Goodbye, cash?

Banks and governments are toying with killing off physical money. That might not be such a good idea, says **Joshua Howgego**

WHEN Marco Polo visited Kublai Khan at the end of the 13th century, little seems to have impressed him more than that the Khan used paper money. "In this city of Kanbalu is the mint of the Great Khan, who may truly be said to possess the secret of alchemists, as he has the art of producing money," he wrote.

It isn't hard to see why it seemed that way. To a European of the time, money consisted of things such as silver and gold coins that had intrinsic, tradable worth. The Khan simply took common old bark from mulberry trees, pulped it into paper and, with an array of signatures and seals, declared that it had value. No one in the Mongol empire dared refuse it as a means of payment.

Today this idea is so central to our lives that we hardly spare it a thought. But cash – physical money in the form of notes or coins – is losing its lustre. The rise of internet shopping and the increasing convenience of card payments, plus the extra costs for governments and central banks associated with cash, means all the talk is of taking money fully digital.

The necessary technology already exists. But as the dash away from cash gathers momentum, there are increasing rumblings about the downsides. Digital money might not solve all the problems of cash, and will bring a whole slew of new ones too. So do we want it?

Victoria Cleland knows a thing or two about cash. Currently the Bank of England's executive director for banking, payments and financial resilience, she was until recently its chief cashier, meaning her signature appeared on all banknotes issued in England. Cash fulfils three crucial functions in modern economies, she says. It is easily exchangeable from person to person; everyone knows precisely what it is worth; and in normal economic circumstances, its value barely changes from day to day.

87%

OF PAYMENTS IN SWEDEN ARE ALREADY CASHLESS

SOURCE: SWEDISH RIKSBANK

There are plenty of other tradable assets around, from gold bullion to diamonds to houses, but none fulfils all these functions as neatly as cash does. A whole complex financial system including central banks has built up around it (see "The rise of the bank", page 38).

But the use of cash is in free fall. According to trade association UK Finance, fewer payments will be made with cash than by debit card in the UK for the first time in 2018. The proportion of cash payments in the UK dropped from 62 per cent of transactions in 2006 to 40 per cent in 2016, and is projected to fall to just 21 per cent in 2026 (see "Money down the drain", page 38). It is a similar story of "demonetisation" around the world, as cards and mobile payment apps take over the functions of cash.

That change has largely been driven by consumer convenience, but governments and central banks have their own reasons to think beyond cash. Coins and notes must be minted or printed – and in far greater quantities than are in use at any one time, to keep shops, retail banks and cash machines in stock. That leads to a paradox of cash. "We are seeing a slowdown in cash used for transactions, but we are still seeing an increase in demand for cash," says Cleland.

Part of the problem is rock-bottom interest rates, and the fear of bank runs generated by the financial crisis a decade ago, which have ›

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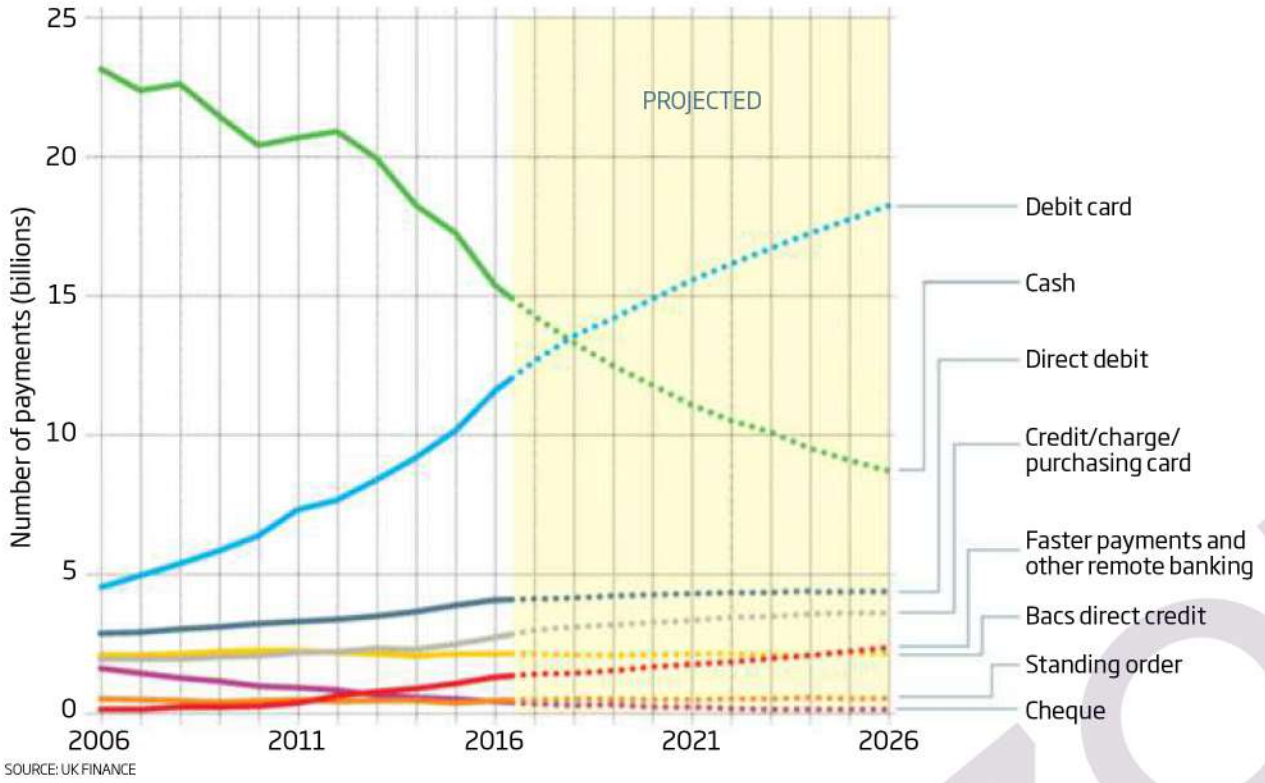
Money down the drain

In the UK, as in many parts of the world, the use of cash is falling precipitously



SOURCE: UK FINANCE

THE RISE OF THE BANK

Modern finance began with institutions such as the London goldsmith bankers of the 17th century, who accepted chunks of gold, recorded its value in ledgers and issued a receipt or IOU.

Gradually people began to pay each other for goods by exchanging these notes. But holders could only redeem the gold at the bank that issued it, and had to physically move the gold to their own bank to realise its value. So banks came to accept each other's notes, and to take care of moving the gold around.

As the number of banks and the complexity of transactions increased, it became hard to keep track of where the gold should be. The solution was for a "clearing bank" to sit at the centre of the system and keep a single, trustworthy register of transactions.

That clearing role is carried out by central banks like the Bank of England or the US Federal Reserve, which now issue the standard IOUs everyone uses, and generally ensure that no one attempts to spend the same money twice. By controlling the supply of money, and twiddling associated knobs such as the base interest rate, central banks have become central to a well-greased economy.

led many people to opt for stashing cash under the mattress. A survey commissioned by the Bank of England in 2014 found that 18 per cent of people in the UK hoarded cash, an average of £345 each.

Beyond that, though, there is a steady flow of cash across borders and into criminal enterprise and the untaxed shadow economy. Economists Friedrich Schneider and Colin Williams have estimated that the shadow economy accounts for between 8 and 24 per cent of GDP in the rich-world OECD countries, representing a serious drain on government coffers.

49%

OF GDP IN KENYA IS TRANSACTED THROUGH MOBILE DIGITAL PAYMENTS

SOURCE: CENTRAL BANK OF KENYA

Ending cash would help combat crime, while also giving central banks more power to keep the economy moving, for example by introducing negative interest rates. This de facto tax on money in banks is already in effect in Japan, Sweden, Denmark and Switzerland, and Bank of England chief economist Andy Haldane has called it an "interesting solution". The idea is to encourage people to spend money when the economy is stagnating. Hoarding cash allows people to sidestep this stick.

Oddly enough, it is a movement originally designed to topple conventional finance that has spurred talk of government-issued digital money. Digital cryptocurrencies such as Bitcoin were motivated by a desire to escape the whole banking system and its centralised accounting and control. Instead, they use a distributed, supposedly unfalsifiable online ledger known as the blockchain, which relies on rigid mathematical rules to securely record transactions in the currency. This generates the same kind of trust in a transaction that cash issued and backed by a central bank does.

Now central banks are considering how they might co-opt such a system for their own purposes. One of the furthest along the road is the Swedish Riksbank, which floated the idea of a state-issued digital currency, e-krona, in 2016. Despite negative interest rates, cash use is falling unusually rapidly in Sweden: the proportion of cash payments declined from 39 per cent in 2010 to 13 per cent in 2018. About 60 per cent of Swedes already use a mobile app called Swish that allows people to instantly transfer money between different bank accounts just by tapping in a phone number.

This is really just a user-friendly interface with the Swedish banking system's existing payment infrastructure. E-krona would be a whole new currency. In a report issued in late 2017, the Riksbank identified two possible ways of doing things. The first would be to provide bank accounts at the central bank in which people could keep digital currency, then have a centralised register of transactions between them, not unlike the databases already used to process debit card transactions.

The second would be a system by which encrypted digital files are exchanged between users, where the files themselves are declared to have value. "Other Swedish authorities are very interested," says Björn Segendorf, a policy analyst at the Riksbank, seeing a way also to reach people without bank accounts. "It seems one of their main headaches is making payments to unbanked people, and this might offer a solution." The bank asked for proposals from tech companies for how to build the e-krona and, having received 33 ideas, is continuing to discuss the options this year.

Sweden isn't alone. In November 2017, Uruguay published details of a small test of digital pesos issued by the country's central bank. Venezuela has launched the petro,

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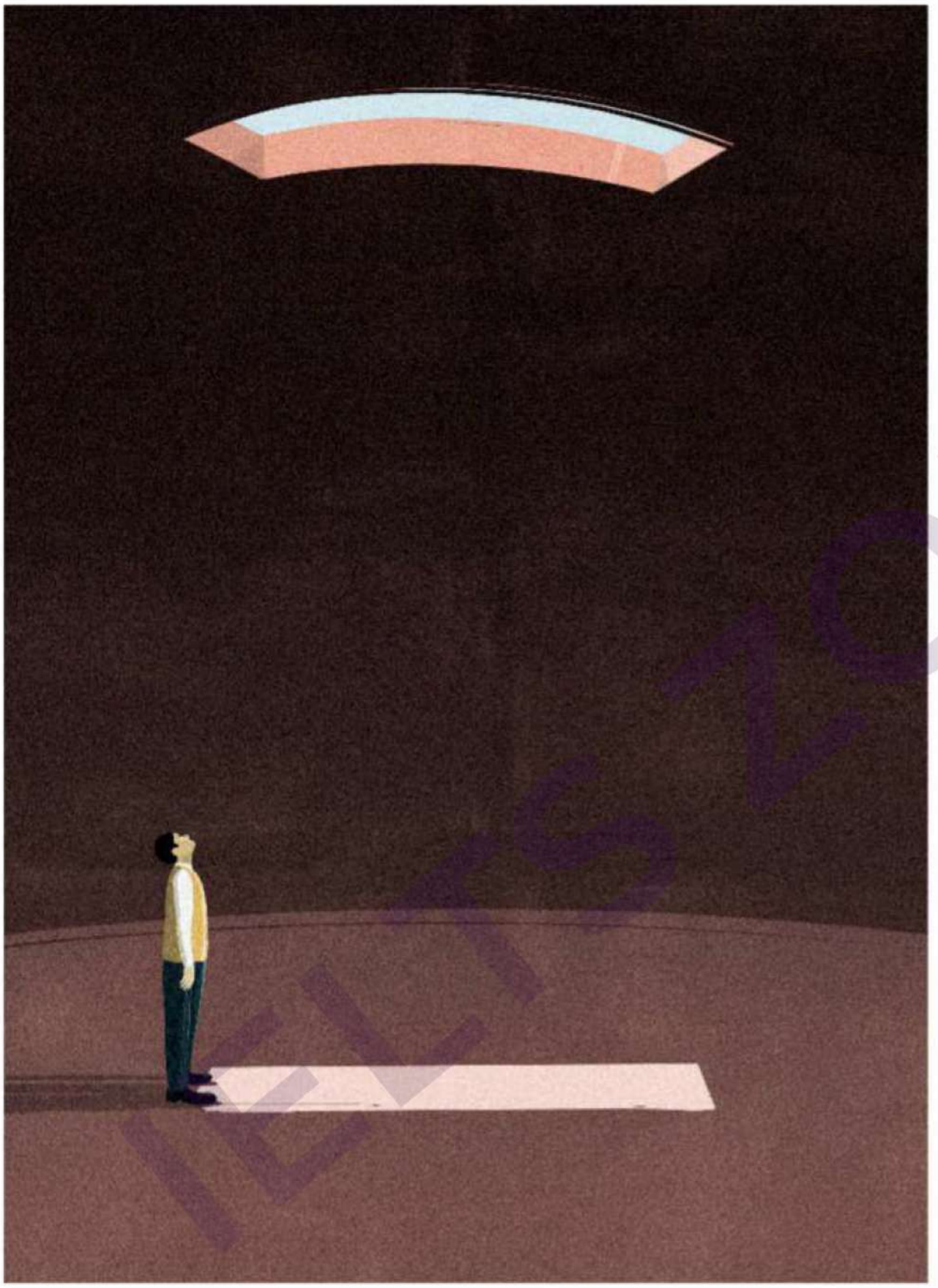

a cryptocurrency run by the state, although the scheme is widely derided. South Korea, too, plans to be cashless by 2020 and has been mulling launching a digital currency.

But the latest signs are that it will not, at least for now. One concern cited by the country's central bank is how it would radically transform the banking system, potentially destabilising it. The reason is the subtle difference between cash backed by a central bank and the non-physical money that sits in your bank account, or that you use when you pay with plastic. "When you're using a credit or debit card, you are using money that's created by a commercial bank," says Garrick Hileman at the Cambridge Centre for Alternative Finance in the UK.

This money is either created by interest on loans made by that institution, or by you when you make a deposit. Unlike with central-bank cash, there is no hard-and-fast guarantee that you will get this money back. Commercial banks work on the assumption that not everyone will withdraw their money at once. If this happens, it can run out, as for example happened with the collapsed UK bank Northern Rock in 2008.

The fear is that digital currencies could make this sort of thing more likely. In times of crisis, people would pull their money from commercial banks and buy safe digital currency backed by a central bank – a potentially quicker way to undermine the banking system than withdrawing your money in the form of physical cash. As the Bank of England's Marilyne Tolle suggested in a paper in 2016, that could precipitate chaos: if commercial banks went out of business, there would be no one to provide loans.

34%

OF PEOPLE IN THE US SAY THEY CARRY CASH RARELY OR NEVER

SOURCE: ING INTERNATIONAL SURVEY MOBILE BANKING 2017

There may be ways around that, such as allowing commercial banks to offer better interest rates than central banks. But this is uncharted territory, and the Bank of England's researchers are still trying to work out what the effects might be. "This is the big reason why the Bank has backed away from issuing a central bank digital currency to everyday people," says Hileman. Cleland confirms that, although the Bank is monitoring the situation, it has no immediate plans to introduce a digital currency. It is, however, testing whether the technology that underlies it could be used to speed up international financial transactions (see "Really swift", page 40).

There are other reasons for scepticism about digital money, too. While a cashless economy might stop people stuffing cash under mattresses, hoarding hard currency isn't in itself morally wrong, and stopping it undermines honest people's right to choose what they do with their money. Critics suggest that criminals would simply switch to another cash currency, or a tradable asset such as gold.

Brett Scott, author of *The Heretic's Guide to Global Finance*, has written about the time he was due to speak at a conference on reinventing money, and went to get a drink from a card-only vending machine only to have his plastic denied. His point is that cash transactions take place between two parties, whereas digital transactions inevitably involve third-party payment facilitators. Currently ›

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GP KIDD/GETTY

Phasing out large-value banknotes could make criminal activity harder

these are private credit and debit card firms such as Visa and Mastercard. Not only do those firms make a profit on the back of your payments, they can also choose not to offer their services to certain clients.

If we were to totally replace physical cash with digital cash, we would be giving a similar power to a state authority or any other third party they might franchise the operation out to. And whoever controls your digital currency potentially has access to a huge amount of information about you, your finances and your habits.

Questionable transactions

That doesn't have to be a bad thing, says Tom Blomfield, founder of Monzo, a recently founded mobile-only bank in the UK. Monzo already crunches data to offer its customers insights into their spending habits, for example automatically labelling payments made on one of the bank's debit cards "groceries" or "eating out" and flashing them up on the customer's phone.

He says there are about 30 financial issues, from switching energy providers to renewing insurance policies, where such a data-driven approach could help – with the proviso that people are clear what they are getting into when they sign up. "I don't want to use the F-word – Facebook," says Blomfield. "But they didn't do enough proactive stuff."

Others are less sanguine. If one driver of the end of cash is a desire to control the flow of money more and reduce questionable transactions, that implies a degree of insight into the nature of transactions. Even with the best of intentions and safeguards in place, the question is whether having a lot more sensitive data sloshing around in the digital realm can ever be a good thing. "There has been a lot said about the decline of cash, but there's not been nearly as much discussion of the data privacy and what it would mean, potentially, to go to a world of completely known transactions where there's no anonymity, no privacy," says Hileman. Then there are questions of infrastructure reliability. "Imagine a completely electronic payment system, no cash. Imagine there's a cyberattack and people can't transact. That would be catastrophic, there would be chaos in the streets."

"Whoever controls your digital currency has access to a huge amount of information about you"

Such problems exist to be solved – but mean that we probably shouldn't anticipate the end of cash soon. Even critics baulk at that suggestion. Kenneth Rogoff is a Harvard economist who wrote the 2016 book *The Curse of Cash*, which among other things strongly argues that cash oils the wheels of the criminal underworld. "I don't make the case for going cashless," says Rogoff. There is inestimable value in being able to use cash in certain situations, including emergencies.

Instead, he suggests phasing out only the most valuable banknotes, the £50 note in the UK, say, or the US $100 bill. Perhaps that's what the immediate future looks like – not cashless, just less cash. ■

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REALLY SWIFT

International money transfers are a pain. Say someone in London wants to send money to someone in Singapore. Unlike within a country, there is no central money-issuing authority to ensure that all the funds are there and can be used.

The UK bank must first send digital messages to the bank in Singapore, instructing it that the transfer is going to happen using a system set up by the Belgium-based Society for Worldwide Interbank Financial Telecommunication, or SWIFT. Generally it is anything but, taking at least three days to go through, because the first bank has no guarantee that the second bank will accept the transfer, or of how much it will cost.

To pay the money in Singapore dollars, the recipient bank must take this from a holding place known as a nostro account. Not just any bank can afford to maintain a well-stocked nostro account, so not just any bank can take care of international transfers. Even so, there is about $5 trillion sitting in these accounts worldwide, which could be put to better use.

Shared ledger technology of the sort cryptocurrencies use could be the answer. In 2017, the Bank of England set up an experiment in which money was transferred between two simulated accounts in different countries using the Interledger Protocol, an open source shared ledger system invented by a firm named Ripple. Instead of three days, the necessary checks and payments happened in seconds. "We're really excited about this," says Ripple's Marcus Treacher, adding that he is talking to other central banks, too. "None is using the technology for real yet, but we believe it's very close."

Treacher thinks payments systems are in an era akin to how business was pre-internet: connect things up and it opens up new opportunities.

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