OROMIA PUBLIC SERVICE COLLEGE

RIAK MANAGEMENTAND INSURANCE

Module Introduction

Dear learner! Welcome to this module of the course Risk Management and Insurance. The module starts with basic concepts of risk by discussing the different types and classifications of risk. It then advances to the management of risk which is the process of identifying, measuring and handling the risk. The module will also discuss various risk financing tools that businesses use such as insurance policies to finance the loss once they occurred. In relation to this, the module will try to state and explain legal principle of insurance and types of contracts in accordance insurance law by describing the major fields of insurance based on their nature and functions and economic role of insurance will be presented. Finally, major classes of Insurance contracts (Policies) will be discussed.

After completing this module, you would be able to:

- Explain the meaning of risk and law of large number based on the rule of large numbers within the company
- Classify the various risk within a society in relation to frequency and severity of loss
- Identify major classification of risks that are associated with great financial and economic insecurity
- Perform the major methods of risk management process that are appropriate with the organizations objective
- Define different basic terms and insurance characteristics in accordance with company's Policy and procedure
- State and explain legal principle of insurance in accordance insurance law
- Describe the major fields of insurance based on their nature
- Perform the major methods of risk handling that are appropriate with the organizational objectives
- Explain social benefit and costs of insurance in related to insurance functions
- Understand major classes of Insurance contracts (Policies)

CHAPTER ONE

OVERVIEW OF RISK

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Chapter One
An Overview of Risk

Introduction

Dear Learner! Welcome to the first chapter of this module. In this chapter, you will study about the definition and classification of risks. In addition, the types of risks that are most frequently faced by businesses will also be discussed in detail. Finally various risk related concepts such as peril and hazard will be discussed. Risk exists whenever the future is unknown. Because the adverse effects of risk have plagued mankind since the beginning of time, individuals, groups, and societies have developed various methods for managing risk. Risk is defined differently by different individuals but all definitions are not mutually exclusive.

After completing this chapter, you would be able to:

- Understand what risk means in general
- Explain the relationship between risk and probability
- Describe types of risks commonly faced by businesses
- Understand the relationship between risk, peril and hazard
- Identify the different classification of risks that individuals and organizations face

1.1 An Overview of Risk and Risk Management

Risk and uncertainty exist whenever the future is unknown. Human kind has struggled through the ages to cope with and address risks and uncertainties as well as the consequences of risks and uncertainties and has achieved a modest level of succession in doing so. Indeed, one could argue that humanity's struggled to manage or cope with risk is a critical theme in social, economic, and political history. Risk is defined differently by different authors. But these definitions are not mutually exclusive.

- Risk may be defined as follows:
- Risk may be defined as the possibility that a sentient entity incurs a loss.
- Risk is uncertainty of occurrence of economic loss.
- Risk may also be defined as an exposure to adverse sequences.
- Risk is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for.

Dear learner, highlighted points will help you catch up the main points you have read, so please take time and read them carefully.

1.2 Certainty, Risk and Uncertainty

In making decisions, all managers must weight alternatives many of which involve future events that are difficult to predict, such as a competitor's reaction to a new price list, interest rates in three years, or the reliability of a new supplier decision making situations are frequently categorized on a continuum ranging from certainty (highly predictable), through risk, to uncertainty (highly unpredictable).

Certainty: Under conditions of certainty, we know our objectives and have accurate, measurable, reliable information about the outcome of each alternative we are considering.

Risk: Risk occurs whenever we cannot predict an alternative's outcome with certainty, but we do have enough information to predict the probability it will lead to the desired state. If you have ever flipped a coin to make a decision or played a roulette wheel, you have dealt with probabilities.

Uncertainty: Under conditions of uncertainty, little is known about the alternatives or their outcomes. Uncertainty arises from two possible sources. First, managers may face external

conditions that are partially or entirely beyond their control. Second and equally important, the manager may not have access to key information.
Risk is potential variation in outcomes. When risk is present out comes cannot be forecasted with certainty. As a result risk gives rise to uncertainty. The meaning of the term "risk "can depend on the context. For example, one may hear the term used to describe a set of circumstances: "the weather and the icy roads present a risk to drivers ". At other times, the term may refer to a person or type of behaviors, as when the reckless driver is deemed to be "a risk to himself and others. "At yet other times the exposure to a potential loss is called a risk: "that warehouse is your organization's greatest risk ".
However, you should not concern yourself with the term's elasticity, for each of the usages mentioned above is based on the fundamental notion that risk is a function of circumstances in which more than one outcome is possible. Uncertainty is the doubt a person has concerning his or her ability to predict which of the money possible outcomes will occur. It is a person's conscious awareness of the risk in a given situation. It depends up on the person's estimated risk. What that person believes to be the state of the world and the confidence he or she has in this belief.

A person may be extremely uncertain about the future in a situation where in reality the risk is smaller. On the other hand, this person may have great confidence in his or her ability to predict the future when in fact the future is highly uncertain. Risk is an objective concept, meaning it is measurable but uncertainty is subjective. Risk is a combination of hazards and is measured by probability; uncertainty is measured by the degree of belief. Risk is a state of world; Uncertainty is a state of mind.
Risk is an objective phenomenon that can be measured mathematically or statistically. It is independent of the individual's belief. Unlike probability and risk, uncertainty cannot be measured by any common accepted yardstick. Uncertainty refers to the doubt as to the occurrence of certain desired outcome. It is more of subjective belief, which means it is based on the knowledge and attitude of the person viewing the situations and different subjective certainties are possible for different individuals under identical situation.

☞ Dear learner, please do not move to the next topic before you understand that **risk** is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for.

Activity 1: Understanding risk and un-certainty
What is the difference between risk and un-certainty?

1.3 Risk and probability

Probabilities are generally assigned to events that are expected to happen in the future. There may be a number of possible events that will take place under given set of conditions and these events may occur in equal or different chance of occurrence. Thus each possible event is assigned a corresponding probability of occurrence that leads to probability distribution that is probability relates to a single possible event.

Example

Suppose the occurrence of a particular event is to be considered. One extreme case is that this event is certain to occur. Thus the probability that this event will take place is 1 (one). In his case there is no risk. The other extreme case is that the event will not take place at all. Hence the probability of occurrence is zero. In this case also there is no risk. In between these two extreme there could be several occurrences of the events with corresponding probabilities of occurrence. This puts us in a

situation of uncertainty because it is difficult to exactly tell which of the many possible events will take place, under this situation there is risk.

 ***Activity 2: Understanding risk and Probability***

What is the difference between risk and probability?

1.4 Peril and Hazard

Risk is the chance of loss, and peril is the direct cause of the loss. If a house burns down, then fire is the peril. A hazard is anything that either causes or increases the likelihood of a loss. For instance, gas furnaces are a hazard for carbon monoxide poisoning. A physical hazard is a physical condition that increases the possibility of a loss. Thus, smoking is a physical hazard that increases the likelihood of a house fire and illness.

Peril: Peril refers to the specific cause of a loss or it is the prime cause. It is what will give rise to the loss. It is beyond the control of anyone who may be involved. In this way, we can say that storm fire, theft, motor accident and explosion are all perils.

Hazards: This refers to the condition that may create or increase the chance of a loss arising from a given peril. In other words, factors which may influence the outcome are referred to as hazard. These hazards are not by themselves the cause for loss, but they can increase or decrease the effect should the peril occur. In fact, hazards would facilitate the occurrence of perils.

There are four different types of hazards;

- Physical hazard
- Moral hazard
- Morale hazard
- Legal hazard

Physical Hazard: Physical hazard is associated with the physical properties of the item exposed to risk. It refers to a physical condition that increases the likely hood of loss. It relates to the physical characteristics of the item or the property exposed to the risk, such as the nature of the construction of building (Wood , bricks ….), the nature of goods (icy, rough road that increase the likely hood of an accident, location of the property (near burglar area , flood , earth quake etc), loose security protection at a shop or factory, occupancy of building (dry cleaning, chemicals etc).

Additional examples may include:

- Existence of dry forest for fire
- Earth faults for earth quakes
- Icebergs ocean shipping
- Icy roads for auto accident

Moral Hazard: Moral hazard refers to dishonesty or character defects in an individual that increase the frequency or seventy of loss. It is related with human aspects which may influence the outcome. It originates from the evil tendencies in the character of the person insured or it stems from the mental attitude of the individual. This usually refers to the attitude of the insured person.

Examples may include:

- Faking an accident to collect insurance money
- Submitting a fraudulent claim
- Inflating the size of a claim.
- Intentionally burning unsold merchandise that is insured.

Morale Hazard: Morale hazard refers to the carelessness or in difference to a loss because of the existence of insurance. It originates from acts of carelessness leading to the occurrence of a loss. Some insured are careless or in different to a loss because they have insurance. It does not involve dishonesty but it occurs due to lack of concern for events.

Examples may include:

- Leaving key in an unlocked car.
- Leaving a door unlocked.

Legal Hazard: Legal hazard refers to the characteristics of the legal system or regulatory environment that increase the frequency or severity of the loss.

Examples

- Adverse jury verdicts or large damage awards in liability law suits
- Statutes that require insurers to include coverage for certain benefits in health insurance plans such as coverage for alcoholism and restrict the ability of insured to withdraw from the state because of poor underwriting results.

☞ Dear learner, please remember that **hazard** refers to the condition that may create or increase the chance of a loss arising from a given peril but **Peril** refers to the specific cause of a loss or it is the prime cause

Activity 3: Understanding peril and hazard

What is morale hazard?

1.5 Classification of risk

A. Subjective and Objective Risk

Subjective risk: is what an individual perceives to be a possible unwanted event. Most people realize, for instance, that it's possible for them to have an accident, or a heart attack or some other health problem. Or that they will lose money buying lottery tickets. How much subjective risk people experience depends on their history and their expected possibility of its occurrence; subjective probability. Somebody who has lost a lot of money in the stock market will probably feel more risk investing in the market than someone who has profited handsomely. Subjective risk may alter the behavior of the risk taker if it is an undesirable risk. Thus, someone who was in a bad auto accident might drive much more carefully than someone who has never been in one.

Objective risk: Is the actual losses for a sample in a given period, which can differ significantly from expected losses. Objective risk refers to risks that can be statistically measured by some measure of description, such as the standard deviation or coefficient of variation. Since objective risk can be measured, it is an extremely useful concept for an insurer or a corporate risk manager. Is concerned with the range of variability of economic losses about some long-run average (most probable) loss in a group large enough to analyze significantly in a statistical sense.

$$\text{Objective Risk} = \frac{\text{Probable Variation of Actual Loss}}{\text{Probable Losses}}$$

Example 1:

Consider the possibility of fire losses to buildings in towns A and B. There are 100,000 buildings in each town and, on average each town has 100 fire losses per year. By looking at historical data from the towns, statisticians are able to estimate that in town A, the actual number of fire losses during the next year will very likely range from 95 to 105. In town B, however, the range probably will be greater, with at least 80 fire losses expected and possibly as many as 120.

$$\text{Objective Risk town A} = (105 - 95)/100 = \underline{10\%}$$

$$\text{Objective Risk town B} = (120 - 80)/100 = \underline{40\%}$$

Effects of Numbers Exposed on Objective Risk

The Law of Large Numbers

States that as the number of exposure units increases, the more certain it becomes that actual loss experience will equal probable loss experience. Hence, the risk diminishes as the number of exposure units increases.

Objective risk varies inversely with the probability for any constant number of exposures unties. However, in general, the rate of decrease in objective risk is less than proportionate to the rate of increase in probability of loss.

 ***Activity 4: Understanding law of large numbers***

What does law of large numbers states?

B. Pure risk and Speculative risks

Pure risk is a risk in which there is only a possibility of loss or no loss—there is no possibility of gain. Pure risk can be categorized as personal, property, or legal risk. Pure risk is insurable, because the law of large numbers can be applied to estimate future losses, which allows insurance companies to calculate what premium to charge based on expected losses.

Personal risks are risks that affect someone directly, such as illness, disability, or death. **Property risk** affects either personal or real property. Thus, house fire or car thefts are examples of property risk. A property loss often involves both a direct loss and consequential losses. A **direct loss** is the loss or damage to the property itself. A **consequential loss** (indirect **loss**) is a loss created by the direct loss. Thus, if your car is stolen, that is a direct loss; if you have to rent a car because of the theft, then you have some financial loss; a consequential loss from renting a car.

Legal risk (**liability risk**) is a particular type of personal risk that you will be sued because of neglect, malpractice, or causing willful injury either to another person or to someone else's property. Legal risk is the possibility of financial loss if you are found liable, or the financial loss incurred just defending yourself, even if you are not found liable. Most personal, property, and legal risks are insurable. One would be legally obliged to pay for the damages he or she inflicted upon other persons or to their property.

Speculative risk differs from pure risk because there is the possibility of profit or loss, such as investing in financial markets. Most speculative risks are uninsurable, because they are undertaken willingly for the hope of profit. Also, speculative risk will generally involve a greater frequency of loss than a pure risk, since profit is the only other possibility. So although many people take precautions to protect their lives or their property, they willingly engage in speculative risks, such as investing in the stock market, to make a profit; otherwise, a person could avoid most speculative risks simply by avoiding the activity that gives rise to it. However, unlike pure risk, where there is only possibility of a loss, society benefits from speculative risks. For instance, investments benefit society, and starting a business helps to create jobs and generate tax revenue for society, and can lead to economic growth, or even technological advancement. In speculative risk, people may deliberately create the risk when they realize that the favorable outcome is indeed so promising. Hence speculative risks are generally uninsurable.

- Dear learner, hoping that you are with me, please note the following about pure and speculative risks

☞ **Pure risk** is a risk in which there is only a possibility of loss or no loss—there is no possibility of gain. But in speculative risk, there is the possibility of profit or loss.

C. Fundamental and particular risk

Risk can also be classified as to whether it affects many people or only a single individual. **Fundamental risk** is a risk, such as an earthquake or terrorism that can affect many people at once.

Economic risks, such as unemployment, are also fundamental risks because they affect many people.

Particular risk is a risk that affects particular individuals, such as robbery or vandalism. Insurance companies generally insure some fundamental risks, such as hurricane or wind damage, and most particular risks. In the case of fundamental risks that are insured, insurance companies help to reduce their risk of great financial loss by limiting coverage in a specific geographic area and by the use of reinsurance, which is the purchase of insurance from other companies to cover their potential losses. However, private insurers do not insure many fundamental risks, such as unemployment. These risks are generally insured by the government, because the government has some control over economic risks through specific policies, such as monetary policy, and law. Fundamental and particular risks can be pure or speculative risks.

Fundamental risks are risks that affect many members of society, but fundamental risks can also affect organizations. For instance, enterprise risk is the set of all risks that affects a business enterprise. Speculative risks that can affect an organization are usually subdivided into strategic risk, operational risk, and financial risk. **Strategic risk** results from goal-oriented behavior. A business may want to try to improve efficiency by buying new equipment or trying a new technique, but may result in more losses than gains. **Operational risks** arise from the operation of the enterprise, such as the risk of injury to employees, or the risk that customers' data can be leaked to the public because of insufficient security. **Financial risk** is the risk that an investment will result in losses. Because most enterprise risk is speculative risk, and because the enterprise itself can do much to lower its own risk, many companies are learning to manage their risk by creating departments and hiring people with the express purpose of reducing enterprise risks—enterprise risk management. Many larger firms may have a chief risk officer (CRO) with the primary responsibility of reducing risk throughout the enterprise.

D. Static and Dynamic Risks

Dynamic risk

Dynamic risk originates from changes in the overall economy such as price level changes, changes in customer taste, income distribution, technological changes, political changes and the like. They are less predictable and hence beyond the control of risk managers.

Static risks

Static risks on the other hand, refer to those loses that can take place even though there is no change in the overall economy. Unlike dynamic risks, they are predictable and could be controlled to some extent by taking loss prevention measures.

E. Financial and Non-Financial Risk

Financial risk

A Financial risk is one where the outcome can be measured in monetary item. This risk results in losses that can be expressed in financial terms.

Example

- Damage of property by earth quake
- Theft of property
- Loss of property by fire

Non Finical Risk

Non finical risk refers to risks that do not have financial implication. The loss is not easily measurable in terms of money.

 ***Activity 5: Understanding fundamental and particular risk***

What is the difference between fundamental and particular risks?

1.6 Risks Related to International Business

When an organization decides to engage in international financing activities, they also take on additional risk as well as opportunities. The main risks that are associated with businesses engaging in international finance include foreign exchange risk and political risk. These risks may sometimes make it difficult to maintain constant and reliable revenue.

Foreign exchange risk occurs when the value of investment fluctuates due to changes in a currency's exchange rate. When a domestic currency appreciates against a foreign currency, profit or returns earned in the foreign country will decrease after being exchanged back to the domestic currency. Due to the somewhat volatile nature of the exchange rate, it can be quite difficult to protect against this kind of risk, which can harm sales and revenues.

> For example, assume an Ethiopian car company receives a majority of its business in US. If the US dollar depreciates against the birr, any dollar-denominated profits the company receives from its US operations will yield fewer birr compared to before the dollar's depreciation.

Political risk transpires when a country's government unexpectedly changes its policies, which now negatively affect the foreign company. These policy changes can include such things as trade barriers, which serve to limit or prevent international trade. Some governments will request additional funds or tariffs in exchange for the right to export items into their country. Tariffs and quotas are used to protect domestic producers from foreign competition. This also can have a huge effect on the profits of an organization because it either cuts revenues from the result of a tax on exports or restricts the amount of revenues that can be earned. Although the amount of trade barriers have diminished due to free-trade agreements and other similar measures, the everyday differences in the laws of foreign countries can influence the profits and overall success of a company doing business transactions abroad.

In general, organizations engaging in international finance activities can experience much greater uncertainty in their revenues. An unsteady and unpredictable stream of revenue can make it hard to operate a business effectively. Despite these negative exposures, international business can open up opportunities for reduced resource costs and larger lucrative markets. There are also ways in which a company can overcome some of these risk exposures.

Translation exposure

This risk arises when there is gain or loss that results when some balance sheet items of affiliated companies are translated in to home currency at the time one of the companies prepare consolidated financial statements.

Economic exposure

Economic exposure refers to the impact of exchange rates on the net present value (NPV) of the global company's future cash flows.

1.7 Risks Related to Business Activities

Business Risk

Business risks refer to risks associated with the physical operation of the firm, variations in the level of sales, costs, profit and are likely to occur due to a number of factors inherent in the economic environment and these risks are independent of the company's financial structure and most of these risks are speculative in nature

Financial Risk

This is associated with debt financing. To finance their operations, corporations borrow money that is followed by repayment of the principal and payment of periodic interest. Under these situations, there may be default by debtors because of various reasons that include bankruptcy, stock price decline, insolvency and failure to earn profit. Corporations raise funds through the issuance of either debt or equity securities. In this case, bond holders are less exposed to financial risk than common stock holders because of the priority claim they have against the assets of debtors.

Interest Rate Risk

Interest rate risk refers to the risk that arises as a result of change in interest rate. Change in interest rate affects security prices in the stock market and that may negatively affect investors.

Purchasing Power Risk

Purchasing power risk refers to the risk that arises because of decrease the purchasing power of money. It arises during periods of inflation because financial assets lose purchasing power if increased inflationary tendencies prevail in the economy.

Market Risk

Market Risk is related to stock market. If refers to stock price variability caused by market forces. It is the result of investors' reactions to real or psychological expectations.

 ***Activity 6: Understanding Risks Related to Business Activities***

Discuss purchasing power risk

- Dear learner, please make sure that you have read the chapter carefully and properly understood activities questions. If you have done that, please read summary and proceed to self assessment questions.

Summary

There is no single definition of risk. Risk traditionally has been defined as uncertainty concerning the occurrence of a loss. Objective risk is the relative variation of actual loss from expected loss. Subjective risk is uncertainty based on an individual's mental condition or state of mind. Chance of loss is defined as the probability that an event will occur; it is not the same thing as risk. Peril is defined as the cause of loss. Hazard is any condition that creates or increases the chance of loss. There are four major types of hazards. Physical hazard is a physical condition present that increases the chance of loss. Moral hazard is dishonesty or character defects in an individual that increase the chance of loss. Morale hazard is carelessness or indifference to a loss because of the existence of insurance. Legal hazard refers to characteristics of the legal system or regulatory environment that increase the frequency or severity of losses.

The basic categories of risk include the following:

- Pure and speculative risks
- Fundamental and particular risks

A pure risk is a risk where there are only the possibilities of loss or no loss. A speculative risk is a risk where either profit or loss is possible. A fundamental risk is a risk that affects the entire economy or large numbers of persons or groups within the economy, such as inflation, war, or recession. A particular risk is a risk that affects only the individual and not the entire community or country.

The following types of pure risk can threaten an individual's financial security:

- Personal risks
- Property risks
- Liability risks

Personal risks are those risks that directly affect an individual. Major personal risks include the following:

- Risk of premature death
- Risk of insufficient income during retirement
- Risk of poor health
- Risk of unemployment

An international business is an organization that buys and /or sells goods and services across two or more national boundaries even if management is located in a single country.

The following are some of the risks that international businesses face; Transaction exposure Translation exposure and Economic exposure

Checklist

Dear learner, now you have completed the second chapter, so you need to check whether you have grasped the concepts discussed in this chapter. If your answer to the questions below is No, then you have to go back and read the relevant sub-section again.

Can you:	**Yes**	**No**

1. Define risk, peril and Hazard	☐	☐
2. Differentiate risk and uncertainty	☐	☐
3. Differentiate risk and probability	☐	☐
4. Explain pure and speculative risks	☐	☐
5. Explain subjective and objective risks	☐	☐
6. Explain Pure risk and Speculative risks	☐	☐
7. Explain risks faced by global companies	☐	☐
8. Explain fundamental and particular risks	☐	☐

Dear learner, now if you have understood the above points, then proceed to the next self assessment questions.

**Self Assessment Questions**

Part I: True-False Questions

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. Risk is an objective phenomenon that can be measured mathematically or statistically. It is independent of the individual's belief.
2. Speculative risk is a risk in which there is only a possibility of loss or no loss—there is no possibility of gain.
3. Particular risk is a risk, such as an earthquake or terrorism that can affect many people at once.
4. Hazard refers to the condition that may create or increase the chance of a loss arising from a given peril.
5. Foreign exchange risk occurs when the value of investment fluctuates due to changes in a currency's exchange rate.
6. Market risk refers to the risk that arises as a result of change in interest rate.
7. Carelessness or indifference to a loss is an example of physical hazard.
8. There are situations where there is probability but no risk.
9. Financial risk refers to one where the outcome can be measured in monetary terms.
10. An automobile that is a total loss as a result of a collision is an example of diversifiable risk.

Part II: Multiple Choice Questions

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. Objective risk is defined as
   A. The probability of loss.
   B. The relative variation of actual loss from expected loss.

C. Uncertainty based on a person's mental condition or state of mind.
D. The cause of loss.

2. Uncertainty based on a person's mental condition or state of mind is known as
   A. Objective risk.
   B. Subjective risk.
   C. Objective probability.
   D. Subjective probability.
3. A peril is
   A. A moral hazard.
   B. The cause of a loss.
   C. A condition which increases the chance of a loss.
   D. The probability that a loss will occur.
4. An earthquake is an example of a
   A. Moral hazard.
   B. Peril.
   C. Physical hazard.
   D. Objective risk.
5. Dense fog that increases the chance of an automobile accident is an example of a
   A. Speculative risk.
   B. Peril.
   C. Physical hazard.
   D. Moral hazard.
6. Faking an accident to collect insurance proceeds is an example of a
   A. Physical hazard.
   B. Objective risk.
   C. Moral hazard.
   D. Attitudinal hazard.
7. Some characteristics of the judicial system and regulatory environment increase the frequency and severity of loss. This hazard is called
   A. Moral hazard.
   B. Physical hazard.
   C. Attitudinal hazard.
   D. Legal hazard.
8. Taye Tobacco Company is concerned that the company may be held liable in a court of law and ordered to pay a large damage award. The characteristics of the judicial system that increase the frequency and severity of losses are known as
   A. Moral hazard.
   B. Particular risk.
   C. Speculative risk.
   D. Legal hazard.
9. A pure risk is defined as a situation in which there is
   A. Only the possibility of loss or no loss.
   B. Only the possibility of profit.
   C. A possibility of neither profit nor loss.
   D. A possibility of either profit or loss.
10. The premature death of an individual is an example of a
   A. Pure risk.
   B. Speculative risk.

C. Fundamental risk.
D. Physical hazard.

11. Which of the following statements about speculative risks is true?
    A. They are almost always insurable by private insurers.
    B. They are more easily predictable than pure risks.
    C. They may benefit society even though a loss occurs.
    D. They involve only a chance of loss.
12. The extra expense incurred by a business to stay in operation following a fire is an example of a(n)
    A. Fundamental risk.
    B. Speculative risk.
    C. Direct loss.
    D. Indirect loss.
13. Ben is concerned that if he injures someone or damages someone's property he could be held legally responsible and required to pay damages. This type of risk is called a
    A. Speculative risk.
    B. Liability risk.
    C. Non diversifiable risk.
    D. Property risk.

Part-III Discussion Questions

Discuss each of the following questions clearly

1. What is moral hazard?
2. Discuss Liability Risk
3. Discuss the difference between risk and uncertainty
4. List the different types of hazards
5. What is Purchasing Power Risk?

Dear learner, now you have completed the chapter successfully. Please go to the next chapter and do what you have done in this chapter.

CHAPTER TWO

THE RISK MANAGEMENT PROCESS

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Introduction

Dear Learner! Welcome to the second chapter of this module. In this chapter, you will study about the risk management process. As has been discussed in the previous chapter, risk is an objective reality that individuals and organizations face regardless of their individual attitudes. This chapter is concerned with the management of the risk that individuals and organizations face. Risk affects organizations negatively. But if it is properly managed by organizations, its effect can at least be minimized. Risk Management is the identification, measurement and treatment of potential accidental losses. The chapter is therefore concerned with the different risk management processes such as risk identification, and risk management. In addition, it also discusses various tools of controlling risk and some means of financing the risk if it occurs.

After completing this chapter, you would be able to:

- Understand the definition of Risk Management
- Explain the objectives of Risk Management
- Discuss Importance of Risk Management
- Understand Process of Risk Management
- Explain Risk Identification
- Explain Risk Measurement
- Discuss Tools of Risk Management

2.1 Risk Management

Risk management involves identifying, analyzing, and taking steps to reduce or eliminate the exposures to loss faced by an organization or individual. The practice of risk management utilizes many tools and techniques, including insurance, to manage a wide variety of risks. Every business encounters risks, some of which are predictable and under management's control, and others which are unpredictable and uncontrollable. Risk management is particularly vital for small businesses, since some common types of losses such as theft, fire, flood, legal liability, injury, or disability can destroy in a few minutes what may have taken entrepreneur years to build. Such losses and liabilities can affect day-to-day operations, reduce profits, and cause financial hardship severe enough to cripple or bankrupt a small business. But while many large companies employ a full-time risk manager to identify risks and take the necessary steps to protect the firm against them, small companies rarely have that luxury. Instead, the responsibility for risk management is likely to fall on the small business owner.

The term risk management is a relatively recent evolution of the term "insurance management." The concept of risk management encompasses a much broader scope of activities and responsibilities than does insurance management. Risk management is now a widely accepted description of a discipline within most large organizations. Basic risks such as fire, windstorm, employee injuries, and automobile accidents, as well as more sophisticated exposures such as product liability, environmental impairment, and employment practices, are the province of the risk management department in a typical corporation. Although risk management has usually pertained to property and casualty exposures to loss, it has recently been expanded to include financial risk management such as interest rates, foreign exchange rates, and derivatives as well as the unique threats to businesses engaged in E-commerce. As the role of risk management has increased, some large companies have begun implementing large-scale, organization-wide programs known as enterprise risk management.

The primary objective of an organization growth, for example will determine its strategy for managing various risks. Identification and measurement of risks are relatively straightforward concepts. Earthquake may be identified as a potential exposure to loss, for example, but if the exposed facility is in Addis Ababa the probability of earthquake is slight and it will have a low priority as a risk to be managed.

Businesses have several alternatives for the management of risk, including avoiding, assuming, reducing, or transferring the risks. Avoiding risks, or loss prevention, involves taking steps to prevent a loss from occurring, via such methods as employee safety training. As another example, a pharmaceutical company may decide not to market a drug because of the potential liability. Assuming risks simply means accepting the possibility that a loss may occur and being prepared to pay the consequences. Reducing risks, or loss reduction, involves taking steps to reduce the probability or the severity of a loss, for example by installing fire sprinklers.

Transferring risk refers to the practice of placing responsibility for a loss on another party via a contract. The most common example of risk transference is insurance, which allows a company to pay a small monthly premium in exchange for protection against automobile accidents, theft or destruction of property, employee disability, or a variety of other risks. Because of its costs, the insurance option is usually chosen when the other options for managing risk do not provide sufficient protection. Awareness of, and familiarity with, various types of insurance policies is a necessary part of the risk management process. A final risk management tool is self-retention of risks sometimes referred to as "self-insurance." Companies that choose this option set up a special account or fund to be used in the event of a loss.

Any combination of these risk management tools may be applied in the fifth step of the process, implementation. The final step, monitoring, involves a regular review of the company's risk management tools to determine if they have obtained the desired result or if they require modification.

- Dear learner, please make sure that you properly understood risk management before proceeding

☞ Risk management is the process of identifying, analyzing, measuring risks and treating these risks using proper techniques.

2.2 Why is the study of risk management important?

Individuals personally benefit from studying risk management in the following ways:

First, More persons become risk manager at some stage in their professional careers than even expected to do so. We must all manage the exposures we face in our personal lives.

Second, even if you do not become professional risk manager, your activities will affect your organization's risk manager. You will in turn be affected by his or her activities.

Third, risk management and insurance touch our lives in other highly significant ways through the organizations and families they save or stabilize through loss indemnification, the accidents they either prevent or reduce in severity, the long term projects in which they invest, and the security they provide by reducing the uncertainty in our lives.

Finally, the importance of the insurance business to most people this time is becoming of great concern.

Steps in the Risk Management Process

1. The loss exposures of the business or family must be identified. Risk identification is the first and perhaps the most difficult function that the risk manager or administrator must perform.

Failure to identify all the exposures of the firm or family means that the risk manager will have no opportunity to deal with those unknown intelligently.

2. After risk identification, the next important step is the proper measurement of the losses associated with theses exposures.

This measurement includes a determination of:

- The probability or chance that the loss will occur,
- The impact the losses would have up on the financial affairs of the firm or family, should they occur, and
- The ability to predict the losses that will actually occur during the budget period,

3. Once the exposure has been identified and measured, the various tools of risk management should be considered and a decision made with respect to the best combination of tools to be used in attacking the problem.

These tools include primarily among others:

- Avoiding the risk
- Reducing the chance that the loss will occur or reducing its magnitude if it does occur.
- Transferring the risk to some other party and
- Retaining or bearing the risk internally.

The other alternative includes, but not limited to, the purchase of insurance. In selecting the proper tool, the risk manager must establish the costs and other consequences of using each tool or combination of tools. The risk manager must also consider the present financial position of the firm or family, its overall policy with reference to risk management, and its specific objectives.

4. After deciding among the alternative tools of risk treatment, the risk manager must implement the decisions made. If insurance is to be purchased, for example, establishing proper coverage, obtaining reasonable rates, and selecting the insurer are part of the implementation process
5. The results of the decisions made and implemented in the first four steps must be monitored to evaluate the wisdom of those decisions and to determine whether changing conditions suggest different solutions.



Activity 1: understanding steps in risk management process

What are steps that we should follow in risk management?

As is true of management in general, risk management may be described as both an art and a science. Risk managers must still rely heavily up on non quantitative techniques that depend upon deduction and intuitive judgments, yet certain broad principles of risk management have been developed. Furthermore, during the previous decades, quantitative techniques have become more common place and more sophisticated. These principles and some of the current developments in scientific risk management will be considered. In time these guides to risk management will be improved and new ones will be created, but sound judgment will continue to play an important role.

2.3 Objectives of Risk Management

Risk management has several important objectives that can be classified into two categories: **pre-loss objectives** and **post-loss objectives.**

Pre-loss objectives: A firm or organization has several risk management objectives prior to the occurrence of a loss these among others include:

- Handling potential losses in the most **economical** way possible.
- Reduction of **anxiety and fear** associated with all loss exposures.
- Meeting externally imposed obligations.

Post-loss objectives

- **The survival of the firm:** Survival means that after a loss occurs, the firm can at least resume partial operation within some reasonable time period if it chooses to do so.

- **To continue operating:** For some firms, the ability to operate after a severe loss is an extremely important objective.
- **Stability of earnings:** The firm wants to maintain its earnings per share after a loss occurs.
- **To maintain continued growth of the firm:** A firm may grow by developing new products and markets or by acquisitions and mergers. The risk manager must consider the impact that a loss will have on the firm's ability to grow.
- To meet the goal of social responsibility: is to minimize the impact that a loss has on other persons and on society

☞ Dear learner, it is hoped that you understood objectives of risk management by dividing them in to pre loss objectives and post loss objectives

Functions of Risk Management

The risk manager has certain specific duties. These include:

- To recognize exposures to loss; the risk manager must, first of all, be aware of the possibility of each type of loss. This is a fundamental duty that must precede all other functions.
- To estimate the frequency and size of loss; to estimate the probability of loss from various sources.
- To decide the best and most economical method of handling the risk of loss, whether it be by assumption, avoidance, self-insurance, reduction of hazards, transfer, commercial insurance, or some combination of these methods.
- To administer the programs of risk management, including the tracks of constant revaluation of the programs, recordkeeping and the like



Activity 2: understanding functions of risk management

What are the functions of risk management?

Risk management process

Risk Management is defined as "the systematic application of management policies, procedures and practices to the tasks of establishing the context, identifying, analyzing, assessing, treating, monitoring and communicating". It is an iterative process that, with each cycle, can contribute progressively to organizational improvement by providing management with a greater insight into risks and their impact. Risk management can be applied to all levels of an organization, in both the strategic and operational contexts, to specific projects, decisions and recognized risk areas. Risk is defined as 'the chance of something happening that will have an impact on objectives'. It is, therefore, important to understand what the objectives of the University, Faculty, work unit or your position, are, prior to attempting to analyze the risks.

Risk analysis is best done in a group with each member of the group having a good understanding of the tasks and objectives of the area being analyzed.

1. Identify the Risks: as a group, list the things that might inhibit your ability to meet your objectives. You can even look at the things that would actually enhance your ability to meet those objectives.
2. Identify the Causes: try to identify what might cause these things to occur.
3. Identify the Controls: identify all the things (Controls) that you have in place that are aimed at reducing the Likelihood of your risks from happening in the first place and, if they do happen, what you have in place to reduce their impact (Consequence).

4. Establish your Likelihood and Consequence Descriptors, remembering that these depend upon the context of your analysis that is if your analysis relates to your work unit, any financial loss or loss of a key staff member.
5. Establish your Risk Rating Descriptors: that is what is meant by a Low, Moderate, High or Extreme Risk needs to be decided upon ahead of time.
6. Add other Controls: generally speaking, any risk that is rated as High or Extreme should have additional controls applied to it in order to reduce it to an acceptable level.
7. Make a Decision: once the above process is complete, if there are still some risks that are rated as High or Extreme, a decision has to be made as to whether the activity will go ahead. There will be occasions when the risks are higher than preferred but there may be nothing more that can be done to mitigate that risk that is they are out of the control of the work unit but the activity must still be carried out. In such situations, monitoring the circumstances and regular review is essential.
8. Monitor and Review: the monitoring of all risks and regular review of the unit's risk profile is an essential element for a successful risk management program.

2.4 Risk Identification

Risk identification is the process by which a business systematically and continuously identifies property, liability, and personal exposures as soon as or before they emerge. Unless the risk manager identifies all the potential loses confronting the firm, he or she will not have any opportunity to determine the best or even a good thing to do. To identify all the potential losses, the risk manager needs first a check list of all the losses that could occur to any business. Second, he or she needs a systematic approach to discover which of the potential losses included in the check list are faced by his or her business. The risk manager may personally conduct this two step procedure or may rely up on the services of an insurance agent, broker, or consultant.

Check list of potential losses

The risk manager should get a list of potential losses or sources of risks before trying deal with risks. Sources of risk are the sources of factors or hazards that may contribute to positive or negative outcomes. And these sources of risk can be classified in several ways.

Physical Environment: This is a fundamental source of risks and losses as well as opportunities.

Examples may include: Earthquakes, drought, or excessive rainfall that can all lead to loss and real estate investments, agribusiness, weather, tourism development that can be attributable to good physical environment.

Social Environment: This includes changing traditions and values, human behavior, social structures, and institutions that can lead to losses or opportunities.

Political Environment: Within a single country, the political environment can be an important source of risk. In the international realm, the political environment is even more complex. The political environment also can promote positive opportunities through fiscal and monetary policy, enforcement of laws, and the education of the population.

Legal Environment: Unexpected laws and directives may be issued by the government which may render risky environment to the businesses operating in the country. In the international domain, complexity increases because legal standards can vary dramatically from country to country. The legal environment also produces positive outcomes in the sense that rights are protected and that the legal system provides a stabilizing influence on society.

Operational Environment

Processes and procedures of an organization may generate risk and uncertainty. A formal procedure

for promoting, hiring, or firing employees may generate a legal liability; the manufacturing process may put employees at risk of physical harm, activities of an organization may result in harm to the environment, international businesses may suffer from risk or uncertainty due to unreliable transportation systems, the operational environment also provides gains, as it is the ultimate source of the goods and services by which an organization succeeds or fails.

Economic Environment

Inflation, recession, and depression have negative impacts on business operations; favorable interest rates and credit policies offer good opportunities.

Cognitive Environment

A risk manager's ability to understand, see, measure, and assess is far from perfect and an important source of risk for organizations is the difference between the perception of the risk manager and the reality.

Categories of Loss Exposures

Although in the broadest sense an entire organization is at exposure to risk, it is useful to develop categories of exposures for analytical purposes.

Physical Asset Exposures

Ownership of property gives rise to possible losses or gains to physical assets. For example property could be damaged, destroyed, lost, or diminish in value. At the same time investments in a successful entrepreneurial endeavor can enhance wealth.

Financial Asset Exposures

This occurs when ownership of securities such as common stock and mortgages creates this type of exposure. This exposure can occur either from ownership of the security or when the organization issues a security held by others and unlike physical property, loss or gain to a financial asset can occur without any physical change in the asset itself rather they occur as a consequence of changing market conditions or changes in the value of the rights conveyed by the security as perceived by investors.

Liability Exposures

These occur when obligations imposed by the legal system create such type of exposure.

Human Asset Exposures

These exposures occur when possible injury or death of managers, employees, or other significant stakeholders (customers, secured creditors, stockholders, and suppliers) are exposed to risks. Human asset exposures also can lead to gains, as exemplified by improvements in productivity. One might, for example, view a highly technical piece of machinery as a source of loss (worker injury) and gain (increased productivity).

☞ Dear learner, I hope you are reading with full attention and understood that risk identification is the process by which a business systematically and continuously identifies property, liability, and personal exposures as soon as or before they emerge.

2.5 Potential losses to be handled by risk managers in most organizations include:

1. Property loss exposures

Depending on the class of property affected, causes of the loss, whether the loss is direct or indirect and the nature of the firm's interest in the property, property losses can be classified in to four.

Property class

Property may be divided in to two broad classes:

- Real estate or land and its structures or attachments
- Personal property or property that is moveable and not attached to land (and this can be classified in to personal property in use and personal property for sale)

Causes of the loss

Causes for property losses can be classified in to three:

Physical perils

Physical peril includes such natural forces as fires, wind storms, and explosions that damage or destroy property.

Social perils

These include deviation from expected individual conduct such as theft, vandalism, embezzlement or negligence or it may arise from group behavior such as strikes or riots.

Economic perils

These arise due to external or internal forces. For example, a debtor may be unable to pay off an account receivable because of an economic recession or a contractor may not complete the project on schedule because of management error. The perils most commonly associated property losses are fire, smoke, explosion, wind storm, hail, collision, and water damage, glass breakage from any cause, riot vandalism, theft, employee dishonesty, and failure of a person to meet expressed obligations for any reason.

Direct Indirect Loss

Property suffers a direct loss when the property itself is directly damaged or destroyed or disappears because contact with a physical or social peril. For example, a building is destroyed by fire, interior walls are defaced by vandals, an automobile is damaged in collision, or money or securities are stolen from a safe. Property suffers an indirect loss when its value is lessened as a result of direct damage to some other property.

Example

A building may be partially destroyed by some accident. If that building is to be re built:

- The cost of tearing down the undamaged part
- The value of the undamaged part
- The loss of benefit from the damage

Interest in property

In this case if a property suffers a direct or indirect loss, the owner bears the amount of the loss. A secured creditor has an interest in the property pledged as a security for the loan because the creditor's ability to collect from the debtor is diminished if the property is damaged or destroyed. The potential loss under this circumstance is the un paid balance of the loan.

2. Net income Loss Exposure

The direct and indirect property losses discussed previously are often not the only losses that occur when property is damaged, destroyed or taken. Until that property is replaced, or restored, to its former position, the business may suffer a reduction in its net income (revenues less expenses) because it losses the use of the property in whole or in part. As a result, either revenues are decreased or expenses are increased.

A. Decreases in Revenues

The major ways in which revenues may be decreased as a result of an accidental loss to property include:

Loss of Rent

If a building is accidentally damaged or destroyed, and the tenant is not responsible for the payment of rent during the period the property is not used by the tenant because of the damage, the owner losses the rent less any non continuing expenses, for the time necessary to restore the structure to its former condition.

Interruption of operation

Because assets are damaged or taken, a business or other organization may have to suspend or reduce its operations. The loss caused by such a business interruption would be the net profit the business would have earned if there had been no interruption plus the expenses that continue despite the interruption. An example of such continuing expenses may include: Payroll of certain key employees, services performed by others under contract, interest expense, depreciation and taxes on undamaged property and some portion of advertising and insurance expense.

Contingent Business interruption

Some business depend so much up on receiving raw materials, power , or merchandise form a single supplier that interruption of that supplier's operations will, in turn, interrupt the firm's production or sales. Similarly, a business may be dependent up on sales to a single customer that if that customer's operations, and consequently its purchases from the business, are slowed by damage to or taking of its assets, the business will also suffer a business interruption loss.

This loss, called a contingent business interruption loss, depends up on how much the firm depends up on a single supplier or customer, the susceptibility of those suppliers and customers to interruption losses, and the likely restoration period.

Loss of profits on finished goods

In this case, if finished goods are destroyed or taken, the manufacturer will lose the profits it would have made if it had been able to sell goods.

Smaller net collections on Accounts receivable

If a firm's accounts receivable records are damaged or taken, it may encounter much greater difficulties than usual in collecting from customers. The larger the number of customers and the smaller the average account, the greater these difficulties are likely to be. The records can sometimes be reconstructed from other documents, but the reconstruction costs reduce the net collection.

B. Increases in expenses

Expenses may be increased because of an accidental loss in a variety of ways including:

i. Rental value losses

If a business that owns a building cannot occupy the structure because of accidental physical damage, the owner losses the rental value of the building for the time it takes to make repairs.

ii. Extra Expenses

Businesses may face difficulty to get their customers back once they lose their customers temporarily because of damage or temporary interruption. If customers of a business organization are forced to turn to their competitors for temporary service, they may lose a large portion of these customers for ever consequently these firms would probably incur extra cost to continue as near normal operations as possible.

iii. Cancellation of lease

Many leases provide that if the building is damaged some percent, the lease is cancelled either automatically or at the option of either party. The user of a building suffers if the property is worth more than the rent it pays or if it has paid a bonus or advance rental payment that is not refundable.

iv. Irremovable improvements and betterments

Some businesses make improvements to a rented building that cannot be removed when they leave the building. The firm makes this investment because it believes that the improvement will have use value while it occupies the premises.

3. Liability loss Exposures

In addition to the property loss exposures, a business faces the possibility that it will be held legally liable for property damage or personal injuries suffered by others. In addition to the above exposure, a business may be exposed to two important exposures: the liability of a business to its employs for job related injuries or diseases and its liability for bodily injuries or diseases and its liability for bodily injuries or property damage sustained as a result of a motor vehicle accident. In general, the following are some of the liability exposures that organizations or individuals face when a certain risk materializes.

A. Liability arising from ownership, use and possession of land

Some serious liability exposures may be associated with the ownership, use, and possession of land. The common law generally imposes a duty of reasonable care to make the premises safe for any one accepting an invitation to do business there on a duty to inspect and to warn of dangers. Typical cares in this area have involved business visitors who engaged in specific transactions with the owner or occupier of the premises.

B. Liability arising from maintaining a public or private nuisance

A business may be sued for maintaining a public or private nuisance in relation to the use and employment of its premises. These nuisance actions require that the claimant show substantial harm as a result of some activity and indicate that the value gained by the user of the land is much less in proportion to the harm or risk that it creates.

C. Liability arising from sale, manufacture, and distribution of products or services

Legal problems arise out of the sales contract itself involving promises and obligations concerning the performance of the products or services sold. In addition, the product or service may be defective or manufactured or designed in negligent manner so as to produce serious harm to those using it. Tied to the product itself may be the necessary services of delivery, installation, training, and maintenance which may be negligently performed.

This liability may include the following:

i. Breach of warranty actions arising from sales contracts

Breach of warranty actions arising from the sales of goods or services may be based on either expressed or implied warranties. If the purchaser relies on the statement of the seller and the product does not meet the expressed guarantees the property damages resulting from the breach may be established by a suit based on breach of expressed warranty.

ii. Liability Arising from Negligence

In addition to breach of warranty actions, many product or service liability suits are based on the tort of negligence. For example, actions may be successfully brought under this theory against manufacturers canned tuna and soft drinks that contained deleterious (harm full) sub stances.

D. Liability arising from fiduciary relationships

Fiduciary relationships have become a more important source of liability in recent years. Two important examples are the responsibility of members of a board of directors to manage the assets of a corporation in the best interest of the stock holders and the responsibility of employee benefit plan managers or administrators to the plan participants.

E. Professional Liability

Special liability problems confront persons who engage in professional pursuits or perform services requiring special care and skill. For example, in the field of public accounting medicine, construction and other professional activities, liability risks are likely to emerge because of the deficiencies inherent in the services rendered due to negligence, errors and intentional concealment.

F. Agency and Vicarious Liability

In its most fundamental form, the agency relationship creates a somewhat unusual liability exposure for an organization, in that the organization might be held liable for tortuous act of others. Those others are its agents: individuals who the law determines to be legally constituted representatives of the organization.

G. Bailee Liability Exposure

In many commercial and non commercial activities, personal property is surrendered to another for a temporary period. The person taking possession may perform some service pertaining to the property, borrow it for his her own use or keep it for the owner's benefit, after which time the property must be returned to the owner or law full possessor. In this case, important liability questions arise concerning the rights and duties of one party for any possible claims that the other party may make for damages while the property was in the custody and care of the other.

H. Contract liability

Liability arising from contracts may be significant issue for some organizations, particularly those that sub contract for many services. The formation of business contracts often creates risks, as parties are contracted to perform certain services or provide goods at some specified level of quality.

I. Employment Liability

Several important demographic and socials trends are elevating the importance of employment liability as a risk management issue. The aging work force has raised an awareness of age discrimination issues, and the entry of more women in to the work place has brought with it a greater sensitivity to matters related to sexual discrimination and harassment. The opening of opportunities for minority groups, shut out of the primary job market, has raised matters of social discrimination, representativeness, and cultural sensitivity.

J. Work related injury

An employment relationship creates several responsibilities for the employer (and the employee) perhaps the most important responsibility for the typical risk manager is workers compensation.

K. Motor vehicle liability

One of the most complicated and a widespread area of potential liability in organization activity surrounds the use of automobiles and other motor vehicles. This risk arises when a motor vehicle of an organization or an individual causes damage to other's property or their lives.

4. Personnel loss Exposure

This refers to potential personnel loses: the financial losses that occur when one or more people (usually employees in whom the firm has some direct interest) die, reach and advanced age, become ill, or lose their job for some other reason. Both the individual employees and the firm itself face these loses, and managers including risk managers, have good reason to be interested in the losses to the employee as well as those to the firm.

The firm's employees obviously have reason to plan against the potential financial losses to themselves and their families associated with their death, accidental injury or sickness, or unemployment. The risk manager of the firm is also interested in these potential losses for the following reasons:

- To attract and retain high quality employees
- To raise employee morale and productivity
- To be prepared to negotiate with labor units a reasonable employee benefit package
- To take advantage of certain tax advantages employee benefit plans
- To improve welfare of employees
- To develop the image of the firm and others

In addition to concern with potential losses to individual employees, the risk manager must deal with the potential losses to the firm itself as a result of the death or disability of an employee, a customer, or an owner.
These losses may be classified as:

Key person losses

Certain workers in a firm stand out because of their skill and knowledge or because they are an important source of business or of credit for the firm. The death or disability of these key persons may result in a serious loss to the firm by reducing sales, increasing costs or restricting credits.

Credit losses

Many firms extend credit to their customers. It is important for the risk manger and the credit manager to recognize that the death, extended disability or unemployment of a customer may either reduce the chance that the loan will be repaid or creates a public relations problem if it is necessary to force repayment.

Business Discontinuation losses

These losses are very likely to occur when a person with an ownership interest in a Sole proprietorship, a partnership or a close corporation dies or disabled for long period of time.

Application of check list

The second step in risk identification process is to use the check list developed instep one to discover and describe the types of losses faced by a particular business. In some instances the person applying the check list is so familiar with the property, operations and personnel of the business that he or she can identify its risks by taking each item in the check list and reflecting on the ways in which the business is exposed to that potential loss. However, because most businesses are complex, diversified, dynamic operations, a more systematic method of exploring all facts of the specific firm is highly desirable.



Activity 3: understanding potential losses to be handled by risk managers:

What are potential losses handled by risk managers?

2.6 Risk Identification Techniques

Some of the methods or risk identification techniques suggested include:

- **The risk Analysis questionnaire**

The risk analysis questionnaire does more than provide a check list of potential losses. It directs the risk manager to secure in systematic fashion specific information concerning the firm's properties and operations.

- **The financial statement method**

A second systematic procedure for determining which of the potential losses in the check list apply to a particular firm and in what way is the financial statement method is used in identifying the potential loss. By analyzing the balance sheet, operating statements and supporting documents, the risk manager can identify all the existing property, liability, and personal exposures of the firm.

- **The flow chart method**

A third systematic procedure for identifying the potential losses facing a particular firm is the flow chart approach. First, a flow chart or series of flow charts is constructed, which shows all the operations of the firm, starting with raw materials, electricity, and other inputs at suppliers' locations and ending with finished goods in the hands of customers.

- **Onsite inspection**

Onsite inspections are a must for the risk manager. By observing firsthand the firm's facilities and the operations conducted there on, the risk manager can learn the exposures faced by the firm.

- **Interactions with other departments**

A fifth way to identify the losses facing a business is through systematic and continuous interactions with other departments in the business. Included in these interactions are:

A. Extended visits with managers and employees of other departments during which the risk manager attempts to obtain a complete understanding of their activities and potential losses created by these activities, and

B. Oral or written reports from other departments on their own initiative or in response to a regular reporting system that keeps the risk manager informed of all relevant developments. These departments are constantly creating or becoming aware of exposure that might otherwise escape the risk manager's attention. In deed the risk manager's success in risk identification is heavily dependent up on the cooperation he or she, secures form other departments.

- **Statistical Records of Losses**

A six approach that will probably suggest fewer exposures than the others but which may identify some exposures not otherwise discovered is to consult statistical records of losses or near losses that may be repeated in the future.

- **Analysis of the Environment**

Some writers have recommended a careful analysis of the external environment as well as internal exposures as an approach to identifying the exposures of a particular firm.

The relevant environment includes:

- Customers
- Suppliers
- Competitors
- Regulators

- **Use of outsiders to identify loss exposures**

A risk manager may rely on insurance agents or brokers or risks management consultants to do the detailed work of risk identification.

- **Organizational Charts**

This technique is intended to highlight broad areas of risk rather than specific, individual risks such as fire, security or liability. It encourages the risk identifier to take a birds-eye view of the organization: to stand back and above the day-to-day operation and take stock of the risks which exist.

The Best Method

No single method or procedure of risk identification is free of weaknesses or can be called fool proof. The strategy of management must be to employ that method or combination of methods that best fits the situations at hand.

The choice is a function of:

- Nature of the business
- The size of the business and
- The availability of in house expertise

Activity 4: Risk identification techniques:

List the risk identification techniques used by risk managers to identify exposures to risks

2.7 Risk Measurement

In order to determine their relative importance and to obtain information that will help the risk manager to decide upon most desirable combination of risk management tools, loss exposures must be measured. Risk measurement refers to the measurement of potential loss as to its size and probability of occurrence and it is the next step once the risk is identified.

Risk Measurement includes a determination of:

- The probability that the loss will occur,
- The impact that the losses would have up on financial affairs of the firm, and
- The ability to predict the losses that will actually occur during the budget period.

Statistical terms used in measuring risk

Risks can be measured using different statistical measures. These terms include: the concepts of probability distribution, measures of central tendency (especially the arithmetic mean), standard deviation and coefficient of variation.

Probability

The probability of an event refers to the frequency of occurrence of an event. All events have a probability between zero and one. To calculate the probability of an event we divide the number of times given event occurs by all possible events.

Example: Assume that a company has 2000 houses and determined that 400 of these houses are expected to be destroyed by fire accident.

Then probability of an accident = $\frac{400}{2{,}000}$ = 0.2 or 20%

Probability Distribution (also called relative frequency distribution)

A probability distribution is a mutually exclusive and collectively exhaustive list of all events (losses in our case) that can result from a chance process and contains the probability associated with each event (loss). It is a more sophisticated way to measure potential losses. However, this method is more difficult to explain and the data needed to construct the required probability distribution are commonly not available. Nevertheless, probability distributions make possible more comprehensive risk measurements than other techniques; and also, they are becoming a more common tool of modern management, and data sources are improving.

Furthermore, probability distributions improve one's understanding of the more popular risk measurements and are extremely useful in determining which risk management devices would be best in a given situation. A probability distribution shows for each possible outcome, its probability of occurrence. It is used to estimate numerically the potential loss from a risk.

Using the probability distribution, it is possible to measure the various aspects of a risk; such as:

- The number of occurrences per year,
- The monetary losses per occurrence, and
- The total monetary losses per year (fiscal period).

Arithmetic mean

The arithmetic mean ($\bar{X}$) can be defined as a sum of set of n measurements X_1, X_2, X_3--X_n divide by n:

$$\bar{X} = \frac{X_1 + X_2 + X_3 - - - X_n}{n}$$

Where, $\bar{X}$ = arithmetic means

X= measurement

n= total number of measurements

In calculating the mean, equal weight is given for each observation (measurement).

Example: The mean of the five numbers 0, 3, 5, 4 and 6 is $\frac{0 + 3 + 5 + 4 + 6}{5} = 3.6$.

Expected value-is a special case of the arithmetic mean and similar to it. It is obtained by multiplying each item or event by the probability of its occurrences.

Example: The following data relate to ABC Company for the monetary loss of its automobiles because of accidents and related probabilities.

Event	Amount of loss If event occurs		Probability of loss	
A	Br 20,000	x	0.20	= Br 4,000
B	15,000	x	0.30	= 4,500
C	25,000	x	0.10	= 2,500
D	20,000	x	0.40	= 8,000
Total				19,000

So, expected value=19,000

Note that expected value of loss = the summation of each loss amount x its probability of loss

$= \Sigma x\ (p(x))$

Standard deviation

Standard deviation is a number that measures how close/ far a group of individual measurements /losses/ is to its average value (mean). The standard deviation is obtained by subtracting the average value from each possible value of the variable, squaring the difference, multiplying each squared difference by probability that the variable will assume the value involved, summing the resulting products, and taking the square root of the sum.

Variance

Variance is the mean of the squared deviation or the mean of the squared deviation multiplied by probability of each occurrence.

That is, Standard deviation (σ) =$\sqrt{}$variance. Variance is obtained by subtracting the average value from each possible value of the variable, squaring the difference, multiplying each squared difference by probability that the variable will assume the value involved, summing the resulting products. Taking the square root of the sum makes it standard deviation, *i.e.* Standard deviation (σ) is the square root of variance.

Coefficient of variation: When the standard deviation is expressed as a percent of the mean, the result is termed the coefficient of variation, which is one way to characterize the concept of mathematical risk to the insurer. If losses from a group of exposure units have a low coefficient of variation, there is less risk (less variation) associated with this group of exposures than with another group with high coefficient of variation.

The following sections illustrates risk measurement risk using probability distribution some of which are taken from teaching material, Risk Management and Insurance by Hailu Zeleke.

The binomial distribution

This is a two parameter distribution. The two parameters determine the entire distribution i.e.

- The number of exposure units **(n),** and
- The probability that a randomly selected unit be damaged **(p)**

To use the binomial distribution, the risk manager must be familiar with the following basic assumptions of the distribution:

- The first assumption is that the objects are independently exposed to loss.
- The other assumption is that each exposed unit suffered (experience) at most one accident in a year (or the budget period). Thus, the binomial formula for probability of **r** accidents from **n** exposure units is calculated using the formula:

$$\mathbf{P(r) = \frac{n!}{r!(n-r)!} p^r (1-p)^{n-r}}$$

Where: n = number of exposures

r = number of accidents (occurrences)

P (r) = Probability of r accidents
n! = n factorial, computed by successive multiplication of the numbers
n (n-1) (n-2), - - - (n-k)!

Example: 3! = 3(3-1) (3-2)! = 6
o! is conventionally defined to be 1
p= probability that the event will occur and
q= probability that the event will not occur and q can be computed by the equation q = 1-p.

Example-1:

Assume that a company has 100 automobiles and past experience shows that the probability of loss of any one automobile by an accident each year is 0.01, what is the probability that:

A. No accident will occur?
B. 1 accident will occur?
C. 2 accidents will occur?
D. 3 accidents will occur?
E. 4 accidents will occur?
F. 1 or more accident will occur?
G. At least 5 accidents will occur?
H. At most 5 accidents will occur?
I. Exactly 5 accidents will occur?

Solution

A. $P(0) = \frac{100!}{0!\,(100-0)!} (0.01)^0 (0.99)^{100-0} = 0.366032341$

B. $P(1) = \frac{100!}{1!\,(100-1)!} (0.01)^1 (0.99)^{100-1} = 0.366032341$

C. $P(2) = \frac{100!}{2!\,(100-2)!} (0.01)^2 (0.99)^{100-2} = 0.184864818$

D. $P(3) = \frac{100!}{3!\,(100-3)!} (0.01)^3 (0.99)^{100-3} = 0.060999165$

E. $P(\geq 4) = 1 -$ cumulative probability $(4-1) \Rightarrow 1 -$ cumulative $p(3) = 0.022071335$

F. $p(\geq 1) = 1 -$ cumulative $p(1-1) \Rightarrow 1 -$ cumulative $P(0) = 1-0.37 = 0.63$

G. $P(\geq 5) = 1-$ cumulative $p(5-1) = 1 -$ cumulative $P(4) = 1- 0.99287038 = 0.007129619$

H. $p(\leq 5) =$ cumulative $p(5) = p(0) + p(1) + p(2) + p(3) + p(4) + p(5) = 0.995768167$

I. $P(5) = 100! / 5!\,(100-5)! * (0.01)^5 (0.99)^{100-5} = 0.002897787$

Example-2: Suppose we have a firm which operates with six (6) delivery trucks. Assume that if an accident happens to a particular truck, it becomes a total loss and no repair. And assume further that new trucks are purchased at the beginning of every year to makeup the loss once so that the firm always starts the new period with 6 trucks and no two trucks are at the same time involving accident. Assume each truck is working Br 25,000.

Year	No. of trucks	No. of accidents	Monetary loss
1	6	3	75,000
2	6	2	50,000
3	6	4	100,000
4	6	1	25,000
5	6	2	50,000
Total	30	12	300,000

Required: With the above information, construct the binomial distribution:

1. Probability distribution of the expected number of accidents (mean)
2. Probability distribution of the total expected monetary loss.
3. Variance and standard deviation of the total monetary loss.

Solution: 1. Probability distribution of the expected number of accident. $M= \Sigma x: p(x)$

No of accident (1)	Probability (2)	Expected number of accident 3=(1x2)
0	0.046656	0
1	0.186624	0.186624
2	0.311040	0.622080
3	0.276480	0.829440
4	0.138240	0.552960
5	0.0368640	0.184320
6	0.004096	0.024576
Total	**1.00**	**2.4**

n= 6

p= number of accident = 12 (from past, data) =0.4, q = 1-0.4 = 0.6
Number of trucks 30

$P(0) = \frac{n!*p^r q^{n-r}}{r!(n-r)!} = \frac{6!\ (0.4)^0\ (0.6)^{6-0}}{0!(6-0)!} = \frac{6!\ (0.4)^0\ (0.6)^6}{6!} = 0.046656$

$P(1) = \frac{6!}{1!\ (6-1)!}\ (0.4^1)\ (0.6)^{6-1} = \frac{6x5!}{5!}\ (0.4)^1(0.6)^5 = 0.186624$

Probability distribution of the expected monetary loss

No. of accident	Monetary loss	Probability	Expected monetary loss
0	0	0.046656	0
1	25,000	0.186624	4,665.6
2	50,000	0.3111040	15,552
3	75,000	0.27648	20,736
4	100,000	0.138240	13,824
5	125,000	0.036864	4,608
6	150,000	0.004096	614.4
			60,000

Variance of the total monetary loss(ML)

No. of accident	ML(x)	ML-x	$(ML-x)^2$	Probability	(ML-x)*probability
0	0	(60,000)	$(60,000)^2$	0.046656	167,961,600
1	25000	(35000)	$(35000)^2$	0.186624	22,814,499
2	50000	(10,000)	$(10,000)^2$	0.311040	31,104,000
3	75000	(15000)	$(15000)^2$	0.27648	62,208,000
3	75000	(15000)	$(15000)^2$	0.27648	62,208,000
4	100000	(40000)	$(40000)^2$	0.138240	221,184,000
5	125000	(65000)	$(65000)^2$	0.036864	155,750,400
6	150000	(90000)	$(90000)^2$	0.004096	33,177,600

- Variance = 900,000,000
- Standard deviation = √ variance = √ 900,000,000 = 30,000

Alternative (shortest) method

- Expected number of accident (m) = np = 6 x 0.4 = 2.4
- Expected monetary loss = expected number of accident times monetary loss per accident.
  = 2.4 x 25,000 = 60,000
- Variance = npq = 6 x 0.4x.0.6 = 1.44
- Standard deviation (σ) of the expected number of accident =√variance i.e SD = $\sqrt{npq}$
  = $\sqrt{1.44}$ =1.2
- Standard deviation of the amount of monetary loss = SD of expected number of accident times monetary loss per accident = 1.2 x 25000 = 30,000

Risk Measures

Risk relative to the mean (coefficient of variation) - It indicates that the variability of the total annual monetary losses from the expected value (the mean). It is calculated by dividing standard deviation with mean. RM = SD/M. The higher the coefficient of variation (RM), the higher the risk, meaning variability increases.

Risk relative to the number of exposure units (Rn)

It indicates the deviation from the expected outcome as a percentage of the total number of exposure units. It is also calculated by dividing standard deviation with number of exposure units Rn = SD/n. The higher the value, the higher the variability and consequently the higher the risk. Now let us go to the measurement of risk by using coefficient of variation (percentage of SD to the mean or total exposure).

Risk related to mean (Rm) = $\frac{\text{standard deviation of expected number of accident}}{\text{Expected number of accidents}}$

Or

Rm = $\frac{\text{standard deviation of expected monetary loss}}{\text{Expected monetary loss}}$

Risk related to total exposure (Rn) = $\frac{\text{standard dev. of the expected number of accident}}{\text{The total number of exposure units}}$

Or

Rn = $\frac{\text{standard deviation of expected monetary loss}}{\text{Monetary loss from the total exposure units}}$

So, Rm= $\frac{1.2}{2.4} = 0.5$ or $\frac{30,000}{60,000} = 0.5$

Rn = $\frac{1.2}{6} = 0.2$ or $\frac{30,000}{150,000} = 0.2$

N.B The actual number of accident or monetary loss would vary 50% on either side from the expected number of accident or monetary loss. The actual number of accident or monetary loss would vary 20% from the maximum exposure.

If the number of trucks (n) increases from 6 to 36, find:

A. Expected number of accident (m)
B. Expected monetary loss (ML)
C. Standard deviation of expected number of accident and expected monetary loss
D. Risk related to mean (Rm)
E. Risk related to total exposure (Rn)

Solution

Probability of accident $\frac{12}{30} = 0.4$

Monetary loss per accident = 25000

A. Expected number of accident = np = 36 x 0.4 = 14.4
B. Expected monetary loss = 14.4 x 25000 = 360,000
C. Standard deviation of expected number of accident = √(36) (0.4) (0.6) = 2.939 and Standard deviation of expected monetary loss = 2.939 x 25000 = 73475
D. Risk related to mean (Rm) = 2.939 = 0.20 or 73475 = 0.20
   14.4 360,000
E. Risk related to the total exposure (Rn) = 2.939 = 0.08 or 73475 = 0.08
   36 900,000(36x25000)

N.B The actual number of accident or monetary loss would vary 20 % on either side from the expected number of accident or monetary loss.
The actual number of accident or monetary loss would vary 8% on either side from the maximum exposure.

☞ Dear learner, it is hoped that you remember that in binomial probability distribution, objects are independently exposed to loss and each exposed unit suffered (experience) at most one accident in a year (or the budget period).

The Poisson probability distribution

The Poisson probability distribution can be used for the analysis of risk measurement. The Poisson distribution works well when:

- There are at least 50 units exposed independently to loss, and
- The probability that any particular unit will suffer a loss is the same for all units less than 0.1 (1/10).

These conditions can be satisfied in two ways. First, the business can have at least 50 persons, properties, or activities each of which can suffer at most one occurrence per year, and the probability being less than 0.1 (1/10) that any particular unit will have an occurrence. Second, the number of persons, properties, or activities may be less than 50, but each unit can have more than one occurrence during the exposure period.
The only information that is crucial in constructing a Poisson probability distribution is the expected number of accidents (the mean). Once the mean is determined, the probability of any number of accidents will be easily calculated using the following formula:

P(r) = $\frac{M^{r}e^{-M}}{r!}$

Where:

M = mean= Expected number of accidents
r = number of occurrences
r! = r factorial, computed by successive multiplication of the numbers
r (r-1) (r-2), - - - (r-r)!
e = a constant, a base of natural logarithms, equal to 2.71828
P(r) = probability of r accident

To illustrate the application of this formula, assume the following examples.
Example: Assume that a company has 5 cars and each car has been experiencing about one collision every two years. The mean therefore is ½ or 0.5 collision per year. Then the probability distribution is developed as follows.

P (0) = $\frac{(0.5)^{0}e^{-0.5}}{0!} = \frac{(1)(0.6065)}{1}$ = 0.6065

P (1) = $\frac{(0.5)^1 e^{-0.5}}{1!} = \frac{(0.5)(0.6065)}{1}$ = 0.3033

P (2) = $\frac{(0.5)^2 e^{-0.5}}{2!} = \frac{(0.25)(0.6065)}{2 \times 1}$ = 0.0758

P (3) = $\frac{(0.5)^3 e^{-0.5}}{3!} = \frac{(0.125)(0.6065)}{3 \times 2 \times 1}$ = 0.0126

We continue like above until we found that the sum of probability of all accidents equal to 1.

Thus the probability distribution is:

No of Collisions	Probability
0	0.6065
1	0.3033
2	0.0785
3	0.0126

Once the probability distribution is developed, it would not be difficult to determine the probability of any number of accidents that are likely to occur. For example, the probability of no collisions is almost 0.61 or 61%; the probability of more than three collisions is 1- 0.9982 (0.6065 + 0.3033 + 0.758 + 0.0126) = 0.0018; and the probability of more than one collision is 1 – (0.6065 + 0.3033) = 0.0902 or 9.02%.

The data presented below represents the number of cars operated (similar in type of use) by a firm in each year, the corresponding number of accidents occurred and the total monetary losses incurred in connection with the accidents.

Year	No. of trucks	No. of accidents	Amount of loss
1	10	1	2500
2	12	2	4200
3	14	3	4500
4	15	3	6000
5	20	2	6500
6	20	3	6600
7	25	4	6000
8	25	5	8000
9	29	3	7500
10	30	4	10,000
Total	200	30	61,800

Suppose in year 11 the firm will increase its number of trucks to 40. Use Poisson distribution to construct the probability distribution of accidents.

Monetary loss per accident = total monetary loss / Number of accident = 61800 / 30 = 2060

No. of Accident	**Amount of loss**	**Probability**	**ExpectedNo.of accidents**	**Expected amount of loss**
0	0	0.0025	0	0
1	2060	0.0149	0.0149	30.69
2	4120	0.0445	0.0892	183.26

3	6180	0.0892	0.2676	551.26
4	8240	0.1339	0.5356	1103.34
5	10300	0.1606	0.8030	1654.18
6	12360	0.1606	0.9636	1985.02
7	14420	0.1377	0.9639	1985.63
8	16480	0.1033	0.8264	1702.38
9	18540	0.0688	0.6192	1275.55
10	20600	0.0413	0.4130	850.78
11	22660	0.0225	0.2475	509.85
12	24720	0.0113	0.1356	279.34
13	26780	0.0052	0.0675	139.26
14	28840	0.0022	0.0308	63.45
15	30900	0.0009	0.0135	27.81
16	32960	0.0003	0.0048	9.89
17	35020	0.0001	0.0017	3.50
18	37080	0.0001	0.0018	3.71
	SUM	1.0000	5.9997	12359.39

Different probabilities can be computed from the above distribution

What is the probability that there would be at least three accidents in the year?

$P(r \succ= 3) = 1- (.0025 + 0.0149 +0.0446)$

$= 0.9380$

What is the probability that the number of accidents equal or exceeds 13

$P(r \succ = 13) = 0.0052 + 0.0022 + 0.0009 + 0.0003 + 0.0001 + 0.0001)$

$= 0.0088$

$P (3 \prec = r \prec 13) = 0.938 - 0.0088 = 0.9292$

This indicates that the risk mangers expectation of accidents is heavily concentrated between 3 and 13 accidents.

What is the probability that the number of accidents equal 13?

$P(12) = \frac{m^r e^{-m}}{r!} = \frac{6^{12} \times 2.71828^{-6}}{12!} = \frac{2176782336 \times 0.002478762181}{} = 0.01126448$

What is the probability that the number of accidents equal 13?

P (13) = $\frac{6^{13} \times 2.71828^{-6}}{13!}$ = 0.0052

Standard deviation can also be found with the distribution (similar to binomial).

Alternative/ Short method

n= 40

p= number of accident occurred in the past ten years = 30 = 0.15
Number of trucks participated in the past ten years 200

Monetary loss per accident= total monetary loss =61880= 2060
Number of accident 30

Expected number of accident (mean) = n.p = 40 x 0.15 = 6

Expected amount of monetary loss = expected no. of accident x monetary loss per accident = 6 x 2060 = 12360

Note: the mean of Poisson distribution is also its variance. Its standard deviation (σ) =$\sqrt{m}$.

Standard deviation of the expected no. of accident SD = $\sqrt{m}$ =$\sqrt{np}$ =$\sqrt{6}$ = 2.45.

Standard deviation of the amount of monetary loss = standard deviation of the expected no. of accident x monetary loss per accident = 2.45 x 2060 = 5047

The next step is measuring risk by using coefficient of variation.

Rm = $\frac{2.45}{6}$ = 0.408 or $\frac{5047}{12360}$ = 0.408

Rn = $\frac{2.45}{40}$= 06125 or $\frac{5047}{40(2060)}$ = 0.06125

From the above computation the following points can be noted:

- Rm= 0.408 – means the actual number of accident or monetary loss would vary 40.8% on either side (i.e. decrease or increase) from the expected number of accidents or monetary loss.
- Rn=0.06125 means the actual number of accident or monetary loss would vary 6.125% from the maximum exposure.

Once we have measured our risk we should cover or prevent it. Here the risk manager can choose self insurance and the firm is going to assign a sum of money to cover losses and keep:

- Reserve fund equal to the expected amount of monetary loss. i.e. 12360
- Reserve fund equal to the expected amount of monetary loss plus one standard deviation. i.e. 12360 + 5047 = 17407
- Reserve fund equal to the maximum probable loss ignoring losses with a probability of less than 1%.

So maximum reserve should be 12 x 2060 = 24720

Risk and the law of large numbers

This states that as the number of exposure units increase, the risk diminishes. Suppose the firm increases the number of trucks from 40 to 50 and then 100; find the new mean, standard deviation and the new risk (Rm) and (Rn)

Mean = np = 0.15 x 50 = 7.5

Standard deviation = $\sqrt{m}$ = $\sqrt{7.5}$ = 2.739

Risk related to mean (Rm) = $\frac{2.739}{7.5}$ = 0.365

Risk related to the total exposure units (Rn) = $\frac{2.739}{50}$ = 0.05478

No. of	M	SD	Rm	Rn

Trucks					
40	6	2.4495≈ 2.45		0.408	0.06125
50	7.5	2.739	0.365		0.05478
100	15	3.873	0.258		0.03873

As the number of exposure (n) increase by a certain amount (say x times), mean (m) increases by the same proportion (by x times) but standard deviation increases by $\sqrt{x}$ times and risk (Rm) decreases by $\frac{1}{\sqrt{X}}$ times.

The Normal Probability Distribution

As the number of observations increase, the binomial distribution may be used to approximate the normal distribution. The normal distribution is important to compute the value of the variables with in some given intervals. When one knows its mean and standard deviation, the distribution is said to be completely defined. Mean and standard deviation (variance) are the only information required to know the entire distribution. The risk manager may assume that the number of accidents or total annual monetary losses is approximately normally distributed. Because the normal distribution can be well explained by identifying only two parameters the mean and the standard deviation, it is somewhat easy to apply.

Example-1: Assume the following

Year	No. of accidents		Total monetary loss
1	2		10,000
2	2		10,000
3	3		15,000
4	2		10,000
5	2		10,000
	11	Sum…	55,000
		Mean...	11,000
		SD…	2,000

The Normal distribution has the following properties

- About 68 % of the observation falls within the range of one standard **(±1)** deviation of the mean.
- About 95.45% of the observation falls within the range of two **(±2)** standard deviations of the mean.
- About 99.73% of the observations fall within the range of three **(±3)** standard deviations of the mean.

Note the following:

- The true mean monetary loss is expected to fall in the range of Birr 9000 (11,000-2,000) and Birr 13,000 (11,000+2,000) with probability of 0.6827
- The true mean monetary loss is expected to fall in the range of Birr 7000(11,000-4,000) and Birr 15000(11,000+4,000) with probability of 0.9545.
- The true mean monetary loss is expected to fall in the range of Birr 5000 (11,000-6,000) and Birr 1700 (11,000+6,000) with probability of 0.9973.

This can be shown using the following procedures;

The value of Z for any normal distribution is computed from the equation:

$$Z = \frac{x-m}{\sigma}$$

Where; x-is the value of the variable we want to measure

m- is mean of the distribution

σ (Sigma) - is the standard deviation of the distribution

Z - is the standard deviation that the value of the variable x is from its mean (m)

Example 2: If the mean (m) =100, standard deviation (σ) =15, what is the probability that the value of the loss is less than 130 i.e. P(x < 130).

Solution

At x = 130 we have:

$Z = \frac{x-m}{\sigma}$

$Z = \frac{130 - 100}{15} = \frac{30}{15} = 2 = 0.4772$ (from the table)

P (0 to 2) = 0.4772

P (Z≤2) = P (0 to 2) + P (0 to -∞)

= 0.4772 + 0.5 = 0.9772 (i.e. 92.72%)

The above computation tells us that:

- 97.72% of the losses are less than 130.
- Z = 2 means 130 is 2 standard deviation from the mean (100)
- 1σ = 1(15) = 15 = 100 + 15 = 115
- 2σ = 2 (15) = 30 =100 + 30 = 130, so 130 is 2σ from the mean.

Example 3: Given the above example what is the probability of the loss is to be

A. Between 70 and 130?
B. Between 55 and 145?
C. Between 85 and 115?

Solution

A. At x = 70 we have, $Z = \frac{70 - 100}{15} = \frac{-30}{15} = -2 = 0.4772$ (from the table)

At x= 130, we have $Z = \frac{130 - 100}{15} = \frac{30}{15} = 2 = 0.4772$ (from the table)

P (0 to - 2) + p (0 to 2) = p (-2 ≤ Z ≤ 0) + p (0 ≤ Z ≤2)

= 0.4772 + 0.4772 = 0.9544 = 95.44%

From the above computation, it can be noted that, 0.9544 or 95.44% of the loss is between 70 and 130 or ± 2 standard deviation from the mean. /we have 95% confidence that the loss will be between 70 and 130.

B. At x = 55, $Z = \frac{55 - 100}{15} = \frac{-45}{15} = -3 = 0.49865$ (from the table)

At x = 145, $Z \frac{145 - 100}{15} = \frac{45}{15} = 3 = 0.49865$ (from the table)

P (0 to -3) + p(0 to 3) = p(-3 ≤ Z ≤0) + p(0 ≤ Z ≤3)

= 0.49865 + 0.49865 = 0.99730 = 99.73%

From the above computation, it can be noted that, 0.99730 or 95.73% of the loss in between 55 and 145 or ±3 standard deviation from the mean.

C. At x = 85, $Z = \frac{85 - 100}{15} = \frac{-15}{15} = -1 = 0.3413$

At x = 115, $Z = \frac{115 - 100}{15} = \frac{15}{15} = 1 = 0.3413$

P (0 to -1) + p (0 to 1) = p (-1 ≤ Z ≤0) + p (0 ≤ Z ≤ 1

= 0.3413 + 0.3413 = 0.6826 = 68.26%

From the above computation, it can be noted that, 0.6826 or 68.26% of the loss is between 85 and 145 or ±1 standard deviation from the mean.



Activity 5: Understanding standard deviation and coefficient of variation

What is the difference between standard deviation and coefficient of variation?

2.8 Tools of Risk Management

After the risk manager has identified and measured the risks facing the firm, he or she must decide how to handle them. There are two basic approaches. First, the risk manager can use **risk-control measures** to alter the exposures in such a way as:

- To reduce the firm's expected property, liability, and personnel losses, or
- To make the annual loss experience more predictable.

Risk control measures include, among others:

- Avoidance
- Loss prevention and reduction measures
- Separation
- Combination
- Some transfers.

Second, the risk manger can use **risk-financing measures** to finance the losses that do occur. Funds may be required to repair or restore damaged property, to settle liability claims, or to replace the services of disabled or deceased employees or owners. In some cases, the firm will decide not to restore the damaged property or replace the disabled or deceased person. Nevertheless, it may also have suffered a financial loss through a reduction in its assets or its future learning power.

The tools in this second category include:

- those transfers, including the purchase of insurance, that are not considered risk control devices and
- retention, which includes, "self insurance"

Dear learner, have you understood the following?

Risk control measures and risk financing measures are the two approaches that risk managers use to handle risk exposures.

1. Risk Control Tools

Avoidance - One way to control a particular pure risk is to avoid the property, person, or activity with which the exposure is associated by (1) refusing to assume it even momentarily or (2) an exposure assumed earlier, most examples of risk avoidance fall in the first category. To illustrate a firm can avoid a flood loss by not building a plant in a flood plain. An existing loss exposure may also be abandoned. For example, a firm that produces a highly toxic product may stop manufacturing that product. Similarly, an individual can avoid third party liability by not owning a car. Product liability can be avoided by dropping the product. Leasing avoids the risk originating from property ownership.

The major advantage of avoidance is that the chance of loss is reduced to zero if the loss exposure is not acquired. In addition, if an existing loss exposure is abandoned, the possibility of loss is either eliminated or reduced because the activity or product that could produce the loss has been abandoned. Avoidance, however, has two disadvantages. First, it may not be possible to avoid all losses. For example, a company cannot avoid the premature death of a key executive. Similarly, a business has to own vehicles, building, machinery, inventory, etc… Without them operations would become impossible. Under such circumstances avoidance is impossible. In fact there are circumstances where avoidance is a viable alternative. For example, it may be better to avoid the construction of a company near river bank, volcanic areas, valleys, etc. because the risk is so great.

The second disadvantage of avoidance is that it may not be practical or feasible to avoid the exposure. For example, a paint factory can avoid losses arising from the production of paint. However, without any paint production, the firm will not be in business. Avoidance through

abandonment is to be distinguished from transfers of the property, person, or activity to someone else. For example, the toxic products firm noted above might have sold its business to some other company. These transfers pass the risk to someone else; risk avoidance discontinues the source of the risk.

Avoidance, whether it is implemented by abandonment or by refusal to accept the risk, should also be distinguished from loss-control measures. Loss-control measures assume that the firm will retain the property, person, or activity creating the risk but that the firm will conduct its operations in the safest possible manner.

Considerations Affecting use of Avoidance

Avoidance is a useful, fairly common approach to the handing risk. By avoiding a risk exposure the firm knows that it will not experience the potential losses or uncertainties that the exposure may generate. On the other hand, it also loses the benefits that may have been derived from that exposure.

- First, **avoidance may be impossible**. The more broadly the avoided risk is defined, the more likely this is to be so. For example, the only way to avoid all liability exposures is to cease to exist.
- Second, the potential **benefits** to be gained from employing certain persons, owning a piece of property, or engaging in some activity may so far **out weight** the **potential losses** and uncertainties involved that the risk manager will give little consideration to avoiding the exposure. For example, most businesses would find it almost impossible to operate without owning or renting a fleet of cars. Consequently they consider avoidance to be an impractical approach.
- Third, the more narrowly the avoided risk is defined, the more likely it becomes that avoiding that risk will create another risk. For example, a firm may avoid the risk associated with air shipments by substituting train and truck shipments. In the process however, it has created some new risks.

Loss control measures

Loss control measures attack risk by lowering the chance that the loss will occur or by reducing its severity if it does occur. Loss control has a unique ability to prevent or reduce losses for both the individual firm and the society while permitting the firm to commence or continue the activity creating risk. Avoidance eliminates the risk, but to accomplish this objective the firm must avoid or discontinue the activity.

Loss control measures may be classified as follows:

Loss prevention and reduction methods

These refer to the safety actions taken by the firm to prevent the occurrence of a loss or reduce its severity if the loss has already occurred.

Loss preventions are programs that seek to reduce or eliminate the chance of loss. Loss reduction programs seek to reduce the potential severity of the loss. Some loss control programs are both loss prevention and loss reduction programs.

The following are some examples of loss prevention programs:

The chance of fire loss can be reduced by:

- Fire resistive construction,
- Building in area where there are few external dangers, and
- Having many suppliers in order that a fire loss suffered by one supplier will not halt the firm’s operations

The chance of a product liability swat can be reduced by:

- tightening the quality control limits,
- choosing distributors more carefully, and

- Checking on statements made by sales persons or advertising department that may lead to a suit based on an implied or expressed warranty.

The chance of an industrial accident can be reduced by:

- safety meetings,
- providing safety goggles, and
- checking the ventilation in the plant

Employers can reduce the chance that their workers will be an employed by:

- stabilizing the demand for their products,
- services through diversification, and
- Market research etc.

In addition to the above examples, the following are some examples of loss prevention measures:

- Bursar alarms in costly business situations like general diamonds and others,
- Automatic stoke defectors, alarms,
- Location choice like avoiding construction near petrol station, chemical reservoirs,
- Safety measures, adequate lightening, special work clothes to prevent industrial accidents,
- Sound accounting internal control, and
- Worming posters (**No smoking, Danger Zone**)

As discussed previously, loss reduction measures are intended to reduce the extent of the loss once the adverse incident happened.

Some of the examples of loss reduction measures include:

- Evacuation of people as immediately as possible from the accident area,
- Immediate clan up operation,
- Fire extinguishers, guards,
- First aid kit, and
- Installing automatic sprinkler

Types of Loss Control

Effective loss control sometimes requires technical knowledge of the exposure itself, as is the case with safety engineering in many manufacturing processes. In other instances, loss control measures may be quite simple and straightforward. Two methods of classifying loss control involve focus and timing**.**

Focus of Loss Control: Some loss control measures are designed primarily to reduce loss frequency. This form of loss control is referred to as ***frequency reduction or loss prevention measures***. Prevention measures, in some cases, eliminate the loss totally although their major effect is to reduce the probability of loss substantially. Of course, some activities serve to reduce both the frequency and severity of losses due to particular risks.

Timing of loss control: Some loss control methods are implemented before any loss occurs. All measures with a frequency-reduction focus, as well as some based on severity reduction, are of this type; they are called **pre-loss activities**. One example is employee safety education programs, which are designed to reduce both the frequency and severity of injuries to workers.

The second timing classification for loss control measures is that of activities that take place concurrently with losses. The activation of building sprinkler systems illustrates this concept of concurrent loss control. Such systems are triggered only after a fire begins and are designed to extinguish the fire quickly and thereby decrease the severity of the resultant loss.

The third timing category is that of **post-loss activities.** As with concurrent loss control, post-loss activities always have a ***severity-reduction focus.*** One example is trying to salvage damaged property rather than discard it.

To design effective loss control measures, it may be helpful to identify the causes of accidents. Some of the causes of accidents and the possible Loss prevention (LP) and Reduction (R) measures are indicated below.

Causes of accidents	Loss prevention measures
Working on dangerous equipment with less care	Safety seminars, inspection at regular times
Improper use of equipment	Training, safety seminars
Violating Safety Procedures and Regulations.	Safety seminars, warning, dismissal
Human error, Negligence	Training, safety seminars
Use of inappropriate tools	Provide appropriate tools
Lack of protective clothing	Provide necessary protective clothing
Use of defective equipment	Regular inspection and maintenance
Inadequate Knowledge about the job	Training
Working while physically ill	Sick leave, don't allow to work until recovery
Mental Disturbance of employee	Day-off to the employee

Decisions Regarding Loss Control

A major issue for risk managers is the decision about how much money to spend on the various forms of loss control. In some cases it may be possible to reduce significantly the exposure to some types of risks, but if the cost of doing so is very high relative to the firm's financial situation, then the loss control investment may not be money well spent.

The general rule is that the expected gains from an investment in loss control should be at least equal to the expected cost to justify the expenditure. This comparison of costs and benefits is similar to financial decision making used for other capital budgeting issues. Before such methods can be used effectively, however, the risk manager must have a clear understanding of all of the costs and benefits associated with a particular form of loss control.

Potential Benefits of Loss Control

Many of the benefits associated with loss control measures are either readily quantifiable or can be reasonably estimated. These may include the reduction or elimination of expenses associated with the following:

- Repair or replacement of damaged property;
- Income losses due to destruction of property;
- Extra costs to maintain operations following a loss;
- Adverse liability judgments;
- Medical costs to treat injuries;
- Income losses due to deaths or disabilities;
- Cost of other risk management techniques used in conjunction with loss control;

Potential Costs of Loss Control

Compared to estimating the benefits of a proposed investment in loss control, it is usually easier to estimate the potential costs. Two obvious cost components are installation and maintenance expenses. The challenge in cost estimation is often identifying all the ongoing expenses. To further complicate the process, some of the ongoing costs of loss control may merely be increases in other expenses.



Activity 6: Loss prevention and reduction methods

What is the difference between loss prevention and loss reduction?

Separation - Separation of the firm's exposures to loss instead of concentrating them at one location where they might all be involved in the same loss is the third risk control tool. For example, instead of placing its entire inventory in one warehouse the firm may elect to separate this exposure by placing equal parts of the inventory in ten widely separated warehouses. To the extent that this separation of exposures reduces the maximum probable loss to one event, it may be regarded as a form of loss reduction. Emphasis is placed here, however, on the fact that through this separation the firm increases the number of independent exposure units under its control. Other things being equal, because of the law of large number, this increase reduces the risk, thus improving the firm's ability to predict what its loss experience will be.

Combination/Diversification - Combination is a basic principle of insurance that follows the low of large numbers. Combination increases the number of exposure units since it is a pooling process. It reduces risk by making loses more predictable with a higher degree of accuracy. The difference is that unlike separation, which spreads a specified number of exposure units, combination increases the number of exposure units under the control of the firm.

In the case of firms, combination results in the pooling of resources of two or more firms. One way a firm can combine risks is to expand through internal growth. For example, a taxicab company may increase its fleet of automobiles. Combination also occurs when two firms merge or one acquires another. The new firm has more buildings, more automobiles, and more employees than either of the original companies. This leads to financial strength, thereby minimizing the adverse effect of the potential loss. For example, a merger in the same or different lines of business increases the available resources to meet the probable loss.

Diversification is another risk handling tool, most speculative risks in business can be dealt with through diversification. Businesses diversify their product lines so that a decline in profit of one product could be compensated by profits from others. For example farmers diversify their products by growing different crops on their land. Diversification, however, has limited use in dealing with pure losses.



Activity 7: Separation and diversification

What is the difference between separation and diversification?

Non-insurance Transfer – non-insurance risk transfer involves payment by one party (the transferor) to another (the transferee, or risk bearer). The transferee agrees to assume a risk that the transferor desires to escape. Sometimes the degree of risk is reduced through the transfer process, because the transferee may be in a better position to use the law of large numbers to predict losses. In other cases the degree of risk remains the same and is merely shifted from the transferor to the transferee for a price.

Non-insurance transfers may be accomplished in two ways. These are:

Transfer of the activity or the property: The property or activity responsible for the risks may be transferred to some other person or group of persons. For example, a firm that sells one of its buildings transfers the risks associated with ownership of the building to the new owner. A contractor who is concerned about possible increase in the cost of labor and materials needed for the electrical work on a job to which he/she is already committed can transfer the risk by hiring a subcontractor for this portion of the project. This type of transfer, which in closely related to avoidance through abandonment, is a risk control measure because it eliminates a potential loss that may strike the firm. It differs from avoidance through abandonment in that to transfer a risk the firm must pass it to some else.

Transfer of the probable loss: The risk, but not the property or activity, may be transferred. For example, under a lease, the tenant may be able to shift to the landlord any responsibility the tenant

may have for damage to the landlord's premises caused by the tenant's negligence. A manufacture may be able to force a retailer to assume responsibility for any damage to products that occurs after the products leave the manufacturer's premises even if the manufacturer would otherwise be responsible. A business may be able to convince a customer to give up any rights the customers might have to give the business for bodily injuries and property damage sustained because of defects in a product or a service.

In each of the above example the transfer excuses the transferor from firm responsibility for property or personal losses to the transferee. The exposure itself is eliminated. Some risk control transfers limit but do not eliminate the exposure. For example, the transfer may limit, but not eliminate the transfer's money responsibility. Under a risk financing transfer the transferor makes the transferee pay for losses that would otherwise have to be borne by the transferor. For example, under a lease, a landlord may make a tenant pay for five loses to rented premises even if the tenant is not negligent. Under in purchase agreement, a retailer may obtain a promise from a manufacturer that the manufacturer will reimburse the retailer for any payments the retailer might have to make to others because of defects in the manufacturers products. As part of a bailment relationship, a laundry may accept responsibility for damage to customers' property even if the business, except for the contract, would not be liable.

Four specific forms of risk transfer are:

Hold harmless agreements – provisions inserted in to many different kinds of contracts can transfer responsibility for some types of losses to a party different than the one that would otherwise bear it. Such provisions are called hold-harmless contracts, exculpatory contracts or sometimes indemnity agreements. The intent of these contractual clauses is to specify the party that will be responsible for paying for various losses. Usually no money limit is stated. Thus the transferee must pay all losses covered by the agreement, regardless of size.

Incorporation – another way for a business to transfer risk is to incorporate. In this way, the most that an incorporated firm can ever lose is the total amount of its assets. Personal assets of the owners cannot be attached to help pay for business losses, as can be the case with sole proprietorships and partnerships. Through this act of incorporation, a firm transfers to its creditors the risk that it might not have sufficient assets to pay for losses and other debts.

Hedging – involves the transfer of speculative risk. It is a business transaction in which the risk of price fluctuations is transferred to a third party known as a speculator. For example, a flour miller may have purchased grain to grind into flour. The miller realizes, however, that before the grinding can be completed, the price of grain, and consequently that of flour, may change, causing either profit or loss. The miller prefers to avoid the price risk and concentrate on the main business operation – flour milling. Therefore, after buying the grain, the miller enters into an equal and opposite transaction in the grain futures market whereby a speculator, in effect, assumes the price risk. The speculator agrees to take the price risks in the hope of making profit out of the total transactions. In other words, the speculator hopes to make the right guesses about price trends more often than not. The speculator is the risk transferee, and the transferor is usually a business person wishing to pass on a price risk to someone who is more willing and able to bear it.

In a risk management program, non-insurance transfers have several advantages:

- The risk manager can **transfer some potential losses** that are not commercially insurable. Non-insurance transfers often cost less than insurance
- The potential loss may be shifted to someone who is in a better position to exercise loss control.

However, non-insurance transfers have several disadvantages. They are summarized as follows:

- The transfer of potential loss may fail because a contract language is ambiguous. Also there may be no court precedents for the interpretation of a contract that is tailor made to fit the situation.
- If the party to whom the potential is transferred is unable to pay the loss, the firm is still responsible for the claim.
- Non-insurance transfers may not always reduce insurance costs, since an insurer may not give credit for the transfers.

☞ Dear learner, please make sure that you are clear with the two elements of non-insurance transfers: Transfer of the activity or the property and Transfer of the probable loss. In the first case, the property or activity responsible for the risks may be transferred to some other person or group of persons. In the second case, the risk, but not the property or activity, may be transferred.

2. Risk Financing Tools

In most risk management programs, some losses occur in spite of the best risk control efforts. This means some measures must be used to finance losses that do occur. Risk control measures by altering the loss itself, either reduce the potential losses or make those losses more predictable. The risk financing tools, on the other hand, are ways of financing the losses that do occur. It includes: Retention and insurance.

Retention

The most common and easiest method of risk handling tools used by firm is retention. It is an arrangement under which the firm or an individual experiencing the loss bears the direct financial consequences. In other words, the person or the firm consciously or unconsciously, decides to assume the risk and pays for the loss without any attempt to transfer it to somebody else.

Retention can be effectively used in a risk management program when certain conditions exist. These are:

First, no other method of treatment is available. Insurers may be unwilling to write a certain type of coverage, or the coverage may be too expensive. Non-insurance transfers may not be available. Loss control can reduce the frequency of loss, but not all losses can be eliminated. In these cases, retention is a residual method. If the exposure cannot be insured or transferred, then it must be retained.

Second, the worst possible loss is not serious. For example, physical damage losses to automobiles in a large firm's fleet will not bankrupt the firm if the automobiles are separated by wide distances and are not likely to be simultaneously damaged.

Finally, losses are highly predictable. Retention can be effectively used for workers' compensation claims, physical damage losses to automobiles, and shoplifting losses. Based on past experience, the risk manager can estimate a probable range of frequency and severity of actual losses. If most losses fall within that range, they can be budgeted out of the firm's income.

The source of the funds is the firm itself. And the following are some of the types of retention that firms use.

Planned (Active) versus Unplanned (Passive) Retention

Planned retention involves a conscious and deliberate assumption of recognized risk. Sometimes planned retention occurs because it is the most convenient risk treatment technique or because there are simply no alternatives available short of ceasing operations. At other times, a risk manager has

thoroughly analyzed all of the alternative methods of treating an existing risk and has decided that retention is the most appropriate technique.

When a firm or individual does not recognize that a risk exists and unwittingly believes that no loss could occur, risk retention also is underway – albeit **unplanned retention.** Sometimes unplanned retention occurs even when the existence of risk is acknowledged. This result can ensue if the maximum possible loss associated with a recognized risk is significantly underestimated.

Funded versus Unfunded Retention

Many risk retention strategies involve the intention to pay for losses as they occur, without making any funding arrangements in advance of a loss. If a loss happens, it is paid for from the firm's current revenues. In general unfunded retention should be used with caution, because financial difficulties may arise if actual total losses are considerably greater than what was expected. In contrast, to unfunded retention, a firm or individual may decide to practice funded retention by making various pre-loss arrangements to ensure that money is readily available to pay for losses that occur.

Credit – one method is to borrow the necessary funds from a bank. The use of credit may provide some limited opportunities to fund losses that result from retained risks. It is usually not a viable source of funds for payment of large losses, however. Further, unless the risk manager has already established a line of credit prior to the loss, the very fact that the loss has occurred may make it impossible to obtain credit when needed. For example, a creditor may be unwilling to loan money to replace destroyed assets if those are the very assets that normally would have been used as collateral for the loan. For these reasons, credit tends not to be a major source of financial resources for most firms' funded retention program.

Reserve funds - a funded reserve is the setting aside of liquid funds to pay losses. If the maximum possible loss due to a particular risk is relatively small, the existence of a reserve fund may be an efficient means of managing risk. When the maximum possible loss is quite large, however, a reserve fund may not be appropriate. Funded reserves are not widely used by private employers in their risk management programs, since the funds may yield a much higher rate of return by being used in the business.

Self-insurance - Our discussion of retention would not be complete without a brief discussion of self-insurance. The term self-insurance is commonly used by risk managers in their risk management programs. However, self-insurance is a misnomer since it is technically not insurance, and a pure risk is not transferred to an insurer. Self-insurance is merely a special form of planned retention by which part or all of a given loss exposure is retained by the firm. A better name for self-insurance is self-funding, which expresses more clearly the idea that losses are funded and paid by the firm.

There are two necessary elements of self-insurance: (1) existence of a group of exposure units that is sufficiently large to enable accurate loss prediction and (2) prefunding of expected losses through a fund specifically designed for that purpose. Self-insurance is widely used in workers compensation insurance at the present time. Because of the rapid increase in workers compensation premiums, many firms are self-insuring workers compensation insurance to save money. Self-insurance is also widely used by employers to provide group health, dental, vision, and prescription drug benefits to employees. Firms often self-insure their group health-insurance benefits because they can save money and control health care costs.

A captive insurer - A **captive insurer** is an insurer established and owned by a parent firm for the purpose of insuring the parent firm's loss exposures. If the captive is owned by only one parent,

such as a corporation, it is known as a pure captive. If the captive is owned by a sponsoring organization, such as a trade association, it is called an association or group captive.

Captive insurers are formed for several reasons, including the following:

- **Difficulty in obtaining insurance:** The parent firm may have difficulty in obtaining certain types of insurance from commercial insurers, so it forms its own captive insurer to write the coverage. Insurance costs may be reduced because of lower expenses and the receipt of interest on invested premiums and reserves that otherwise would be received by commercial insurers.
- **Greater stability of earnings:** A captive insurer can provide for greater stability of earnings, since the adverse impact of chance fluctuations on the firm's income is reduced.
- **Easier access to a reinsurer:** A captive insurer has easier access to reinsurance, since many reinsurers will deal only with insurance companies and not with insured.
- **Profit center:** A captive insurer can be a source of profit by insuring other parties as well as providing insurance to the parent firm and subsidiaries.

☞ Dear learner, please make sure that you understood that risk financing tools are ways of financing the losses that do occur and it includes: Retention and insurance.

Advantages and Disadvantages of Retention

The retention technique has both advantages and disadvantages in a risk management program: the major advantages are as follows:

Save money: The firm can save money in the long run if its actual losses are less than the loss allowance in the insurer's premium.

Lower expenses: The services provided by the insurer may be provided by the firm at a lower cost. Some expenses may be reduced, including loss adjustment expenses, general administrative expenses, commissions and brokerage fees, loss control expenses, taxes and fees, and the insurer profit.

Encourage loss prevention: Since the exposure is retained, there may be a greater incentive for loss prevention.

Increase cash flow: Cash flow may be increased since the firm can use the funds that normally would be held by the insurer.



Activity 8: Understanding the advantages of retention

What are the main advantages of retention?

The retention technique, however, has several disadvantages

Possible higher losses: The losses retained by the firm may be greater than the loss allowance in the insurance premium that is saved by not purchasing the insurance. Also, in the short run, there may be great volatility in the firm's loss experience.

Possible higher expenses: Expenses may actually be higher. Outside experts such as safety engineers may have to be hired. Insurers may be able to provide loss control services more cheaply.

Possible higher taxes: Income taxes may also be higher. The premiums paid to an insurer are income-tax deductible. However, if retention is used, only the amounts actually paid out for losses are deductible. Contributions to a funded reserve usually are not income-tax deductible.

Insurance

Commercial insurance can also be used in a risk management program. Insurance can be advantageously used for the treatment of loss exposures that have a low probability of loss but the severity of a potential loss is high.

If the risk manager decides to use insurance to treat certain loss exposures, five key areas must be emphasized.

- Selection of insurance coverage
- Selection of an insurer
- Negotiation of terms
- Dissemination of information concerning insurance coverage
- Periodic review of the insurance programs

First the risk manager must select the insurance coverage needed. Since there may not be enough money in the insurance budget to insure all possible loss the need for insurance can be divided into several categories depending on importance. One useful approach is to classify the need for insurance into three categories:

Essential insurance includes that coverage required by law or by contract, such as workers compensation insurance. Essential insurance also includes that coverage that will protect the firm against a catastrophic loss or a loss that threatens the firm's survival; commercial general liability insurance would fall into this category.

Desirable insurance is protection against losses that may cause the firm financial difficulty, but not bankruptcy.

Available insurance is coverage for slight losses that would merely inconvenience the firm.

The risk manager must also determine if a deductible is needed and the size of the deductible. A **deductible** is used to eliminate small claims and the administrative expense of adjusting these claims. As a result, substantial premium savings are possible. In essence, a deductible is a form of risk retention. Most risk management programs combine the retention technique discussed earlier with commercial insurance. In determining the size of the deductible, the firm may decide to retain only a relatively small part of the maximum possible loss. The insurer normally adjusts any claims, and only losses in excess of the deductible are paid.

Another approach is to purchase excess **insurance.** A firm may be financially strong and may wish to retain a relatively larger proportion of the maximum possible loss. Under an excess insurance plan, the insurer does not participate in the loss until the actual loss exceeds the amount a firm has decided to retain. The retention limit may be set at the maximum probable loss (not maximum possible loss).

Second, the risk manager must select an insurer or several insurers. Several important factors come into play here. These include the financial strength of the insurer, risk management services provided by the insurer, and the cost and terms of protection. The insurer's financial strength is determined by the size of policy owners' surplus, underwriting and investment results, adequacy of reserves for outstanding liabilities, types of insurance written, and the quality of management. Several trade publications are available to the risk manager for determining the financial strength of a particular insurer.

The risk manager must also consider the availability of risk management services in selecting a particular insurer. An insurance agent or broker can provide the desired information concerning the risk management services available from different insurers. Such services include assistance in identifying loss exposures, in loss control, and in claim adjustment. The cost and terms of insurance protectionist also be considered. All other factors being equal, the risk manager would prefer to purchase insurance at the lowest possible price. Many risk managers will therefore solicit

competitive premium bids from several insurers to get the necessary protection and services at the lowest price.

Third, after the insurer or insurers are selected, the terms of the insurance contract must be negotiated. If printed policies, endorsements, and forms are used, the risk manager and insurer must agree on the documents that will form the basis of the contract. If a specially tailored manuscript policy is written for the firm, the language and meaning of the contractual provisions must be clear to both parties. In any case, the various risk management services the insurer will provide must be clearly stated in the contract. Finally, if the firm is large, the premiums may be negotiable between the firm and insurance company. In many cases, an agent or broker will be involved in the negotiations.

Fourth, information concerning insurance coverage must be disseminated to others in the firm. The firm's employees and managers must be informed about the insurance coverage, the various records that must be kept, the risk management services that the insurer will provide, and the changes in hazards that could result in a suspension of insurance. And, of course, those persons responsible for reporting a loss must be informed. The firm must comply with policy provisions concerning how notice of a claim is to be given and how the necessary proofs of loss are to be presented.

Finally, the insurance program must be periodically reviewed. The entire process of obtaining insurance must be evaluated periodically. This involves an analysis of agent and broker relationships, coverage needed, cost of insurance, quality of loss-control services provided, whether claims are paid promptly, and numerous other factors. Even the basic decision whether to purchase insurance must be reviewed periodically.

Advantages of insurance

The use of commercial insurance in a risk management program has certain advantages:

- The firm will be indemnified after a loss occurs. The firm can continue to operate, and there may be little or no fluctuation in earnings.
- Uncertainty is reduced, which permits the firm to lengthen its planning horizon. Worry and fear are reduced for managers and employees, which should improve their performance and productivity.
- Insurers can provide valuable risk management services, such as loss-control services, exposure analysis are to identify loss exposures, and claims adjusting.
- Insurance premiums are income tax deductible as a business expense.

Disadvantage of insurance

The use of insurance also entails certain disadvantages and costs:

- The payment of the insurance premium is a major cost, since the premium consists of a component to pay losses, an amount for expenses, and an allowance for profit and contingencies. There is also an opportunity cost. Under the retention technique discussed earlier, the premium could be invested or used in the business until needed to pay claims. If insurance is used, premiums must be paid in advance.
- Considerable time and effort must be spent in negotiating the insurance coverage. An insurer or insurers must be selected, policy terms and premiums must be negotiated, the firm must cooperate with the loss-control activities of the insurer, and proof of loss must be filed with the insurer following a loss.
- The risk manager may have less incentive to follow a loss-control program, since the insurer will pay the claim if a loss occurs. Such a lax attitude toward loss control could increase the number of noninsured losses as well.

- Dear learner, it is hoped that you are still with me. If yes:

☞ This is to remind that insurance is the protection against financial loss provided by an insurer or insurance is a device by means of which the risks of two or more persons or firms are combined through actual or promised contribution to a fund out of which claimants are paid.

Selections of Risk Management Tools

In the previous section, we have discussed large number of risk management tools. These tools may not be appropriate in all situations to all firms or individuals at all times. As a result, a risk manager should be knowledgeable enough to make analysis and select the "best" risk handling tool(s). Cost-benefit analysis is important in selecting an appropriate risk management tool(s).

There are different models that are normally used in selecting risk management tools. These models include the Worry Factor Model and Expected Utility Model. In this section we will discuss the Worry Factor model.

Models

Models are abstractions of the real world situations. Their usefulness in real life situation depends among other things on whether or not their assumptions and the variables they incorporate reflects the prevailing situation in the practical field. The worry factor model tries to assign a monetary value to the mental stress (worry) that managers experience because of the presence of risk. Consequently, the monetary value assigned to this worry is treated as part of the cost to managing the risk.

Steps to apply this model

- Determine the premium payments for each decision under consideration,
- Determine the expected value of the uncovered monetary loss (EVUL),
- Assign the worry value to the EVUL,
- Determine the total loss of each decision. This is equal to the sum of the premium payment, EVUL and the worry value, and
- Finally the risk manager selects the alternative with the lowest total loss.

Assume the following example for illustration purpose where the firm has a number of alternatives to handle its risk.

Alternatives	**Premium**
1. Complete Coverage, birr 25,000	Birr 12,000
2. 20,000 insurance with 5000 deductibles	7,000
3. 15,000 insurance with 10,000 deductibles	2,500
4. Retention	0

Deductible- is a specified amount of the potential loss that the insured agrees to bear under an insurance contract. Thus in the event of a loss, the insurer will pay to the insured the amount of the loss less the deductible.

Expected Value of Uncovered Loss (EVUL)

1) Complete coverage, Birr 25,000

Expected Value of Uncovered Loss (EVUL) = 0, since all losses are to be covered by the insurer, the risk manager has nothing to worry about.

2) 20,000 insurance with 5000 deductible

No. of accidents	Monetary loss	Loss covered by	uncovered loss	Probability	EVUL

		insurance			
0	0	0	0	0.07776	0
1	5,000	0	5,000	0.2592	1,296
2	10,000	5,000	5,000	0.3456	1,728
3	15,000	10,000	5,000	0.2304	1,152
4	20,000	15,000	5,000	0.0768	384
5	25,000	20,000	5,000	0.01024	51.20
				EVUL	**4,611.20**

Decision	Premium	EVUL	Worry factor	Total loss
1. Complete coverage- - - - -	12,000	0	0	12,000
2. 20,000 with 5000 Deductible - - - - - - - - - - -	7,000	4,611	1,383	12,994
3. 15,000 with 10,000 deductible- - - - - -- - - - - -	2,500	7,926	3,963	14,389
4. Retention - - - - - -- - - - - -	0	10,000	7,500	17500

Worry factor=30%, 50% and 75% of Expected Value of Uncovered Loss (EVUL)
The risk manager is likely to select alternative one which has the lowest total cost i.e. to purchase complete insurance cover. The expected utility model does not take into account the intangible cost associated with worry. The worry method, however, assigns an arbitrary value to the mental stress of the manager consequently; the total loss is bound to increase.

Dear learner, please make sure that you have read the chapter carefully and properly understood activities questions. If you have done that, please read summary and proceed to self assessment questions.

Summary

Once we know that risk is always there, we should be able to manage the risk. Risk management is the process of identifying, measuring, and taking appropriate actions. Risk identification is the

process by which a business systematically and continuously identifies property, liability, and personnel exposures as soon as or before they occur or emerge. Risk management refers to the measurement of potential losses as to their size and probability of occurrence.
Risk can be measured using different mathematical or statistical techniques. Probability distribution is one commonly used method of measuring risk using various parameters such as expected value or mean, standard deviation, variance, coefficient of variation and other parameters. Once the risk manager has identified and measured risks facing businesses or individuals using the techniques described, he or she must decide how to handle these risks. Most commonly there are two methods of handling risks. The first one is risk control tool that include avoidance, separation, combination, loss control tools such as Loss prevention and loss reduction tools and other transfers. The second approach is risk financing tools such as purchase of an insurance policy from insurers.

Checklist

Dear learner, now you have completed the second chapter, so you need to check whether you have grasped the concepts discussed in this chapter. If your answer to the questions below is No, then you have to go back and read the relevant sub-section again.

Can you:	Yes	No
1. Define risk management	☐	☐
2. Discuss risk management process and its importance	☐	☐
3. Explain risk identification process	☐	☐
4. Calculate risk using statistical data	☐	☐
5. Explain various risk handling tools	☐	☐
6. Explain advantages and disadvantages of the above tools	☐	☐
7. Explain risk control and risk financing tools	☐	☐
8. Explain Loss prevention and reduction methods	☐	☐

Dear learner, now if you have understood the above points, then proceed to the next self assessment questions.

Self Assessment Questions

Part I: True-False Questions

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. Loss severity is defined as the probable size of the losses which may occur during some period.
2. The worst loss that is likely to happen is referred to as the maximum possible loss.
3. The variability the total annual monetary loss from the expected value is called risk relative to mean.
4. Loss prevention methods help organizations to reduce the severity of losses once they occurred.
5. Liability exposure is a liability that will hold the business or individuals for property damage or bodily injuries suffered by others.
6. Purchasing health insurance for personal risk management technique is an example of risk transfer.
7. High-frequency, high-severity types of loss exposures are best handled by the use of avoidance.
8. A specified amount of the potential loss that the insured agrees to bear under the insurance contract is called deductible.
9. Avoidance is an appropriate risk control tool that business organizations should always use.
10. Protection from catastrophic losses is potential advantage of retention.
11. A mechanism that is used by risk manager to learn exposures faced by firms by observing facilities and operations conducted there is Onsite inspection method.
12. Risk relative to mean is one of the risk measures that indicate the deviation from expected outcomes as a percentage of total number of exposure units.
13. Risks that expose businesses for property damage or personal injuries suffered by others are called liability loss exposures.
14. A financially strong firm can have a higher retention level than a firm whose financial position is weak.
15. Self-insurance is a form of planned retention.

Part II: Multiple Choice Questions

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. Loss frequency is defined as the
   A. Probable size of the losses that may occur during some period.
   B. Probable number of losses that may occur during some period.
   C. Probability that any particular piece of property may be totally destroyed.
   D. Probability that a liability judgment may exceed a firm's net worth.
2. The worst loss that could ever happen to a firm is referred to as the
   A. Maximum possible loss.
   B. Probable maximum loss.
   C. Frequency of loss.
   D. Severity of loss.
3. All of the following statements about avoidance are true EXCEPT
   A. Certain loss exposures are never acquired.
   B. Certain loss exposures may be abandoned.
   C. The chance of loss for certain loss exposures may be reduced to zero.
   D. It can be used for any loss exposure facing a firm.
4. When objects are independently exposed to loss and each exposed unit suffers at most one accident in a year, which probability distribution is appropriate?
   A. Binomial probability distribution

B. Poisson probability distribution
C. Normal probability distribution
D. None

5. One of the following items measures how close (far) a group of individual measurements (losses) is to its average value.
A. Variance
B. Standard deviation
C. Mean
D. None

6. One of the following refers to the measurement of potential losses as to their size and probability of occurrence.
A. Risk identification
B. Risk measurement
C. Risk handling
D. None

7. One of the following is not an example of loss prevention tools:
A. Warning posters such as; No Smoking and danger Zone
B. Using fire resistive construction materials to protect fire accident
C. Immediate cleaning up operation after the accident
D. Having sound accounting and internal control system

8. Abandoning an existing loss exposure is an example of
A. Avoidance.
B. Retention.
C. Noninsurance transfer.
D. Insurance transfer.

9. Which of the following conditions is (are) appropriate for using retention?
I. Losses are difficult to predict.
II. The worst possible loss is not serious.
A. I only
B. II only
C. both I and II
D. neither I nor II

10. All of the following statements about captive insurers are true EXCEPT
A. They may act as a profit center by insuring parties other than the parent company.
B. They provide a way to obtain types of insurance that may be unavailable from commercial insurers.
C. They increase the volatility of the parent company's earnings.
D. They make it easier for a firm to have access to reinsurance.

11. All of the following are disadvantages of noninsurance transfers EXCEPT
A. The party to whom the potential loss is transferred may be unable to pay.
B. The transfer may fail because the contract language is ambiguous.
C. The only potential losses that can be transferred are those that are not commercially insurable.
D. The noninsurance transfer may be costly.

12. Which of the following statements about the use of deductibles is (are) true?
I. They represent risk retention by insurance purchasers.
II. They tend to increase the cost of adjusting small claims.
A. I only

B. II only
C. both I and II
D. neither I nor II

13. Which of the following types of loss exposures may be appropriately handled through the purchase of insurance?
    I. High-frequency, low-severity
    II. Low-frequency, high-severity
A. I only
B. II only
C. both I and II
D. neither I nor II

14. Kal was just hired as XYZ Company's first risk manager. Cal would like to employ the risk management process. The first step in the process Kal should follow is to
A. Evaluate potential losses faced by XYZ Company.
B. Formulate a treatment plan for XYZ Company's loss exposures.
C. Identify potential losses faced by XYZ Company.
D. Implement and administer a risk management plan for XYZ Company.

15. Parker Department Stores has been hurt in recent months by a large increase in shoplifting losses. Parker's risk manager concluded that while the frequency of shoplifting losses was high, the severity is still relatively low. What is (are) the appropriate risk management technique(s) to apply to this problem?
A. retention
B. loss control and retention
C. transfer through insurance
D. avoidance

Part-III Workout question

Work out the following question clearly

1. A business has 40 retail outlets scattered throughout Ethiopia. The risk manager does not know the probability distribution of total dollar losses. But estimates the average value per year will be Br 50,000 and standard deviation is Br 10,000.

Required:

A. If the risk manager can assume that the probability distribution is normal, what is the probability that the loss exceeds 67,500? **(Z=1.75 = 0.4599 from the table)**

B. If the firm in the above question increases its retail outlets to 160, each of which has the same quality of exposure to losses as the original 40,
   i. What should be the new value of the mean and Standard deviation?
   ii. What is the probability that the losses will be less than Br 160,000 or more than Br 240, 000 if we assume normality?

Dear learner, now you have completed the chapter successfully. Please go to the next chapter and do what you have done in this chapter.

CHAPTER THREE

FUNCTION AND ECONOMIC ROLE OF INSURANCE

CHAPTER CONTENTS

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Chapter-Three
Function and Economic Role of Insurance

Introduction

Dear Learner! Welcome to the third chapter of this module. In this chapter, you will study about the definition of insurance. Insurance is a contract where by individuals or organizations protect the financial losses using the money provided by another party(insurer) who combines the risk of two or more persons or firms through actual or promised contribution to a fund out of which claimants are paid. The chapter will help you understand the meaning of insurance and how insurance contracts differ from non insurance contacts. It will also help you to understand the differences between insurance, gambling and speculation. Finally the chapter presents the costs and benefits of insurance.

After completing this chapter, you would be able to:

- Understand the definition of insurance
- Explain how insurance differs from non insurance transfers.
- Distinguish among insurance, gambling and speculation
- List the benefits and costs of insurance.
- Understand functions and organizations of insurance
- Be clear with the Management of claims and losses
- Identify Legal principles of insurance contracts
- Clearly understand Insurance contracts

3.1 Insurance an overview

The word insurance has no single definition. Insurance is defined differently by different individual but these definitions are not mutually exclusive. Insurance can be defined from two points of view. First, insurance is the protection against financial loss provided by an insurer. Second, insurance is a device by means of which the risks of two or more persons or firms are combined through actual or promised contribution to a fund out of which claimants are paid. From the view points of the insured, insurance is a transfer device. From the view point of the insurer, insurance is a retention and combination device. The distinctive feature of insurance as a transfer device is that it involves some pooling of risks; i.e. the insurer combines the risk of many insured. Through this combination, the insurer improves its ability to predict its expected loss. Although most insurers collect in advance premium that will be sufficient to pay all their expected losses, some relay at least in part on assessments levied on all insured after loss occurs. Sometimes it is difficult to define certain terms. However, it is possible to describe them. Some definition, though not comprehensive by themselves may provide reasonably sufficient explanations about the term insurance. The following are some of the definitions given by different scholars.

Insurance may be defined in economic, legal, business, social point of view as follows:

In economic sense

Insurance is an important tool that provides certainty or predictability aiming at reducing uncertainty in regard to pure risks. It accomplishes this result by pooling or sharing of risk.

Legal point of view

Insurance is a contract by which one party, in consideration of the price paid to him adequate to the risk, becomes security to the other that he shall not suffer loss, damage or prejudices by the happening of the perils specified in the policy.

Article 654(1) of the commercial code of Ethiopia states insurance as follows:

"A contract whereby a person called the insurer undertakes against payment of one or more premiums to pay a person, called the beneficiary, sum of money where a specified risk materializes".

From this definition we can learn that insurance is contractual agreement between two parties: the person (Insured) and Insurance companies. When a person buys private insurance, she/he is entering into a contract with the insurer that entitles the person (Insured) to certain advantages but also

imposes certain responsibilities such as payment of a premium and satisfying certain conditions specified in the policy.

Business Point of views

As a business institution, insurance has been defined as a plan by which large number of people associate themselves and transfer risks of individuals to the shoulders of all members of the policy.

Social View Point

Insurance is defined as a social device for making payment for the accumulation of fund to meet uncertain losses of capital which is carried out through the transfer of risk of many individuals to one person or a group of persons. It is advice through which few unfortunates are paid by many who are member of the policy.

Insurance is a system used to transfer risk of individuals for payment of premium.

The insured considers insurance as a transfer device where as from the point of view of the insurer (Insurance Company), it is regarded as retention and combination device. Of course, one may ask, "Why the insurer accepts risks that other people try to avoid?" Insurance companies /Insurers accept the risks of others because, as compared to individual insured:

- They have the knowledge and the skill to apply various risk reduction and risk control measures,
- Combination or pooling of similar risks will enable the insurer to predict the actual loss experience with a reasonable accuracy,
- They have financial capacity to assume/ take risk,
- They are in a position to enforce certain loss reduction and prevention measures, and
- For losses that are beyond their capacity, insurers arrange a reinsurance mechanism.

From this we can say that risk is the business of insurance companies. The insured is required to pay some amount of money in relation for the transfer of his/her risk to the insurer. They do this because they want to remain secured financially and/or mentally.

☞ Dear learner, at this point you have to be clear with the term insurance that it is the protection against financial loss provided by an insurer and is a device by means of which the risks of two or more persons or firms are combined through actual or promised contribution to a fund out of which claimants are paid.

3.2 Insurance, Gambling, and Speculation

The purchase of insurance is sometimes confused with gambling. Both acts do share one characteristic. Both the insured and the gambler may collect more dollars than they pay out, the outcome being determined by some chance event. However, through purchase of insurance, the insured transfers an existing pure risk. A gambler creates a speculative risk.

The following are some of the comparison points between insurance and gambling:

- Gambling creates risks which did not exist previously where as insurance protects the insured against a risk which was already in being;
- In gambling there is a possibility of gain where as the man that insures the risk is not expected to make a gain out of the insurance transaction.
- The man who gambles accepts deliberately the risk of loss in exchange for the possibility of profit whereas the man who insures accepts deliberately the certainty of a small loss in exchange for the freedom from risk of devastating catastrophic loss;
- The gambler bears the risk while the insured transfers the risk; and
- Gambling is socially unproductive, since the winner's gain comes at the expense of the loser. In contrast, insurance is always socially productive, since neither the insurer nor the insured is placed in a position where the gain of the winner comes at the expense of the loser.

Insurance and Speculation

Both techniques are similar in that risk is transferred by a contract. Through speculation, individuals enter into a risk deliberately in the anticipation of profits and speculation is a technique for handling risks that are typically uninsurable. Insurance can reduce the objective risk of an insurer by the application of the law of large numbers. Whereas, speculation typically involves only risk transfer, not risk reduction.



Activity 1: understanding insurance and gambling

List at least one difference between insurance and gambling

3.3 Benefits and Costs of Insurance

Insurance has a number of benefits and disadvantages to the society. Generally, the words insurance and assurance are considered to mean the same thing but their meaning is different. The word assurance is used for like assurance policies. The contract of assurance means that the assured will have to be paid sooner or later. The word insurance is used for fire and marine insurance. Under the contract of insurance the risk is uncertain and the liability may or may not occur.

Under life assurance the payment is made either on maturity or on the death of the insured, whichever is earlier. So the company will have to make the payment of the policy, it is only a question of time. In case of insurance contracts, the sum insured will be payable only if there is a loss. If a factory is insured against fire and in case, it is destroyed by fire, then a liability under insurance contract will arise. If there is no fire, then the liability will not arise. So the liability under insurance contract may or may not arise.

Re-insurance or Double Insurance

An insurance company generally undertakes the risks according to its capacity. Sometimes a company undertakes more risks than its capacity. It tries to share the risk with some company in case of its occurrence. When the insurance company insures the risk with some other insurance company, it is called Re-insurance. The re-insurance may be for the full amount of the policy or for a part of it. In case of loss the first company will get compensation from the second company. The insured will be concerned only with the company from which it purchased insurance policy. Re-insurance is between insurance companies only.

Double insurance means purchasing more than one policy for the same subject. A person may get two or more policies on his life. He can claim the amount on all these policies. The implications of double insurance are different in fire and marine insurance. When a person purchases two or more policies for his property, he cannot claim the same amount as that of loss from different companies. He will be able to claim only total loss from one or more companies. The loss will be contributed by the insurance companies in proportion to the policies issued by them.

- When the insurance company insures the risk with some other insurance company, it is called Re-insurance or double insurance.

Advantages of Insurance

The Insurance has become an integral part of business and human life. The following are some of the advantages of insurance:

1. Providing Security or indemnification

There are always fears of sudden loss. There may be a fire in the factory, storm in the sea or loss of a life. In all these cases it becomes difficult to bear the loss. Insurance provides a cover against any sudden loss. In case of marine and fire insurance, the loss suffered by the insured is fully compensated and he is restored to his earlier position. In the same way, if a bread-bringing member

of the family dies prematurely, the family is provided with money to continue with its livelihood. So, insurance gives security to both individuals and businessman.

2. Spreading Risk

The basic principle of insurance is to spread risk among a large number of people. A large number of persons get insurance policies and pay premium to the insurer. Whenever a loss occurs, it is compensated out of funds of the insurer. The loss is spread among a large number of policy-holders.

3. Source for Collecting Funds

In lieu of an insurance cover, the insured pays premium to the insurer. The premium is received regularly in installments. Large funds are collected by way of premium. The funds can be gainfully employed in industrial development of a country. Life insurance policies are purchased by persons from all walks of life. It helps in collecting savings from a large number of persons.

4. Encourage Savings

Insurance does not only protect risks but it provides an investment channel too. Life insurance provides a mode of investment. The insurance develops a habit of saving money by paying premium. The amount of policy is paid to the insured or to his nominees. In case of fixed time policies, the insured gets lump-sum amount after the maturity of the policy.

5. Reduction of Uncertainty

The more significant but less obvious advantages of insurance arise from the fact that (1) it eliminates the insured's risk, uncertainty, and adverse reaction to risk and (2) it reduces the total risk, uncertainty, and adverse reaction to this risk in society. How it accomplishes this result is so important that it is worth repeating: prior to the purchase of insurance, each potential insured is subject to considerable risk, each knows that this risk exists (consequently his or her uncertainty is high), and each is worried about whether he or she will suffer any financial losses. Through the purchase of insurance, each insured transfers his or her risk to an insurer. The uncertainty is eliminated and he or she no longer is concerned about the financial loss. The insurer is subject to some risk, but because it depends upon the experience of many insured, the actual losses are likely to be close to the expected losses. The insurer, being aware of the law of large numbers, knows this. The insurer's uncertainty, therefore, is also small. Being a risk-bearer by profession, he or she should not be bothered much by the small risk that remains. Consequently, the risk, uncertainty, and adverse reaction to risk in society are reduced substantially through the purchase of insurance.

6. Help Businesses Continue Without Interruption of Operation

The insured firm will not be knocked out of business by fire or liability or other insurable risks. The insurer indemnifies the losses and restores the firm to its former position. This is also advantageous to the society because they can get uninterrupted services and goods of the firm. Moreover, insurance helps small businesses since they cannot bear all the risks by themselves. By transferring their risk, they can safely perform their operation and compete with larger firms.

7. Keeps Families Together

Family can continue to live together after disastrous adversaries. For example, if a husband with life insurance dies, it may not force his family to disintegrate due to lack of income because they can receive the compensation from the insurer and can earn their live as it was before at least to some extent. It relieves pressure on social welfare system, thereby reserving government resources for essential social security activities.

8. Provides a Basis for Credit

Insurance policies are used as a guarantee for personal and business bank loans. This days banks lend money on the basis of the collateral security of insurance.

9. Promotes Loss Control Systems

In order to minimize their losses, insurance companies have tried and are continuing to introduce several kinds of loss reduction and prevention schemes. For example, health education, inspection,

of elevators, and boilers, installation of fire extinguishers, burglar alarms, on vehicles or houses are risk control mechanisms developed and applied by insurance companies at different times. The introduction of this loss control programs can reduce losses to businesses and individuals and complement good risk management thereby benefiting society as a whole.

10. It provides Financial Stability to the Community

Insurance makes a remarkable contribution to the society as a whole. It creates certainty in the environment thereby stimulating competition among business enterprises in a certain region. Fair competition is a greater advantage to the society since it reduces price, encourage efficient utilization of scarce resources and produce quality products. Insurance also avoids or at least minimizes production stoppage that produces an economic wastage, and results in loss of profit to the insured, unemployment and loss of trade and services to the business community. So, insurance can minimize all these and other consequences of risk.

11. Stimulates International Trade and Commerce

Goods traded at the international market are highly vulnerable to risk of loss due to large number of perils. As a result it is difficult to think of international trade without insurance. Insurance coverage may be a condition for engaging in international trade and commerce. Insurance serves as a "lubricant of trade", without it trade and commerce may stifle.

☞ Dear learner, have you understood that advantages of insurance includes among others: Providing Security or indemnification, Spreading Risk, Source for Collecting Funds, Encourage Savings, Reduction of Uncertainty, Help Businesses Continue without Interruption of Operation, Keeps Families Together, Provides a Basis for Credit, Providing Financial Stability to the Community and Stimulating International Trade and Commerce

Disadvantages of Insurance

No institution can operate without certain costs. The costs for an insurance institution include operating the insurance business, losses that are caused intentionally, and losses that are exaggerated.

Operating the Insurance Business: The main social cost of insurance lies in the use of economic resources, mainly labor, to operate the business.

Losses that are Intentionally Caused: A second social cost of insurance is attributed to the fact that if it were not for insurance, certain losses would not occur-losses that are caused intentionally by people in order to collect on their policies. Although there are no reliable estimates as to the extent of such losses, it is likely they are only a small fraction of total payments. Insurers are well aware of this danger, however, and take numerous steps to keep it to a minimum.

Losses that are exaggerated: Related to the cost of intentional losses is the tendency of some insured to exaggerate the extent of damage that results from purely unintentional losses. Several studies illustrate this point. For example, health expenses for families that have health insurance tend to be higher than the reported expenses for uninsured families. This is probably true because part of the extent of the loss is within the control of the insured. In other words, once the accident or sickness has occurred, an individual may decide to undergo more expensive medical treatment, or the physician may prescribe it if it is known that the insurer will bear most or all of the cost.



Activity 2: understanding the disadvantages of insurance

What are some of the disadvantages of insurance?

3.4 Functions and Organizations of Insurance

Although there are definite operational differences between life insurance companies, property & liability insurers, the major activities may be classified as follows.

- Production /selling/,
- Underwriting /selection of risks/,
- Rate making,
- Managing claims and loss adjustment, and
- Investment

Production /selling/

One of the most vital functions of insurance firm is securing a sufficient number of applicants for insurance to enable the company to operate. This function is usually called production and insurance company corresponds to sales function in an industrial firm. The term (production) is a proper one for insurance because the act of selling is production in its true sense. Insurance is an intangible item and does not exist until a policy is sold. Underwriting /selection of risks/. This is the process of selecting risks offer to the insurer. This is an essential element because unless the company selects among its applicants the inevitable result will be adverse to the company. Hence the main responsibility of the underwriting is to guard the company against adverse selection.

The selection is performed by home office personnel who scrutinize application for coverage and make decisions as to whether they will be accepted and by agents who produces applications initially in the field. Underwriting does not have as its goal the selection of risks that will not have losses, but merely to avoid a disproportionate number of bad risks, there by equalizing the actual losses with the expected ones. While attempting to avoid adverse selection through rejection of undesirable risks the underwriter must secure an adequate volume of exposures in each class.

In addition he/she must guard against congestion or concentration of exposures that might result in catastrophe.

Process of Underwriting

The underwriter must get as much information about the subject of insurance as possible with in the limitation imposed by time and cost of obtaining additional data. The best underwriter must rule the exposures submitted by the agents. Accepting some and rejecting others that does not met the companies underwriting requirements. When the risk is rejected it is because the underwriter feels that the risk /hazards/ connects with it are excessive in relation to the rate.

There are four sources from which the underwriter obtains information regarding the hazards inherent in and exposure:

1. The application containing the insured statements,
2. Information from the agent or broker,
3. Investigations, and
4. Physical examinations /inspections/

Application

- The application which varies from each line of insurance and for each type of coverage is the basic source of underwriting information.
- The broader and more liberal the contract, the more detail the information required in the application.
- The questions on the application are designed to give the underwriter the information needed to accept, reject or seek additional information

Information from Agent or Broker

In many cases the underwriter places much weight on the recommendations of the agent or broker. This of course varies with the experience of the underwriter has had with the particular agent inquisition. In certain cases the underwriter will agree to accept an exposure that does not meet the underwriting requirement of the company. Such risks are referred to as accommodation risk.

Investigation

In some cases the underwriter will request a report from an inspection organization that specializes in the investigation of personal matters. This inspection report may deal with a wide range of personal characteristics of the applicant including financial status, occupation character & the extent he/she uses alcoholic beverages.

Physical Examination /inspection/

In life insurance the primary focus is on the health of the applicant. Medical centers supply the insurer with medical reports after a physical examination. In the field of property and liability insurance the equivalent of physical examination is inspection of premises.

- Sources from which the underwriter obtains information regarding the hazards inherent in exposure include the application containing the insured statements, information from the agent or broker, investigations, and physical examinations /inspections/

Rate Making

In insurance rate is the price per unit of insurance. Like any other price, it is the function of cost of production. However unlike other industries the cost of production is not known when the contract is sold and it will not be known until sometime in the future when the contract is expired. One of the fundamental differences between insurance pricing and the pricing function in other industries is that the price for insurance is based on prediction.

The process of predicting future losses, future expenses and allocating these costs among the various classes of insured is called ratemaking. The second important difference between the pricing of insurance & pricing in other industries arises from the fact that rates are subjected to government regulation. The law requires that the rate must not be excessive, must be adequate and may not be unfairly discriminatory. Lastly the rate should be relatively stable over time; the rate should be sufficiently responsive to changing conditions. A rate is the price charged for each unit of protection or exposure and should be distinguished from a premium, which is determined by multiplying the rate by the number of units purchased. The unit of protection to which a rate applies differs for the various lines of insurance.

Premium is designed to cover two costs:-

Expected Loss- It is known as pure premium.

Cost of doing Business- It is known as loading.

Pure premium is determined by dividing the total expected loss by the number of exposures. For **Example:** If an insurer expects to pay 100,000Birr of collusion loss claims in a given territory and there are 1000 autos in the insured groups, the premium for collusions will be computed as follows;

$$\text{Pure premium} = \frac{\text{the expected loss}}{\text{the no of exposures to be insured}}$$

$$= \frac{\$100{,}000}{1000} = \$100/\text{auto}$$

The loading is made up of such items as agent's commissions, general company expenses, taxes, fees and allowances for profit. The sum of the pure premium and the loading is termed as the gross premium. Usually loading is expressed as a percentage of expected gross premiums. If in the above example the loading was 331/3%, the gross premium will be,

$$\text{Gross Premium} = \frac{\text{pure premium}}{\text{1-loading}} = \frac{100}{1-0.3333} = \$\underline{150/\text{auto}}$$

Or, Expected loss ---------- = $100,000

number of exposures units---------- = 2,000

Loading---------- =25%

$$\text{Pure premium} = \frac{100{,}000}{2000} = \underline{50}$$

Gross premium $\frac{50}{1-0.25} = \frac{50}{0.75} = \underline{66.6}$

Managing Claims and Losses

Claims management

Settling losses under insurance contracts and adjusting any differences that arise between the company and the policyholder are the functions of claims management**.** Every insurance company has a claims division or department for settling claims. Such departments of an insurer will have the following responsibilities:

- Ascertaining the validity of written proofs of loss;
- Investigating the scene of the loss;
- Estimating the amount of the loss;
- Interpreting and applying the terms of the policy in loss situations; and
- Approving payment of the claim

Basic Objectives in Claim Settlement

Careful management of claim settlements is of paramount importance to the success of an insurer. Reluctant claims settlement brings with it public ill will, which may take years to overcome. Often negotiation with the claim department is the only direct contact that the insurance buyer has with the insurer. A bad impression received on that contact might result in loss of business, court action, regulatory censure, or even suspension of the right to carry on business in the jurisdiction involved. On the other hand, an overly liberal claims-settlement policy may ultimately result in higher rate levels and loss of business to competitors charging lower premiums.

Thus, from the insurer's viewpoint, there are several basic objectives in settling claims. These include:

- Verification of a covered loss;
- Fair and prompt payment of claims; and
- Personal assistance to the insured

The first objective in settling claims is to verify that a covered loss has occurred. This involves determining whether a specific person or property is covered under the policy, and the extent of this coverage. The second objective is the fair and prompt payment of claims. If a valid claim is denied, the fundamental social and contractual purpose of protecting the insured is defeated.

Also, the insurer's reputation may be harmed, and the sales of new policies may be adversely affected. Fair payment means that the insurer did avoid excessive claim settlements and should also resist the payment of fraudulent claims since they will ultimately result in higher premiums. If the insurer follows a liberal claims policy, all policy owners will suffer because a rate increase will become necessary.

In most of the cases, there are laws that prohibit unfair claim practices. Some unfair claim practices prohibited by these laws include the following:

- Misrepresenting pertinent facts or insurance policy provisions relating to coverage at issue;
- Failing to investigating claims promptly or to acknowledge communications on claims;
- Refusing to pay claims without conducting a reasonable investigation based on all available information;
- Not attempting in good faith to effect prompt, fair, and equitable settlements of claims in which liability has become reasonably clear;
- Compelling insured to institute litigation to recover amounts due under an insurance policy by offering substantially less than the amounts ultimately recovered in actions brought by such insured;

- Attempting to settle a claim for less than that which a reasonable person would have believed he/she was entitled by reference to advertising material accompanying an application;
- Delaying payment of claims by requiring an insured to submit a preliminary claim report and then later requiring submission of formal proof-of-loss forms, both of which contain substantially the same information;
- Failing to provide a reasonable explanation for denial of premiums;
- Failing to maintain complaint-handling procedures;

A third objective is to provide personal assistance to the insured after a covered loss occurs. Aside from any contractual obligations, the insurer should also provide personal assistance after a loss occurs. For example, the claims adjuster could assist the agent in helping a family find temporary housing after a fire occurs.



Activity 3: understanding claim management

What are some of the responsibilities claims division in companies?

Types of Claims Adjusters

The person who adjusts a claim is known as a **claims adjuster.** Claims management is often accomplished in the field through adjusters who are employed to negotiate certain types of settlements on the spot. The major types of adjusters include the following:

- Agent,
- Company adjuster,
- Independent adjuster,
- Adjustment bureau, and
- Public adjuster

An **agent** often has authority to settle small first-party claims up to some maximum limit. The insured submits the claim directly to the agent, who has the authority to pay it up to some specified amount. This approach to claim settlement has three advantages: it is fast, it reduces adjustment expenses, and it preserves the policy owner's good will.

A company adjuster can settle a claim. The adjuster is usually a salaried employee who represents only one company. After notice of the loss is received, the company adjuster will investigate the claim, determine the amount of loss, and arrange for payment.

An **independent adjuster** can also be used to settle claims. An independent adjuster is a person who offers his/her services to insurance companies and is compensated by a fee. The company may use an independent adjuster in certain geographical areas where the volume of claims is too low to justify a branch office with a staff of fulltime adjusters. An independent adjuster may also be used in highly specialized areas where a company adjuster with the necessary technical skills and knowledge is not available.

An **adjustment bureau** can be used to settle claims. An adjustment bureau is an organization for adjusting claims that is supported by insurers that use its services. Claims personnel employed by an adjustment bureau are highly trained individuals who adjust claims on a full-time basis.

An adjustment bureau is frequently used when a catastrophic loss, such as a hurricane, occurs in a given geographical area, and a large number of claims are submitted at the same time.

Finally, a **public adjuster** can be used to settle a claim. *A* public adjuster, however, represents the insured rather than the insurance company and is paid a fee based on the amount of the claim settlement. A public adjuster may be employed by the insured if a complex loss situation occurs and technical assistance is needed, and also in those cases where the insured and insurer cannot resolve a dispute over a claim.

 ***Activity 4: understanding types of claim adjustment***

What are some of the major types of adjusters?

Steps in Settlement of a Claim/ loss adjustment/

The following are some of the several important steps in settling a claim:

Notice of loss- The first step is to notify the insurer of a loss. The notification of a claim is the responsibility of the insured. The insurer will want speedy notification of the claim and often lay down time limits within which a claim should be notified. The means by which the claim is notified is normally the claim form.

A provision concerning notice of loss is usually stated in the policy. A typical provision requires the insured to give notice immediately or as soon as possible after the loss has occurred. For example, a typical homeowners policy requires the insured to give immediate notice; a common medical expense policy may require the insured to give notice within 30 days after the occurrence of a loss, or as soon afterward as is reasonably possible; and the personal auto policy requires that the insurer must be notified promptly of how, when, and where the accident or loss happened. The notice must also include the names and addresses of any injured persons and of witnesses.

Investigation of the claim

After notice is received; the next step is to investigate the claim. An adjuster must determine that a covered loss has occurred and must also determine the amount of the loss. A series of questions must be answered before the claim is approved. The most important questions include the following:

- Did the loss occur while the policy was in force?
- Does the policy cover the peril that caused the loss?
- Does the policy cover the property destroyed or damaged in the loss?
- Is the claimant entitled to recover?
- Did the loss occur at an insured location?
- Is the type of loss covered?
- Is the claim fraudulent?
- Has the insured taken reasonable steps to minimize the loss?
- Have all conditions been complied with?
- Is the value of the loss reasonable? and the like

Filing a proof of loss

The insured is responsible to prove that he/she has suffered a loss, by a peril which is insured by the policy, and its amount. A proof of loss must usually be filed with the company before the claim is paid. A proof of loss is a sworn statement by the insured that substantiates the loss. For example, under the home owners policy, the insured must file a proof of loss that indicates the time and cause of the lost, interest of the insured and others in the damaged property, other insurance that may cover the loss, and any change in title or occupancy of the property during the term of the policy. Similarly, in the case of death of the insured, the claimant (beneficiary) will have to present death certificate, burial certificate, attending physician certificate, and other pertinent documents to prove that the insured is really dead. He will also submit official and legal documents, which indicate that the claimant is legally entitled to receive the sum assured.

Decision Concerning Payment

The final stage in the claims procedure is the actual monetary payment. The claim has been notified, all parties have carried out their respective duties and all that remains is for the claim to be settled. After claim is investigated, the adjuster must make a decision concerning payment. There are three possible decisions.

Pay- This is the case when the claim is paid. In most cases, the claim is paid promptly according to the terms of the policy.

Deny-The claim can be denied. The adjuster may feel that the policy does not cover the loss, or that the claim is fraudulent. For example, material facts that have a bearing on the assessment of the risk during underwriting may be deliberately withheld by the insured.

These could be facts related to the insured's occupation, personal medical history, family medical history; avocation, etc… In other situations, the age of the insured may be grossly understated thereby lowering the true premium payment, or the insurer may discover that there was no insurable interest and hence the policy had been acquired for speculation or wagering. Moreover, claims may be rejected if the event did not occur in accordance with policy terms and conditions or there occurred a change of occupation leading to more hazardous situation without the knowledge and consent of the insurer.

Dispute-The claim may be valid, but there may be a dispute between the insured and insurer. The dispute could be about either the liability of an insurer to pay a claim, or over the amount to be paid, or the speed with which claims are handled. In the case of dispute, a policy provision may specify how the dispute is to be resolved. For example, if a dispute arises under the home owners policy, both the insured and insurer select an independent appraiser. The two appraisers select an umpire (arbitrator). If the appraisers cannot agree on an umpire, a court of law will appoint one. An agreement by any two of the three is then binding on all parties.

Payment Amounts: The actual settlement, or the amount payable, depends upon a number of factors including: **The Nature of Cover**

It is possibly easier to decide on the amount payable under a life assurance policy, rather than other forms of policy. The life assurance policy normally has a fixed sum of assured so that both assured and the assuror understand exactly what is to be paid and under what circumstances it will be paid. There may be complications in specific circumstances, but normally the amount payable in the event of a claim is stated on the policy and is not the subject of discussion or negotiation at the time of claim. The policy of insurance did have a sum insured, but this is only the limit of the liability of the insurer and is not the amount, which they have agreed to pay in the event of a claim. The eventual cost of the claim will depend on the extent of loss or damage and on the nature of the cover afforded by the policy.

In most property policies there are four methods of determining the amount of claim payment:

- Replacement Cost (no deduction of depreciation),
- Actual Cash Value=Replacement Cost – Depreciation,
- Fair Market Value, and
- Based on Loss of Profits and Expenses during Business interruptions

Replacement Cost

Example:

Estimated replacement cost=Br. 50,000

Claim payment of Br. 50,000 will be made to the insured.

Actual Cash Value

Example

The damaged machinery had an estimated useful life of 10 years

It has been in use for half of its useful life

Estimated replacement cost=Br. 90,000

Claim payment of Br. 45,000 will be made to the insured.

Fair Market Value

Example

The damaged machinery had an estimated useful life of 10 years

It has been in use for half of its useful life
Estimated replacement cost= Br. 90,000
Actual Cash Value Br. 45,000
Fair Market Value =120,000
Claim payment of Br. 120,000 will be made to the insured.

Based on Loss of Profits and Expenses during Interruption

In business interruption insurance, claim payment will be determined based on loss of anticipated profits and expenses incurred during business interruption caused by the occurrence of the peril.

Example: ABC Company has a business interruption insurance policy. The company has discontinued operation for 15 working days due to a fire damage happened in 2002.

The following data pertains to the company's performance in 2001.

Net Sales	Br. 5,000,000
Cost of Sales	3,000,000
Gross Profit	2,000,000
Average Daily Sales	16,125

The company has incurred an additional expense of Br. 50,000 during the interruption.

Number of Days interrupted	15 days
Average daily sales	16,125
Total sales lost due to interruption	Br. 241,875
Gross Profit lost (2/5 x 241,875)	96,750
Add: Additional expenses	50,000
Claim payment to the ABC	Br. 146,750

Adequacy of Cover and limits on the amount payable

The amount which an insurer pays will be limited by the sum insured in the case of property policies, or the limit of indemnity in liability policies.

Example: Assume a machine is insured under a contract of indemnity (actual cash value), for Br. 75,000. Unfortunately, the machine experienced a total loss as a result of a damage caused by a third party. The replacement cost less wear and tear is estimated to be Br. 100,000.

Required: Determine the amount of claim payment.

Solution:

$$\text{Claim payment} = \frac{\text{sum insured x damage}}{\text{Actual cash value}}$$

$$= (75{,}000/100{,}000) \times 100{,}000 = \text{Br. } 75{,}000$$

If the loss was a partial loss of Br. 20,000, then

$$\text{Claim payment} = (75{,}000 \times 20{,}000)/100{,}000 = \text{Br. } 15{,}000$$

Under a liability policy, the adequacy of cover refers to the limit of indemnity. Average is not applied and the insured will only suffer if the award of damages exceeds the limit. Certain policies have an aggregate limit, in the sense that there is an upper limit on the total amount of indemnity provided in any one year. In such a case, an insured could find him/her with inadequate cover if there were a number of claims, which in aggregate exceeded the limit. The amount payable may be further limited by the application of an excess or deductible.

Investment: When an insurance policy is written, the premium is generally paid in advance for periods varying from 6 months to 5 or more years. This advances payment of premium gives raise to funds for policy holder by the insurer funds that must be invested in some manner. When these are added to the funds of the companies themselves the assets would add up to huge amounts. These funds should not remain idle and it is the responsibility of the finance department or the finance committee in the company to see that they are properly invested.

Activity 5: understanding Steps in Settlement of a Claim/ loss adjustment/

What are the steps that should be followed settling claims?

- Dear learner, please make sure that you have read the chapter carefully and properly understood activities questions. If you have done that, please read summary and proceed to self assessment questions.

Summary

The word insurance can be defined differently. For our purpose, insurance is a transfer device used by the assured to transfer the risk to the insurer. It is also a retention or combination device when viewed from the insurer's point of view. Even though, they look similar, there is a significant difference between insurance, gambling and speculation. While gambling creates a new risk, insurance protects the insured against the already existing risk and while insurance is used to handle insurable risks, speculation is used for handling uninsurable risks.

Although, insurance has some costs, it has a number of benefits including Providing Security or indemnification, Spreading Risk, Source for Collecting Funds, Encourage Savings, Reduction of Uncertainty, Help Businesses Continue Without Interruption of Operation, Keeps Families Together, Provides a Basis for Credit, Providing Financial Stability to the Community and Stimulating International Trade and Commerce.

Every insurance company has a claims division or department that is concerned settling losses and adjusting any differences that arise between the insurance company and the policy holder. Such departments of an insurer will have the following responsibilities:

- Ascertaining the validity of written proofs of loss;
- Investigating the scene of the loss;
- Estimating the amount of the loss;
- Interpreting and applying the terms of the policy in loss situations; and
- Approving payment of the claim

From the insurer's viewpoint, there are several basic objectives in settling claims. These include:

- Verification of a covered loss;
- Fair and prompt payment of claims; and
- Personal assistance to the insured

Checklist

Dear learner, now you have completed the second chapter, so you need to check whether you have grasped the concepts discussed in this chapter. If your answer to the questions below is No, then you have to go back and read the relevant sub-section again.

Can you:	Yes	No
1. Define insurance	☐	☐
2. Discuss the advantages and disadvantages of insurance	☐	☐
3. Explain functions and organization of insurance	☐	☐
4. Discuss management of claims	☐	☐
5. Explain Investigation of the claim	☐	☐
6. Discuss steps in Settlement of a Claim/ loss adjustment/	☐	☐

Dear learner, now if you have understood the above points, then proceed to the next self assessment questions.

Self Assessment Questions

Part I: True-False Questions

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. The process of predicting future losses, future expenses and allocating these costs among the various classes of insured is called ratemaking.

2. From economic point of view, insurance is a contract by which one party, in consideration of the price paid to him adequate to the risk, becomes security to the other that he shall not suffer loss, damage or prejudices by the happening of the perils specified in the policy.

3. Loading is an expenditure that the insurer incurs in doing its business.
4. Reduction of Uncertainty is one of the social disadvantages of insurance.
5. The main social cost of insurance lies in the use of economic resources, mainly labor, to operate the business.
6. Insurance and speculation are the same under all circumstances.
7. A public adjuster is usually a salaried employee who represents one company.
8. Insurance is an instrument used to finance all types of risks.
9. From the insured's point of view, insurance is a profit making business.
10. While insurance creates anew risk, gambling is used for handling the already existing risk.

Part II: Multiple Choice Questions

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. The underwriting process begins with the
    A. Agent.
    B. Desk underwriter.
    C. Inspection report.
    D. Acceptance of the application.
2. Common sources of underwriting information for life and health insurance include all of the following EXCEPT
    A. The application.
    B. A physical examination.
    C. The Medical Information Bureau.
    D. The applicant's income tax return.
3. If an underwriter suspects moral hazard, the underwriter may ask an outside firm to investigate the applicant and make a detailed report to the insurer. This report is called a (n)
    A. Inspection report.
    B. Application.
    C. M.I.B. report.
    D. Agent's report.
4. All of the following are functions of the marketing department of an insurance company EXCEPT
    A. To advertise the insurer's products.
    B. To develop new products.
    C. To identify production goals.
    D. To make final underwriting decisions.
5. All of the following statements about reinsurance are true EXCEPT
    A. A reinsurer may also purchase reinsurance.
    B. Reinsurance is an arrangement by which the primary insurer that initially writes the insurance transfers to another insurer part or all of the potential losses associated with such insurance.
    C. The insurer transferring business to a reinsurer is called the ceding insurer.

D. The amount of insurance transferred to a reinsurer is called the net retention.

6. Insurance and speculation are different in that:
   A. The former is used to handle all risks
   B. The later is not used to handle risk
   C. They are used to handle different types of risks

CHAPTER FOUR

   D. None

7. In an insurance policy, part of an insurance contract used to restrict coverage of given perils, losses, properties and locations is called_____
   A. Condition
   B. Exclusion
   C. Declaration
   D. Definition
8. One of the following is the use of insurance:
   A. Indemnification
   B. Reduction of uncertainty
   C. Encourage saving
   D. All
9. One of the following is an advantage of insurance
   A. Providing Security or indemnification
   B. Spreading Risk
   C. Source for Collecting Funds
   D. Encourage Savings
   E. All
10. One of the following is an advantage of insurance
   A. Production /selling/,
   B. Underwriting /selection of risks/,
   C. Rate making
   D. All

Part-III Discussion Questions

Discus the following questions clearly

1. Define insurance from legal point of view
2. What are the major activities of insurance?
3. What is the similarity between insurance and speculation?
4. What is the function of claim management?
5. From the insurer's viewpoint, what are the basic objectives in settling claims?

- Dear learner, now you have completed the chapter successfully. Please go to the next chapter and do what you have done in this chapter.

FUNDAMENTALS OF INSURANCE CONTRACTS

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Chapter-Four
Fundamentals of Insurance Contracts

Introduction

Dear Learner! Welcome to the fourth chapter of this module. In the previous chapter, you have seen the definition of insurance. You have seen that insurance is a contract where by individuals or organizations protect the financial losses using the money provided by another party(insurer) who combines the risk of two or more persons or firms through actual or promised contribution to a fund

out of which claimants are paid. In this chapter you will study about the fundamentals of insurance. The chapter will help you understand the legal principles of insurance and unique characteristics of insurance contracts. Finally the chapter presents the valid elements common to most insurance contracts

After completing this chapter, you would be able to:

- Identify Legal principles of insurance contracts
- Clearly understand Insurance contracts
- Unique characteristics of Insurance contracts
- Valid Elements common to most Insurance contracts
- Explain why all risks are not insurable.

4.1 Legal Principles of Insurance

Insurance is effected by legal agreements known as contracts or policies. A contract, contrary to the impression of many, cannot be complete in itself, but must be interpreted in light of the legal and social environment of the society in which it is made.

The specific legal doctrines that underlie the insurance contract are the following:

1. Principle of indemnity

The principle of indemnity is one of the most important principles in insurance. The principle of indemnity states that the insurer agrees to pay no more than the actual amount of the loss; stated differently, the insured should not profit from a loss. Most property and casualty insurance contracts are contract of indemnity. If a covered loss occurs, the insurer should not pay more than the actual amount of the loss. A contract of indemnity does not mean that all covered losses are always paid in full. Because of deductibles, birr limits on the amount paid, and other contractual provisions, the amount paid may be less than the actual loss.

The principle of indemnity has two fundamental purposes. The first purpose is to prevent the insured from profiting from a loss. The second purpose is to reduce moral hazard. If dishonest insured could profit from a loss, they might deliberately cause losses with the intention of collecting the insurance. If the loss payment does not exceed the actual amount of the loss, the temptation to be dishonest is reduced.

Actual cash value

The concept of actual cash value supports the principle indemnity. In property insurance, the basic method for indemnifying the insured is based on the actual cash value of the damaged property at the time of loss. The courts have used a number of methods to determine actual cash value, including the following:

- Replacement cost less depreciation
- Fair market value
- Broad evidence rule

Replacement Cost Less Depreciation: Under this rule, actual cash value is defined as replacement cost less depreciation. This rule has been used traditionally to determine the actual cash value of property in property insurance. It takes into consideration both inflation and depreciation of property values overtime. Replacement cost is the current cost of restoring the damaged property with new materials of like kind and quality. Depreciation is a deduction for physical wear and tear, age, and economic obsolescence.

Fair Market Value: some courts have ruled that fair market value should be used to determine actual cash value of a loss. Fair market value is the price a willing buyer would pay a willing seller in a free market. The fair market value of building may be below its actual cash value based on replacement cost less depreciation. This difference is due to several factors, including a poor location, deteriorating neighborhood, or economic obsolescence of the building.

Broad Evidenced Rule: Many countries use broad evidence rule to determine the actual cash value of loss. The broad evidence rule means that the determination of actual cash value should include all relevant factors an expert would use to determine the value of the property. Relevant factors include replacement cost less depreciation, fair market value, and present value of expected income from the property, comparison sales of similar property, opinions of appraisers, and numerous other factors.

Although the actual cash value rule is used in property insurance, different methods are employed in other types of insurance. In liability insurance, the insurer pays up to the policy limit the amount of damages that the insured is legally obligated to pay because of bodily injury or property damage to another. In business income insurance, the amount paid is usually based on the loss of profits plus continuing expense when the business is shut down because of loss from a covered peril. In life insurance, the amount paid when the insured dies is the face value of the policy.

☞ Dear learner, please note that the principle of indemnity has two fundamental purposes. The first purpose is to prevent the insured from profiting from a loss. The second purpose is to reduce moral hazard.

Exceptions to the Principle of Indemnity

There are several important exceptions to the principle of indemnity. They include the following:

- Valued policy
- Valued policy laws
- Replacement cost insurance
- Life insurance

2. Principles of Insurable Interest

The principle of insurable interest is another important legal principle. The principle of insurable interest states that the insured must be in a position to lose financially if a covered loss occurs. For example, you have an insurable interest in your car because you may lose financially if the car is damaged or stolen. You have an insurable interest in your personal property, such as television set or computer, because you may lose financially if the property is damaged or destroyed.

Purposes of an Insurable Interest

To be legally enforceable, all insurance contracts must be supported by an insurable interest. Insurance contracts must be supported by an insurable interest for the following reasons.

- To prevent gambling
- To reduce moral hazard
- To measure the amount of the insured's loss in property insurance

***First, an insurable interest is necessary to prevent gambling*.** If an insurable interest were not required, the contract would be a gambling contract and would be against the public interest. For example, you could insure the property of another and hope for a loss to occur. You could similarly insure the life of another person and hope for an early death. These contracts clearly would be gambling contracts and would be against the public interest.

Second, an insurable interest reduces moral hazard. If an insurable interest were not required, a dishonest person could purchase a property insurance contract on someone else's property and then deliberately cause a loss to receive the proceeds. But f the insured stands o lose stands to lose financially, nothing is gained by causing the loss. Thus, moral hazard is reduced. In life insurance, an insurable interest requirement reduces the incentive to murder the insured for the purpose of collecting the proceeds.

Finally, in property insurance, an insurable interest measures the amount of the insured's loss. Most property insurance contracts are contracts of indemnity, and one measure of recovery is the

insurable interest of the insured. If the loss payment cannot exceed the amount of one's insurable interest, the principle of indemnity is supported.

☞ Dear learner have you properly understood that the purpose of insurable interest to prevent gambling, to reduce moral hazard and to measure the amount of the insured's loss in property insurance?

Examples of an Insurable Interest

Several examples of an insurable interest are discussed in this section. However, it is helpful at this point to distinguish between an insurable interest in property and casualty insurance and in life insurance.

Property and casualty Insurance Ownership of property can support an insurable interest because owners of property will lose financially if their property is damaged or destroyed.

Potential legal liability can also support an insurable interest. For example, a dry-cleaning firm has an insurable interest in the property of the customers. The firm may be legally liable for damage to the customers' goods caused by the firm's negligence.

*Secured creditor**s*** have an insurable interest as well. A commercial bank or mortgage company that lends money to buy a house has an insurable interest in the property. The property serves as collateral for the mortgage, so if the building is damaged, the collateral behind the loan is impaired. A bank that makes an inventory loan to a business firm has an insurable interest in the stock of goods, because the goods are collateral for the loan. However, the courts have ruled that unsecured or general creditors normally do not have an insurable interest in the debtor's property.

Finally, a *contractual right can support an insurable interest.* Thus, a business firm that contracts to purchase goods from abroad on the condition that they arrive safely in Ethiopia has an insurable interest in the goods because of the loss of profits if the merchandise does not arrive.

Life Insurance: The question of an insurable interest does not arise when you purchase life insurance on your own life. The law considers the insurable interest requirement to be met whenever a person voluntarily purchases life insurance on his or her life. Thus, you can purchase as much life insurance as you can afford, subject of course to the insurer's underwriting rules concerning the maximum amount of insurance that can be written on any single life, you can name anyone as beneficiary. The beneficiary is not required to have an insurable interest in your life.

If you wish to purchase a life insurance policy on the life of another person, however, you must have an insurable interest in the person's life. Close family ties or marriage will satisfy the insurable interest requirement in life insurance. For example, a husband can purchase a life insurance policy on his wife and be named as beneficiary. Likewise, a wife can insure her husband and be named as beneficiary. A grandparent can purchase a life insurance policy on the life of a grandchild. However, remote family relationships will not support an insurable interest. For example, cousins cannot insure each other unless a pecuniary relationship is present.

If there is a pecuniary (financial) interest, the insurable interest requirement in life insurance can be met. Even when there is no relationship by blood or marriage, one person may be financially harmed by the death of another. For example, a corporation can insure the life of an outstanding salesperson, because the firm's profit may decline if the salesperson dies. One business partner can insure the life of the other partner and use the life insurance proceeds to purchase the decreased partner's interest if he or she dies.

When Must an Insurable Interest Exist?

In property insurance, the insurable interest must exist at the time of the loss. There are two reasons for this requirement. First, most property insurance contracts are contracts of indemnity. If an insurable interest does not exist at the time of loss, the insured would not incur any financial loss. Hence, the principle of indemnity would be violated if payment were made. For example, if you sell

your home to Segni, and fire occurs before the insurance on the home is canceled, you cannot collect because you no longer have an insurable interest in the property. Segni cannot collect either because he is not named as an insured under your policy.
Second, you may not have an insurable interest in the property when the contract is first written but may expect to have an insurable interest in the future, at the time of possible loss. For example, in ocean marine insurance, it is common to insure a return cargo by a contract entered into prior to the ship's departure. However, the policy may not cover the goods until they are on board the ship as insured's property. Although an insurable interest does not exist when the contract is first written, you can still collect if you have an insurable interest in the goods at the time of loss.
In contrast, in life insurance, the insurable interest requirement must be met only at the inception of the policy, not at the time of death. Life insurance is not a contract of indemnity but is valued policy that pays a stated sum upon the insured's death. Because the beneficiary has only a legal claim to receive the policy proceeds, the beneficiary does not have to show that a financial loss has been incurred by the insured's death.

 ***Activity 1: Understanding the principle of indemnity***

What does the principle of indemnity state?

3. Principle of Subrogation

The principle of subrogation strongly supports the principle of indemnity. Subrogation means substitution of the insurer in place of the insured for the purpose of claiming indemnity from a third person for a loss covered by insurance. Stated differently, the insurer is entitled to recover from a negligent third party any loss payments made to the insured. For example, assume that a negligent motorist fails to stop at a red light and smashes into Merga's car, causing damage in the amount of Br 500,000. If he has collision insurance on his car, his company will pay the physical damage loss to the car (less any deductible) and then attempt to collect from the negligent motorist who caused the accident. Alternatively, Merga could attempt to collect directly from the negligent motorist for the damage to his car. Subrogation does not apply unless the insurer makes a loss payment. However, to the extent that a loss payment is made, the insured gives to the insurer any legal rights to collect damages from the negligent third party.

Purposes of Subrogation

Subrogation has three basic purposes. First, subrogation prevents the insured from collecting twice for the same loss. In the absence of subrogation, the insured could collect from the insurer and from the person who caused the loss. The principle of indemnity would be violated because the insured would be profiting from a loss.
Second, subrogation is used to hold the negligent person responsible for the loss. By exercising its subrogation rights, insurer can collect from the negligent person who caused the loss.
Finally, subrogation helps to hold down insurance rates. Subrogation recoveries can be reflected in the rate-making process, which tends to hold rates below where they would be in the absence of subrogation.

Importance of Subrogation

You should d keep in mind several important corollaries of the principle of subrogation.
1. The general rule is that by exercising its subrogation rights, the insurer is entitled only to the amount it has paid under the policy. Some insured may not be fully indemnified after a loss because of insufficient insurance, satisfaction of deductible or legal expenses in trying to recover fro a negligent third party. Many policies, however, now have a provision that states how subrogation recovery is to be shared between the insured and insurer.

2. The insured can not impair the insurer's subrogation rights. The insured cannot do anything after a loss that interferes with the insurer's right to proceed against a negligent third party. For example, if the insured waives the right to sue the negligent party, the right to collect from the insurer for the loss is also waived. This case could happen if the insured admits fault in an auto accident or attempts to settle a collision loss with the negligent driver without the insurer's consent. If the insurer's right to subrogate against the negligent motorist is adversely affected, the insured's right to collect from the insurer is forfeited.
3. Subrogation does not apply to life insurance and to most individual health insurance contracts. Life insurance is not a contract of indemnity, and subrogation has relevance only for contracts of indemnity. Individual health insurance contracts usually do not contain subrogation clauses.
4. The insurer cannot subrogate against its own insured. If the insurer could recover a loss payment for a covered loss from an insurer could recover a loss payment for a covered loss from an insured, the basic purpose of purchasing the insurance would be defeated.

- Dear learner, I hope you are still with me. If you are:

☞ Please make sure that you have understood that life insurance is not a contract of indemnity, and subrogation has relevance only for contracts of indemnity.

4. Principle of Utmost Good Faith

An insurance contract is based on the principle of utmost good faith – that is, a higher degree of honesty is imposed on both parties to an insurance contract than is imposed on parties to other contracts. This principle has its historical roots in ocean marine insurance. An ocean marine underwriter had to place great faith in statements made by applicant for insurance concerning the cargo to be shipped. The property to be insured may not have been visually inspected, and the contract may have been formed in a location far removed from the cargo and ship. Thus, the principle of utmost good faith imposed a high degree of honesty on the applicant for insurance.
The principle of utmost good faith is supported by three important legal doctrines: representations, concealment, and warranty.

Representations

Representations are statements made by the applicant for insurance. For example, if you apply for life insurance, you may be asked questions concerning your age, weight, height, occupation, state of health, family history, and other relevant questions your answers to these questions are called representations.
The legal significance of a representation is that the insurance contract is voidable at the insurer's option if the representation is (1) material, (2) false, and (3) relied on by the insurer. Material means that if the insurer knew the true facts, the policy would not have been issued on different terms. False means that the statement is not true is misleading. Reliance means that the insurer relies on the misrepresentation in issuing the policy at a specified premium.
An innocent misrepresentation of a material fact, if relied on by the insurer, also makes the contract voidable. An innocent misrepresentation is one that is unintentional. A majority of court opinions have ruled that an innocent misrepresentation of a material fact makes the contract voidable.
Finally, the doctrine of material misrepresentations also applies to statements made by the insurer after a loss occurs. If the insured submits a fraudulent proof of loss or misrepresent the value of items damaged, the insurer has the right to void the coverage.

Concealment

The doctrine of concealment also supports the principle of utmost good faith. Concealment is intentional failure of the applicant for insurance to reveal a material fact to the insurer. Concealment is the same thing as nondisclosure; that is, the applicant for insurance deliberately withholds

material information from the insurer. The legal effect of a material concealment is the same as misrepresentation – the contract is voidable at the insurer's option.

To deny a claim based on concealment, a non-marine insurer must prove two things: (1) the concealed fact was known by the insured to be material, and (2) the insured intended to defraud the insurer. In finding for the insurer, the court held that intentional concealment of his true identity was material and breached the obligation of good faith.

The doctrine of concealment is applied in a harsher manner in ocean marine insurance. An ocean marine insurer is not required to prove that the concealment is intentional. Applicants are required to reveal all material facts that pertain to the property to be insured. The applicant's lack of awareness of the materiality of the fact is of no consequence. Thus, an ocean marine insurer can successfully deny payment of a claim if it can show that the concealed fact is material.

Warranty

The doctrine of warranty also reflects the principle of utmost good faith. A warranty is a statement that becomes part of the insurance contract and is guaranteed by the maker to be true in all respects. For example, in exchange for a reduced premium, a liquor store owner may warrant that an approved burglary and robbery alarm system will be operational at all times. A bank warrant that a guard will be on the premises twenty-four hours a day. Likewise, a business firm may warrant that an automatic sprinkler system will be in working order throughout the term of policy. A clause describing the warranty becomes part of the contract.

Based on a common law, in its strictest form warranty is a harsh legal doctrine. Any breach of the warranty, even if minor or not material, allowed the insurer to deny payment of a claim. During the early days of insurance, statements made by the applicant for insurance were considered to be warranties. If the statement were untrue in any respect, even if not material, the insurer could deny payment of claim based on breach of warranty.



Activity 2: Understanding the principle of utmost good faith

What is the difference between representation and warranty?

5. Principle of Contribution: Sometimes a property is insured with more than one company. The insured cannot claim more than total loss from all the companies put together. He cannot claim the same loss from different companies. If one insurer pays full compensation then that insurer can claim proportionate claim from the other insurers. A person cannot be restored to a better position than before the loss occurred. The total loss suffered by the insured will be contributed by different companies in proportion to the value of policies issued by them.

Principle of Proximate Cause: Principle of Proximate Cause means when a loss is caused by more than one causes, the proximate or the nearest or the closest cause should be taken into consideration to decide the liability of the insurer. This principle is found very useful when the loss occurred due to series of events. However, in case of life insurance, the principle of Proximate Cause does not apply.

4.2 Distinct Legal Characteristics of Insurance Contracts

Insurance contracts have distinct legal characteristics that make them different from other legal contracts. Several distinct legal characteristics of insurance contracts have already been discussed. As stated earlier, most property and liability insurance contracts are contracts of indemnity; all insurance contracts must be supported by an insurable interest; and insurance contracts are based on utmost good faith. Other distinct legal characteristics are as follows:

- personal contract
- conditional contract
- contract involving the exchange of unequal amounts

- contract of utmost good faith
- contract of Aleatory
- contract of adhesion
- contract of indemnity
- contract of Executory
- Unilateral contract
- Impersonation (False pretenses)
- Parol (or Oral) evidence rule

1. Personal Contract

The identities of the people insured are extremely relevant to the insurance company, which has a right to select the insured with whom it is willing to enter into contractual agreement. Most insurance policies contain a provision (called assignment) that states that insurer's written permission is required before an insured can transfer a policy to another party.

2. Conditional Contract

A conditional contract is a contract in which one more parties must perform only under certain conditions. Coming to insurance contract, for instance, in the event of a loss, insurer shall pay the same only if covered under policy conditions and insured has certain duties as to the loss such as immediate notification, etc.,

3. Contract Involving the Exchange of Unequal Amounts

Insurance contracts can involve exchange of unequal amounts. For instance, in the event of a claim, it can be such that the claim amount paid is lesser than the premium collected and vice versa

4. Contract of Utmost Good Faith

Utmost Good Faith is the obligation to act in complete honesty. Insurance contracts rely exclusively on the information provided by the proposer except in cases where the insurer carries out pre acceptance inspection. Hence it is the duty of the proposer to disclose all facts material to the subject matter. An Insurance company could be released from a contract because of concealment or misrepresentation by the insured.

Concealment: Concealment is an intentional failure to disclose a material fact.

Material Fact: For insurance purposes, a material fact is any information that would affect the insurer's underwriting decision to provide or maintain insurance or that would affect claim settlement. Courts have held that the insurer must prove two things in order to establish that concealment has occurred. **First,** it must establish that the failure to disclose information was intentional. **Second**, the insurer must establish that the information withheld was material fact.

Misrepresentation

As used in insurance, misrepresentation is a false statement of the material fact on which insurer relies. Unlike concealment, the insurer does not have to prove misrepresentation to be an intentional one.

5. Aleatory

If one party to a contract might receive considerably more in value than he or she gives up under the terms of the agreement, the contract is said to be aleatory. Insurance contracts are of this type because, depending upon chance or any number of uncertain outcomes, the insured (or his or her beneficiaries) may receive substantially more in claim proceeds than was paid to the insurance company in premium dollars. On the other hand, the insurer could ultimately receive significantly more dollars than the insured party if a claim is never filed.

6. Contract of Adhesion

A contract of adhesion is a contract in which one party (insured) must adhere to the agreement as written by the other party (insurer). If dispute arises between the parties as to words and phrases used in the policy document which results in ambiguity, the court will generally apply the interpretation that favors insured.

7. Contract of Indemnity

In a contract of indemnity, the insurer agrees, in the event of covered loss, to pay an amount directly related to the amount of the loss. Property insurance policies contain a valuation provision that explains how the value of the insured property is to be established at the time of loss. Liability insurance policies agree to pay on behalf of the insured amounts that the insured becomes legally obligated to pay to others. The principle of indemnity, states that the insured should not be better off financially after a loss than before. In other words, the insured should not profit from insurance. Some insurance contracts are not contracts of indemnity but valued policies. A valued policy is one in which the insurer pays a stated amount in the event of a specified loss regardless of the actual value of the loss.

8. Executory

An *executory contract* is one in which the covenants of one or more parties to the contract remain partially or completely unfulfilled. Insurance contracts necessarily fall under this strict definition; of course, it's stated in the insurance and agreement that the insurer will only perform its obligation after certain events take place (in other words, losses occur).

9. Unilateral

A contract may either be ***bilateral* or *unilateral*.** In a bilateral contract, each party exchanges a promise for a promise. However, in a unilateral contract, the promise of one party is exchanged for a specific act of the other party. Insurance contracts are unilateral; the insured performs the act of paying the policy premium, and the insurer promises to reimburse the insured for any covered losses that may occur. It must be noted that once the insured has paid the policy premium, nothing else is required on his or her part; no other promises of performance were made. Only the insurer has covenanted any further action, and only the insurer can be held liable for breach of contract.

10. Impersonation (False pretenses)

When one person assumes the identity of another for the purpose of committing a fraud, that person is guilty of the offense of *impersonation* (also known as *false pretenses*). For instance, an individual that would likely be turned down for insurance coverage due to questionable health might request a friend to stand in for him (or her) in order to complete a physical examination.

11. Parol (or Oral) evidence rule

This principle limits the effects that oral statements made before a contract's execution can have on the contract. The assumption here is that any oral agreements made before the contract was written were automatically incorporated into the drafting of the contract. Once the contract is executed, any prior oral statements will therefore not be allowed in a court of law to alter or counter the contract.



***Activity 3: Understanding the principle of* aleatory contract and contract of Adhesion**

What is the difference between aeatory contract and contract of adhesion?

Content of Insurance Policies

An insurance policy specifically describes the coverage it provides. Since no insurance policy can cover every contingency, the policy must describe its limitations, restrictions, and exclusions as clearly as possible. The best way to determine the coverage provided by a particular policy is to examine its provisions, which are generally included in the following sections of the policy: -

- Declarations
- Definitions

- Insuring Agreements
- Exclusions
- Conditions
- Miscellaneous provisions

Declarations

The declaration page (also simply called declarations or dec) of an insurance policy is an information page that provides specific details about the insured and the subject matter of the insurance, such as:

- Name and location of the Insurer
- Name and address of the insured
- Policy Number
- Policy Period
- Description of covered property or locations
- Schedule of coverage and limits
- Deductibles
- Premium(s)
- Policy forms
- List of endorsements, if any
- Agent's name
- Other important details

Definition

Since insurance policy contains technical terms or words that are used for specific purpose. Most policies define these terms that have specific meanings with regard to the coverage provided.

Insuring Agreements

An Insurance agreement in an insurance policy is a statement that the insurer will under certain circumstances, make a payment or provide service.

Exclusions

Exclusions are policy provisions that eliminate coverage for specified exposures.

Reasons for Exclusions

- To avoid covering uninsurable losses
- To avoid insuring losses that could be prevented
- To eliminate duplicate coverage
- To eliminate coverage that most insured do not need
- To eliminate coverage for exposures that requires special handling by the insurer
- To keep premium reasonable

Conditions

Insurance policy contains several conditions relating to the coverage provided. The insured must generally comply with these conditions if coverage is to apply to a loss.

Miscellaneous Provisions

Insurance policies often contain provisions that do not qualify as one of the policy components. These miscellaneous provisions sometimes deal with the relationship between the insured and the insurer, or they might help to establish procedures for carrying on the terms of the contract.

Manuscript Policies and Standard Forms

A Manuscript Policy is an insurance policy that is specifically drafted according to the terms negotiated between a specific insured and the insurer. Standard Forms are insurance forms that contain standardized policy wordings. Insurance advisory organizations develop standard forms that many insurers use in their insurance policies. Some insurers develop their own standard forms that they use in policies for their insured.

Structure of Insurance Policies

Self Contained Policies

Self-contained policy is a single document that contains all the agreements between the insurer and the insured that forms a complete policy by itself.

Endorsement

An Endorsement is a document that amends an insurance policy in some way. Endorsements might add or delete coverage, include state specific changes, show a change in the insured's exposures or otherwise modify the policy.

Modular Policies

A Modular Policy consists of several different documents, none of which by itself form a complete contract.

☞ Dear learner, it is hoped that you are clear with the contents of an insurance contract that it contains Declarations, Definitions, Insuring Agreements, Exclusions, Conditions and Miscellaneous provisions

4.3 Elements of a Valid Contract

A contract can be defined as an agreement between two or more parties that is enforceable by law. Insurance policies are contracts. You, as a producing agent, must know the various components of policies (contracts) you will be selling.

Although your experience with contracts may be limited primarily to two-party contracts, such is not always the case. There may be more than two parties involved in an agreement. Interestingly enough, the parties do not even have to be "people." They may also be partnerships, corporations, associations or labor unions.

Why is it necessary that an insurance policy take the form of a written contract? When you consider the enormous sums of money involved as well as the duration of some insurance contracts (e.g., Whole Life), it is obvious that every effort should be made to avoid confusion and misunderstanding. The policy owner must be made aware of what is being promised and what is not. The insurance industry decided early in its history that the best way to clarify the agreement was to put it in the form of a written contract. An insurance policy is based on the law of contracts. To be legally enforceable, an insurance contract must meet *four* basic requirements: offer and acceptance, consideration, competent parties, and legal purpose.

These four common elements in a valid policy or contract are:

1. Competent parties (C)
2. Legal Purpose (L)
3. Offer and Acceptance (O)
4. Consideration (C)

Note: The acronym CLOC will help you remember these four common elements.

1. Competent Parties

As we examine the first element, competent parties, we find that this term may be identified as legal capacity of the parties. The parties to the contract must be of legal age, sane, sober, of sound mind and under no legal handicap or duress. Persons who might lack legal capacity are minors, people who are intoxicated or those adjudged incompetent.

While it is unlikely that you will want to sell much insurance to incompetents, you will probably want to be able to provide coverage for minors. Therefore, you should be aware of the special contractual circumstances that are involved when dealing with minors. In many countries, a minor must be age 15 or older to be a party to an insurance application. In other words, a minor in many countries, can purchase life insurance at age 15. However, the beneficiary may be only parents, guardians or siblings; not "friends.

One of the privileges of adulthood is the ability to enter into contracts that are legally binding rather than voidable. A minor can enter into a contract that is binding on the other party but voidable on the part of the minor... a great disadvantage to the other party. You could sell your car to a minor and you are bound to the sale. However, the minor could later change his mind, and you could not hold him to the purchase of the car. Therefore, you cannot enforce a contract with a minor because he is not, under the law a legally competent party.

This is of particular concern to insurance companies because providing life and health coverage for minors is a very important part of the insurance business. The usual solution is to have the minor's legal guardian sign for the minor. A guardian is an adult who is chosen to handle the legal affairs of a minor until the minor reaches the age of majority. Usually the guardian is the minor's parent(s). If there are no parents, the court appoints a legal guardian (usually a relative, a social worker or an officer of a bank).

2. Legal Purpose

The second essential element of any contract is legal purpose. The purpose of the contract itself must be legal. Insurance contracts are generally considered to serve a legal purpose, but it is certainly possible for a mechanism like life insurance which pays one person upon another's death, to be misused. To eliminate that possibility, two reasonably simple safeguards have been built into the laws governing the formation of an insurance contract:

A. ***Insurable Interest*** - In order for an applicant to insure someone else's life, the applicant must have an insurable interest in that person. Simply, the applicant must be in a position to lose something of value if the insured person should die. The something of value could be financial support, love, debt repayment and so on. The purpose of requiring an insurable interest is to protect the insured from bodily harm.

B. ***Consent*** - The second public interest safeguard is requiring the insured's written consent to the issuance of a policy. As the insured, you must give your consent to have your life or health covered. This is accomplished on the application. If the applicant is someone other than the insured, then the insured must also sign the application, thereby giving consent.

3. Offer and Acceptance

A contract is a legally enforceable agreement, or a meeting of the minds, between two or more legally competent parties. To form a contract, there first must be an offer followed by an acceptance. The third essential element of any contract is offer and acceptance. One party must offer to do something, and the other party must accept that exact offer. For example, I may offer to purchase your automobile for a certain amount of money. If you accept my offer, we have an agreement - the basis for a contract. Which party makes the offer is not really important. You could have offered to sell me your car and I could have accepted your offer. But there must be an offer and an acceptance of that offer to establish a basis for a contract. The proposal that comes first is the offer and the acceptance of that exact proposal by the second party completes the agreement.

Normally, with insurance, the offer comes from the proposed insured. If an applicant is acceptable to the company, they issue and deliver a policy and that is the acceptance. However it does not have to be that way. As you will soon learn, the offer can come from the company and it would then be up to the applicant to accept or reject.

4. Consideration

The fourth element necessary for the establishment of a contract is an exchange of consideration. In order for the agreement to become binding, each party must give the other something of value, such as money, promises, property or service. This is called consideration. In our automobile example, I will pay you cash for your car. My consideration is the money. Your consideration is the automobile (or, more accurately, the title to the automobile). If one party fails to furnish the other

with valid consideration, then the contract will not be enforceable. It is important to know what consideration each side brings to the table in an insurance contract:

Company's Consideration - The Company's consideration is the promise contained in the policy to perform certain actions in the future. "If you die, we will pay Br 25,000 . . . ." It is important to note that only the company makes any legally enforceable promises. The applicant might say he promises to pay future premiums, but the company could not take him to court and force him to do so.

Applicant's Consideration - The applicant's consideration consists of two items:

- Settlement (payment) of the first premium, and
- Statements made in the application.

The fact that the applicant's initial premium payment is part of the consideration should not be surprising. But notice that the applicant's statements are also considered something of value. Why? Well, logically, the physical condition, type of employment, lifestyle and hobbies of the insured would be just as important in deciding if a policy should be issued as the money he brings to the table. However, there is also an important legal reason to make the applicant's statements part of the consideration. If important facts are misstated on the application, the company may contest the issuance of the contract on the basis of invalid consideration. While most of us do not make a living embellishing our experiences, most of us are not 100% accurate in our statements. Today there are two ways of defining truth in insurance contracts **- warranties** and **representations**. While both relate to the statements an applicant makes to an insurance company for the purpose of getting that company to accept a risk, one definition is very strict and the other is very liberal.

Lastly, the two broad principles which form the legal foundation of all insurance policies are the ***Doctrine of Utmost Good Faith*** and the ***Doctrine of Reasonable Expectations***. The Doctrine of Utmost Good Faith says that to form an insurance contract, each party must substantially rely on the integrity of the other party. The normal rule of "let the buyer beware" does not always apply in insurance. It is presumed that both parties want the contract to work. The Doctrine of Reasonable expectations says that one's insurance policy should do for him and his beneficiaries what he could reasonably expect it to do.

Warranties

In the earliest days of insurance, statements made by an applicant were considered to be warranties. To hold up legally, these statements had to be absolutely true. Important or unimportant, intentional or unintentional... any deviation from the truth was grounds for voiding the contract.

While certain statements made in commercial property and casualty applications are still considered warranties, this doctrine has, for many years, been considered too strict for life and health insurance contracts. Except in cases of fraud, the doctrine of warranties no longer applies to life and health insurance. Instead, we have adopted the doctrine of representations.

Representations

Representations are statements that are true to the applicant's best knowledge and belief. They are not necessarily the absolute truth, but they are what the applicant believes to be the truth. For example, the company could ask an applicant if he has cancer. If the applicant actually had terminal cancer but did not know it, the company could only demand what the applicant believed to be the truth - not what was actually true. The doctrine of representations is, therefore, far more liberal than the doctrine of warranties.

Now that you understand how we define truth in insurance, we need to explore the other side to see how we define untruths. Since we were all children once, we know that there are hundreds of ways to avoid telling the truth. But in insurance, we group them into only two categories:

- Misrepresentations and
- Concealment.

Misrepresentations

Misrepresentations are plain, old-fashioned lies. For example, the applicant answers "no" to the question, "Have you ever had a heart attack?" knowing all the while that in fact he had had a heart attack.

Concealment

Concealment is the failure to fully disclose all pertinent information. For example, the applicant is asked, "Have you been to see a doctor in the past five years?" The applicant answers, "Yes, I went last year for the flu," but she intentionally fails to state that she also went to the doctor because of severe chest pains she was experiencing. The applicant is guilty of concealing (hiding) the truth about her health. Telling a partial truth is concealment because a partial truth leaves something out. For a misstatement to be the grounds for voiding a policy, it must be both of the following:

Intentional **-** The doctrine of representations says that a statement is valid if the applicant thought he was telling the truth. Therefore, only an intentional misrepresentation or concealment could jeopardize the contract.

Material To The Risk **-** A statement is material only if the company would have rejected the applicant (or charged a different premium) had they known the truth from the beginning. If your eyes are brown and you said they were blue on your application, we have an immaterial misrepresentation. It's a lie, yes, but not one important enough for the company to contest the contract.

☞ Dear learner, please make sure that you do not forget the four common elements in a valid policy or contract that includes Competent parties (C), Legal Purpose (L), Offer and Acceptance (O) and Consideration (C)

Activity 4: Understanding offer and acceptance and consideration

What is the difference between offer and acceptance and consideration?

Optional Elements of a Contract

To this point we have only discussed the necessary elements of a contractual agreement. There are two other elements that may occur prior to reaching an agreement: **counter-offers and invitations to make an offer.** Either or both of these may occur, but they are not necessary to the formation of a contract.

Counter-Offer - A counter-offer occurs after one party approaches a second party with an offer. If the second party will not accept the first party's offer, but instead makes an alternative proposal, the alternative proposal is referred to as a counter-offer. Counter-offers normally come about in the negotiation of insurance contracts in the following manner. As the agent, you take an application and money from Challa. This is an offer. Your company will not accept Challa for the Specially Discounted Policy for the Super-Healthy that he applied for. However, they do issue a standard policy at standard rates for Challa and send it to you. This is a counter-offer. You present the counter-offer to Challa, he pays the additional premium and accepts the policy. This is the acceptance.

Invitation To Make An Offer - The second optional element is an invitation to make an offer. An invitation to make an offer is not a true offer because some of the essential elements are missing. To have a true offer, all of the details must be complete, both parties must have full knowledge, and there must be consideration present. An invitation to make an offer is nothing but a signal that one party is open to offers. An example would be a "For Sale" sign on a house, or an advertisement for a product or service.

In the formation of an insurance contract, an invitation to make an offer could come from either party. The company could invite an offer through its advertising program. Or, if a proposed insured submits an application for insurance without any accompanying premium that is an invitation to make an offer because all of the consideration is not present. The first party is merely indicating that he or she is open to being approached with an offer. If there is an invitation in the negotiating process, it will always come before the offer.

You already know the sequence of the two essential steps in reaching a legal agreement. First, is the offer and then the acceptance. If the two optional elements are present, they will fit into the sequence as shown below. Remember, the sequence must always remain the same.

- Invitation To Make An Offer (Optional)
- Offer
- Counter-Offer (Optional)
- Acceptance



Activity 5: Understanding two other elements that may occur prior to reaching an agreement:

What are the two elements that may occur prior an agreement?

Reaching an Agreement in Insurance

One of the most important questions you will ever be asked as an agent is, "When does my coverage start?" Before you can answer that question, you must first answer another question, "When will an agreement be reached?" This sub-section will give you the information required to answer that preliminary question. Only when you are proficient in determining if an agreement has been reached should you move to the next major section which will deal with the original question, "When does coverage start?" The process for reaching an agreement begins with you, the agent, filling out the application with the help of the applicant. The applicant will then decide if the application is to be sent to the company with money (prepaid application) or without money (application only). This decision primarily determines when agreement is reached because it normally dictates who makes the legal offer and who accepts the offer. (Remember the agreement is composed of the offer and the acceptance.) What are the two possibilities?

1. Application Only (No Money)

The customer submits an application without payment of the first premium. This is an invitation to make an offer. The Company issues and delivers a policy and an invoice for the premium owed. This is the offer. The customer pays the first premium. This is the acceptance.

2. Prepaid Application (With Money)

The customer submits the application along with settlement of the first premium. This is the offer. The Company issues and delivers the policy exactly as requested. This is the acceptance. If the company issued a policy that was different than the one requested (say, rated), it would be a counter-offer.

Recognize that either party can make the offer and that either party may accept the offer. The only rule is that the sequence must remain the same. The offer always comes first, followed by the acceptance. If counter-offers are involved, the last counter-offer before the acceptance is considered the legal offer. Now that you can determine when an agreement is reached, it is appropriate for you to learn when coverage begins.

When Does Coverage Start?

For many years in the insurance industry this was an easy question to answer. Coverage began when the policy was physically delivered to the applicant by the agent. The application had been

submitted to the company, the underwriting decisions had been made, the policy had been sent to the agent who then had to manually deliver the policy to the applicant. At that point (and only at that point) did coverage begin. The time delay that existed from the date of application until delivery of the policy was the obvious problem. While there are ways of accelerating coverage today, it may surprise you that the old system is still in use. Even now, coverage will start when the agent manually delivers the policy to the applicant unless both of the following factors are present:

- The application is prepaid (company practices differ but typically they require at least one month's premium) and;
- Some form of Interim Insuring Agreement is used (e.g., Conditional Receipt, Acceptance Form of Receipt or Interim Term Receipt).

When will coverage start if no money accompanies the application? The answer is when the agent manually delivers the policy to the applicant and collects the initial premium. When will coverage start if the application is prepaid, but the company uses no form of Interim Insuring Agreement? The answer is the same. Coverage will not begin until the agent delivers the policy to the applicant.
A policy which does not take effect until delivery actually places one new responsibility upon the agent.

4.4 Events and Risks Covered Under Insurance Contracts

Most insurance contracts contain certain exclusions, such as for loss due to war, loss to property of an extremely fragile character, and loss due to the deliberate action of the named insured. Most property insurance contracts require the insured to notify the insurer of loss as soon as practicable, and usually require that the insured prove the loss.

Named peril versus all risk

The named peril agreement, as the name suggests, lists the perils that are proposed to be covered. Perils not named are, of course, not covered. The other type, all risk, states that it is the insurer's intention to cover all risks of accidental loss to the described property except those perils specifically excluded.

Excluded Losses

Most insurance contracts contain provisions excluding certain types of losses even though the policy may cover the peril that causes these losses.
For example, the fire policy covers direct loss by fire, but excludes indirect loss by fire. Thus, the policy will not cover loss of fixed charges or profits resulting from the fact that fire has caused an interruption in business. Separate insurance is necessary for this protection.

Excluded property

A contract of insurance may be written to cover certain perils and losses resulting from those perils, but it will be limited to certain types of property. For example, the fire policy excludes fire losses to money deeds, bills, bullion, and manuscripts. Unless it is written to cover the contents, the fire policy on a building includes only integral parts of the building and excludes all contents.

Defining the insured

All policies of insurance name at least one person who is to receive the benefit of the coverage provided. That person is referred to as the named insured. In life insurance he is often called the policyholder.

Third-party coverage

Many insurance contracts may provide coverage on individuals who are not direct parties to the contract. Such personas are known as third parties. In life insurance the beneficiary is a third party and has the right to receive the death proceeds of the policy. The beneficiary can be changed at any time by the insured, unless this right has been formally given up. I.e. the insured has named the beneficiary irrevocably. The beneficiary's rights are thus contingent upon the death of the insured.

Excluded locations

The policy may restrict its coverage to certain geographical locations. Relatively few property insurance contracts give complete worldwide protection. For example automobile insurance may be limited to cover the automobile while it is in Ethiopia. If the car is, say, in Kenya coverage is suspended. Insurance contracts may be discharged by the lapse of time, failure to pay premiums, failure to renew the contract or cancellation of the contract.

- Dear learner, again make sure that insurance contracts do not cover un- named perils, Excluded Losses, Excluded property, un-Defined insured, Third-party coverage and Excluded locations

Requisites of Insurable Risks

Not all risks are commercially insurable. Certain requirements usually must be filled before a pure risk can be insured. Such requirements are requisites of insurable risk. The requirements should not be considered as absolute, iron rules but rather as guides or ideal standards that are not always completely attained in practice. From the viewpoint of the insurer, there are ideally six requisites of insurable risk.

Large Number of exposure unites - Ideally, there should be a large group of roughly similar, but not necessarily identical, exposure units that are subject to the same peril or group of perils. The purpose of this requirements is to enable the insured predict loss based on the law of large numbers.

Accidental and Unintentional Loss - Ideally, the loss should be fortuitous and outside the insured's control. If an individual deliberately causes a loss, he/she should not be indemnified for the loss.

Why should accidents be accidental? This is because of two reasons:

- If international losses were paid, moral hazard would be substantially increased and premiums would rise as a result. The substantial increase in premiums could result in relatively fewer persons purchasing the insurance, and the insure might not have a sufficient number of exposure units to predict future losses.
- The loss should be accidental because the law of large numbers is based on the random occurrence of events. Deliberately caused loss is not a random event since the insured knows when the loss will occur.

Determinable and measurable - The loss must be definite as to cause, time, place and amount. The basic purpose of this requirement is that the insurer must be able to determine if the loss is covered under the policy and if it is covered how much the company will pay

No catastrophic Loss - The loss should not be catastrophic. A large proportion of the exposed units should not incur losses at the same time. Otherwise, premiums must be increased to prohibitive levels, and the insurance technique is not larger a viable arrangement by which lose of the few are spread over the entire group. in order to handle the possibilities of catastrophic losses, insurers use such schemes as re insurance and avoidance of concentration of risk by dispersing their converge over a large geographic area.

Calculable chance of loss - The insurer must be able to calculate both the average frequency and the average severity of future losses with some accuracy. This requirement is necessary so that proper premium can be charged that is sufficient to pay all claims and expenses and yield a profit during the policy period

Economically Feasible Premiums - The insured must be able to afford to pay the premium. For insurance to be an attractive purchase, the premium paid must be substantially less than the face value, or amount of the policy. In order to have an economically feasible premium the chance of loss must be relatively low. Based on these requisites, it can be said that personal risks, property risks, and liability risks are insurable whereas market risks, financial risks, production risks, and political risks are normally uninsurable by insurer. This is because these risks are speculative and so are difficult to insure; the potential of each to produce catastrophic loss is great; and calculation of proper premium for such risks is difficult.



Activity 6: Understanding Requisites of Insurable Risks

What are the main requisites of insurable risk?

- Dear learner, please make sure that you have read the chapter carefully and properly understood activities questions. If you have done that, please read summary and proceed to self assessment questions.

Summary

Insurance like any legal contracts has its own legal principles. These include principle of insurable interest, indemnity, subrogation, utmost good faith and combination and others. The principle of indemnity states that's the insurer should not pay more than the actual amount of the loss, in other words, the insured should not profit from a covered loss. There are several exceptions to the principle of indemnity. These exceptions include a valued policy, valued policy laws replacement cost insurance, and life insurance. The principle of insurable interest means the insured must stand to lose financially if a loss occurs. All insurance contracts must be supported an insurable interest to be legally enforceable. There are three purposes of the insurable interest requirement:

- To prevent gambling
- To reduce moral hazard
- To measure the amount of loss in property insurance

In property and casualty insurance, the ownership of property, potential legal liability, secured creditors, and contractual rights can support the insurable interest requirement. In life insurance, the question of an insurable interest does not arise when a person purchases life insurance on his or her own life. If life insurance is purchased on the life of another, there must be an insurable interest in that person's life. Close family ties, blood, marriage, or a pecuniary (financial) interest will satisfy the insurable interest requirement in life insurance. In property insurance, the insurable interest requirement must be met at the time of loss. In life insurance, the insurable interest requirement must be met only at the inception of the policy. The principle of subrogation means that the insurer is entitled to recover from a negligent third party any loss payments made to the insured. The purposes of subrogation are to prevent the insured from collecting twice for the same loss, to hold the negligent person responsible for loss, and to hold down insurance rates. If the insurer exercises its subrogation rights, the insured generally must be fully restored before the insurer can retain any sums collected from the negligent third party. Also, the insured cannot do anything that might impair the insurer's subrogation rights. However, the insurer can waive its subrogation rights in the contract either before or after the loss. Finally, subrogation does not apply to life insurance contracts and to most individual health insurance contracts.

The principle of utmost good faith means that a higher degree of honest is imposed on both parties to an insurance contract than is imposed on parties to other contracts. The legal doctrines of representation, concealment, and warranty support the principle of utmost good faith representations are statements made by the applicant for insurance. The insurer can deny payment for a claim if the representation is material and false, and is relied on by the insurer in issuing the policy at a specified premium. In the case of statement of belief or opinion, the misrepresentation must also be fraudulent before the insurer can deny a claim; concealment of a material fact has the same legal effect as a misrepresentation: the contract is voidable at the insurer's option.

Insurance contracts have distinct legal characteristics, an insurance contract is an aleatory contract where the values exchanged may not be equal and depend on the occurrence off an uncertain event. An insurance contract is unilateral because only the insurer makes a legally enforceable promise. An insurance contract is conditional because the insurer's obligation to pay a claim depends on whether the insured or beneficiary has complied with all policy provisions. A property insurance

contract is a personal contract between the insured and insurer and cannot be validly assigned to another party without the insurers consent. A life insurance policy is freely assignable without the insurer's consent. Finally, insurance is a contract of adhesion, which means the insured must accept the entire contract, with all of its terms and conditions; if there is an ambiguity in the contract, it will be construed against the insurer.

Checklist

Dear learner, now you have completed the second chapter, so you need to check whether you have grasped the concepts discussed in this chapter. If your answer to the questions below is No, then you have to go back and read the relevant sub-section again.

Can you:	Yes	No
1. Discuss Legal Principles of Insurance	☐	☐
2. Discuss Distinct Legal Characteristics of Insurance Contracts	☐	☐
3. Explain Miscellaneous Provisions insurance contract	☐	☐
4. Discuss Elements of a Valid insurance Contract	☐	☐
5. Explain Optional Elements of insurance Contract	☐	☐
6. Discuss Events and Risks Covered Under Insurance Contracts	☐	☐

Dear learner, now if you have understood the above points, then proceed to the next self assessment questions.

**Self Assessment Questions**

Part I: True-False Questions

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. Counter-offers and invitations to make an offer are optional elements of an insurance contract.
2. A public adjuster is usually a salaried employee who represents one company.
3. Consideration in insurance contract refers to the value that each party gives to the other. True
4. Insurance is an instrument used to finance all types of risks.
5. From the insured's point of view, insurance is a profit making business.

6. One of the elements of a valid contract: offer and acceptance states that the parties to the contract must be of legal age, sane, sober, of sound mind and under no legal handicap or duress.
7. A false statement made by an applicant for insurance is an example of a misrepresentation.
8. A definition of an insurance policy is an information page that provides specific details about the insured and the subject matter of the insurance.
9. The question of an insurable interest does not arise when you purchase life insurance on your own life.
10. Self-contained policy is a single document that contains all the agreements between the insurer and the insured that forms a complete policy by itself.
11. The basic purpose of subrogation is to eliminate adverse selection.
12. An insurer refuses to pay a claim if an insured fails to abide by the policy provisions because insurance contracts are conditional.

Part II: Multiple Choice Questions

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. Fundamental purposes of the principle of indemnity include which of the following?
   I. To reduce physical hazards.
   II. To prevent the insured from profiting from insurance.
   A. I only
   B. II only
   C. both I and II
   D. neither I nor II
2. All of the following will support an insurable interest for purposes of purchasing property and liability insurance EXCEPT
   A. Close family relationship.
   B. Potential legal liability.
   C. Secured creditors.
   D. A contract right.
3. Which of the following statements about an insurable interest in life insurance is (are) true?
   I. It is required of any person named as beneficiary.
   II. It may result from a pecuniary (financial) interest.
   A. I only
   B. II only
   C. both I and II
   D. neither I nor II
4. When must an insurable interest legally exist in life insurance?
   A. only at the time of the insured's death
   B. only at the inception of the policy
   C. only at the time the beneficiary is paid
   D. both at the time of the insured's death and at the inception of the policy
5. Sara's office building was damaged by a fire caused by a careless tenant. After paying Sara for her loss, the insurance company sued the tenant to recover its loss. This suit is based on the principle of
   A. Warranty.
   B. Insurable interest.
   C. Utmost good faith.
   D. Subrogation.

6. Which of the following statements about subrogation is true?
   A. It is used primarily for losses paid under life insurance policies.
   B. It allows the insurer to sue its own insured who is negligent.
   C. The insured's right to collect benefits may be forfeited if the insured interferes with the insurer's rights after a loss occurs.
   D. The insurer is required to exercise its subrogation rights.
7. The principle of utmost good faith is supported by all of the following legal doctrines EXCEPT
   A. Representations.
   B. Warranty.
   C. Subrogation.
   D. Concealment.
8. What is the legal significance of a material misrepresentation in an insurance application?
   A. The contract is automatically voided from its inception.
   B. The contract is voidable at the insurer's option.
   C. Loss payments are reduced by the degree of the misrepresentation.
   D. The insurer is immediately entitled to a higher premium.
9. Which of the following statements about offer and acceptance for insurance contracts is true?
   A. In property and liability insurance, agents typically do not have the authority to bind coverage.
   B. In life insurance, the agent can usually accept an offer by immediately binding coverage.
   C. In property insurance, the offer and acceptance are usually in writing but may be oral.
   D. In life insurance, the offer is merely the promise to pay the first premium.
10. Which of the following statements about consideration in an insurance contract is (are) true?
    I. The insured's total consideration is submission of a completed application.
    II. The insurer's consideration is the promise to do those things specified in the policy.
    A. I only
    B. II only
    C. both I and II
    D. neither I nor II
11. A contract in which the values exchanged are not equal because chance is involved is called a(n)
    A. Contract of adhesion.
    B. Unilateral contract.
    C. Conditional contract.
    D. aleatory contract.
12. Why does the insured get the benefit of the doubt if an insurance policy contains any ambiguities or uncertainties?
    A. because insurance contracts are aleatory
    B. because insurance contracts are unilateral
    C. because insurance contracts are conditional
    D. because insurance contracts are contracts of adhesion
    A. because insurance contracts are contracts of adhesion
13. Jarso sold his house to Sena for Br 140,000 in cash. Jarso "threw in" insurance on the house as part of the deal and did not bother telling the insurer that there was a new owner. Four months after Sena purchased the home, a windstorm damaged the roof. Which of the following legal characteristics of insurance contracts could the insurer use to legally deny payment for the damage to the roof?
    A. Insurance contracts are unilateral contracts.
    B. Insurance contacts are contracts of adhesion.

C. Insurance contracts are aleatory contracts.
D. Insurance contracts are personal contracts.

14. Mark owns a bar. The bar has a back room where Mark has some slot machines. Mark lets some of his patrons play the machines, and Mark keeps any profits. This type of gambling is illegal where Mark lives. Mark wanted to purchase insurance in case his slot machines were confiscated by the police. Such an insurance contract would not be enforceable. Which requirement needed to form a valid insurance contract is missing?
    A. consideration
    B. offer and acceptance
    C. legal purpose
    D. competent parties
15. Which distinct legal characteristic of insurance contracts states that only the insurer's promise to perform is legally enforceable?
    A. contracts of adhesion
    B. unilateral contracts
    C. aleatory contracts
    D. personal contracts

Part-III Discussion Questions

Discus the following questions clearly

1. What are the basic elements of a valid policy or contract?
2. Of the principles of insurance contract, what does parol tell us?
3. What is the purpose of insurable interest?
4. What is the difference between representation and concealment?
5. Describe executory contract

- Dear learner, now you have completed the chapter successfully. Please go to the next chapter and do what you have done in this chapter.

CHAPTER FIVE

FUNDAMENTALS OF INSURANCE CONTRACTS

CHAPTER CONTENTS

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Chapter-Five
Major classes of Insurance contracts (Policies)

Introduction

Dear Learner! Welcome to the fifth chapter of this module. In the previous chapter, you have seen the legal principles of insurance contract and elements of a valid insurance. In this chapter, you will study life insurance contracts. More specifically, in this chapter the nature of a life insurance contract will be discussed in detail. The different mechanisms of life insurance underwriting will also be discussed in detail. In addition to this, the basic types of life insurance policies together with supplementary contracts will be discussed. Finally, different provisions of life insurance and life insurance premium determinations will be discussed and illustrated.

After completing this chapter, you would be able to:

- Understand life and health insurance policies
- Understand Unique futures of Life Insurance
- Clearly understand what life insurance is all about
- Understand the different mechanisms of life insurance underwriting
- Understand the basic types of life insurance policies
- Differentiate main life insurance policies and supplementary contracts
- Examine provisions of life insurance contracts
- Compute life insurance premium

5.1 Life and Health Insurance Overview

Insurance companies issue different types of policies to individuals and organizations. Generally these policies can be categorized in to Life Insurance and Non Life Insurance Policies. This chapter will discuss life insurance policies. A life insurance policy provides cash payment when a person dies. This payment is known as the ***death benefit***. Many people buy life insurance to protect the people who are dependent on them. Others buy life insurance as a way to leave a cash gift to their spouse, children, grandchildren, and charities at their death. If you have made the decision to buy a policy, you may wonder which type of policy to choose since there are several different types of policies. **Health insurance** provides for the payment of medical expenses in the event of sickness or injury. The policy is written on the life of a person, known as the ***insured***. The ***owner*** makes payments, known as ***premiums***, to the insurance company for the policy. In return, the insurance company agrees to pay the death benefit to the ***beneficiary*** if the insured dies within the stated term. Commercial Code of Ethiopia defines life insurance as "a contract by which the insurer, for a certain sum of money or premium proportioned to the age, health, profession, and other circumstances of the person whose life is insured engages that, if such person shall die within the period limited in the policy, the insurer will pay according to the terms specified thereof, to the person in whose favor such policies are granted."

A person may also purchase life insurance with other objective.

Example

- A person may buy life insurance policy to cover personal loans and other debts. If he/she dies before settling the debt, the insurer will pay the outstanding amount to the creditors.

- A person may buy life insurance policy to accumulate an educational fund that could be used to pay tuition fee for children when they join higher education.

Life insurers are engaged in selling protection and encourage saving. This protection is against financial difficulty and is acquired for a consideration called a premium (the price that keeps the policy in force).

The following are worth considering in life insurance covering death of the insured:

- The benefit is determined in advance. The insured decides for itself the amount of insurance protection it needs. The insurer will then decide on the reasonableness of the amount of coverage and sets the corresponding premium.
- The amount of money required to pay the death benefits in a given period are to be collected in advance so that there should not be shortage of funds to pay claims as they occur.
- Each insured in the group must be charged an appropriate premium, which reflects the amount of risk he/she brings to the group. In other words losses are to be distributed among the groups of insured's in an equitable manner.
- The probability of claim increases with the passage of time, since insured's exhibit deteriorating health condition as they grow.
- Life insurance, like other insurances, is a contract between the insurer and the insured whose life is insured or someone who has an insurable interest.
- Life insurance policy gives protection against special types of risks i.e., death whose occurrence is certain. The uncertainty is related to the causes and time of death.
- The insured and policy owner may be different. For example, an individual may insure the life of another person, if he/she has a financial interest.
- Life insurance is not strictly a contract of indemnity because life is priceless. For this reason, if the insured buys more than one policy all of the insurance companies will indemnify fully.



Activity 1: Understanding life and health insurance

What is the difference between life and health insurance?

5.2 Under writing in life/Insurance

Underwriting in life insurance is the process of assessing an individual anticipated mortality that is the relative incident of sickness or disease and death among a given group of people.

Factors that should be considered in life insurance underwriting include:

Age: Age is important factor because as people become older, it is clear that their probability of death will increase and the amount of the claim will also increase.

Sex: Empirical evidences indicate that women live longer than men and they bring lower risk. In Ethiopia premium is the same for both.

Current Physical Condition: Is the insured's current physical and heath condition regarding his/her heart condition, body built height, weight etc.

Personal Medical History: The insured's past medical history is examined to check for any physical illness that may arise in the future.

The Family Medical History: This is considered to examine whether there is hereditary diseases or not.

Occupation: It can affect the insured's chance of suffering an accident or premature death. For example, Teacher and driver has no the same chance of loss. Soldier has high risk.

Habits of the Individual: Habits such as drug or alcohol consumption and smoking lead to different losses.

A vocation Time: That is where does a person spend his/her time in vacation? An activity that the insured undertakes outside his ordinary occupation during his/her spare time affects the level of risk he might bring.

☞ Dear learner, you have to be clear with the factors considered in insurance underwriting that include among others: Age, Sex, Current, Physical, Condition, Personal Medical History, The Family Medical History, Occupation, Habits of the Individual and A vocation Time.

5.3 Basic Types of Life Insurance Contracts

This section will discuss the major types of life insurance policies. These among others include:

- Term insurance
- Whole life insurance
- Endowment insurance, and
- Annuities

Term Insurance

Term insurance is the most basic type of life insurance. The policy is written for the term of the policy. If the insured dies within the stated term, the insurance company pays the death benefit to the beneficiary. When the term ends, the insurance ends. The premiums for term insurance are usually the lowest among the different types of life insurance, but will increase with the age of the insured. There is no *cash value* in a term life policy. This means there is no money for loans or to pay for the insurance if you can't pay the premiums.

Many employers offer a type of term insurance known as "group" term to their workers. Group policies cost less, and many companies pay the premiums. Generally, the policy is only good for as long as the worker stays with the company. Term insurance is suggested for those who only need the death benefit for a certain period of time.

Basic Characteristics of term policy:

- It provides protection for a temporary period,
- Most of term policies are renewable,
- Most term policies are convertible,
- It has no cash value/savings element,
- They are relatively cheap, and
- Can be of single premium or level premium.

☞ Dear learner, please remember that term life insurance provides only temporary protection to the insured before you proceed to the next topic.

Types of Term Insurance

1. Level Term Insurance

Provides a constant sum assured throughout the term of the policy. For example, under a 20 year term policy of Br. 50, 000, the amount of payment/compensation to the insured's beneficiaries will be Birr 50,000, if the insured dies at anytime during the term of the policy.

Level Term policies may be;

- Can be convertible/non-convertible
- Can be renewable/non-renewable

Convertible Term Insurance

This policy gives policy holder the option to convert his/her term policy into other types during the tenure of the term policy.

Non-Convertible Term Insurance

The policy cannot be converted into other forms of life insurance contract. It could be renewable

.**Renewable Term Insurance**

This includes term policies that can be renewed with no evidence of insurability. Premium charges are adjusted to reflect the standard premium at the attained age under the renewable insurance.

2. Decreasing Term Insurance

In this policy, the amount of claims to be paid to the insured decreases periodically. Although the face amount declines overtime, the premium is level throughout the period. These policies are usually issued to borrowers of money and the amount of the policy payable at the end of each year is automatically reduced and is equal to the outstanding loan which will be paid if the insured dies before the end of the term. This is also known as "Mortgage – Redemption Policy." This type of policies provides financial protection to the policy holder (creditors) and the dependents of the debtor who are supposed to cover the debt otherwise. Premiums for such type of policies are paid at the beginning of the policy. Decreasing term policies include among others: **Mortgage Protection Insurance, Credit Life Insurance and Credit Cooperative Insurance**

2 Increasing Term Insurance

The face amount of the policy increases periodically on a predetermined basis. Although the face amount increases overtime, the premium is level throughout the period.

Limitations of Term Insurance

- Its premium increases with age and eventually may reach prohibitive levels, and
- It cannot be used to save money since most term policies do not accumulate cash values.



Activity 2: Understanding types of term life insurance

What are the three main types of term insurance?

Whole-Life Insurance

A whole-life policy pays a death benefit no matter when the insured dies. In most cases, the policy will guarantee the death benefit. The premiums are usually much higher than a term policy and the full premium must be paid each year. Whole-life policies have cash value. The difference between the premium and the actual cost of the insurance is put into a special account, known as the cash-value account. This cash-value account may be used to help the insured pay the "fixed" premium payments in later years. The policy owner may borrow against the cash value or receive the cash value if the policy is canceled. There may be charges associated with borrowing against the cash value or canceling the policy before the death of the insured. The insurance company may charge interest if the money is borrowed and fees to close out the account if the policy is canceled. At death, the beneficiary only receives the death benefit, not the death benefit and the cash value.

Whole-life works well for those who want a guaranteed death benefit no matter how long the insured lives, and who have enough money to pay the premiums.

Characteristics of whole life insurance

- It provides protection throughout the life of the insured,
- Premiums are payable either throughout the life of the assured or can cease at a certain age,
- It allows for the accumulation of savings over the life of the insured, and
- If the owner of a whole life policy decides to terminate it prior to the insured's death, then the cash value can be surrendered.

☞ Dear learner, please remember that whole life insurance provides permanent protection to the insured before you proceed to the next topic.

Types of Whole Life Insurance

Depending on the manner of premium payment, whole life insurance contracts are classified as:

- Ordinary Life Insurance,
- Limited Life Insurance, and

- Single Payment Life Insurance.

Ordinary Life Insurance

Under this policy, premiums are to be paid at regular interval until the death of the insured or until the achievement of a specified age limit, say 100-years.

Characteristics:

- Also called straight life and continuous premium whole life insurance,
- Constant premiums are payable as long as the insured lives,
- Provides life time protection,
- Has an investment/savings element, and
- May offer such options as cash surrender value, no forfeiture, dividend, settlement.

This policy is appropriate when lifetime protection is needed, and when additional savings are desired

Limited Payment Insurance

Under this insurance scheme, premiums are paid for a definite period of time which is determined in advance i.e. for 10, 15, 20 years. After the expiration of the specified time, the policy is said to be paid up which means that no more premiums are to be paid to keep the policy in force until the time of the death of the insured. It is desirable when one intends to stop after sometime (retirement). Since premiums are to be paid for a limited period they are usually higher than those under the straight life insurance.

Characteristics:

- Provides lifetime protection,
- Has savings element,
- Level premiums are paid only for a specified period of time,
- After the expiry of the specified time, the policy is said to be paid up,
- No more premiums are to be paid to keep the policy in force until the time of the death of the insured, and
- Higher premiums and cash value than other ordinary life insurance policies.

Uses and Limitations of Limited Payment Insurance

Uses:

The policy is desirable when one intends to stop premium payments after reaching a given age level, usually upon retirement, but wants to continue with the insurance protection till the end of his/her life.

Limitations:

A limited payment insurance policy should be used with caution. It is extremely difficult for a person with a modest income to ensure his/her life adequately with a limited payment insurance policy.

Single Payment Life Insurance

Here premium payment is made in one lump sum at the time of purchase of the whole life insurance. Or it is an extreme form of limited payment insurance policies where Payment of premium is just made once at the beginning of the insurance contract.

Activity 3: Understanding whole life insurance

What are the three main types of whole life insurance?

Endowment Policy

Combining risk cover with financial savings, endowment policies are among the popular life insurance policies. Policy holders benefit in two ways from a pure endowment insurance policy. In

case of death during the tenure, the beneficiary gets the sum assured. If the individual survives the policy tenure, he gets back the premiums paid with other investment returns and benefits like bonuses. In addition to the basic policy, insurers offer various benefits such as double endowment and marriage/ education endowment plans. The concept of providing the customers with better returns has been gaining importance in recent times. Hence, insurance companies have been coming out with new and better versions of endowment policies. Under such life insurance policies the customers are also provided with an option of investing their premiums into the markets, depending on their risk appetite, using various fund options provided by the insurer, these life insurance policies help the customer profit from rising markets.

Characteristics

Provides for payment of face amount of the policy:

- If the insured dies within a specified period; to the beneficiary,
- If the insured survives until the policy period; the face amount is paid to the policy owner at that time,
- It has protection as well as savings elements, and
- It has surrender option, loan provision, dividend, settlement, etc.

Dear learner, I hope you are still with me. If you are, please note the following.

In endowment policy, policy holders benefit in two ways. In case of death during the tenure, the beneficiary gets the sum assured. If the individual survives the policy tenure, he gets back the premiums paid with other investment returns and benefits like bonuses.

Annuity Contracts

An annuity may be defined as a periodic payment to commence at a stated date and to continue for a fixed period or for the duration of a life. The person whose life governs the duration of the payments is called the annuitant. Annuity is insurance against living too long-against outliving one's ability to provide an income for oneself. Annuities can be classified according to several characteristics.

Universal-Life

A universal-life policy is similar to a whole-life policy. However, a universal-life policy gives the policy owner the choice of changing the premium and even the death benefit. For example, the owner may decide to double the premium paid one year. The extra money will go in the cash-value account. Most universal life policies have cash-value accounts that pay at least 3 percent or 4 percent interest. Another year, the owner may decide not to pay any premium, and use money in the cash-value account to pay the costs for that year. Policy owners may have a higher death benefit while their children are young and a lower the death benefit once their children are grown. There are some limits to the changes that can be made. The policy owner needs to be careful not to pay too little, and end up with no cash value. If this happens, and the owner still wants the insurance, he or she will need to buy a new policy. Some policies allow the beneficiary to receive both the death benefit and the cash-value account at the death of the insured. Be sure to read the policy closely as some only pay the death benefit.

Variable Universal-Life

A variable universal-life policy is a special type of universal policy. It allows the cash-value account to be invested in stock funds, bond funds, and other assets (much like mutual funds). These funds may allow the cash value to grow at higher rates than fixed-rate whole-life or universal-life policies. The down side is that these funds may also have losses. Many variable policies also offer a fixed account with a low guaranteed interest rate as one of the options. If the returns are low (or negative) then the owner may need to pay more premiums to keep the policy.

A variable universal-life policy is for people who want lifetime coverage, and who can tolerate risk. The buyer of a variable universal-life policy would prefer to invest money in stocks and bonds to safer assets.

5.4 Supplementary Insurance contracts (Riders)

Supplementary contracts are issued only in conjunction with the main life insurance policies. That means they are not independently sold. In insurance terminology, these contracts are called riders. The insured will be charged additional premium for each supplementary contract.

1. Supplementary Accident insurance

This is a supplementary policy attached to the main individual life insurance policy. The amount of cover under this supplementary contract is equal to the sum assured under the related main policy. For example, if the sum assured under the basic policy is Birr 20,000 the amount of the cover under the supplementary accident insurance will also be Birr 20,000. It gives cover against bodily injury effected independently of all other causes, through external, violent and accidental means of which there is evidence of visible wound on the exterior of the insured's body. The insured up on the presentation of the proofs of bodily injury that is sustained in accordance with the terms will be indemnified according to the schedule of benefits. The aggregate of such indemnities of course will not exceed the sum assured. The supplementary accident insurance may be renewed by paying the premium in advance at the rate in force at the time of the renewal. A grace period of 30 days is granted to make payment of premium and during this period the contract continues to be in force.

If the premium due under this contract has not been paid at the expiration of the grace period and automatic loan provision is applicable, the insurer pays the premium on behalf of the insured.

2. Total and permanent Disability benefit

This is also a supplementary contract attached to the main life insurance policy. The policy is acquired to maintain waiver of premium benefit in the event of total and permanent disability. Such disability may occur due to accident or sickness. The insurer up on receipt of due proof in writing that the insured has become totally and permanently disabled, will waive the payment of each premium that becomes due during the continuance of such disability beginning with the date of the commencement of disability. Premiums are waived until the insured recovers or until the maturity of the policy whichever is shorter. During this period the policy remains in force. Total and permanent disability is defined here as disability resulting from bodily injury of disease that totally prevents the insured from performing any and every business or occupation and from doing any work for compensation or profit. Such incapacity has to continue uninterruptedly for a period of at least six months. It occurs when there is an entire and irrecoverable loss of the sight of both eyes, loss of both hands, loss of both feet etc. The contract does not provide for waiver of premium benefit for disability resulting from intentional self inflicted body injury, bodily injury as a result of travel or flight in any type of aircraft other than a commercial airliner…

The contract shall automatically terminate under the following situations.

- When the insured joins military, naval or air force of any country at war,
- If the insured did not pay any premiums on the main policy or the supplementary policy as they become due or within grace period,
- If the main policy is surrendered or converted to other policy.



Activity 4: Understanding supplementary contracts

What is a supplementary contract?

5.5 Provisions of Life Insurance

The policy conditions and provisions in life insurance that must be agreed by all parties of the contract include the following:

Contract documents: The life insurance contract requires documents such as the proposal form, the policy term, the medical report and any other supplementary contracts.
General information: The general information relates to the granting of insurance which is based on the following factors for selection of lives:
The build: It relates to the present condition of health and physical build, such as height, weight and other measurements of the life to be insured.
Physical condition: The medical examiner's report will reveal the physical condition of the life to be insured.
Personal history: Relates to the records of illness suffered, accidents met with, surgical operations undergone, etc, by the life to be insured.
Habits and temperaments: The personal habits of the individual insured should be examined carefully before the policy is issued.
Hobbies or avocations: This refers to where and how that person (insured) spends its leisure time.
Proposal and Declaration for Assurance: Material facts have to be disclosed at the time of the policy issuance. Subsequent discovery of misrepresentation, fraud and material concealment by the insured may make the policy void.

Payment of Premium

Normally annual premium payments are made in advance but it is also possible to arrange for a semiannual, quarterly or monthly premium payments. A grace period of 30 days is given to the insured to make payment of renewal premium or installments of premium. If the insured dies during this grace period the sum assured less the amount past due will be payable to his beneficiary. The insurance policy shall lapse without notice being given to the assured if any renewal or installment premiums are not paid on the due date unless the policy remains in force under the provisions of Automatic premium loan or extended term insurance. In the case of whole life and endowment insurance there are three options to the insured if payment of premium is discontinued after making continuous premium payments for at least two years. These options are known as Non-Forfeiture options.

Non-Forfeiture options

Benefits required by law to be made available to the insured (or his beneficiary) in the event that he discontinues his premium payments. This provides that the insured does not forfeit or lose all that he has invested in the policy. If a policy under whole life or endowment insurance acquires cash value and the premium due is not paid within the grace period, the insurer will first check whether or not the insured has applied for the effect of automatic premium loan (APL). If the provision is to take effect and the cash value is equal or greater than the premiums due and unpaid, the insurer will pay the premiums for the insured under the APL provision. This keeps the policy in force. If this is not the case, the following Non-forfeiture options are available to the policy holder.

1. Cash Value

If the insured prefers to take the cash value (surrender the policy), he/she will be paid the cash value at the time of discontinuance less any outstanding indebtedness. Once the policy is surrendered the contract comes to an end. This value is less than the premiums paid to date.

2. Reduced paid up

Under this option, the net cash value (surrender value less indebtedness) is left with the insurer to keep the original policy in force for the balance of the original period but for a reduced amount.
Under this mechanism;

- There is no cash payment to the insured,
- Also there is no subsequent premium payment by the insured,
- The sum assured is reduced,
- The existing indebtedness is cleared, and

- The other factors of the original policy remain intact during the reminder period.

3. Extended term insurance

Under this option, the original policy is to be converted in to a term policy for the initial sum assured. The period of the extended term insurance depends on the type of the original policy (whole or endowment). As explained above, the cash surrender value of a life insurance contract (whole life and endowment) is the amount the policy owner could receive if the policy is surrendered to the insured prior to the insured's death.

If the policy owners discontinue payment of premiums, he/she can use the cash value to keep the policy in force under the automatic premium loan provision. The insurer will allow the policy to continue automatically with the payment of premium out of the net surrender value.)

☞ Dear learner, please note that if the insured discontinues premium payment, it does not forfeit or lose all that he has invested in the policy.

Loans provision: This allows the insured to borrow money from the insurer after the policy acquires cash value. The amount of the loan will not exceed cash value. The insured is then charged with the prevailing interest.

Automatic premium Loan (APL): Under this provision if the insured for some reasons suspends premium payment, he will be assumed to have paid the premium by borrowing money from the insurer against the policy in force. But in this case the cash value must be greater than or equal to the amount of premium due and unpaid.

Policy Conversion: This clause enables the policy holder to convert the existing policy to another policy up on payment of premiums to make up the difference.

Family history: the history of the family of the insured should be carefully examined because it will have its own impact on the current condition of the insured. In addition to the above factors, Moral hazards, Occupational hazard, Age, sex, Residence and the like should be considered because these are the factors used to assess the insurability of individual or group lives.

Policy Reinstatement

A policy which has not been surrendered for its cash value may be reinstated at any time within five years after the discontinuance of premium payments. The insured would then be required to present evidence of insurability (Medical report), make payment of all premiums (overdue) including interest and repay any loans outstanding including the related interest

Restrictions: A life policy is subject to the following restrictions:

Occupation– all policies are free from all restrictions as to travel, residence and occupation except where a proposed has at the time of proposal an intention to take up a hazardous occupation or the propose is a student. In all such cases, policies will be issued subject to a suitable endorsement and, if necessary, extra premium will be charged to cover any additional risk, if any.

Suicide: If the insured commits suicide within one year of taking insurance, nothing is payable to the beneficiary. In the absence of a suicide clause, adverse selection could occur when a person contemplating suicide takes out a large amount of coverage shortly before committing suicide. The suicide clause makes this type of adverse selection unlikely.

Proof of Age

As the premium is charged on the basis of age of the proposed, proof of age by any one of the prescribed certificates should be submitted along with the proposal invariably where the age of the life insurance at entry is found to be lower than the age given in the proposal form, the premium shall be payable at the correct age and the excess premium already collected will be refunded. On the other hand, if it is higher than the age given in the proposal form, the difference between the premium for the correct age and the original premium already paid will be collected within a certain interest rate.

 ***Activity 5: Understanding provisions of life insurance contracts***

What is Automatic premium Loan (APL)?

5.6 Life Insurance Premium Calculations

Insurance premium is the price of an insurance protection. It keeps the policy in force. Premium may be paid annually, semiannually, quarterly or monthly.

Net premium

This is a premium rate determined on the basis of mortality rate and interest rate only. It does not include the operating costs charged by the insurer. Net premium provides the insurer only with the amount of money required to pay death claims.

Net single Premium (NSP)

When the total net premiums of an insurance policy is to be paid as a single sum at the beginning of the contract it is called the net single premium. It is the present value of all the claims divided by the number of policy holders.

Net Level Premium (NLP)

This is the premium charge that does not change from year to year throughout the term of the policy. In other words the policy holders pay the same amount of premium each year, but the present value of all the NLP should be equal to the present value of the NSP.

Gross Premium (GP)

When the portion of all the insurers costs of running the business are added to the net premium, the resultant premium is called the gross premium. It is the amount the policy holder pays to the insurer to keep the policy in force. In insurance terminology, the addition of the insurer's costs of doing business to the net premium is called loading. These costs include operating expenses, commissions, advertisement expenses etc.

There are three primary elements in life insurance rate making:

- Mortality,
- Interest, and
- Loading

The first two (that is, mortality and interest) are used to compute the net premium. Most computations of rates in life insurance begin with the net single premium and the net annual level premium, which measures only the cost of claims and omits provisions for operating expenses. The net premium plus an expense loading (which includes unit expense factor, profit factor, etc) is the gross premium, which is the selling price of the contract and the amount the insured pays.

Mortality

The mortality table is simply a convenient method of expressing the probabilities of living or dying at any given age. It is a tabular expression of the chance of losing the economic value of human life. Since the insurance company assumes the risk of the individual, and since this risk is based on life contingencies, it is important that the company knows within reasonable limits how many people will die at each age.

On the basis of past experience actuaries are able to predict the number of deaths among a given number of people at some given age. For large number of people actuaries have developed mortality tables on which scientific life insurance rates may be based. These tables which are revised periodically, state the probability of death both in terms of deaths per 1,000 and in terms of expectation of life. At age 100 it is assumed that death is certainly. The probability of death expressed in a mortality table is based on insured lives and not the whole population.

Interest

Since the insurance company collects the premium in advance and does not pay claims until the future date, it has the use of the insured's money for some time, and it must be prepared to pay interest on it. The life insurance companies collect vast sums of money and since their obligations will not mature until sometime in the future, they invest this money and earn interest on it. Thus, the present value of a future birr is an important concept in the computation of premiums. The present value of a future birr is computed by dividing a birr by the future value of a birr at the specified rate of interest.

 ***Activity 6: Understanding life insurance rate making***

What are the three primary elements in life insurance rate making?

Term Insurance

To calculate premium for life insurance, the following Information is required:

- Age and Sex,
- Mortality rate,
- Interest rate,
- Period of insurance policy, and
- Sum assured.

Example: The mortality table of year 2002 shows that, out of an initial population size of 20,000 male people, 18,000 live at age 40. The number of people expected to die at this age is 300. This means that the probability that a person aged 40 will die during that age will be 0.016667 (300/18,000). Assume that an insurer insured one year term insurance to all these male individuals aged 40 (18,000 policies) for death benefit of birr 8,000 each. Assume also that the premium is to be collected at the beginning of the policy issue and the death benefit (policy amount) is to be paid at the end of the year. Also assume that the interest rate is 10%. Each of the insured persons is assumed to bring the same level of risk to the group. The expected amount of death benefit is 300x 8, 000=2,400,000. This is the amount that the insurer expects to pay for death claims at the end of the year (maturity of the term policy).

Computing Net Single Premium

The insurer will not collect 2,400,000 from the insured but only its present value.

Present value of Br 2,400,000= Br 2,400,000) $(1.10)^{-1}$ = 2,181,818 is the total net premium to be collected.

Net single premium = Total net premium/No of insured = Br 2,181,818/18,000) = Br 121.21

The insurer collects Birr 2,181,818 and invests it at 10%. An amount of Br 2,181,818 collected at the current period will just be enough to settle the expected death claims by the end of the year.

Premium computation for term life insurance

A 3 year term policy for Birr 8,000 was issued at the beginning of the year to 800,000 policy holders that are aged 50. Assume that the single premium payment will be made at the beginning of the year and death claims are to be paid at the end of the year in which the incident occurred and the interest rate is 10%. The following table shows the number of deaths and survivors in a given year.

Mortality rate, male, 2003.

Year	Age	Number Living	Number Dying	Probability of Dying
1	50	800,000	2,000	0.0025
2	51	798,000	2,500	0.00313
3	52	795,500	3,000	0.00377

Expected death claims

Year	Age	Number Dying	Policy Amount	Expected Death Claims
1	50	2,000	8,000	16,000,000
2	51	2,500	8,000	20,000,000
3	52	3,000	8,000	24,000,000
Total Expected Death Claims				60,000,000

Discount each year's expected death claim at 10% interest rate to arrive at the present value of total claims, (see below).

1	2	3	4 (2*3)	5	6 (4/5)
Year	Death Claims	PV Factor at 10%	PV of Claims	No. of Insured	Annual Net Premium
1	16,000,000	0.9091	14,545,600	800,000	18.82
2	20,000,000	0.8264	16,528,000	800,000	20.66
3	24,000,000	0.7513	18,031,200	800,000	22.54
	60,000,000		49,104,800		62.02

Net Single Premium = $\frac{\text{PV of Claims}}{\text{Number of Insureds}}$

=49,104,800/800,000=61.381 (rounding error)

Each insured will be required to pay a net single premium of Birr 62.02 at the beginning of the policy. This premium enables the insurer to meet the expected death claims that occur in each year.

Actuarial Notations

Let:

t = time (years)

x = age

L_x = number of people living during age x

d_x (L_x-L_x+1) = the difference between the number of people living during age x and age (x + 1) i.e. the number of people dying in one year.

P_x (d_x/L_x) = Probability of dying during age x

q_x (L_{x+l}/L_x) = probability that an individual at age x survives age x

Consider the example above (the 3-years term insurance)

Notations

T = policy term (3 years)

S = sum assumed (Birr 8000)

r = interest rate (10%)

Formula to determine net single premium

$$NSP = \frac{S(d_x/L_x)}{(1+r)} + \frac{S(d_x/L_x)}{(1+r)^2} + \ldots + \frac{S(d_{x+t-1}/L_x)}{(1+r)^t}$$

Using the formula the net single premium is computed as follows:

Year (t)	Age (X)	Number Living L_x	Number Dying d_x
1	50	800,000	2,000
2	51	798,000	2,500

3	52	795,500	3,000	

$$NSP = \frac{8{,}000(2{,}000/800{,}000)}{1.10} + \frac{8{,}000(2{,}500/800{,}000)}{(1.10)^2} + \frac{8{,}000(3{,}000/800{,}000)}{(1.10)^3}$$

$$= 62.02$$

Net Level Premium

Instead of a single premium payment, in this case the policyholders will pay annual premiums of equal size. Consider the following three points carefully.

- Not all the policyholders will pay the annual level premiums (Since some of them are expected to die before the end of the term).
- The insurer will collect a limited amount of money to invest at the very beginning of the policy.
- The total annual level premiums paid by a policyholder under the level scheme will be greater than the single net premium.

Assuming all facts as in the previous illustration, calculate the net level premium.

Example

Year	Age	No. of Insured
1	50	800,000
2	51	798,000
3	52	795,500

Assume each insured pays level premium of Birr 1 throughout the term of the policy.

Year	Age	No. of Insured	Present value of Birr.1payable at beginning of year	Present value of Birr.1 premium
1	50	800,000	1	800,000
2	51	798,000	0.9091	725,461.8
3	52	795,500	0.8264	657,401.2
			Total present value of all premiums collected	2,182,863

Payment per insured = 2,182,863/800,000=2.73

$$\text{Net level premium} = \frac{\text{Net Single Premium}}{\text{PV. Of Birr 1 premium Payment per insured}}$$

$$= 62.02/2.73 = 22.72$$

The amount of net level premium to be collected and the expected death claims are shown below.

Year	**Annual level premium**	**Total premium collected**	**Beginning balance**	**Beg. Bal invested at 10 %**	**Death claims**	**Ending balance**

1	22.72	18,176,000	18,176,000	19,993,600	16,000,000	7,490,565
2	22.72	18,130,560	25,621,125	28,183,237.5	20,000,000	8,183,237.5
3	22.72	18,073,760	26,256,997.5	28,882,697.25	24,000,000	(4,882,697.25)*

* Difference due to rounding.

Present value of

Birr1payment= (800,000/800,000)*1+(798,000/800,000)*0.9091+(795,500/800,000)*0.8264=22.72

Dear learner, please remember that the following information is required to calculate term life insurance premium: Age and Sex, Mortality rate, Interest rate, Period of insurance policy, and Sum assured.

Whole Life Insurance

The net single premium for a whole life policy, for example, is figured in exactly the same manner as the example above, except that the calculations are made for each year from the starting age to the end of the mortality table.

Endowment Insurance

Premium determination for endowment insurance is presented for two types of endowment policies;

a) Pure endowment Policy

Under this policy, the sum assured is payable only if the insured manages to survive the endowment period. The Policy is largely aimed at benefiting the insured himself rather than his dependents. As a result, it is considered as more of an investment than a protection. It is appropriate to provide income to the insured up on his retirement or old age.

Consider the following Mortality Table,

Age	**Number Living**	**Number Dying**
40	1,000,000	15,000
41	985,000	15,500
42	969,500	16,000
43	953,500	16,500
44	937,000	17,000
45	920,000	

Suppose all persons aged 40 purchase a 5 year pure endowment policy for Birr 5,000, what NSP should each insured pay assuming an interest rate of 10%. Under this policy, the insurer expects to pay the face value of the policy Birr 5,000, if the insured survives the policy period. Accordingly, it would be necessary to determine the probability of survival for the insured. Of the 1,000,000 persons insured at age 40, 920,000 of them are expected to survive by the end of the policy period.

The probability of survivals becomes:

920,000/1,000,000=0.92

The NSP for this policy is determined as follows:

NSP = Sum assured X Prob. of Survival X PV. Factors

5,000 X (920,000/1,000,000) X $(1.1)^{-5}$ = Birr 2,856.24

The NLP will be determined as follows:

Year	Age	Number of insureds paying premium	Present value of birr 1 payable at the Beginning Year 1	Present value of Birr1 Premium
1	40	1,000,000	1	1,000,000
2	41	985,000	0.9091	895,463.5
3	42	969,500	0.8264	801,194.8
4	43	953,500	0.7513	716,364.55

5	44	937,000	0.6830	639,971
Total Present value				**4,052,993.85**

4,052,993.85/1,000,000=4.053_

NLP= 2,856.24/4.053=704.72

b) Ordinary Endowment

Under this policy, the determination of NSP involves.

- The premium should reflect the prob. of death of the insured within the policy period.
- The premium should also reflect the prob. of survival of the insured to the end of the policy period.

This is because payment to the insured is certain whether or not he dies before the policy matures or survives the endowment period. Consequently the NSP of an ordinary endowment policy is the sum of the NSP of pure endowment policy and the NSP of a term policy for the same period.

Activity 7: Understanding endowment life insurance

What are the two types of endowment insurance?

Dear learner, please make sure that you have read the chapter carefully and properly understood activities questions. If you have done that, please read summary and proceed to self assessment questions.

Summary

Insurance companies issue most of the time both life and non-life insurance policies. Life insurance is different from non-life insurance in terms of the risk insured, procedures used, premium payments, insurable interest, contract and purpose.

Life insurance is mostly issued to give financial protection i.e. to provide dependents of the insured with financial compensation equal to the sum assured if the insured faces pre mature death while the policy is enforce even though there are other objectives. In life insurance underwriting, factors such as age, sex, current physical condition of the insured, medical history, occupation, and other related factors should be carefully examined before the issuance of the policy.

Basically there are three different types of life insurance policies:
Term life insurance: This policy provides temporary protection. The beneficiaries will be compensated if the insured dies within the policy period.
Whole life insurance: This policy provides permanent protection. The beneficiaries will be compensated if the insured dies pre maturely any time.
Endowment insurance: Under this policy, the insurer makes a payment if the insured dies within the policy period or if he survives the policy period.
But in addition to this there are other policies called supplementary contracts that are issued in conjunction with the main life insurance policy and annuity contracts. These contracts mainly include **Supplementary Accident insurance and Total and permanent Disability benefit.**
Like other contracts, life insurance contracts have different provisions. The policy conditions and provisions in life insurance that must be agreed by all parties of the contract include Contract, documents, General information, The build, Physical condition, Personal history, Habits and temperaments, Hobbies or avocations, Proposal and Declaration for Assurance, Payment of Premium, and Non-Forfeiture options.
To get these benefits (compensation), the insured is supposed to pay a price called premium to keep the policy enforce.

Checklist

Dear learner, now you have completed the second chapter, so you need to check whether you have grasped the concepts discussed in this chapter. If your answer to the questions below is No, then you have to go back and read the relevant sub-section again.

Can you:	**Yes**	**No**
	☐	☐

1. Explain life and health insurance
2. Explain life insurance underwriting ☐ ☐
3. Discuss basic types of life insurance contracts ☐ ☐
4. Discuss supplementary insurance contracts ☐ ☐
5. Discuss provisions of life insurance policies ☐ ☐
6. Compute premiums for life insurance contracts ☐ ☐
7. Explain characteristics of life insurance policies ☐ ☐

Dear learner, now if you have understood the above points, then proceed to the next self assessment questions.

**Self Assessment Questions**

Part I: True-False Questions

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. The basic purpose of an automatic premium loan is to prevent a life insurance policy from lapsing.
2. The insurance scheme that provides compensation to the beneficiary if the insured person dies within the stated period in the policy is called term insurance.
3. A type of supplementary insurance whose cover is equal to the sum assured under the related main policy is called total and permanent disability insurance.
4. The gross premium is defined as the net premium plus the loading allowance.
5. In both life and non-life insurance, we are certain about the occurrence of the risk.
6. In life insurance policy, it is possible that the insured and policy owner may be different.
7. Whole life insurance provides only temporary protection.
8. Policy conversion is a situation where the insured will be assumed to have paid by borrowing from the insurer if he/she suspends premium payment for some reason.
9. Insurable interest is applicable to both life and non-life insurance policies.
10. Reduced paid up is one of the non-forfeiture options, where the cash value is left with the insurer to keep the policy enforce for the balance of the original period but for a reduced amount.

Part II: Multiple Choice Questions

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. All of the following statements about ordinary life insurance are true EXCEPT
   A. Premiums are level throughout the policy period.
   B. The face amount of the policy is paid if the insured lives the policy period.
   C. There is a build-up of cash value that can be borrowed by the policyholder.
   D. It offers the policyholder the flexibility to meet a wide variety of financial objectives.

2. Which of the following statements about limited-payment life insurance is true?
   A. It is a form of term insurance.
   B. It matures at the end of the premium-payment period.
   C. The premium decreases each year during the premium-payment period.
   D. Its use may be appropriate if a person wants paid-up life insurance during retirement.

3. Which of the following statements about endowment insurance policies is (are) true?

I. The face amount is paid if the insured dies during the policy period or at the end of the policy period if the insured is still alive.

II. The use of endowment insurance has increased in recent years because of its favorable tax treatment.

   A. I only
   B. II only
   C. both I and II
   D. neither I nor II

4. All of the following statements about universal life insurance are true EXCEPT
   A. Interest is credited to the policy's cash value each month.
   B. Any withdrawal of a policy's cash value reduces the amount of the death benefit.
   C. Interest credited to a policy's cash value is taxable for the policy owner in the year credited.
   D. The policy owner can add to a policy's cash value at any time subject to policy guidelines.

5. Alex, age 26, purchased a 20-payment whole life insurance policy. After Alex has made 20 premium payments, his life insurance policy is considered
   A. Matured.
   B. Reduced.
   C. Expired.
   D. Paid-up.

6. Bert purchased a life insurance policy 4 years ago. He inadvertently stated that he was 1 year younger than his actual age. If Bert dies today, how much will the insurance company pay?
   A. nothing
   B. less than the policy face value
   C. the policy face value
   D. more than the policy face value

7. Which of the following statements about life insurance policy loans is true?
   A. Loans are only permitted for specific reasons listed in the policy.
   B. They are forgiven if the insured dies before the loans are repaid.
   C. The policy owner must pay interest on a life insurance policy loan.
   D. They must be repaid on the basis of a schedule determined at the time of the loan.

8. All of the following statements about the automatic premium loan provision in a life insurance policy are true EXCEPT
   A. Its purpose is to prevent a policy from lapsing because of nonpayment of premium.
   B. The premium loan requires interest to be paid at a stated contractual rate.
   C. If the provision is used, the insured must show evidence of insurability to resume regular premium payments.
   D. The policy proceeds will be reduced if the premium loans are not repaid by the time of death.

9. All of the following are non-forfeiture options found in cash value life insurance policies EXCEPT
   A. Cash value.
   B. Reduction of premiums.

C. Reduced paid-up insurance.
D. Extended term insurance.

10. Which of the following statements about non-forfeiture options found in life insurance policies is true?
A. Under the reduced paid-up option, the paid-up policy is term insurance.
B. Under the extended term option, the amount of term insurance is less than the face value of the surrendered cash value policy.
C. Under the reduced paid-up option, no additional premiums must be paid.
D. Unless the policy owner has selected another non-forfeiture option, the cash value option goes into effect automatically.

11. Which of the following statements about the waiver-of-premium provision is true?
A. Because the probability of becoming disabled exceeds the probability of premature death, the cost to include this provision is usually prohibitive at younger ages.
B. Premiums are usually waived if the insured becomes partially disabled.
C. Life insurance protection continues in force during a period of disability, but dividends cease and cash values are reduced.
D. The disability must occur before a stated age, for premiums to be waived.

12. Cal purchased a whole life policy 6 years ago. The policy requires annual premium payments. Cal forgot to pay the premium that was due 2 weeks ago. He wonders if his life insurance is still in force. Which life insurance policy provision is designed to keep the policy in force for a short time even if the premium payment is late?
A. waiting period
B. grace period
C. guaranteed purchase option
D. reinstatement clause

13. To level a net single premium (NSP), the NSP is divided by
A. The maximum number of years the premium could be paid.
B. The ordinary life annuity factor for the premium payment period.
C. The present value of a life annuity due of Br 1 for the premium payment period.
D. The deferred life annuity factor for the premium payment period.
A. The sum of all acquisition expenses.

14. Actuaries at Term Life Insurance Company calculated the net single premium per thousand for a five-year term policy for a man age 32 to be Br 5.04. To calculate the net level premium for this policy, the net single premium should be
A. Divided by 5.
B. Divided by the future value life annuity due factor for Br 1 for five years.
C. Divided by the present value life annuity due factor for Br 1 for five years.
D. Divided by the present value ordinary life annuity factor for Br 1 for five years.

15. A premium charge that does not change from year to year throughout the term of the policy is:
A. Gross premium
B. Net single premium
C. Net level premium
D. None

Part-III Workout Questions

Workout the following questions clearly

1. According to the 2002 Central Statistic office of mortality table, out of an initial population size of 1,500,000 female people of a given city, 100,000 live at the age of 40. The number of people

expected to die at age 40 is 500. Assume that an Insurance Corporation issued a one-year term insurance to all these female individuals aged 40 for death benefit of Birr 10,000 each. Death claim is to be paid at the end of the term and premium is collected at the beginning of the policy. Interest rate is 3% and each insured is assumed to bring the same level of risk to the group.

Required: Based on the information given, how much premium the insurer should charge each insured? (Net single premium)

2. Assume that the 100,000 population has purchased a 4 year term insurance at the age of 40 for a sum assured equal to Br. 10,000. Based on the above information and the following mortality table answer the questions that follow:

Year	Age	No. of living	Number of dying
1	40	100,000	500
2	41	99,500	750
3	42	98,750	1,250
4	43	97,500	1,500
5	44	96,000	---

Required: Compute

A. The net single premium (NSP) of Term Insurance
B. The net level premium (NLP) of Term Insurance

Glossary

Risk: Is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for.

Uncertainty: Is the doubt as to the occurrence of a certain desired outcome or a state of mind whereby a sentient entity experience doubt

Peril: Peril refers to the specific cause of a loss or it is the prime cause. It is what will give rise to the loss. It is beyond the control of anyone who may be involved. In this way, we can say that storm fire, theft, motor accident and explosion are all perils.

Hazards: This refers to the condition that may create or increase the chance of a loss arising from a given peril. In other words, factors which may influence the outcome are referred to as hazard.

Subjective risk: Is what an individual perceives to be a possible unwanted event. Most people realize, for instance, that it's possible for them to have an accident, or a heart attack or some other health problem.

Objective risk: Is the actual losses for a sample in a given period, which can differ significantly from expected losses. Objective risk refers to risks that can be statistically measured by some measure of description, such as the standard deviation or coefficient of variation.

Pure risk: Is a risk in which there is only a possibility of loss or no loss—there is no possibility of gain. Pure risk can be categorized as personal, property, or legal risk.

Speculative risk: Is a risk in which there is the possibility of profit or loss, such as investing in financial markets. Most speculative risks are uninsurable, because they are undertaken willingly for the hope of profit.

Fundamental risk: Is a risk, such as an earthquake or terrorism that can affect many people at once. Economic risks, such as unemployment, are also fundamental risks because they affect many people.

Particular risk: Is a risk that affects particular individuals, such as robbery or vandalism. Insurance companies generally insure some fundamental risks, such as hurricane or wind damage, and most particular risks.

Market Risk: Market Risk is related to stock market. If refers to stock price variability caused by market forces. It is the result of investors' reactions to real or psychological expectations.

Risk management: Is a process that involves identifying, analyzing, and taking steps to reduce or eliminate the exposures to loss faced by an organization or individual.

Risk identification: Is the process by which a business systematically and continuously identifies property, liability, and personal exposures as soon as or before they emerge.

Risk measurement: Refers to the measurement of potential loss as to its size and probability of occurrence and it is the next step once the risk is identified.

Risk relative to the mean (coefficient of variation): It indicates that the variability of the total annual monetary losses from the expected value (the mean).

Avoidance**:** One way to control a particular pure risk is to avoid the property, person, or activity with which the exposure is associated by (1) refusing to assume it even momentarily or (2) an exposure assumed earlier.

Loss prevention and reduction methods: These refer to the safety actions taken by the firm to prevent the occurrence of a loss or reduce its severity if the loss has already occurred.

Separation: Separation of the firm's exposures to loss instead of concentrating them at one location where they might all be involved in the same loss is the third risk control tool.

Combination/Diversification: Combination is a basic principle of insurance that follows the low of large numbers. Combination increases the number of exposure units since it is a pooling process.

Retention: It is an arrangement under which the firm or an individual experiencing the loss bears the direct financial consequences. In other words, the person or the firm consciously or unconsciously, decides to assume the risk and pays for the loss without any attempt to transfer it to somebody else.

Deductible: Is a specified amount of the potential loss that the insured agrees to bear under an insurance contract. Thus in the event of a loss, the insurer will pay to the insured the amount of the loss less the deductible.

Insurance: Is the protection against financial loss provided by an insurer and a device by means of which the risks of two or more persons or firms are combined through actual or promised contribution to a fund out of which claimants are paid.

Claims adjuster: The person who adjusts a claim is known as a **claims adjuster.**

Principle of indemnity: Is a principle that states that the insurer agrees to pay no more than the actual amount of the loss; stated differently, the insured should not profit from a loss.

Principles of Insurable Interest: The principle of insurable interest states that the insured must be in a position to lose financially if a covered loss occurs.

Principle of Subrogation: Subrogation means substitution of the insurer in place of the insured for the purpose of claiming indemnity from a third person for a loss covered by insurance.

Principle of Utmost Good Faith: States that a higher degree of honesty is imposed on both parties to an insurance contract than is imposed on parties to other contracts.

Principle of Contribution*:* The insured cannot claim more than total loss from all the companies put together.
Personal Contract: This refers to the identities of the people insured which are extremely relevant to the insurance company, which has a right to select the insured with whom it is willing to enter into contractual agreement.

Conditional Contract: A conditional contract is a contract in which one more parties must perform only under certain conditions.

Aleatory: If one party to a contract might receive considerably more in value than he or she gives up under the terms of the agreement, the contract is said to be aleatory.

Contract of Adhesion: A contract of adhesion is a contract in which one party (insured) must adhere to the agreement as written by the other party (insurer).

Executory: An *executory contract* is one in which the covenants of one or more parties to the contract remain partially or completely unfulfilled.

Unilateral: In a unilateral contract, the promise of one party is exchanged for a specific act of the other party.

Parol (or Oral) evidence rule: This principle limits the effects that oral statements made before a contract's execution can have on the contract. The assumption here is that any oral agreements made before the contract was written were automatically incorporated into the drafting of the contract.

Competent Parties: The parties to the contract must be of legal age, sane, sober, of sound mind and under no legal handicap or duress.

Legal Purpose: The purpose of the contract itself must be legal. Insurance contracts are generally considered to serve a legal purpose.

Offer and Acceptance: A contract is a legally enforceable agreement, or a meeting of the minds, between two or more legally competent parties.

Consideration: In order for the agreement to become binding, each party must give the other something of value, such as money, promises, property or service.

Under writing in life/Insurance: Underwriting in life insurance is the process of assessing an individual anticipated mortality that is the relative incident of sickness or disease and death among a given group of people.

Automatic premium Loan (APL): Under this provision if the insured for some reasons suspends premium payment, he will be assumed to have paid the premium by borrowing money from the insurer against the policy in force.

Endowment Insurance Policy: This policy provides payment if the insured manages to live till the end of the endowment period specified in the policy or upon his death at any time during the term of the policy whichever occurs first.

Gross Premium (GP): When the portion of all the insurers costs of running the business are added to the net premium, the resultant premium is called the gross premium.

Non-Forfeiture options: Benefits required by law to be made available to the insured (or his beneficiary) in the event that he discontinues his premium payments.

Net Level Premium (NLP): This is the premium charge that does not change from year to year throughout the term of the policy.

Net single Premium (NSP): When the total net premiums of an insurance policy is to be paid as a single sum at the beginning of the contract it is called the net single premium.

Reinsurance: Is a method created to divide the task of handling risk among several insurers.

Supplementary Accident insurance: This is a supplementary policy attached to the main individual life insurance policy.

Term Insurance: This insurance scheme provides compensation (death benefits) to the beneficiary if the insured person dies within the stated period mentioned in the policy.

Whole Life Insurance: This policy provides protection to the dependents of the insured up on the event of his death.

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Answers or Solutions to Activities and Self Test Questions

Chapter One

Activities:

Activity 1:

Uncertainty is the doubt as to the occurrence of a certain desired outcome or a state of mind whereby a sentient entity experience doubt. **Risk** is an objective phenomenon that can be measured mathematically or statistically and it is independent of the individual's beliefs.

Activity 2:

Probability is the long-run chance of occurrence, or relative frequency of some event and **Risk** is the relative variation of actual loss from expected loss.

Activity 3:

Morale hazard refers to the carelessness or in difference to a loss because of the existence of insurance and it originates from acts of carelessness leading to the occurrence of a loss.

Activity 4:

States that as the number of exposure units increases, the more certain it becomes that actual loss experience will equal probable loss experience. Hence, the risk diminishes as the number of exposure units increases.

Activity 5:

Fundamental risk is a risk, such as an earthquake or terrorism that can affect many people at once. Economic risks, such as unemployment, are also fundamental risks because they affect many people. **Particular risk** is a risk that affects particular individuals, such as robbery or vandalism.

Activity 6:

Purchasing power risk refers to the risk that arises because of decrease the purchasing power of money.

Part-I: True or False

1	**TRUE**	**6**	**FALSE**		
2	**FALSE**	**7**	**FALSE**		
3	**FALSE**	**8**	**TRUE**		
4	**TRUE**	**9**	**FALSE**		
5	**TRUE**	**10**	**TRUE**		

Part-II: Multiple Choices

1	**B**	**6**	**C**	**11**	**C**
2	**B**	**7**	**D**	**12**	**D**
3	**B**	**8**	**D**	**13**	**B**
4	**B**	**9**	**A**		
5	**C**	**10**	**A**		

Part-III: Discussion Questions

1. Moral hazard refers to dishonesty or character defects in an individual that increase the frequency or severity of loss.
2. Liability risk refers to the possibility of loss arising from intentional or unintentional damage

made to other persons or their property

3. Uncertainty describes a state of mind that arises when an individual perceives that outcomes cannot be known with certainty but risk is an objective reality.
4. Types of hazards among others include:
   - Physical hazard
   - Moral hazard
   - Morale hazard
   - Legal hazard
5. Purchasing power risk refers to the risk that arises because of decrease the purchasing power of money.

Chapter Two

Activities:

Activity 1:

Steps in risk management include:

- Risk identification
- Measurement of losses associated these risks
- Treat the risks various tools
- Implementing the decision
- Monitoring the decision and evaluate them

Activity 2:

Functions of risk management Include:

- Recognize exposure to loss
- Estimate the frequency and size of the loss
- Select best method of handling the risk
- Administer programs of risk management

Activity 3:

Potential losses to be handled by risk managers include:

- Property loss exposures
- Net income Loss Exposure
- Liability loss Exposures
- Personnel loss Exposure

Activity 4:

Risk identification techniques includes among others:

- The risk Analysis questionnaire
- The financial statement method
- The flow chart method
- Onsite inspection
- Interactions with other departments
- Statistical Records of Losses
- Analysis of the Environment
- Use of outsiders to identify loss exposures
- Organizational Charts

Activity 5:

Standard deviation Standard deviation is a number that measures how close/ far a group of individual measurements /losses/ is to its average value (mean). When the standard deviation is expressed as a percent of the mean, the result is termed the coefficient of variation,

Activity 6:

Loss preventions are programs that seek to reduce or eliminate the chance of loss. Loss reduction programs seek to reduce the potential severity of the loss.

Activity 7:

Separation refers to separation of the firm's exposures to loss instead of concentrating them at one location where they might all be involved in the same loss. Diversification is a technique where by businesses diversify their product lines so that a decline in profit of one product could be compensated by profits from others

Activity 8:

The major advantages of retention are as follows:

- Save money
- Lower expenses
- Encourage loss prevention
- Increase cash flow

Part-I: True or False

1	**TRUE**	**6**	**TRUE**	**11**	**TRUE**
2	**FALSE**	**7**	**TRUE**	**12**	**FALSE**
3	**TRUE**	**8**	**TRUE**	**13**	**TRUE**
4	**FALSE**	**9**	**FALSE**	**14**	**TRUE**
5	**TRUE**	**10**	**TRUE**	**15**	**FALSE**

Part-II: Multiple Choices

1	**B**	**6**	**B**	**11**	**C**
2	**A**	**7**	**C**	**12**	**A**
3	**D**	**8**	**A**	**13**	**B**
4	**A**	**9**	**B**	**14**	**C**
5	**B**	**10**	**C**	**15**	**B**

Part-III workout

A. n = 40 m = 50,000 SD = 10,000

At x = 67,500, $Z = \frac{67,500 - 50,000}{10,000} = \frac{17,500}{10,000} = 1.75 = 0.4599$ (from the table)

Now we are asked p(x > 67,500)

$P(x > 67500) = p(1.75 \text{ to } \infty) = p(1.75 \leq Z \leq \infty) = 0.5 - 0.4599 = 0.0401$

Interpretation

There is a probability of 0.0401 that the loss will exceed 67,500 (4.01% of the loss is above 67500).

B. i. If n increases from 40 to 160 (4 times), mean (m) increases by the same proportion as n (i.e. 4 times).i.e. 4 x 50000 = 200,000 and standard deviation increases √4 (i.e. 2) times

So, SD = 10,000 x 2 = 20,000

n	m	SD
40	50,000	10,000
160	200,000	20,000

ii) P(x < 160,000) or p(x > 240,000)

= p (2 to -∞)

0.5 – 0.4772 + 0.5 – 0.4772

0.0228 + 0.0228 = 0.0456

There is a probability of 0.0456 that the loss will be less than 160,000 or more than 240,000.

Chapter Three

Activities:

Activity 1:

Gambling creates risks which did not exist previously where as insurance protects the insured against a risk which was already in being.

Activity 2:

- Operating the Insurance Business
- Losses that are Intentionally Caused
- Losses that are exaggerated

Activity 3:

Such departments of an insurer will have the following responsibilities:

- Ascertaining the validity of written proofs of loss;
- Investigating the scene of the loss;
- Estimating the amount of the loss;
- Interpreting and applying the terms of the policy in loss situations; and
- Approving payment of the claim

Activity 4:

The major types of adjusters include the following:

- Agent,
- Company adjuster,
- Independent adjuster,
- Adjustment bureau, and
- Public adjuster

Activity 5:

Steps that should be followed in settling claims

- Notice of loss
- Investigation of the claim
- Filing a proof of loss
- Decision Concerning Payment

Part-I: True or False

1	**TRUE**	**6**	**FALSE**		
2	**FALSE**	**7**	**FALSE**		
3	**TRUE**	**8**	**FALSE**		
4	**FALSE**	**9**	**FALSE**		
5	**TRUE**	**10**	**FALSE**		

Part-II: Multiple Choices

1	**A**	**6**	**C**		
2	**D**	**7**	**B**		
3	**A**	**8**	**D**		
4	**D**	**9**	**E**		
5	**D**	**10**	**D**		

Part-III Discussion Questions

1. Insurance is a contract by which one party, in consideration of the price paid to him adequate to the risk, becomes security to the other that he shall not suffer loss, damage or prejudices by the happening of the perils specified in the policy.

2. The major activities may be classified as follows.

- Production /selling/,
- Underwriting /selection of risks/,
- Rate making,
- Managing claims and loss adjustment, and
- Investment

3. Both techniques are similar in that risk is transferred by a contract. The difference between insurance and speculation is that insurance can reduce the objective risk of an insurer by the application of the law of large numbers. Whereas, speculation typically involves only risk transfer, not risk reduction.

4. Settling losses under insurance contracts and adjusting any differences that arise between the company and the policyholder are the functions of claims management**.**

5. From the insurer's viewpoint, there are several basic objectives in settling claims. These include:

- Verification of a covered loss;
- Fair and prompt payment of claims; and
- Personal assistance to the insured

Chapter Four

Activities:

Activity 1:

The principle of indemnity states that the insurer agrees to pay no more than the actual amount of the loss; stated differently, the insured should not profit from a loss.

Activity 2:

A warranty is a statement that becomes part of the insurance contract and is guaranteed by the maker to be true in all respects but representations are statements made by the applicant for insurance.

Activity 3:

If one party to a contract might receive considerably more in value than he or she gives up under the terms of the agreement, the contract is said to be aleatory. A contract of adhesion is a contract in which one party (insured) must adhere to the agreement as written by the other party (insurer).

Activity 4:

Offer and acceptance means that one party must offer to do something, and the other party must accept that exact offer. Consideration is a situation where by each party must give the other something of value, such as money, promises, property or service.

Activity 5:

The two elements that may occur prior an agreement counter are counter-offers and invitations to make an offer.

Activity 6:

From the viewpoint of the insurer, there are ideally six requisites of insurable risk.

- Large Number of exposure
- Accidental and Unintentional Loss
- No catastrophic Loss
- Determinable and No catastrophic Loss
- Calculable chance of loss
- Economically Feasible Premiums

Part-I: True or False

1	**TRUE**	**6**	**FALSE**	**11**	**FALSE**
2	**FALSE**	**7**	**TRUE**	**12**	**TRUE**
3	**TRUE**	**8**	**FALSE**		
4	**FALSE**	**9**	**TRUE**		
5	**FALSE**	**10**	**TRUE**		

Part-II: Multiple Choices

1	**B**	**6**	**C**	**11**	**D**
2	**A**	**7**	**C**	**12**	**D**
3	**B**	**8**	**B**	**13**	**D**
4	**B**	**9**	**C**	**14**	**C**
5	**D**	**10**	**B**	**15**	**B**

Part-III Discussion Questions

1. The basic elements in a valid policy or contract are:

- Competent parties (C)
- Legal Purpose (L)
- Offer and Acceptance (O)
- Consideration (C)

2. Parol (or Oral) evidence rule

This principle limits the effects that oral statements made before a contract's execution can have on the contract. The assumption here is that any oral agreements made before the contract was written were automatically incorporated into the drafting of the contract.

3. To be legally enforceable, all insurance contracts must be supported by an insurable interest for the following reasons.

- To prevent gambling
- To reduce moral hazard
- To measure the amount of the insured's loss in property insurance

4. Representations are statements made by the applicant for insurance. Concealment is intentional failure of the applicant for insurance to reveal a material fact to the insurer.

5. An *executory contract* is one in which the covenants of one or more parties to the contract remain partially or completely unfulfilled.

Chapter Five

Activities:

Activity 1:

A life insurance policy provides cash payment when a person dies. Health insurance provides for the payment of medical expenses in the event of sickness or injury.

Activity 2:

The three main types of term life insurance include:

- Level Term Insurance
- Decreasing Term Insurance
- Increasing Term Insurance

Activity 3:

The three main types of whole life insurance include:

- Ordinary Life Insurance,
- Limited Life Insurance, and
- Single Payment Life Insurance.

Activity 4:

Supplementary contracts are issued only in conjunction with the main life insurance policies. That means they are not independently sold and the insured will be charged additional premium for each supplementary contract.

Activity 5:

It is a provision where if the insured for some reasons suspends premium payment, he will be assumed to have paid the premium by borrowing money from the insurer against the policy in force.

Activity 6:

There are three primary elements in life insurance rate making:

- Mortality,
- Interest, and
- Loading

Activity 7:

The two elements of endowment insurance are ordinary endowment and pure endowment

Part-I: True or False

1	**TRUE**	**6**	**TRUE**		
2	**TRUE**	**7**	**FALSE**		
3	**FALSE**	**8**	**FALSE**		
4	**TRUE**	**9**	**TRUE**		
5	**FALSE**	**10**	**FALSE**		

Part-II: Multiple Choices

1	**B**	**6**	**B**	**11**	**D**
2	**D**	**7**	**C**	**12**	**B**
3	**A**	**8**	**C**	**13**	**C**
4	**C**	**9**	**B**	**14**	**C**
5	**D**	**10**	**C**	**15**	**C**

Part-III Workout

1. Expected Death Benefit (Amount) = (No of insured expected to die) x (the sum assured death benefit/insured)

= 500 x 10,000

= Birr 5,000,000.00

This is an amount expected to be paid by the insurance corporation at the end of the one-year term. The question here is how much money an insurance corporation needs to collect from premium

payments to satisfy this death claim? The answer is the present value of the future death claims, because money has a time value. This is given by the following formula.

Present Value (PV) = Amount (A) X $(1 + r)^{-n}$

$Pv = \frac{A}{(1+r)^n} = A\,(1 + r)^{-n}$

Where PV = Present Value

A = Amount (Future Value)

r = interest rate per period

n = number of periods

Given:

r = 0.03 = 3%

A = 5,000,000

n = 1 Year

Pv of claims = $50{,}000{,}000\,(1.03)^{-1}$

= Br. 4,854,368.93

This is the total net premium that EIC is going to collect from the insureds at the beginning of the policy. The net single premium (NSP) can be calculated by dividing the present value of premium collected by the number of insured at the age of 40.

$NSP = \frac{\text{PV of the expected total claim}}{\text{No. of policy holders (Insured)}}$

$= \frac{4{,}854{,}368.932}{100{,}000}$

= 48.54

Q2

A. Fist we can calculate the probability of dying and the expected death claims in each of the years during the term of the policy as follows:

No	Age	No. of Dying (1)	Probability of dying	Amount of Policy (2)	Expected Death claim (1x2)
1	40	500	0.005*	10,000	5,000,000
2	41	750	0.0075	10,000	7,500,000
3	42	1,250	0.0125	10,000	12,500,000
4	43	1,500		10,000	15,000,000
	Total Expected Claims				40,000,000

Prob. Of dying = $\frac{\text{No. of dying}}{\text{No. of living at the age of 40}} = \frac{500}{100{,}000} = 0.005$

As it is discussed above, the insurer will not collect Birr. 40,000,000 from the insureds. Rather it will collect the present value of the total claims. The calculation is shown as follows:

Age	Expected Death Claims (a)	Present Value* Factor at 3% (b)	Present Value of Claims C = (a x b)	Annual net Premium**
40	5,000,000	0.9709	4,854,500	48.55
41	7,500,000	0.9426	7,069,500	70.70
42	12,500,000	0.9151	11,438,750	114.39
43	15,000,000	0.8885	13,327,305.72	133.27
Total	40,000,000		36,690,055.7	366.91

Note: *Present Value of 1 Birr = $\frac{1}{(1+r)^n} = \frac{1}{(1.03)^n} = (1.03)^{-n}$

So when n = 1, the present value of 1 Birr is $(1.03)^{-1} = 0.9709$ and when n = 2, the present value is 0.9426 and so on as shown in the table above in column b.

** Annual premium is calculated by dividing the present value by the number of insured (i.e., 100,000). For example, 4,854,500/100,000 = 48.55. When we add the annual premium per insured of the four years, we can find the total net single premium, which is equal to Br. 366.91 (48.54 + 70.70 + 144.39 + 133.27) or we can divide the total present value by the number of insured at the begging of the policy period, which gives:

NSP = $\frac{36,690,055.7}{100,000}$

= <u>366.90</u>

It is also possible to use actuarial formula to calculate the net single premium. The following variables are used in the calculation of the NSP.

t = time in years

x = Age at a time of insurance purchase

L_x = number of people living during age x

d_x = number of people dying during age x

P_x = probability of dying during age x

1 – Px = probability that an individual survive at age x

S = sum assured

r = interest rate

$$NSP = S\left(\frac{\frac{d_x}{l_x}}{(1+r)^1}\right) + S\left(\frac{\frac{d_x+1}{l_x}}{(1+r)^2}\right) + \ldots\ldots + S\left(\frac{\frac{d_x+t}{L_X}}{(1+r)^t}\right)$$

Using this formula NSP of the above exercise is computed as follows:

$$NSP = 10{,}000\left(\frac{500/100{,}000}{(1.03)^1}\right) + 10{,}000\left(\frac{\frac{750}{100{,}000}}{(1.03)^2}\right) + 10{,}000\left(\frac{\frac{1250}{100{,}000}}{(1.03)^3}\right) + 10{,}000\left(\frac{\frac{15000}{100{,}000}}{(1.03)^4}\right)$$

= 48.54 + 70.70 + 144.39 + 133.27

= 366.90

B. Assume each insured pays constant premium of Br. 1 throughout the term of the policy.

Determine present value of Birr 1 collected from each insured.

Divide the total present value of Birr 1 by the number of insureds to arrive at the present value of Birr 1 premium payment per insured.

Divide the net single premium (NSP) by the present value of Birr 1 premium payment per insured. This gives you the net level premium. The following table shows the calculations.

Year	Age	No of insureds Paying premium	Birr 1. Premium collected from each insured	PV of Birr 1 to be collected at the beginning of the year	PV of Br. 1 Premium
1	40	100,000	100,000	1	100,000
2	41	99,500	99,500	0.9709	96,604.55
3	42	98,750	98,750	0.9426	93,081.35
4	43	97,500	97,500	0.9151	89,226.31

Total	378,912.21

PV of 1 Br. Premium = 378,292.21
Payment Per insured 100,000

= 3.789 Br

Therefore,

$$\text{NLP} = \frac{\text{NSP}}{\text{PV of Br. 1 premium per insured}}$$

$$= \frac{366.91}{3.789}$$

= 96.84 Br.

Risk Management and Insurance
Tutor Marked Assignments

Part-I Multiple Choices

Choose the letter of the best answer and Write the letter of the correct answer for the questions that follow

1. Barb, who is self-employed, is the main breadwinner for her family. Barb does not have disability income insurance because she has never stopped to consider the impact of a long-term disability upon her family. Barb's treatment of the risk of disability is best described as
    A. Risk transfer.
    B. Passive retention.
    C. Risk avoidance.
    D. Active retention.
2. Ryan decided to review his personal risk management program. His car is 10 years old, and he would receive little money from his insurer if the car was damaged or destroyed. Ryan decided to drop the physical damage insurance on the car. From a risk management perspective, dropping the physical damage insurance on the car is best described as
    A. Increasing the use of avoidance in the risk management program.
    B. Increasing the use of noninsurance transfer in the risk management program.
    C. Increasing the use of retention in the risk management program.
    D. Increasing the use of risk control in the risk management program.
3. In reviewing his company's operations, a risk manager noticed that all of the company's finished goods were stored in a single warehouse. The risk manager recommended that the finished goods be divided among three warehouses to prevent all of the finished goods from being destroyed by the same peril. Dividing the finished goods among three warehouses illustrates
    A. Risk avoidance.
    B. Risk control.
    C. Insurance.
    D. Noninsurance transfer.
4. Bev lives in the suburbs and works downtown. She drives to work, and her most direct route to work would require her to pass through an area where carjackings and drive-by-shootings are common. Bev does not drive through this area. Instead, she uses a route which adds 10 minutes to her commute. Which risk management technique is Bev using with respect to the risk of injury while driving through the dangerous area?
    A. noninsurance transfer
    B. avoidance
    C. passive retention
    D. loss reduction
5. One of the following is not the objective of risk management
    A. Peace of mind
    B. Survival
    C. Continued growth
    D. Fairly stable earnings
    E. None
6. One of the following items is an environmental factor that a risk manager should consider to identify exposures of a particular firm.
    A. Customers
    B. Suppliers
    C. Competition

D. Regulation
E. All

7. When a loss to a particular firm is expressed as a percent of the mean, it is referred to as:
   A. Expected value
   B. Coefficient of variation
   C. Variance
   D. None
8. Which of the following is a fundamental purpose of the principle of indemnity?
   A. to reduce moral hazard
   B. to minimize physical hazards
   C. to settle property insurance losses on a replacement cost basis
   D. to require deductibles in all property insurance policies
9. Which of the following statements about the principle of insurable interest is (are) true?
   I. It makes it difficult to measure the amount of an insured's loss.
   II. It reduces moral hazard.
   A. I only
   B. II only
   C. both I and II
   D. neither I nor II
10. What is the legal significance of a material concealment by an insurance applicant?
   A. The contract is automatically voided from its inception.
   B. The contract is voidable at the insurer's option.
   C. Loss payments are reduced by the degree of the concealment.
   D. The insurer is immediately entitled to a higher premium.
11. What is the practical effect of an insurance policy being a conditional contract?
   A. The insurer can refuse to a pay claim unless the insured has complied with all policy provisions.
   B. The insured can assign the policy only with the insurer's consent.
   C. The insurer can sue the insured for failure to pay any premiums.
   D. The insured gets the benefit of the doubt if a policy contains any ambiguities or uncertainties.
12. What is the practical effect of an insurance policy being a contract of adhesion?
   A. The insurer can refuse to pay claims unless the insured has complied with all policy provisions.
   B. The insured can assign the policy only with the insurer's consent.
   C. The insurer can sue the insured for failure to pay any premiums.
   D. The policy is interpreted in the insured's favor if the policy contains any ambiguities or uncertainties.
13. Why are insurance contracts said to be contracts of adhesion?
   A. The values exchanged by the parties to the contract are not equal.
   B. One party writes the contract, and the other party must accept the entire contract as written.
   C. Only one party makes a legally enforceable promise.
   D. Conditions are placed on the insurer's promise to perform.
14. All of the following are exceptions to the principle of indemnity EXCEPT
   A. Life insurance.
   B. Valued policies.
   C. Replacement cost property insurance.

D. Actual cash value property insurance.

15. All of the following are requirements that must be satisfied before premiums are waived under a waiver-of-premium provision EXCEPT
    A. The insured must furnish proof of disability to the insurer.
    B. The insured must be disabled before some specified age.
    C. The insured must satisfy the definition of disability.
    D. The insured must satisfy a 2-year waiting period.
16. Becky is considering the purchase of a whole life policy on her own life. She is concerned that if she becomes disabled, paying premiums will become a burden. Which provision can Becky attach to her life insurance policy to address this concern?
    A. guaranteed purchase option
    B. waiver-of-premium provision
    C. accidental death benefit rider
    D. accelerated death benefits rider
17. One of the following does not belong to the rest of the group
    A. Ordinary life insurance
    B. Limited pay life insurance
    C. Single payment life insurance
    D. None
18. One of the following is not risk control tool
    A. Avoidance
    B. Separation
    C. Insurance
    D. Loss prevention
19. When the total net premium of an insurance policy is to be paid as a single sum at the beginning of the contract is called
    A. Net level premium
    B. Net single premium
    C. Gross premium
    D. None
20. One of the following is the measure of the potential loss as to its size and the probability of occurrence
    A. Risk identification
    B. Property check list
    C. Insurance
    D. Risk measurement

Part-II True or False

Write "True" if the statement is correct and "False" if the statement is wrong for the following questions

1. In general the higher the coefficient of variation, the higher the risk.
2. As the number of exposure units increase, the risk that individuals or businesses face will increase.
3. An arrangement under which the firm or an individual experiencing the loss bears the direct financial consequences is insurance.
4. Analysis of the environment is the best method of risk identification methods.
5. Risk and uncertainty are measured similarly.
6. Under an insurance contract, specified amount of loss that the insured agrees to bear is deductibles.

7. The existence of financial relationship to the subject matter insured is called insurable interest.
8. In an insurance policy, part of an insurance contract used to restrict coverage of given perils, losses, properties and locations is called definition.
9. The addition of the insurer's cost of doing business to the net premium is called loading.
10. The condition that may create or increase the chance of loss arising from a given peril is called declaration.

Part-III Workout

Workout the following questions clearly

1. A three year term policy of Br 10,000 is issued at the beginning of a given year for 1000,000 people aged 25. Death claims are to be paid at the end of an accounting period and the prevailing interest rate is 10%. Number of expected deaths at the end of the three year period is 1,000, 2,000 and 2,500 respectively

Required

A. If single premium payment is to be made at the beginning of the policy period, what is net single premium?

B. Suppose that instead of paying single premium at the beginning of the policy period, the policy holders want to pay annual premium of equal amount, what net level premium should be made each year?

2. ABC Company has 5 cars to be used every year. If an accident happens to a particular car, it becomes a total loss. The following hypothetical probability distribution of total monetary loss per accident relates to the company and assume that monetary loss per accident is constant at Br 500.

NO. Of accidents	Binomial probability	Monetary Loss
0	0.606	0
1	0.273	500
2	0.100	1000
3	0.015	1500
4	0.003	2000
5	0.002	2500
6	0.001	3000

Based on the above information, determine the following

A. Expected monetary loss

B. What the probability that some accidents will happen?

C. What is the probability that at least three accidents will happen?

Solutions to Tutor Marked Assignment

Part-I

1	**B**	**6**	**E**	**11**	**A**	**16**	**B**
2	**C**	**7**	**B**	**12**	**D**	**17**	**D**
3	**B**	**8**	**A**	**13**	**B**	**18**	**C**
4	**B**	**9**	**B**	**14**	**D**	**19**	**B**
5	**E**	**10**	**B**	**15**	**D**	**20**	**D**

Part-II

1	**TRUE**	**6**	**TRUE**
2	**TRUE**	**7**	**TRUE**
3	**FALSE**	**8**	**FALSE**
4	**FALSE**	**9**	**TRUE**
5	**FALSE**	**10**	**FALSE**

Part-III

Q1

A.

Year	Age	Number Living	Number Dying	Probability of Dying
1	25	1000,000	1,000	0.0025
2	26	999,000	2,000	0.00313
3	27	996,500	2,500	0.00377

Expected death claims

Year	Age	Number Dying	Policy Amount	Expected Death Claims
1	25	1,000	10,000	10,000,000
2	26	2,000	10,000	20,000,000
3	27	2,500	10,000	25,000,000
Total Expected Death Claims				55,000,000

Discount each year's expected death claim at 10% interest rate to arrive at the present value of total claims, (see below).

1	2	3	4 (2*3)	5	6 (4/5)
Year	Death Claims	PV Factor at 10%	PV of Claims	No. of Insured	Annual Net Premium
1	10,000,000	0.9091	9,091,000	1000,000	9.091
2	20,000,000	0.8264	16,528,000	1000,000	16.528
3	25,000,000	0.7513	18,782,500	1000,000	18.783
	55,000,000		45,211,500		44.402

Net Single Premium = $\frac{\text{PV of Claims}}{\text{Number of Insureds}}$

=45,211,500/1000, 000= 45.211(rounding error)

B.

Year	Age	No. of Insured
1	25	1000,000
2	26	999,000
3	27	796,500

Assume each insured pays level premium of Birr 1 throughout the term of the policy.

Year	Age	No. of Insured	Present value of Birr.1payable at	Present value of Birr.1 premium

			beginning of year	
1	25	1000,000	1	1000,000
2	26	999,000	0.9091	908,190.90
3	27	996,500	0.8264	823,507.6
			Total present value of all premiums collected	2,731,698.5

Payment per insured = 2,731,698.5/1000,000=2.73

Net level premium = Net Single Premium
PV. Of Birr 1 premium
Payment per insured
=45.211/2.73=16.56

Q3.

A. Expected monetary loss
0.606*0+0.273*500+0.1*100+0.015*1500+0.003*2000+0.002*2500+0.001*3000=183
B. The probability that some accidents will happen
1-0.606=0.394
C. The probability that at least three accidents will happen
0.015+0.003+0.002+0.001=0.021