; easy, cost-effective incremental "staircasing" in either direction for home occupiers	*Cost-effective equity release* Reverse mortgage/equity release schemes are cheaper if providers can offset capital risks
Erase part of the tenure divide? Every residential property can be occupied with or without the purchase of all or part of its associated investment returns; every home has an element of equity share and is held in a partnership of home stewards; all home occupiers have the option to hold the residue of their wealth either in their own home, or in a basket of other properties, or as a portfolio of other investments	

into a home price index) can then be bought or sold incrementally, and independently of the ownership and use of the housing stock itself. Table 25.1 thus effectively provides a sketch of what could be achieved by investing into a home price index, on the one hand, and by going short on the index – or hedging exposures to price risk – on the other, if this were a liquid market. The following discussion amplifies the contents of Table 25.1 by looking at these two "sides" of the market in turn. The costs, benefits, and appeal of the various schemes identified will obviously depend on the state of the wider housing market. However, it is also possible that by contributing to the liquidity of a market for housing

derivatives, such initiatives will have a stabilizing effect on the housing economy, and make for a more efficient, and therefore less risky, housing environment.

25.3.1 Going long: derivatives as an alternative housing investment

A liquid market for H_i depends on gathering the price dynamics of individual properties into a "basket," using national, regional, or local price indexes. Buying into the performance of a home price index as a straightforward investment (an alternative to acquiring specific properties) may well be attractive to a range of public and private institutional investors for reasons set out above. For households, buying into, or being serviced by, products which make use of this "synthetic housing" idea could resonate with policy goals in at least four ways.

First, housing derivatives could be used to provide *a savings gateway into owner-occupation*, protecting the wealth of first-time buyers against home price inflation. An "insurance" motive of this kind has been identified by Banks et al. (2004) as a key reason why owner-occupied housing is currently an exception to the "rule" that risk-averse individuals tend to avoid risky assets as volatility increases. They show that in the USA and, especially, in the UK home buyers enter the market early, with high levels of debt, and with a high proportion of their wealth diverted into property. This they argue, is because of – not despite – volatile prices. When markets are rising, households insure their savings against future price appreciation by sinking them into property as soon as they can, and perhaps before they need, or can afford, to. As a result they are vulnerable to price and liquidity (as well as credit) risks. Yet, as Syz (Chapter 24, this volume) shows, with a savings gateway linked directly to the performance of the property market, new households could postpone ownership until it is both appropriate to their needs and affordable.

Using savings accounts to smooth the transition to home purchase is not, of course, a new idea. In an earlier period of mortgage rationing, holding savings in a lending bank or building society was a key condition for securing a loan. The model which formalizes this – contract savings, or bauspar schemes – is best illustrated in Germany, where it serves a little under one-in-three mortgagors and has endured for more than half a century. The bauspar housing-savings scheme creates large deposits over several years and channels them directly into mortgages. This keeps loan-to-value ratios low and reduces interest-rate risks. Several Eastern European countries have adopted this model, and its suitability for a range of developing economies is currently under debate. The only alternatives so far are tax-advantaged housing-savings schemes, such as the one adopted in Hungary between 1996 and 1998; and first-home buyers deposit savings schemes, like that announced by the Federal Government of Australia in late 2008. The latter takes the form of a high-interest rate savings account, which attracts a government boost (an injection of 17 cents per dollar invested by the saver on deposits up to AU$5,000 a year, with a total fund capped at AU$75,000). The interest is tax-free when withdrawals are used for home purchase.

Intriguingly, none of the existing "savings gateway" schemes links savings rates to home prices. The UK is in this sense unique in having laid the foundations for

such an innovation. Here there were, by 2006, over 20 home-price linked savings accounts and bonds on the market, whose returns are linked to the Halifax House Price Index. Most of these were enabled (hedged) by positions taken by what was then Abbey Financial Markets (Ratcliffe 2006). However, they come with no subsidy or tax advantage; and this may be why, despite being on offer as early as 2000, they did little to ease the route into owner-occupation for Britain's first-time buyers. The options young households had were to wait for an inheritance (intergenerational transfers have played an important role in raising deposits for UK first-time buyers) or use debt-based solutions, including interest-only or high loan-to-value mortgages to buy into a rising market before it left them behind. Yet, it takes very little imagination to see how a small adjustment in the law (as with Australia's deposit savings scheme), exempting the gains accrued via (say) an accredited price-linked "housing savings gateway," providing these are wholly rolled into home purchase, could – should housing markets recover sometime soon – significantly ease the path into sustainable home ownership for a range of first time buyers.

Second, derivatives could be used to promote financial inclusion by *widening access to the investment returns on housing*, extending them to renters as well as owners. A key marker of tenure inequality in the USA, Australia, and especially the UK, pertains to the financial returns on home occupancy. It is the promise of financial returns that nudges people who might otherwise prefer to rent, or have needs that are best met by renting, to make the shift to home purchase. The opportunity to participate in societies like those once referred to by the UK's Prime Minister Gordon Brown as "Britain's home owning, *asset owning*, property owning democracy" (cited in the *Times*, April 1, 2005, my emphasis) is compelling. But this is a big financial risk, and for those on the margins of ownership, it does not always pay off. In contrast, "virtual" housing can be bought in small as well as large parcels. What John Edwards, CEO of property consultancy Residex, thinks of as a "synthetic home" can be bought in increments, and as a "basket" of properties, rather than a single piece of real estate. This style of housing investment is cost-effective to enter, and compared with selling property, the proceeds are generally cheap and easy to cash in. Depending on taxation rules, such vehicles might even increase the appeal of renting as an alternative to ownership. They certainly provide an opportunity to even up the many financial inequalities between owners and renters that are currently sustained by the special tax treatment of the investment returns on owned homes.

Third, a market for H_i could also be used to *enhance labor mobility*, potentially improving the willingness of workers in high-priced housing markets to move to regions where prices are lower. Workers in the South-East of England, for example, could trade down when they change jobs, and invest the proceeds into (say) an index of London home prices. This would protect their capital against home price inflation, and prevent them being "locked out" by escalating housing costs, should they later wish to return. More generally the possibility to use home-price-linked investment vehicles to hedge the spatial as well as temporal ups and downs of residential property could make labor mobility neutral to, rather than (as is currently the case) highly contingent on, housing market dynamics.

Fourth, having the opportunity to invest in the performance of a home price index might also *increase the supply and affordability of owner-occupation* by providing

an alternative to buy-to-let in high demand areas. The returns on buy-to-let in the UK have, for as much as a decade, been achieved primarily through capital gains. Rental returns have not performed as well. Derivatives offer an alternative for housing investors, freeing up the more pressured areas of the housing market for home-seekers. "Virtual" property investments which take the form of savings accounts and bonds have the disadvantage that they cannot be leveraged (with mortgage finance) in the same way as the purchase of a physical property. However this is not true of derivatives contracts themselves. So for the professional investor interested purely in the possibility of financial returns, derivatives do provide a real alternative to direct property investment. For the small buy-to-let investor (the home buyer with a second property, for example), this lack of leverage may be a disincentive, but at the same time property-price-linked bonds come with no management costs, no costs of maintenance, repair or insurance, and no dependence on the vagaries of a rental income. So at a time when the buy-to-let sector is in trouble (the number of UK buy-to-let mortgages that were three months or more in arrears more than tripled during 2008; buy-to-let repossessions were by then forming about 10 percent of all UK foreclosures), derivatives-backed price-linked savings accounts and bonds look to be a safer option.

Finally, the opportunity to buy into an index of home prices, rather than into whole properties or fractions thereof, might be appealing to a range of institutional partners interested in *the development and delivery of more cost-effective, more widely used, equity sharing arrangements*. It is likely that such arrangements would be built into a mortgage contract, and would feel to the borrower much like the HomeBuy mortgages currently used by the British Government as an affordability aid. However, as Whitehead and Yates (Chapter 20, this volume) note, basing the returns from equity share arrangements on the performance of an index rather than on the price change of individual properties has the potential to widen the scope and role of such schemes. It provides the occupying partner with an incentive to maintain and improve the property (since they keep the proceeds if they achieve a price rise higher than an agreed range around the index), and it protects the non-occupying investor against partners who run down the value of their property, since it is the occupying partner who bears the costs if prices rise less than (or fall more than) the index. Such an arrangement – which presumes a liquid market on exchange or over-the-counter in index-linked contracts – might attract more nonoccupying investor partners, and provide home-buyers with flexibility in the proportion of their wealth they invest into a single owned home.

25.3.2 Selling short: derivatives as a hedge

The success of a market for home price performance (H_i) depends on there also being a market for homes whose owners expect little of the investment return (H_s). Derivatives do not remove risk, they transfer it; so for everyone seeking to buy H_i, there has to be someone willing to sell. Who would take this position? Some large institutions (builders and property developers, for example) might wish to hedge their housing exposure (as will those who provide the savings vehicles set out above). But as Table 25.1 intimates, the opportunity for hedging housing risks

could equally benefit home-occupiers in any one of the following five situations. As we shall see later, this is not to suggest that households should themselves "dabble in derivatives." Most, if not all, of the following strategies would need to be enabled through products and policies designed by governments and the providers of retail financial services (mortgages and insurances): entities who themselves use derivatives to make these tactics possible.

First time buyers who are currently priced out of the market could get a foot on the housing ladder by buying H_s, which is much cheaper (perhaps by as much as 25 percent) than H_{si}. Effectively, on purchase these buyers would sell a portion of the investment returns (H_i) on their home. This would be managed within a mortgage, but it is an equity solution which could substantially improve housing affordability (and would also be a way for borrowers and lenders to share home price risks). It also offers a safer, more sustainable way of widening access to owner-occupation than the alternatives (high loan-to-value mortgages, low interest "teaser" rates, and so on), especially when interest rates are volatile or rising. A version of this idea has already been aired in the form of shared equity or shared appreciation mortgages, which are settled with reference to the price change of individual properties. These products have been tried and found wanting for a variety of reasons, including contract design and the split of risks and returns between borrowers and lenders. Derivatives make for a much more flexible approach which avoids the costs (to all parties) of moral hazard, yet which effectively allows home buyers to vary the proportion of their own property returns they receive over a specified period of time. This innovation does not, of course, solve the problem of how to ensure that borrowers get a fair deal. Only governments and regulators can do that.

Mortgagors in arrears who have bought the whole ownership package (H_{si}) but who – following economic shocks or biographical disruption – cannot sustain their repayments, could sell some or all of their likely investment returns (H_i) in return for a lump sum or an income stream. Effectively borrowers (even those in negative equity) could unlock the future value of their home in order to offset their mortgage debt. This is not ideal, since it may mean that home buyers who are in trouble today receive little or no benefit from a future phase of price appreciation. But they do keep the title to their home, and their security of tenure. This must be preferable to the wave of foreclosures currently sweeping the USA; and it may, in the end, be less stressful and damaging to households than rolling up outstanding debts in the hope of a brighter financial future whose advent is by no means certain. The idea of enabling households to adjust their mortgage payments continually to anticipate and thereby mitigate the effects of financial shocks is built into Liu's (2006) very flexible concept of SwapRent and is at the core of Shiller's (2009) proposal for "continuous workout mortgages." Both these concepts, could, incidentally, also be used to realize a range of the other derivatives applications examined in this chapter.

Owner-occupiers looking to balance their investment portfolio – households whose wealth is concentrated in their homes – could keep the ownership and use of their property (H_s) but sell some of their likely investment returns (H_i) to reduce their financial dependence on the performance of a single property. The proceeds could then be invested *either* into housing derivatives (an alternative – for those who prefer to hold their wealth as housing – to relying on a single property to perform

at or above average), *or* into a much wider mix of housing and nonhousing assets. A survey of Australian home-buyers completed by Schwartz et al. (Chapter 7, this volume) suggests that the facility to engage in mortgage equity withdrawal has a similar portfolio-balancing role. But this is a much clumsier and more costly way to achieve such ends, since the loan has to be serviced, and the returns on alternative investments only make their mark if they exceed the current mortgage interest rate. Yet this survey, other work in Australia (see Whitehead and Yates Chapter 20, this volume), and some of our own qualitative work in the UK (see Smith et al. 2009) suggests that home-buyers who have – by accident or design – ended up with most of their wealth in their home are interested and, where feasible, inclined to aim for a somewhat broader portfolio in the future. Housing derivatives could enable this.

Owner-occupiers seeking to hedge their investment risks can also benefit from these instruments. Those who prefer a traditional style of ownership may wish to protect the value of their home (if, e.g., they expect to rely on it sooner or later as an asset base for welfare). In this event, they could use derivatives as a direct hedge. That is, they could buy a contract (packaged perhaps as "insurance," or as a feature embedded in a mortgage) which pays out if a regional or local price index falls. The idea of home equity protection is appealing in that it does what no traditional risk-mitigation instrument for housing has offered before; it protects against price (and, indirectly, liquidity) risks in housing markets. That is, it protects the price returns on home purchase for a defined geographical area; it does not, of course, guarantee that a buyer will come forward in all market conditions. Home equity protection has been considered from time to time in the USA since the late 1970s, as a means of stabilizing integrating communities, stemming flight from declining neighborhoods, and encouraging home buyers into regenerating areas where prices are uncertain. These efforts have all been small in scale, and there is only one ongoing scheme: the much-discussed Syracuse project (Caplin et al. 2009) apparently which has less than 200 customers.

The vagaries of property valuation or appraisal, as well as the well-rehearsed questions of moral hazard, make individual home insurance on a property-by-property basis practically impossible. Derivatives provide a viable alternative role not, as Thomas (1996) points out, by pooling risk but transferring it from individuals to institutions; so it is *sensu stricto* an indemnity. For short-term protection (e.g., deposit insurance or negative equity protection) short-dated futures could be used (Gemmil 1990). In the longer run, a more comprehensive solution – protecting home values into older age – might be based on the idea of "perpetual futures," as first proposed by Shiller (1993a,b), and Shiller and Weiss (1994), expanded by Thomas (1996), and alluded to by John Blank (Chapter 22, this volume). Again, Liu's (2006) SwapRent, and Shiller's (2009) "continuous workout mortgages" are relevant. The challenge of using derivatives to achieve such ends is that premiums and payouts are based on the performance of an index not on the idiosyncracies of a single property. The advantage is that this makes such schemes viable. The disadvantage is that it is not clear how to price the products in a way that is attractive to providers and buyers, especially since what little empirical evidence there is suggests that index-related pay-outs may miss their intended targets to varying degrees that are scale-dependent (Sommervoll and Wood 2009).

Older households in need of equity release should, in the event of a market for housing derivatives gaining traction, find an entirely new and more cost-effective product range at their disposal. Existing home reversion schemes, home income plans, and reverse mortgages have proved expensive and unpopular, often requiring a large proportion of the value of a property to be given up (on sale or death) in return for a much smaller proportion of its value in cash. The enthusiasm with which young and middle-aged home buyers greeted a generation of more flexible mortgage instruments – enabling them to make equity withdrawals as well as equity injections via their mortgage account – has not therefore rolled into an appetite for equity release in older age.

The popularity of such schemes does vary between jurisdictions, and there are several plausible explanations for this (some of which are discussed by Williams 2008). But one reason for the high costs to all parties is that equity release schemes (schemes designed for borrowers who have a large housing asset but no income stream to service the loan this might otherwise secure) are expensive for providers. While lenders can hedge interest rate risks and protect themselves against clients' unanticipated longevity (longevity bonds have been available since 2003, though the market is far from liquid), they cannot, as yet, off-set capital risks. This would change with a liquid market in housing derivatives, in ways which, potentially, could improve the financial wellbeing of older homeowners.

Appealing though derivatives might be as an investment opportunity, it is the fact that they offer housing investors of all kinds the possibility to "hedge" that is really innovative. This insurance mechanism is what really adds a social and public policy dimension to such instruments (see Smith et al. 2009) offering a way to mitigating both credit and investment risks within in a flexible system of housing finance. In theory this could transform the affordability, security and sustainability of home ownership, boost financial inclusion in other ways, and achieve both housing and urban policy goals more widely and more sustainably than is currently the case. The next, concluding, section considers the nature of this transformation, and addresses the barriers that stand between an appealing theory and the world of housing practice.

25.4 Where Next?

There are "traditional" versions of some (though not all) of these derivatives proposals, based on the use of both equity and debt. However, working with assets is more appealing than relying on debt in the current economic climate; and among the equity-based solutions, derivatives avoid a number of traditional problems. For example, they are not limited to small or special schemes; they allow equity to be transferred between individuals and institutions in small increments and sold in time-limited chunks; and they do not depend on home-buyers giving up the title to their home. Derivatives solutions also avoid the challenges of adverse selection and moral hazard that limit traditional insurance-based alternatives.

More critically imagining a world with housing derivatives encourages a re-think of the rather peculiar character of people's housing experiences in the "home

ownership" societies profiled in this book. In one of the several qualitative research projects that colleagues and I have completed in recent years in the UK, one home buyer referred to "a complete change of culture" where housing is concerned. She was referring to a shift of mood on the question of housing tenure. There was a time – not so long ago – when owning was a style of accommodation that British families weighed up against an equally mainstream tenure, renting. Today, is, as this observer puts it, the common understanding is that "if you don't own somewhere then you've maybe not quite achieved everything you should"? (see Smith 2008). Perhaps the UK is unusual is having this kind of collective memory: a feel for the fact that nine out of ten UK households were private renters a century ago; that four in ten were accommodated in the social sector during the 1960s; and that what seems like a nation of homeowners today is equally a market of mortgagors (three in five owner-occupiers have a secured loan at any one time). It is possible that because of this – because of the UK's successive "tenure experiments," by virtue of its early interest in equity share, and perhaps because of its geographical proximity to a multitude of housing experiments in the countries of mainland Europe – that British housing might soon find itself again in the vanguard of change. The last row of Table 25.1 captures this idea; it refers to the possibility that owner-occupation as currently conceived may, with the help of a liquid derivatives market, splinter into a thousand tiny tenures; into a new style of home occupancy in which all properties have an element of ownership, and all have a degree of equity share.

Economist Paul Samter (2008) called his recent review of the changing character of households, mortgage finance, and tenure structure in the UK "fuzzy households, fuzzy tenures." He questions the idea and meaning of home ownership and in particular the sharp financial divide between owners and renters. He argues rather for a holistic and tenure neutral approach to the provision, maintenance, and renewal of housing, to the management of housing needs and, by implication, to the returns on housing investment. Samter does not explicitly consider whether derivatives might form a route to this end. But a tenure neutral housing system, in which questions of home occupancy and use (the quality and condition of the stock, and its suitability for a range of accommodation needs) are effectively divorced from questions of wealth-holdings and investment returns, is precisely the "whole" that the cells comprising Table 25.1 add up to. The implication is that a variety of individuals and their institutional partners may hold a stake in (and have a responsibility for) the quality, conditions, and price dynamics of the housing stock. This really would mark "a complete change of culture": if a nation of homeowners, an asset-holding democracy, reinvented itself as a society of home stewards.

Yet, if housing derivatives really are the way to achieve this cultural shift in policy and practice, it is worth asking why the market is so small. If the idea is so appealing, why has it failed to gain traction either in the world of financial markets, or among governments and policy-makers. Some answers to this question are set out by Reiss (Chapter 22, this volume). The disarray of the global banking system, and a dysfunctional mortgage market, is undoubtedly the heart of the problem. The full import of the credit derivatives debacle has still to be weighed, but it will certainly mean that derivatives trading of all kinds is more closely

regulated in future. And this must open up a space of opportunity for governments and policy makers to better align such instruments to social as well as economic ends. That is, housing derivatives have the potential to catalyze a shift away from the "business as usual" model of housing finance and towards a different kind of financial future. For that to happen there are at least three further considerations: these include barriers to liquidity; questions concerning the supply of, and demand for, retail products or derivatives-backed services; and the thorny challenges of market ethics and political imagination. I have introduced these themes elsewhere, in a review of the practical and ethical barriers that stand between housing derivatives and some key policy goals (Smith 2009). Here, they are the basis for my conclusion.

First, there are *barriers to liquidity*. Crucial here may be the quality and viability of the benchmark, which for housing derivatives is a price index. (Indexing is not the only way to create a market for derivatives. LeComte (2007), indeed, argues that the search for alternatives is particularly critical in the case of housing. However, price indexes are the only practical benchmark for this market at the moment.) Home prices are (perhaps uniquely) difficult to track, and many countries still do not have data robust enough to produce tradable indexes. In the UK, the Halifax House Price Index has, hitherto, driven the majority of residential derivatives trading: it contains a long run of easily accessible, transparently constructed data, and is widely accepted as an industry standard. Nevertheless, this *status quo* may change; there are at least six new indexes vying for attention, and a debate is brewing on the merits of *stability* (built into "Halifax-style" hedonic formulae) and *accuracy* (a quality more often associated with the "repeat sales" method that has proved so popular in the USA) (see Clapman et al. 2005).

Equally important for liquidity is the design of derivatives contracts. In the USA, short-dated exchange-traded housing derivatives had a very slow start, perhaps because the contracts – which until recently expired in months rather than years – were out of step with the time horizon of the underlying housing market. This point is raised by all three of the financial professionals writing for this volume (see Chapter 22). In contrast, in the UK, where a lively over-the-counter market for commercial property derivatives is spilling into residential, contracts are more tailored to housing dynamics, going out of 5, 10 and even 30 years. These could be set for more success.

But there are cultural as well as technical barriers to liquidity. There has historically been a sharp division of expertise, opinion, and tradition between housing institutions and financial markets. Many early writings on housing derivatives recognize this. Certainly, in terms of financial instruments, the housing sector, dominated by small investors, has been relatively unsophisticated. On the other hand, financial markets have found property generally and housing in particular surprisingly hard to accommodate, even within relatively straightforward contracts. The picture is, however, changing. The past few years have seen a surge of trade events around property derivatives, and these increasingly include, or indeed are exclusively focused on, the housing sector.

Second there is the question of *supply of, and demand for, retail products*. Most "housing investors" are owner-occupiers, but derivatives are complex financial instruments which may be neither appealing to, nor appropriate for, this

market. Notwithstanding the advent of spread-betting on home price indexes in the UK, and the occasional listing of home prices on Hedge Street, the US electronic marketplaces for small traders, there is no question of home buyers buying and selling futures contracts *en masse*. But on the demand side there is a query over whether consumers are capable of understanding and managing mortgage and insurance products with derivatives embedded in them. This may be an open question for sometime. However, a qualitative study with UK mortgagors recently found that home buyers are not only becoming sensitive to housing investment risks, and lean towards diversification; they seem open to index-based investment and hedging vehicles, and show encouraging skepticism towards the riskier (spread-betting) end of the market (Smith et al. 2009).

This leaves the question of how inclined larger institutions are to package derivatives for the retail market. On the supply side, a flurry of price-linked savings vehicles is encouraging; as are attempts to use housing derivatives to bring real innovation to a mortgage market that has remained unchanged for sometime (Syz et al. 2006). But notwithstanding the range of possibilities listed in Table 25.1, the appetite among providers seems muted. "Reputational risk" looms large where financial products for home-occupiers are concerned. Indeed, as a business proposition, it may in the end prove to be easier, and more profitable, to work with commercial than residential property. Certainly, the market for commercial property derivatives has expanded more quickly than its residential counterpart, even though the latter is underpinned by a much bigger asset class. This suggests that, if there is a case for using financial markets to deliver housing solutions, it may have to be made more actively, through the direct involvement of the policy community.

Third, then, is the challenge for policy and politics of *market ethics*, on the one hand, and the question of *political imagination*, on the other. The extent to which markets can be harnessed to deliver social and public, as well as economic, policy is a moot point. But there is growing recognition that markets are never "natural;" that they always have to be made; and that the way they work is as much a matter of politics as an outcome of immutable economic imperatives. On this point, both Gray (1998) and O'Neill (1998) provide excellent accounts, though it is increasingly evident in the active role of governments as they attempt to rescue the global economy from recession. But it has been clear for some time that there is no reason, in principle, why markets cannot choose, or *be made*, to be compatible with an ethic of care (Smith and Easterlow 2004; Smith 2005). Markets around housing derivatives could take the lead in that respect though the onus is on their providers to prove this, and on politicians to shape such developments and hold them to account.

Which leaves the question of political imagination. There is a high premium attached to evidence-based policy in the world of housing. Rather less is heard about the importance of new ideas. Yet, the chapters in this final section of the book all point to the possibility that housing derivatives could change the way credit and investment risks are experienced, and in doing so may transform the meaning and use of physical housing markets. And the scale of government intervention in housing, mortgage, and financial markets today suggests there is scope for that to occur. The UK government for example has recently spent £200 million buying

up unsold new homes to support the construction industry, and has earmarked the same again for mortgage rescue. By spending that much buying up future home prices to support mortgagors, policy-makers might be able to sustain up to 600,000 households for the three months they now need to qualify for income support. And should the housing market pick up, that will be money in the bank for the public purse, which, if ring-fenced, could be used to improve the quality and condition of the housing stock for future generations.

In the end, however, whether initiatives like this happen, or not, and who benefits if they do, may depend on whether policy makers are able and imaginative enough to incentivise, regulate, and manage a radically new approach to housing finance. If they are, it may be no panacea for a financial crisis, which has spilled into every sector of the economy (Case and Quigley 2008). But it could nevertheless be a step on the road to recovery. It may, indeed, contain the opportunity to rebuild a housing economy that is fairer and more sustainable in the future than it has been in the past. But its success in this respect will depend as much on the reconstruction of politics as on the elegance of economics.

Notes

1. The exception is in the UK where the homeowner support scheme (the "majority" solution) is coupled with a "mortgage rescue" scheme for that small minority of vulnerable groups who, should they become homeless, would be legally entitled to rehousing into the social sector. Mortgage rescue includes: a "mortgage-to-rent" scheme in which households give up the title to their property, but remain in it, as renters; and – for those who can sustain some debt – an equity share arrangement, which enables distressed mortgagors to sell part of their home to a social landlord, who offers security of tenure and charges an affordable rent. By April 2009, about 300 of the 6000 households who may be eligible for this scheme had applied.
2. A recent review of these schemes by Wallace (2008) points to ongoing confusion as to their role: some think of them as a step on the financial path to full ownership; others as a social service, gearing housing provision to a particular range of needs. She also points out that as an intermediate tenure it is in practice very inflexible: "staircasing up" (increasing the equity share) is lumpy, costly and sticky, especially in an appreciating market; "staircasing down" can be equally problematic in a declining market; and mobility may be hampered simply because the market overall is small and illiquid.
3. "Shorting" is a method used by traders to benefit from declining prices. The asset is "borrowed," sold, bought back (at the lower price) and "returned" (minus the profit). It is not possible to go short in the physical housing market; however it is possible to do so in a derivatives market, for example by selling a home price index.
4. This article is about derivatives linked to housing assets. Derivatives rooted in mortgage debt raise different issues, which are too complex to set out here. However, it is important to note that mortgage-backed securities (MBS) are not *sensu stricto* derivatives; nor is there a significant market for them in derivative form. MBS do feature in the complex credit derivatives whose lack of transparency is at the heart of the recent interbank lending crisis. However, it is probably the opaqueness, rather than (derivative) character, of these instruments that underlies their adverse impacts on housing finance.

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