Mekelle University
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Introduction to Risk Management and Insurance
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CHAPTER ONE: INTRODUCTION

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. Since no one knows the future exactly, everyone is a risk manager not by choice, but by sheer necessity.

1.1. Risk Defined

The word risk is used in many different ways. It can refer to general uncertainty, doubt, an insured object, or chance of loss.

Williams and Heinz define risk as the variation in the outcomes that could occur over a specified period in a given situation. If only one outcome is possible, the variation and hence the risk is 0. If many outcomes are possible, the risk is not 0. The greater the variation is the greater the risk.

For the purpose of this course we will define risk as the possibility of an adverse deviation from a desired outcome that is expected or hoped for. If you own a house, you hope it will not catch fire. When you make a wager, you hope the outcome will be favorable. The fact that the outcome in either event may be something other than what you hope for constitutes a possibility of loss or risk.
Note that the above definition is not subjective. Risk is a state of the external environment. This possibility of loss must exist, even though the individual exposed to that possibility may not be aware of it. If the individual believes that there is a possibility of loss where none is present, there is only imagined risk, and not risk in the sense of the real world. Finally, there is not requirement that the possibility of loss must be measurable, only that it must exist.

Risk is uncertainty as to loss. If a cost or a loss is certain to occur, it may be planned for in advance and treated as a definite, known expense. It is when there is uncertainty about the occurrence of a cost or loss that risk becomes an important problem.

When risk is said to exist there must always be at least two possible outcomes. If we know in advance what the outcome will be, there is no risk. For example, investment in a capital asset involves a realization that the asset is subject to physical depreciation and that its value will decline. Here the outcome is certain so there is no risk.

The degree of risk is inversely related to the ability to predict which outcome will actually occur. If the risk is 0, the future is perfectly predictable. If the risk in a given situation can be reduced, the future becomes more predictable and more manageable.

In a two - outcome situation for which the probability of one outcome is 1 and the probability of the second outcome is 0, the risk is 0 because the actual outcome is known.

1.2. Risk versus Probability

It is necessary to distinguish carefully between risk and probability. Probability refers to the long-run chance of occurrence, or relative frequency of some event. Insurers are particularly interested in the probability or chance of loss, or more accurately, the probability that a loss will occur to one of a group of insured objects.

Risk as differentiated from probability, is a concept in relative variation. We are referring here particularly to objective risk, which is the relative variation of actual from probable or expected loss. Objective risk can be measured meaningfully only in terms of a group large enough to analyze statistically. If the number of objects is too small, the range of probable variation is so large that is virtually infinite as far as the insurer is concerned.

1.3. Risk versus Uncertainty

Uncertainty is the doubt a person has concerning his or her ability to predict which of the many possible outcomes will occur. Uncertainty is a person's conscious awareness of the risk in a given situation. It depends upon 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 small; 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. Unlike probability and risk, uncertainty cannot be measured by any commonly accepted yardstick

1.4. Risk Distinguished from Peril and Hazard

Many persons commonly employ the terms "risky," "hazardous," and "perilous" synonymously. For clarity in thinking, however, the meanings of these words should be carefully distinguished

A peril is a contingency, which may cause a loss. We speak of the peril of "fire" or "windstorm," for "hail" or "theft". Each of these is the cause of a loss that may occur.

A hazard, on the other hand, is that condition which creates or increases the probability of loss from a peril. For example, one of the perils that can cause loss to an auto is collision. A condition that makes the occurrence of collisions more likely is an icy street. The icy street is the hazard and collision is the peril. In winter the probability of collision is higher owing to the existence of icy streets. In such a situation, the risk of loss is not necessarily any higher or lower, since we have defined risk as the uncertainty that underlying probability will work out in practice.

It is possible for something to be both a peril and hazard. For instance sickness is a peril causing economic loss, but it is also a hazard that increases the chance of loss from the peril of premature death.
There are three basic types of hazards: physical, moral, and morale.

1. ***Physical Hazard***. A physical hazard is a condition stemming from the physical characteristics of an object that increases the probability and severity of loss from

given perils. Physical hazards include such phenomena as the existence of dry forests (hazard for fire), earth faults (hazard for earthquakes), and icebergs (hazard to ocean shipping). Such hazards may or may not be within human control. For example, some hazards for fire can be controlled by placing restrictions on building camp fires in forests during the dry season. Some hazards, however, cannot be controlled. For example, little can be done to prevent or to control air masses that produce ocean storms.

2. ***Moral Hazard.*** A moral hazard stems from the mental attitude of the insured. A moral hazard is a condition that increases the chance that some person will intentionally (1) cause a loss or (2) increase its severity. Some unscrupulous persons can make, or believe that they can make, a profit by bringing about a loss. For example, arson, inspired by the possibility of an insurance recovery, is a major cause of fires. A dishonest person, in the hope of collecting money from the insurance company, may intentionally cause a loss.

3. ***Morale Hazard***. The moral hazard includes the mental attitude that characterizes an accident-prone person. A moral hazard is condition that causes persons to be less careful than they would otherwise be. Some persons do not consciously seek be bring about a loss, but the fact that they have insurance causes them to take more chances than they would if they had no insurance. The purchase of insurance may create a morale hazard, since the realization that the insurance company will bear the loss may lead the insured to exercise less care than if forced to bear the loss alone. Morale hazard results from a careless attitude on the part of insured persons toward the occurrence of losses.

1.5. Classes of Risk

Risks may be classified in several ways according to their cause, their economic effect, or some other dimension. However, there are certain distinctions that are particularly important for our purpose stated hereunder.

1.5.1. Financial Versus Non Financial Risks

In its broadest context, the term risk includes all situations in which there is an exposure to adversity. In some cases this adversity involves financial loss, while in others it does not. There is some element of risk in every aspect of human endeavor and many of these risks have no (or only incidental) financial consequences. In this course we are concerned with those risks which involve a financial loss.

1.5.2. Static Risk versus Dynamic Risks

A second important distinction is between static and dynamic risks.

Dynamic risks are those resulting from change the economy. They are risks associated with changes, especially changes in human wants and improvements in machinery and

organization. For example, changes in the price level, consumer tastes, income and output, and technology may cause financial loss to members of the economy.

Static risks involve those losses, which would occur even if there are no changes in the economy. These are risks connected with losses caused by the irregular action of the forces of nature or the mistakes and misdeeds of human beings.

Static risks are risks stemming from a level, unchanging society that is in stable equilibrium. Examples include the uncertainties due to random events such as fire, windstorm, or death. They would be present in an unchanging economy. If we could hold consumer taste, output, and income, and the level of technology constant, some individuals would still suffer financial loss. These losses arise from causes other than the changes in the economy, such as the perils of nature and the dishonesty of other individuals.

Dynamic risks normally benefit society over the long-run since they are the result of adjustments to misallocation of resources. They usually affect a large number of individuals and are generally considered less predictable, since they occur with no precise degree of regularity. Static risks, unlike dynamic risks usually result in a loss to society, affect directly few individuals at most, exhibit more regularity over a specified period of time and, as a result, are generally predictable.

1.5.3. Pure Risks versus Speculative Risks

A distinction has been made between pure risk and speculative risk, which further clarifies the nature of risk. A pure risk exists when there is a chance of loss but no chance of gain. For example, the owner of an automobile faces the risk associated with a potential collision loss. If a collision occurs, the owner will suffer a financial loss. If there is no collision, the owner's position remains unchanged.

A speculative risk exists when there is a chance of gains as well as a chance of loss. For instance, expansion of an existing plant involves a chance of loss and chance of gain. Pure risks are always distasteful, but speculative risks possess some attractive features. In the above example, i.e., expansion of existing plant, the investment made may be lost if the product s not accepted by the market at a price sufficient to cover costs but this risk is born in return for the possibility of profit. Gambling is also a good example of speculative risk. In a gambling situation risk is deliberately created in the hope of gain.

Pure risks also differ from speculative risks in that they generally are repeatable under essentially the same condition and thus are more amenable to the law of large numbers (a basic law of mathematics, which states that as the number of exposure units increases, the more certain it is that actual loss experience will equal probable loss experience).

This means that one can more successfully predict the proportion of units that will be loss if they are exposed to a pure risk than if they are subject to a speculative risk. One notable exception to this statement is the speculative risks associated with games of chance, which are highly amenable to this law.

In a situation involving a speculative risk, society may benefit even though the individual is hurt. For example, the introduction of socially beneficial product may cause a firm manufacturing the product it replaces to go bankrupt. In a pure-risk situation society almost always suffers if any individual experiences a loss.

The distinction between pure and speculative risk is an important one, because normally pure risks are insurable. Insurance is not concerned with the protection of individuals against those losses arising out of speculative risks. Speculative risk is voluntarily accepted because of its two dimensional nature, which includes the possibility of gain and loss.

Both pure and speculative risks commonly exist at the same time. For example, the ownership of a building exposes the owner to both pure risks (for example, accidental damage to the property) and speculative risk (for example, rise or fall in property values caused by general economic conditions).

Classification of Pure Risks

While it would be impossible to list all the risks confronting an individual or business organization, we can briefly outline the nature of the various pure risks that we face. For the most part, these are also static risks. Pure risks that exist for individuals and business firms can be classified under one of the following:

a) ***Personal Risks***. These consist of the possibility of the loss of income or assets as a result of loss the ability to earn income. In general earning power is subject to four basic perils:
   1. premature death
   2. dependent old age
   3. sickness or disability
   4. unemployment

b) ***Property risks***. Anyone who owns property faces risks simply because such possession can be destroyed or stolen. Property risks embrace two distinct types of loss: direct loss and indirect or consequential loss. Direct loss is the simplest to understand. If a house is destroyed by fire, the property owner loses the value of the house. This is a direct loss. However, in addition to losing the value of the building itself the property owner no longer has a place to live, and during the time required to rebuild the house, it is likely that the owner will incur additional expenses living somewhere else. This loss of use of the destroyed asset is an indirect or consequential loss.

   An even better example is the case of a business firm. When a firm's facilities are destroyed, it loses not only the value of these facilities but also the income that would have been earned through their use. Property risks, then, can involve three types of losses.
   i) the loss of the property

ii) loss of use of the property or its income and
iii) Additional expenses occasioned by the loss of the property.

c) ***Liability Risk***. The basic peril in the liability risk is the unintentional injury of property of others through negligence or carelessness. However, liability may also result from intentional injuries or damage. Under our legal system, the laws provide that one who has injured another or damaged another man's property through negligence or otherwise, can be held responsible for the harm cause. Liability risks therefore, involve the possibility of loss of present assets or future income as a result of damages assessed or legal liability arising out of either intentional or unintentional torts or invasion of the rights 1`1`q4we3 contractor to complete a construction project as scheduled or failure of to make payments as expected.

1.5.4. Fundamental Risk versus Particular Risks

The distinction between fundamental and particular risks is based on the differences in origin and consequences of the losses. Fundamental risks involve losses that are impersonal in origin and consequence. They are group risks caused by economic, social, and political phenomena, although they may also result from physical occurrences. They affect large segments or even all of the population. Since these are group risks, impersonal in origin and effect they are, at least for the individual, unpreventable.

Particular risks involve losses that arise out of individual events and that are felt by individuals rather than by the entire group. They are risks personal in origin and effect and more readily controlled. Examples of fundamental risks are those associated with extraordinary natural disturbances such as drought, earthquake and floods. Examples of particular risks are the risk of death or disability from non-occupational causes, the risk of property losses by such perils as fire, explosion, theft, and vandalism, and the risk of legal liability for personal injury or property damage to others.

Since fundamental risks are caused by conditions more or less beyond the control of the individuals who suffer the losses and since they are not the fault of anyone in particular, it is held that society rather than the individual has a responsibility to deal with them. Although some fundamental risks are dealt with through private insurance (for example, earthquake insurance is available from private insurers in many countries, and flood insurance is frequently include in all risk contracts covering movable personal property) it is an inappropriate tool for dealing with most fundamental risks, and some form of social insurance or other transfer program may be necessary.

Particular risks are considered to be the individual's own responsibility, inappropriate subjects for action by society as a whole. The individual through the use of insurance, loss prevention or some other technique deals them with.

1.5.5. Objective Risks versus Subjective Risks

Objective risks, or statistical risk, applicable mainly to groups of objects exposed to loss, refer to the variation that occurs when actual losses differ from expected losses. It may

be measured statistically by some concept in variation, such as the standard deviation. Subjective risk on the other hand, refers to the mental state of individual who experiences doubt or worry as to the outcome of a given event. It is a psychological uncertainty that stems from the individual's mental attitude or state of mind.

Subjective risk has been measured by means of different psychological tests, but no widely accepted or uniform tests of proven reliability have been developed. Thus, although we recognize different degrees of risk-taking willingness in persons, it is difficult to measure these attitudes scientifically and 5to predict risk-taking behavior, such as insurance-buying behavior, from tests of risk-taking attitudes.

Subjective risk may affect a decision when the decision-maker is interpreting objective risk. One risk manager may determine that some given level of risk is "high" while another may interpret this same level as "low". These different interpretations depend on the subjective attitudes of the decision-makers toward risk. Thus it is not enough to know only the degree of objective risk; the risk attitude of the decision maker who will act on the basis of this knowledge must also be know. A person who knows that there is only one chance in a million that a loss will occur may still experience worry and doubt, and thus would by insurance, while another would not. For example, Business A insures the plant against fire even though the premium may be very high, while Business B, a neighbor operating under similar conditions, refuses the insurance. In this example A can be described as apparently perceiving a higher degree of risk in the given situation and behaving more conservatively than B. A tends to be a risk averted and B, a risk taker.

Why Study Risk?

It has been aptly stated that "man is the only case in a nature where life becomes aware of itself." However, man makes numerous choices and decisions on uncertain conditions. He is not aware of all that threatens him and eventually the ultimate reality and certainty that is, death. Thus, we live in an uncertain world in which decisions must be make and risks taken.

When a person gets married, goes into business, decides to attend college, buys a house or does innumerable other things that affect his life in any important way, he is naturally some what apprehensive over the outcome. He is uncertain as to how this particular action will turn out, but he always hopes for the best. He usually considers the various alternatives and make up his mind only after weighing the advantages and disadvantages of each course of action. We say that this individual is facing the uncertainties of the future, that is, the different kinds of risks. Usually he is happier for making decision that he is almost certain is correct. He likes the soft-heard advice, "be sure you are right, then go ahead." Conversely, he usually dislikes decisions that he has to make "in the dark," those with more risks attached.

As an illustration, consider the various uncertainties that enter into the purchase of a home by taking a loan from a bank to repaid within 20 years. The family breadwinner must make the decision whether or not to buy a certain home in the environment of uncertainties such as:

i) Is the level of my income high enough and certain enough to enable me make the payments for 20 years?
ii) How can I protect the investment for my family's benefit in case I should die before the loan is repaid?
iii) Will my health permit me to continue to work for 20 years?
iv) Would it be better to rent rather than to buy and use my funds for other purposes? if so, what risks characterize the alternative uses of my fund?
v) How can I protect my investment in case of fire, flood, wind-storm, or other peril?
vi) It is possible that may investment will lose value because of a job transfer and consequent forced sale of property?
vii) In order to have exactly the type of house ji want, should I take the risk of building a home rather than buying.

If the potential home buyer cannot find satisfactory answers to those and other questions, he may decide that "the risks are too great" and fail to purchase a home. Indeed, the subject of risk is of great importance to an "economic man"; risk has an element of distastefulness (economists would call it disutility) that make him want to eliminate it. The more completely he can avoid risk, the better. Because people usually try to avoid all the uncertainties they can, the subject of risk and its wise management has received important consideration by social scientists for many years. They have tried to identify what type of risks there are and how to avoid or to handle risk in some satisfactory manner.

CHAPTER - TWO
RISK MANAGEMENT

The environment of modern business, particularly the large industrial unit, is becoming increasingly complex. This increased complexity creates greater need for special attention to the risks facing the enterprise. Most large corporations and many smaller ones employ specialized managers to grapple with the problems of increased risk.

Several factors have contributed to the increased complexity of modern enterprise and have greatly enlarged the risks faced by business. Among these factors are inflation, the growth of international operations, more complex technology, and increasing government regulation.

2.1. What is Risk Management?

The increased complexity of modern enterprise called for special task to dealing with risks facing modern enterprises. The special task to identify, analyze, and combat potential operating risks is referred to as risk management. In other words, risk management is a systematic way of protecting business resources and income against losses so that the organization's aims are reached without interruption, creating stability and contributing to profit. It is a scientific approach to the problem of dealing with risks faced by individuals and business. Because of the pervasiveness of risk and its significant adverse economic effects, man is constantly searching for ways in which he can manage risk to his advantage.

In brief, risk management s the science that deals with the techniques of forecasting future losses so as to plan, organize, direct and control efforts made minimize (eliminate if possible) the adverse effects of those potential losses. It is the reduction and prevention of the unfavorable effects of risk at minimum cost through its identification, measurement and control.

In general, the risk manager deals with pure, not speculative, risk. Hence, risk management is the identification, measurement, and treatment of pure risk exposures.

The Development of Risk Management

At one time business enterprises paid little attention to the problem of handling risk. Insurance policies were purchased on a haphazard basis, with considerable over lapping coverage on hand, and wide gaps in coverage of important exposures on the other. Little control over the cost of losses and insurance premium was exercised. Many risks were assumed when they should have been insured and vice versa. It was gradually realized that greater attention to this aspect of business management would yield great dividends. Instead of having insurance decision handled by a busy executive whose primary responsibility lay in another area, management began to assign this responsibility first as a part-time job to an officer, perhaps the treasurer, and later as a full time position.

As the full scope of responsibility for risk management was realized, an insurance department was established, with several people employed. At first the department

manager was usually known as the insurance buyer. Later the title was changed to insurance manager or risk manager.

Many different titles, including insurance buyer, are still used, but the tendency is to reflect the broader nature of the manager's duties and responsibilities. Assistants to the insurance manager often include specialists in various branches of insurance, law, statistics, and personal relations.

Functions of Risk Management

In general, the functions of the risk manager include the following:

1. 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. Before other functions potential loss exposures must be identified.
2. To estimate the frequency and size of loss; that is, to estimate the probability of loss from various sources.
3. 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.
4. To administer the programs of risk management, including the tasks of constant re-evaluation of the programs, record keeping, and the like.

It is the responsibility of the risk manager to see that the concern's profits are not lost because of the occurrence of a peril which could have been insured against or otherwise adequately handled.

2.2. Risk Identification

The first step in business risk management is to identify the various types of potential losses confronting the firm; the second step is to measure these potential losses with respect to such matters as their likelihood of occurrence and their probable severity.

Risk identification is the process by which a business systematically and continuously identifies property, liability, and personnel exposures as soon as or before they emerge. Unless the risk manager identifies all the potential losses confronting the firm, he will not have any opportunity to determine the best way to handle the undiscovered risks. The business will unconsciously retain these risks, and this may not be the best or even a good thing to do.

In one way or another, the risk manager must dig into the operations of the concern and discover the risks to which the organization is exposed. To identify all the potential losses the risk manager should have a look at insurance policy checklists, risk manager should have a look at insurance policy checklists, risk analysis questionnaires, flow-charts, analysis of financial statements, and inspections of the organization's operations.

Insurance policy checklists: Insurance policy checklists are available from insurance companies and from publishers specializing in insurance related publications. Typically, such lists include a catalogue of the various policies or types of insurance that a given business might need. The risk manager simply consults such a list, picking out those

policies applicable to the concern. A principal defect of this approach is that it concentrates on insurable risks only, ignoring the uninsurable pure risks.

Loss exposure checklists are available from various sources, such as insurers, agencies, and risk management associations. These checklists are possible sources of loss to the business firm from destruction of physical and intangible assets. Sources of loss are organized according to whether the loss is predictable or unpredictable, controllable or uncontrollable, direct or indirect, or from different types of legal liability. After each items the user can ask the question, "It this a potential source of loss in our firm?" Use of such a list reduced]s the likelihood of overlooking important sources of loss.

Risk Analysis Questionnaire: Risk analysis questionnaires sometimes called "fact finders" are designed to lead the risk manager to the discovery of risks through series of detailed and penetrating questions. Most of the time these questionnaires are designed to identify both insurable and uninsurable risks. It directs the risk manager to secure specific information concerning the firm's properties and operations.

This questionnaire contains a list of questions designed to remind the risk manager of possible loss exposures. For example, here are some sample questions:

1. If a building is leased from someone else, does the lease make the firm responsible for repair or restoration of damage not resulting from its own negligence?
2. Are company-owned vehicles furnished to directors, executives, or employees for business and personal use? If so, to what extent?
3. Are there any key service facilities or warehouses whose function must continue even though the structures and equipment may be damaged?
4. Indicate the maximum amount of money, checks, and securities that may be on hand in any one office during and outside business hours.

Flow-Charts: 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 products in the hand of customers. Second, the checklist of potential property, liability, and personnel losses is applied to each property and operation shown in the flow chart to determine which losses the firm faces.

The most positive benefit of using flow charts is that they force the risk manager to become familiar with the technical aspects of the organization's operations, thereby increasing the likelihood of recognizing special exposures.

On-Site Inspections: On-site inspections are must form the risk manager. By observing firsthand the firm's facilities and the operations conducted thereon the risk manager can learn much about the exposures faced by the firm. Just as one picture is worth a thousand words one inspection tour may be worth a thousand checklists. An examination of organization's various operation sites and discussions with managers and workers will often uncover risks that might otherwise have gone undetected.

While no single method or procedure of risk identification is free of weaknesses the strategy of management must be to employ that method or combination of methods that best fits the situation hand.

2.3. Risk Measurement

After the risk manager has identified the various types of potential losses faced by his firm, these exposures must be measured. Risk measurement is required by the risk manager for two purposes: i) to determine the relative importance of potential losses and ii) To obtain information that will help him to decide upon the most desirable combination of risk management tools.

Dimensions to be measured

Information is needed concerning two dimension of each exposure:

i) The loss frequency or the number of losses that will occur and
ii) The severity of losses. The total impact of these losses if they should be retained, not only their dollar values, should be included in the analysis.

Why we need Each Dimension

Both loss-frequency and loss-severity data re needed to evaluate the relative importance of an exposure to potential loss. Contrary to the views of most persons, however, the importance of an exposure to loss depends mostly upon the potential loss severity, not the potential frequency. A potential loss with catastrophic possibilities, although infrequent, is far more serious than one expected to produce frequent small losses and no large losses.

On the other hand, loss frequency cannot be ignored. If two exposures are characterized by the same loss severity, the exposure whose frequency is greater should be ranked more important. An exposure with a certain potential loss severity may be ranked above a loss with a slightly higher severity because the frequency of the first loss is much greater than that of the second. There is no formula for ranking losses in order of importance, and different persons may develop different rankings. The rational approach, however, is to place more emphasis on loss severity.

An example may clarify the point. The chance of an automobile collision loss may be greater than the chance of being sued as a result of the collision, but the potential severity of the liability loss s so much greater than the damage to the owned automobile that there should be no hesitation in ranking a liability loss over the property loss.

A particular type of loss may also be subdivided into two or more kinds of losses depending upon whether the loss exceeds a specified dollar amount. For example, consider the collision loss cited in the preceding paragraph. This loss may be subdivided into two kinds of losses: i) collision losses of $100 (for some other figure) or less and ii) losses over $100. Losses in the second category are the more important, although they are less frequent. Another illustration would be the losses associated with relatively small medical expenses as contrasted with extremely large bills. Such a breakdown by

size of loss shows clearly the desirability of assigning more weight to loss severity than to loss frequency.

In determining loss severity the risk manager must be careful to include all the types of losses that might occur as a result of a given event as well as their ultimate financial impact upon the firm. Often, while the less important types of losses are obvious to the risk manager, the more important types are much more difficult to identify. The potential direct property losses are rather generally appreciated in advance of any loss, but the potential indirect and net income losses (such as the interruption of business while the property is being repaired) they may result from the same event are commonly ignored until the loss occurs.

The ultimate financial impact of the loss is even more likely to be ignored in evaluating the dollar value of any loss. Relatively small losses, if retained, cause only minor problems because the firm can meet these losses fairly easily out of liquid assets. Somewhat larger losses may cause liquidity problems which in turn may make it more difficult or more costly for the firm to borrow funds required for various purposes. Finally, very large losses may have serious adverse affects upon the firm's financial planning, and their dollar impact may be much greater than it would be for a firm that could more easily absorb these losses. Ultimately the loss could be the ruin (damage) of the business as a going concern.

To illustrate, a fire could destroy a building and its contents valued at $300,000; the ensuing shutdown of the firm for six months might cause another $360,000 loss. This $660,000 loss of the difference between the going-concern values of the business, say $2,400,000, and the value for which the remaining assets could be sold, say $1,500,000, causing a $900,000 loss.

Finally, in estimating loss severity, it is important to recognize the timing of any losses as well as their total dollar amount. For example, a loss of $5,000 a year for 20 years is not as severe as immediate loss for $100,000 because of:

i) the time value of money, which can be recognized by discounting future dollar losses at some assumed interest rate, and
ii) the ability of the firm to spread the cash outlay over a longer period.

Loss-frequency and loss-severity data do more than identify the important losses. They are also extremely useful in determining the best way or ways to handle an exposure to loss. For example, the average loss frequency times the average loss severity equals the total dollar losses expected in an average year. These average losses can be compared with the premium the firm would have to pay an insurer for complete or partial protection.

2.4. Risk Measurement and Probability Distribution

The Law of Large Numbers

The law of large numbers, a basic law of mathematics, states that as the number of exposure units increases, the more certain it is that actual loss experience will equal

probable loss experience. Hence, the risk diminishes as the number of exposure units increases.

The law of large numbers constitutions a fundamental theoretical basis for risk management function. As large bodies of appropriate statistics on losses are gathered and analyzed, the risk manager may predict loss experience with considerable accuracy. Therefore, in the case of empirical probabilities, the requirement of large number has dual application.

i) To estimate the underlying probability accurately, the undertaking must have a sufficiently large sample. The larger the sample, the more accurate will be the estimate of the probability.
ii) Once the estimate of the probability has been made, it must be applied to a sufficiently large number of exposure units to permit the underlying to work itself out.

In this sense, to the risk manager, the law of large numbers means that the larger the number of cases examined in the sampling process, the better the chance of making a good estimate of the probability, the larger the number of exposure units to which the estimate is applied, the better the chance that actual experience will approximate a good estimate of the probability.

Meaning and Types of Probability

For our purposes, probability may be defined as the chance or likelihood that an event will occur. Probability measurements are stated as fractions between 0 and 1. The smallest value that a probability statement can have is 0 (including the event is impossible) and the largest value it can have is 1 (including the event is certain to occur).

Thus, in general: $0<p(A)<1$, where the symbol P is used to designate the probability of an event and P(A) denotes the probability that event A will occur in a single observation or experiment.

Probability Categories

Probabilities may be classified in several ways.

1. **An a prior (before the fact) probability-** is one that can be determined in advance without experimentation. Assigning a figure of 0.5 to the chance of getting a head in a single flip of a coin is an a priori probability. In rolling a single die (one-half of a pair of dice) there are six possible outcomes because there are six sides. Each outcome is equally likely to occur. Therefore the priori probability of throwing any given number is 1/6.

2. **A relative frequency (or empirical) probability** is one that is determined after the fact from observation and experimentation. No prior assumption of equal likelihood is involved. For example, before including coverage for certain types of dental problems in health insurance policies for employed adults, an insurance

company wished to determine the probability of occurrence of such problems, so that the insurance rate can be set accordingly. Therefore, the statistician collects data for 10,000 adults in the appropriate age categories and finds that 100 people have experienced the particular dental problem during the past year. The probability of occurrence is thus $P(A) = \frac{100}{10{,}000} = 0.01$ or 1%

When we do not know the underlying probability of an event and cannot deduce it from the nature of the even, we can estimate it on the basis of past experience. Suppose that we are told the probability that 21-year-old male will die before reaching age 22 is 0.00183. What does this mean? It means that someone has examined mortality statistics and discovered that, in the past, 183 men out of every 100,000 alive at age 21 have died before reaching age 22. It also means that, barring changes in the cases of these deaths we can expect approximately the same proportion of 21-year-old to die in the future.

1. Subjective probability occurs in situations whether a priori or empirical values can't be determined, and so probabilities are assigned on the basis of someone's personal judgement or intuition. For example, a plant manager may believe that there is a 0.6 probability that the union will call a strike next week. This probability is the manager's subjective estimate of the likelihood of a strike, and it is not an a priori or empirical value. The accuracy of the strike estimate, of course, depends on the manager's experience and skill.

   Since individuals may differ in their degree of confidence in the outcome of some future event even when offered the same evidence, their opinions expressed as probabilities, will differ. Statements of opinion regarding the likelihood that an event will occur when expressed as probabilities are called subjective probabilities.

Mutually Exclusive and Nonexclusive Events

Two or more events are mutually exclusive, or disjoint, if they cannot occur together. That is the occurrence of one event automatically precludes the occurrence of the other event (or event). For instance, suppose we consider the two possible events "ace" and "king" in respect to a card being drawn form a deck of playing cards. These two events are mutually exclusive, because any given card cannot be both an ace and a king.

Tow or more events are nonexclusive, or joint when it is possible for them to occur together. Note that this definition does not indicate that such events must necessarily always occur together. For instance, suppose we consider the two possible events "ace" and "spade." These events are not mutually exclusive, because a given card can be both an ace and a spade; however, it does not follow that every ace is a spade or every spade is an ace.

Consider the following example. In a study of consumer behavior, an analyst classifies the people who enter a stereo shop according to set ("male or "female") and according to age ("under 30" or "30 and above"). The two events or classifications, "male" and "female" are mutually exclusive, since any given person would be classified in one category or the other. Similarly, the events "under 30" and "30 and above" are also mutually exclusive. However, the events "male" and under 30" are not mutually exclusive, because a randomly chosen person could have both characteristics.

Addition Rules of Probability

Addition rule for mutually exclusive events

Two events are said to be mutually exclusive if the occurrence of one event prevents the occurrence of the other event. For example, when you flip a coin a single time, if you get a head it is obviously impossible to get a tail, and vice versa. Therefore, these two possible outcomes of a single trial are mutually exclusive

When two events are mutually exclusive, the probability that one or the other of the two events will occur is the sum of their separate probabilities. The rule of addition for mutually exclusive events is

$$P(A \text{ or } B) = P(A \cup B) = P(A) + P(B)$$

When drawing a card from a deck of playing cards, the events "ace" (A) and "king" (K) are mutually exclusive. The probability of drawing either an ace or a king in a single draw is

$$P(A \text{ or } K) = P(A) + P(K)$$
$$= \frac{4}{52} + \frac{4}{52}$$
$$= \frac{8}{52} \text{ or } \frac{2}{13}$$

If you roll a single die, the probability of getting either a 1 or a 2 is computed as follows.

$$P(1 \text{ or } 2) = P(1) + P(2)$$
$$= \frac{1}{6} + \frac{1}{6}$$
$$= \frac{2}{6} \text{ or } \frac{1}{3}$$

Now let's suppose that jane is shopping for new tires. The probability is 0.25, o.30, 0.20, 0.15 or o.10 that she will buy Michelin, Goodyear, General, Firestone, or Continental tires. What is the probability that she will buy either General or Continental tires?

$$P(\text{general or Continental}) = P(\text{general}) + P(\text{Continental})$$
$$= 0.20 + 0.10$$
$$= 0.30$$

Addition Rule When Events are not Mutual Exclusive

If two events are not mutually exclusive, it is possible for both events to occur. For events that are not mutually exclusive, the probability of the joint occurrence of the two events is subtracted from the sum. We can represent the probability of joint occurrence by P(A and B). in the language of set theory this is called the intersection of A and B and the probabiliy is designated by P(A n B). thus, the rule of addition for events that are not mutually exclusive is

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

For example when drawing a card from a deck of playing cards, the events "ace" and "spade" are not mutually exclusive. The probability of drawing an ace (A) or spade (S) (or both) in a single draw is

$$P(A \text{ or } S) = P(A) + (S) \_ P(A \text{ and } S)$$
$$\frac{4}{52} + \frac{13}{52} - \frac{1}{52}$$
$$\frac{16}{52} \text{ or } \frac{4}{13}$$

If the probabilities are 0.37, 0.30, and 0.20 that a Gardner will buy a lawn mover, edger, or lawn mover and edger on April 1, then the probability that the gradner will buy a mover or ldger on that day is:

$$P(\text{mover or edger}) = P(\text{mover}) + p(\text{edger}) - P(\text{mover and edger})$$
$$= 0.37+0.30- 0.20$$
$$= 0.47$$

Independent Events, Dependent events and Conditional Probability

Two events are independent when the occurrence or no occurrence of one event has no effect on the probability of occurrence of other event. Two events are dependent when the occurrence r nonoccurrence of one event does affect the probability of occurrence of the other event.

The outcomes associated with tossing a fair coin twice in succession are considered to independent events, because the outcome of the first toss has no effect on the respective probabilities of a head or tail occurring on the second toss. The drawing of two cards without replacement from a deck of playing cards are dependent events, because the probabilities associated with the second draw are dependent on the outcome of the first draw. Specifically, if an "ace" occurred on the first draw, then the probability of an "ace" occurring on the second draw is the ratio of the number of aces still remaining in the deck to the total number of cards remaining in the deck, or 3 .

When two events are dependent, the concept of conditional probability is employed to designate the probability of occurrence of the related event. The expression P (B/A) indicates the probability of event B occurring given that event A has occurred. Note that "B/A" is not a fraction.

Multiplication Rule for Independent Events.

The rules of multiplication are concerned with determining the probability of the joint occurrence of A and B. This is the intersection of A and B; the probability is designated by P(A n B).

Assume that you have one red die and one green die and you wish to know the probability throwing a 2 with this pair of dice. This means, of course, throwing a 1 on the red die and a 1 on the green die. The probability of throwing a 1 on the red die is 1/6 and will be 1/6 regardless of the result obtained by tossing the green die. Since the probabilities of getting a 1 on the green die or a 1 on the red die are not affected by the result on the other die these events are said to be independent.

If two events are independent, the probability that they will both occur is the product of their separate probabilities. This may be stated as:

$$P(A \text{ and } B) = P(A \text{ n } B) = PA) \text{ X } P(B)$$

For the problem of throwing a 2 with the dice, the probability is:

$$P(1 \text{ 0n red and 1 on green}) = P(1 \text{ on red}) \text{ X } P(1 \text{ on green})$$
$$= 1/6 \text{ X} 1/6$$
$$= 1/36$$

If a fair coin is tossed twice the probability that both outcomes will be "heads" is 1/2 x 1/2 =1/4

Another illustration of independent events is sampling with replacement. Let's consider a bowl containing 10 poker chips, 6 red and 4 white. A chip us drawn its color is noted, and it is replaced in bowl; then a second chip is drawn. The probability that the second chip will be red or the probability that it will be white isn't affected by the result of the first draw. Therefore, the probability that a sample of two with replacement will result in two red chips is:

$$P(\text{two red}) = P(\text{red on first drew}) \text{ x } P(\text{red on second draw})$$
$$= 0.6 \text{ x } 0.6$$
$$=0.36$$

Multiplication Rule for Dependent Events

If we have a dependent (or conditional) event situation the probability of occurrence of one event depends on whether or not the other happens. In this case the probability that both f the dependent events will occur is:

$$P(A \text{ and } B) = P(A) \times P(B/A)$$

The term (B/A) is dependent or conditional probability and s read "the probability of B given A".

Let's again consider out previous example of the bowl containing six red and four wihte poker chips. A chips is drawn, and then a second chip is drawn and the first chp is not replaced. (we are thus sampling without replacement.) the probability that the second chip is red or the probability that it is white depends on the result of the first draw. The probability that a sample of two drawn in this fashion results in two red chips is:
P(two red) x P(red on first draw) x P(red on second draw/red on first draw)

$$= \frac{6}{10} \times \frac{5}{9}$$

$$\frac{30}{90} \text{ or } \frac{1}{3}$$

Suppose that set of `10 spare parts is known to contain eight good parts (G) and two defective parts (D). Given that two parts are selected are both goos is:

$$P(G_1 \text{ and } G_2) = P(G1)\ P(G_2/G_1)$$

$$= \frac{8}{10} \times \frac{7}{9}$$

$$= \frac{56}{90} \text{ or } \frac{28}{45}$$

Total birr Losses per Year

The probability distribution of total birr losses per year shows each of the total birr losses that the business may experience in the coming year and the probability that each of these losses might occur. For example, assume that a business has a fleet of eight cars each of which is valued at 10,000 birr and is subject to both partial and total physical damage losses. A hypothetical probability distribution that might apply in this situation is shown in the following table

Birr losses Per year	Probability

Table - 1

0	0.400
500	0.300
1,000	0.200
5,000	0.080
10,000	0.010
20,000	0.006
40,000	0.003
80,000	0.001

Each of the birr losses per year could be produced by many combinations of the number of accidents per year and the average birr losses per accident. For example, the 500 birr loss could result from one accident involving a 500 birr loss or two accidents involving an average loss of 250 birr each, or in many other ways. The 10,000 birr loss could result from one car being totally destroyed, or two cars suffering an average loss of 5,000 each, or some other combination of accidents and average loss.

Useful Measurements

From probability distributions of total birr losses per year (refer to Table - 1) one can obtain useful information concerning:

i) The probability that his business will incur some loss.
ii) The probability that "severe" losses will occur, and
iii) The risk or variation in the possible results. These measurements will be illustrated using the probability distribution in Table - 1.

Give this distribution, the probability that the business will suffer no birr loss is 0.40. because the business must suffer either no loss or some loss, the sum of the probabilities of no loss and of some loss must equal 1.0. Consequently, the probability of some loss is equal to 1 - 0. 40, or 0.60. An alternative way to determine the probability of some loss is to sum the probabilities for each of the possible birr losses; i.e. 0.300 + 0.200 + 0.080 + 0.010 + 0.006 + 0.003 + 0.001, or 0.60.

The potential severity of the total birr loss can be measured by stating the probability that the total losses will exceed various values. For example, the risk manager may be interested in the probability that the birrr losses will equal or exceed 10,000 birr. He can calculate these probabilities for each of the values in which he is interested and for all higher values. For example, the probability that the birr losses will exceed 10,000 birr is equal to 0.006 + 0.003 + 0.001, or 0.01. The given table shows the probability that the birr losses will equal or exceed each of the values in the table.

Two possible uses of this table would be to determine:

i) The probability that the birr loss would exceed the insurance premium that might be required to purchase complete financial protection against this risk and,
ii) The probability that the birr losses, if retained, could cause serious financial problems.

Another extremely useful measure that reflects both loss frequency and loss severity is the expected total birr loss or the average annual birr loss in the long run. Because the probabilities in the table given represent the proportion of times each birr loss is expected to occur in the long run, the expected loss can be obtained by summing the products formed by multiplying each possible outcome by the probability of its occurrence; i.e. $0(0.400) + $500 (0.300) + $1000(0.200) + $5000 (0.080) + $10,000(0.010) + $20,000 (0.006) + $40,000 (0.003) + $80,000 (0.001) or $1,170. This measure is useful because it indicates to the business the average annual loss it will sustain if it retains the risk.

If an insurer uses the same probability distribution, he will have to collect this much is annual premium just to pay its losses. The actual premium, however, must be higher to cover in addition the insurer's expenses and provide some allowamce for profit and contingencies. The risk manager must decide whether he is willing to pay this additional amount in order, among other things, to rid himself of the uncertainty.

Two probability distributions may have the same expected loss but may differ greatly with respect to risk or the variation in the possible results. For example, an expected value of $1,170 may be produced by the distribution in Table - 1 or by a $1,170 loss every year. Considerable risk is present in the first instance, but there is no risk when one knows what will happen each year. The greater the variation in the possible results, the greater the risk. If the risk is small, the annual losses are fairly predictable, and the business may be well advised to treat these losses as an operating expense. If the risk is large and some of the unpredictable losses could be serious, it may be wise to shift potential losses to someone else.

Up to this point, no yardstick has been suggested for measuring risk, but its relationship to the variation in the probability distribution has been noted. Statisticians measure this variation in several ways. One of the most popular yardsticks for measuring the dispersion around the expected value is the standard deviation. Standard deviation is a number which measures how close a group of individual measurements are to their average value.

When there is much doubt about what will happen because there are many outcomes with some reasonable chance of occurrence, the standard deviation will be large; when there is little doubt about what will happen because one of a few possible outcomes is almost certain to occur, the standard deviation will be small. Another very simple measure of dispersion is the range. Range is the variation from the smallest number to the largest number. For example, if a certain business faces a number of losses in fire consecutive years such as (7, 11, 10, 9, 13) the number of losses varied from 7 to 13. Similarly, if in other five years the losses were (16, 4, 10, 12, 8) the number of losses varied from 4 to 16.

These observations suggest that the standard deviation and the range of probability distribution could serve as a measure of the risk associated with that distribution. However, statisticians have also suggested that for many purposes the coefficient of variation is a better measure of dispersion.

The coefficient of variation is calculated by dividing the standard deviation by the expected value. In other words, the standard deviation is expressed as a percentage of the average value in the long run. Because a standard deviation of $20 is much more significant if the expected loss is $10, way, than if it is $2,000, the coefficient of variation has more appeal as a measure of economic risk than the standard deviation. Many writers, however, prefer to relate the standard deviation to the maximum amount exposed, their reasoning being that a standard deviation of #20 is much more important if the maximum amount that can be lost is $100, say, instead of $10,000. The best procedure is to relate the standard deviation to both of these bases and to others that may be of interest in a particular problem.

These measures of risk, unlike the probability of loss, have no simple interpretation; they are bounded by 0 and infinity, not by 0 and 1. However, by comparing any of these measures for two or more distributions, one can determine the relative degrees of risk inherent in those distributions.

Number of Accidents per Year

Researchers have been much more successful in their studies of the probability distribution of the number of accidents per year, although much remains to be done in this area. If each accident produces the same birr loss, the distribution of the number of accidents per year can be transformed into a distribution of the total birr losses per year by multiplying each possible number of accidents by the uniform loss per accident; example, 1(1,000birr,) 2 (1,000 birr,) 3 (1,000 birr,) etc. If the birr loss per accident varies within a small range, the distribution of the total birr losses per year can be approximated by multiplying each possible number of accidents by the average birr losses per accident. If the birr losses per accident vary widely, one needs the probability distribution of the birr losses per accident and the number of accidents per year to develop information concerning the losses per accident is lacking, the risk manager will improve his understanding of the risk situation if he knows the probability distribution of the number of accidents per year.

The Poisson distribution

One theoretical probability distributing that has proved particularly useful in estimating the probability that a business will suffer a specified number of occurrences during the next year is the Poisson distribution. This probability distribution is useful in insurance situations. For example, auto accidents, fires, and other losses tend to fall in a manner approximately according to the Poisson distribution.
According to this distribution, the probability that there will be accidents is

$$P = \frac{m^{r} e^{-m}}{r!}$$

where: P = The probability that an event, n, occurs
r = the number of events for which the probability Estimate is need.
r! = r factorial. If r is 5. For example, r! is 5x4x3x2x1 = 120
m = mean = expected loss frequency
e = a constant, base of the natural logarithms equal to 2.71828.

The mean (m) of a Poisson distribution is also its variance. Consequently, it standard deviation ____ is equal to the Vm.

To obtain a better understanding of how the Poisson is used to calculate probabilities, consider the following example:

Mr. Marshal has 10 trucks to insure and on the average a total of 1 loss occurs each year (p = 0.1) maletem 1/10). What is the probability of more than 2 accidents in a year? Or stated another way, what is the probability of 3 or more accidents?

To calculate m, multiply the frequency of loss times n. Thus , (0.1) x10 = 1.0, m = 1.

The probability distribution is calculated in the following manner:

Losses					Probability
0	$\frac{(1.0)^{0} e^{-1}}{1}$	=	$\frac{1x0.3679}{1}$	=	0.3679
1	$\frac{(1.0)^{1} e^{-1}}{1!}$	=	$\frac{1x0 .3679}{1}$	=	0.3679
2	$\frac{(1.0)^{2} e^{-1}}{2!}$	=	$\frac{1x0.3679}{2x1}$	=	0.1839
3	$\frac{(1.0)2 \ e -1}{3!}$	=	$\frac{1x0.3679}{3x2x1}$	=	0.0613
4	$\frac{(1.0)4 \ e -1}{4!}$	=	$\frac{1x0.3679}{4x3x2x1}$	=	0.0153

To find the probability of 3 or more subtract the sum of the probabilities of 0,1, and 2 from 1. In this case, there is probability of 0.0803 (1 - 0.9197) for 3 or more losses.

The Poisson distribution is more appropriate than binomial distribution if the exposure units can suffer more than one loss during the exposure period. This is a common situation in risk management problems.

Number of Exposure Units Required Predicting the Future with a Specified Degree of Accuracy

A question of considerable interest, both to the commercial insurer and the would-be self-insurer, is how large an exposure (that is, what number of individual exposure units) is necessary before a given degree of accuracy can be achieved in obtaining an actual loss frequency that is sufficiently close to the expected loss frequency. As the number of exposure units becomes infinitely large, the actual loss frequency will approach the expected true loss frequency. But it is never possible for a single insurer, whether a commercial insurer or a self insurer, to group together an infinitely large number of exposure units.

A simple mathematical formula is available that enables insurers to estimate the number of exposures required for a given degree of accuracy.
However, unless mathematical tools such as the one given below are used with great caution and are interpreted by experienced persons, wrong conclusions may be reached. The formula is given only as an illustration of how such tools can be of help in guiding an insurer to9 reducer risk. The formula is based on the assumption that losses in an insured population are distributed normally. The formula concerns only the occurrence of a loss, and not the evaluation of the size of the loss.

The formula is based on the knowledge that the normal distribution is an approximation of the binomial distribution, and that known percentages of losses will fall within 1,2,3 or more standard deviations from the mean. The formula is:

$$N = \frac{S^2 P(1-P)}{E^2}$$

Where: N = the number of exposure units sufficient for a given degree of Accuracy

E = the degree of accuracy required, expressing as a ratio of actual losses to the number in the sample.

S = the number of standard deviations of the distribution. The number of value of S tells us what level f confidence we can state our results. Thus if S is 1, we know with 68% confidence hat loses will be as predicted by the formula; if S is 2, we have 95% confidence, etc.

As an example, supposed our probability of loss is 0.30 and we want to be 95% confident that the actual loss ration (number of losses divided by total number of insured units) will not differ from the expected loss ratio of 0.30 by more than 2 percentage points that is 0.02. Using the formula we can determine the number of exposure units for the given degree of accuracy.

$$N = \frac{S^2 P(1 - P)}{E^2}$$

$$N = \frac{2^2 (0.30) (0.70)}{(0.02)^2}$$

The formula produces a very large number of exposure units required for the degree of risk acceptable. Mathematical formulas such as the ones used in these examples can assist the insurer considerably in making estimates of the degree of risk assumed with given numbers in an exposure group.

Such a formulas as given above offer a way for an insurer to consider simultaneously the relationship among numbers of exposure units, probability of loss, errors in prediction, and confidence levels of future estimates of loss. Once any three of these variables are ascertained, the fourth may be found. Using the formulas, a commercial insurer may discover, for example, that a much larger penetration of an insurance market is necessary to reduce the risk of acceptable levels. A decision to withdraw from a given market or to send additional sums in promotional efforts may thus be made with greater intelligence.

CHAPTER THREE
RISK CONTROL TOOLS AND SELECTING OF RISK MANAGEMENT TOOLS

Once the risk manager has identified and measured the risks facing the firm, he must decide how to handle them.

Risk can be controlled (handled) through the following tools:

1. Avoidance
2. Loss Retention (Assumption)
3. Reduction/Prevention
4. Separation/Diversification
5. Combination /Pooling
6. Neutralization
7. Transfer

3.1. Avoidance

1) Refusing to assume it even momentarily or
2) Abandoning (withdraw) an exposure assumed earlier.

To illustrate, if a business does not want to be concerned about potential property losses to a building or to a fleet of cars, it can avoid these risks by never acquiring any interest in a building or fleet of cars.

The method of avoidance is widely used, particularly by those with a high aversion toward risk. Thus, a person may not enter a certain business at all, and avoid the risk of losing capital in that business. A person may not use airplanes and thus avoid the risk of dying in an airplane crash. Another example of avoidance is to delay taking responsibility for goods during transportation. A customer may have choice of terms of sale, and may have the seller assume all the risks of loss until the goods arive at the buyer's warehouse. In this way the buyer never assumes the risk during transportation and has avoided an insurance problem.

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

Characteristics of avoidance should be noted:

1. Avoidance may be impossible. For example, the only way to avoid all liability exposures is to cease to exist.

2. The potential benefits to be gained from employing certain persons, owning a piece of property, or engaging in some activity may of far outweigh 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.

3. Avoiding a risk may create another risk. For example, a firm may avoid the risks associated with air shipments by substituting train and truck shipments. In the process, however, it has created some new risks.

3.2. LOSS- RETENTION (to make late)

The most common method of handling risk is retention by the individual or the firm itself. Individuals or business firms face an almost unlimited array (collection) of risks; in most cases nothing is done about them. Risk retention may be planned or unplanned. Planned risk retention, often called self-insurance, is conscious and deliberate assumption of recognized risk. The individual or firm decides to pay losses out of currently available funds. In some cases a reserve fund may be established to cover expected losses.

Unplanned risk retention exists when a person does not recognize that a risk exists and unknowingly believes that no loss could occur. Such a method does not deserve to be called a risk management device. It stems from ignorance of risk.

Risk retention is a legitimate method of dealing with risk, in many cases it is the best way. Each person must decide which risks to retain and which to avoid or transfer on the basis of his margin for contingencies or personal ability to bear loss. A loss that might be a financial disaster for one individual, family or business might easily be borne by another. As a general rule, risks that should b e retained are those that lead to relatively small losses.

Self-insurance is a special case of active ret-ention. It is distinguished from the other type of retention usually referred to as non-insurance in that the firm or family can predict fairly accurately the losses it will suffer during some period because it has a large number of widely scattered and fairly homogeneous exposure units. Self-insurance is not insurance, because there is no transfer of the risk to an outsider. Self-insurer and insurer, however, share the ability, though in different degrees, to predict their future loss experience.

Prerequisites of Planned Retention

Planned retention should be considered only when at least one of the following conditions exists:-

i) When it is impossible to transfer the risk to someone else or to prevent the loss from occurring. The only possible alternative-avoidance-may be undesirable for various reasons. For example, firms with plants located in river valley may find that no other method of handling the flood risk is available. Other firms will find that they are exposed to larger potential liability losses than they can prevent or transfer (most speculative risks fall into this category.)

   The businessman does not want to avoid the venture, because there are potential profits; he cannot prevent the loss from occurring, although he may be able to reduce its likelihood, and he cannot transfer the chance of loss to someone else.

ii) The maximum possible loss is so small that the firm can safely absorb it as a current operating or out of small reserve funds.

iii) The chance of loss is extremely low that it can be ignored or is so high that to transfer it would cost almost as much as the worst loss that could occur. In some areas the chance of a flood loss is so small that this peril can be safely ignored. The chance that a man, aged 97, will die within a year is so high that an insurer would demand a premium close to the amount it would pay upon his death.

iv) The firm controls so many independent, fairly homogeneous exposure units that it can predict fairly well what its loss experience will be; in other words, a retention program for this firm could properly be called "self-insurance." In this instance one of the principal reasons for transferring the risk to someone else does not exist.

3.3. Reduction

Loss-prevention and reduction measures attack risk by lowering the chance that a loss will occur or by reducing its severity if it does occur. Prevention is defined as a measure taken before the misfortune occurs. This would include fireproofing, burglar alarms, safety tires, and so on.

Loss reduction is measures taken to lower loss after the event occurs. Automatic sprinklers, for example, are designed to minimize a fire loss by spraying water or some other substance upon a fire soon after it starts in order to confine the damage to a limited area.

Other examples of loss-reduction programs include immediate first aid for persons injured on the premises, fire alarms, internal accounting controls, and speed limits for motor vehicles.

Loss may be prevented or reduced in any of the following ways:-

i) Engineering Risks: - This approach of reducing loss emphasizes ofn the mechanical causes of accidents such as defective wiring, improper disposal of waste products, poorly designed highway intersections or automobiles, and unguarded machinery. Regulating and elimination of the mechanical failures that may be the causes of potential losses is an essential part of any loss prevention and reduction program.

ii) Training or Personnel: - Machines or equipment need to be operated or handled by qualified personnel to eliminate or reduce the loss due to human failures. Workers should be acquainted with the machines they are to operate through an adequate training to reduce losses.

Many risk mangers are in direct charge of their companies' accident prevention programs. Among their varied duties are:

a) Keeping accurate records of all accidents by number, type, cause and total damage incurred.

b) Maintaining plan safety-inspection programs.

c) Devising ways and means to prevent recurrence of accidents.

d) Keeping top management accident conscious.
e) Seeing that proper credits are obtained in the insurance premium for loss-prevention measures.
f) Minimizing losses by proper salvage techniques and other action at the time of a loss.
g) Working with company engineers and architects in planning new construction to provide for maximum safety and to secure important insurance premium credits when the structure is completed an in use.

Although the prevention of all losses would be desirable it is not always possible or economically feasible. The potential gains from any loss-prevention activity must be weighed against the costs involved. Unless the gains equal or exceed the costs, the firm would be better off non to engage in that activity. The firm, however, must be certain to consider all the gains and all the costs.

3.4. Separation/Diversification

Another risk control tool is separation of the firms' exposures to loss instead of concentrating them at one location where they might all be involved in the same loss. For example, instead of placing its entire inventory in one warehouse a firm may elect to separate this exposure by placing equal parts of the inventory in ten widely separated warehouses. If fire destroys one warehouse, the firm will have others from which to draw needed supplies. Another example is to disperse work operations in such a way that explosion or other catastrophe would not injure more than a limited number of persons.

To the extent that this separation of exposures reduces the maximum probable loss to one event, it may be regarded as 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 numbers, this increase reduces the risk, thus improving the firm's ability to predict what its loss experience will be.

3.5. Combination

Combination or pooling makes loss experience more predictable by increasing the number of exposure units. Unlike separation, which spreads a specified number of exposure units, combination increases the number of exposure units under the control of the firm.

When sufficiently large numbers are grouped, the actual loss experience over a period of time will closely approximate the probable loss experience.

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.

Combination of pure risks is seldom the major reason why a firm expands its operations, but this combination may be an important by-product of merger or growth. (An example

of pooling with respect to speculative risks, which may be a primary objective of a merger or expansion, is the diversification of products by a business.) Insurers, on the other hand, combine pure risks purposefully; they insure a large number of persons in order to improve their ability to predict their losses.

3.6. Neutralization

Neutralization, which is closely related to transfer, is the process of balancing a chance of loss against a chance of gain. For example, a person who has bet that a certain team will win the world cup may neutralize the risk involved by also placing a bet on the opposing team. In other words, he transfers the risk to the person who accepts the second bet. A commercial example of neutralization is hedging by manufacturers who are concerned about changes in raw material prices. Because there is non-chance of gain associated with pure risks, neutralization is not a tool of pure-risk management.

Hedging is process of making commitments on both sides of a transaction in such a way that the risks compensate each other. It tries to avoid loss by making counterbalancing bets. Neutralization reduces the risk of undesirable price rises from the buyer's point of view and equally undesirable price declines for the seller.

3.7. Transfer

Risk may be transferred from one individual to another who is more willing to bear the risk. Transfer of risk may be accomplished in three ways.

First, the property or activity responsible for the risk 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 increases in the cost of labor and materials needed for the electrical work on a job to which he is already committed can transfer the risk by hiring a subcontractor for this portion of the project. This type of transfer, which is closely related to avoidance through abandonment, eliminates 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 someone else.

Second, 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 person who leases or rents property rather than owns it shifts to the lessor the ownership risk. The cost of shifting the risk is contained in the rental payments, which must be high enough to compensate the lessor for the risks as well as the costs of owning the property.

Third, insurance is also a means of shifting or transferring risk. In consideration of a specific payment (premium) by one party, the second party contracts to indemnify the first party up to a certain limit for the specified loss, which may or may not occur. Hence, transfers of risk may be grouped under two classifications: those involving transfer to an insurance company, and those involving transfer to parties other than insurance company.

It is easy to confuse the transfer method of handling risk with the combination method. The essential difference between the two lies in the fact that in the transfer method, the risk is not necessarily reduced or eliminated; where as in the combination method, the risk is actually greatly reduced or perhaps completely. For Example, A furniture retailer may not wish to stock large quantities of furniture for fear that prices may fall before the stock can be sold, or that the stock will be unsalable due to style changes. The retailer therefore buys only limited quantities of goods at a time, thus forcing, a wholesaler to carry sufficient inventories to meet demand. The wholesaler in this case is the bearer of risk of loss due to price changes.

II Selecting of Risk Management Tools

3.8. Conventional Approach (Insurance method)

This approach, insurance coverage serves as a focal point of the analysis. This approach is based on the assumption that the firm will prefer to buy insurance whenever this mechanism is available. The "insurance–method" is a two–step procedure:

i. Preparation of initial listing, and
ii. Preparation of revised listing

I. Preparation of initial listing

The risk manager must determine first what combination of insurance coverage would provide the best protection against the losses to which the business is exposed, on the assumption that the business would prefer to buy insurance whenever it is available.

To make this determination the risk manager must understand insurance contracts (policies) and insurance pricing, i.e., the risk manager must identify the insurance policies, that would best cover the loss exposures of the firm. The objective is to provide the most complete protection at minimum cost. Because some of the risks faced by the firm may not be insurable. Also the risk management must select policy limits that provide as complete protections as possible.

After the risk manager has determined the best combination of coverage and policy limits, he/she divides (classifies) the insurance contracts (policies) in this combination into three groups:

1. Essential coverage or Essential policies
2. Desirable coverage or Desirable policies, and
3. Available coverage or Available policies

1. Essential contracts (Polices)

Essential insurance contracts (policies) include those that are compulsory because they are required by law or by contract. For Example, automobile liability insurance in some cases is required by low, a group life insurance contract required under a union contract.

Coverage against high – severity losses that could result in a financial catastrophe for the firm, For Example, liability losses are often included under these contracts

2. Desirable Contracts (policies)

Desirable policies provide protection against losses that could seriously impair the operations of the firm but probably would not put it out of business, For Example, automobile physical damage.

3. Available Contracts

Available policies include all the types of protection that have not been included in the first two classes. These contracts protect against types of losses that would inconvenience the firm but would not seriously impair its operations unless several of them occurred within one year. It is also called plate – glass policy. For Example, insurance against breakage of glass due to riots, fighting, etc. Hence, When a risk manager is to decide upon the insurance policies, he should give priority to the compulsory ones and then to the other polices according to their importance.

II Preparation of Revised Listing

After the initial listing has been completed, the risk manager then reviews the contracts in each group to determine which of these losses might be more satisfactorily handled in other ways.

For example, contracts that might be dropped form the essential – category would include contracts covering:

1. Losses that can be transferred to someone other than an insurer at a smaller cost than the insurance premium.
   Some contracts included in the essential class but can be transferred to another body at a smaller cost than the insurance premium be dropped by the risk manager from insuring in the insurer.
2. Losses that can be prevented or reduced to such an extent that they are no longer severe.
3. Losses that happen so frequently that they are fairly predictable, thus
   making self – insurance on attractive alternative because of expense savings. Few, if any, contracts (policies) will be dropped from the essential – category. Contracts covering potential catastrophic losses will be purchased unless they satisfy one of the three conditions

   Conditions stated above or if the premium for the insurance seems unreasonably high relative to the frequency and severity of the exposure.

3.9. Quantitative Approaches

The application of the quantitative approach is limited because.

1. Application of these modern techniques to insurance and particularly to risk management problems is of still more recent in origin.
2. Their data requirement is difficult to meet.
3. Most risk managers are not well trained in the quantitative application.

But these techniques are likely to be more widely applied in the future and it is important to consider these quantitative methods in selecting the "proper" tools of risk management. Therefore this section discusses some quantitative approaches that may be used in selecting risk management tools.

PART – II INSURANCE

CHAPTER FOUR
NATURE AND FUNCTION OF INSURANCE

As stated earlier there are a number of ways of dealing with risk. Insurance is one of the basic tools of risk management and it is also the most important illustration of the transfer technique and the keystone of most risk management programs.

Insurance is complicated and difficult to define. However, in its simplest aspect it has two fundamental characteristics:

a) Transferring or shifting risk from an individual to a group.
b) Sharing losses, on some equitable basis, by all members of the group.

To illustrate the way the insurance mechanism works, let us assume that there are 1,000 dwellings in a given community and, for simplicity, the value of each dwelling is birr 10,000. Each owner faces the risk that his house may catch on fire. If a fire should break out, a financial loss of up to birr 10,000 could result. Some houses will undoubtedly burn but the probability that all will is remote. Now let us assume that the owners of these dwellings enter into an agreement to share the cost of losses as they occur, so that no single individual will be forced to bear an entire loss of birr 10,000 whenever a house burns each of the 1,000 owners contributes his proportionate share of the amount of loss.

If the house is a total loss each of the 1,000 owners will pay birr 10 and the owner of the destroyed house will be indemnified for the birr 10,000 loss. Those who suffer losses are indemnified by those who do not. Most who escape loss are willing to pay those who do not because by doing so they help to eliminate the possibility that they themselves might suffer a 10,000 birr loss. Through the agreement to share the losses, the economic burden these impose is spread throughout the group. This is essentially the way insurance works, for what we have described is a pure assessment of mutual insurance operation.

There are some potential difficulties with the operation of such a plan, the most obvious being the possibility that some members of the group might refuse to pay their assessment at the time of a loss. This problem can be overcome by requiring payment in advance. To require payment in advance for the loss that may take place, it will be necessary to have some idea as to the amount of those losses. This may be calculated on the basis of past experience.

Let us now assume that on the basis of past experience we are able to predict with reasonable accuracy that two of the 1,000 houses will burn. We could charge each member of the group birr 20, making a total of birr 20, 000. In addition to the cost of the losses, there would no doubt be some expenses in the operation of the program. Also there is a possibility that our predictions might not be entirely accurate. We might therefore, charge each member of the group birr 40 instead of birr 20, thereby providing for the payment of expenses and also providing a cushion against deviations from our expectations.

Each of the 1,000 house owners will incur a small cost of birr 40 in exchange for a promise of indemnification of the amount of birr 10,000 if his house burns down. This birr 40 premium is in effect the individual's share of the total losses and expenses of the group.

Insurance Defined

Insurance can be defined from two points of view.

First, insurance is the protection against financial loss provided by an insurer. It is an economic device whereby an individual substitutes a small certain cost (the premium) for a large uncertain financial loss which would exist if it were not for the insurance.

The primary function of insurance is the creation of the counterpart of risk, which is security. Insurance does not decrease the uncertainty for the individual as to whether or not the event will occur, nor does it alter the probability of financial loss connected with the event. From the individual's point of view, the purchase of an adequate amount of insurance on a house eliminates the uncertainty regarding a financial loss in the event that the house should burn down.

Many persons consider an insurance contract to be a waste of money unless a loss occurs and indemnity is received. Some even feel that if they have not had a loss during the policy term, their premium should be returned. Both view pints constitute the essence of ignorance. Relative to the first, we already know that the insurance contract provides a valuable feature in the freedom from the burden of uncertainty. Even if a loss is not sustained during the policy term, the insured has received something for the premium: the promise of indemnification in the event of a loss. With respect to the second, one must appreciate the fact that the operation of the insurance principle is based upon the contribution of the many paying the losses of the unfortunate few. If the premiums were returned to the many who did not have losses, there would be no funds available to pay for the losses of the few who did. Basically then, the insurance device is a method of loss distribution. What would be a devastating loss to an individual is spread in an equitable manner to all members of the group, and it is on this basis that insurance can exist.

Second, insurance is a device by means of which the risks of two or more persons or firms are combined through actual or promised contributions to a fund out of which claimants are paid. From the viewpoint of the insured insurance is a transfer device. From the viewpoint 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 risks of many insureds. Through this combination the insurer improves its ability to predict its expected losses. Although most insurers collect in advance premiums that will be sufficient to pay all their expected losses, some rely at least in part on assessments levied on all insureds after losses occur.

Insurance does not prevent losses, nor does it reduce the cost of losses to the economy as a whole. As a matter of fact, it may very well have the opposite effect of causing losses and increasing the cost of losses for the economy as a whole. The existence of insurance encourages some losses for the purpose of defrauding the insurer, and in addition people are less careful and may exert less effort to prevent losses then they might if it were not

for the existence of insurance contracts. Also, the economy incurs certain additional costs in the operation of the insurance mechanism. Not only must the cost of the losses be borne, but the expense of distributing the losses on some equitable basis adds to this cost.

4.1. Insurance Not Gambling or 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 the purchase of insurance, the insured transfers an existing pure risk. A gambler creates a new risk where none existed before. Insurance is a method of eliminating or greatly reducing (to one party anyway) an already existing risk.

Speculation is a transaction under which one party, for a consideration, agrees to assume certain risks, usually in connection with a business venture. Every business accepts the possibility of losing money in order to make money.

4.2. Requisites of Insurable Risks

Unfortunately, not all risks are insurable. For practical reasons, insurers are not willing to accept all the risks that others may wish to transfer to them. To be considered a proper subject for insurance, there are certain characteristics that should be present.

These requirements should not be considered absolute, as iron rules, but rather as guides. They should be viewed as ideal standards, and not necessarily as standards actually attained in practice. The prerequisites listed below represent the "ideal" standards of an insurable risk.

1. ***There must be a sufficiently large number of homogeneous exposure units to make the losses reasonably predictable***. Insurance, as we have seen, is based on the operation of the law of large numbers. Unless we are able to calculate the probability of loss, we cannot have a financially sound program.

2. ***The loss produced by the risk must be definite and measurable***. The loss must have financial measurement. In other words, we must be able to tell when a loss has taken place, and we must be able to set some value to it. Before the burden of risk can be safely assumed, the insurer must set up procedures to determine if loss has actually occurred and, if so, its size.

3. ***The loss must be fortuitous or accidental***. The loss must be the result of a contingency (emergency) , that is, it must be something that may or may not happen. It must not be something that is certain to happen. If the insurance company knows that an event in the future is inevitable, it also knows that it must collect a premium equal to the certain loss that it must pay, plus an additional amount for the expenses of administering the operation. Wear and tear or depreciation which is a certainty should not be insured. The law of large numbers is useful in making predictions only if we can reasonably assume that future occurrences will approximate past experience. Since we assume that past experience was a result of chance happenings,

the predictions concerning the future will be valid only if future happenings are also a result of chance.

4. ***The loss must not be catastrophic***. All or most of the objects in the group should not suffer loss at the same time. The insurance principle is based on a notion of sharing losses, and inherent in this idea is the assumption that only a small percentages of the group will suffer loss at any one time. Damage which results from war would be catastrophic in nature. Simultaneous disaster to insured objects can be illustrated by reference to large fires, floods, and hurricanes (tornado) that have swept major geographical areas in the past. If an insurer is unlucky enough to have on its books a great deal of property situated in such an area, it obviously suffers a loss that was not contemplated when the rates were formulated. Most insurers reduce this possibility by ample dispersion of insured objects.

5. ***Large Loss***. The risk to be insured against must be capable of producing a large loss which the insured could not pay without economic distress. The potential loss must be severe enough to cause financial hardship. The large loss principle states that people should insure potentially serious losses before relatively minor losses. To do otherwise is uneconomical, since small losses tend to occur frequently and are very costly to recover through insurance. Insurance against breakage of shoestrings is unknown. If the loss involved is so small that it is not worth the time, effort, and expense to enter into an insurance contract to indemnify the loss.

6. ***Reasonable cost of Transfer***. One of the insured's requirements is not to insure against a highly probable loss, because the cost of transfer tends to be excessive. To be insurable the chance of loss must be small. The more probable the loss, the more certain it is to occur. The more certain it is, the greater the premium will be. A time is ultimately reached when the loss becomes so certain that either the insurer withdraws the protection or the cost of the premium becomes prohibitive.

The cost of insurance policy consists of the pure premium, or amount actually needed to make loss payments, and the expense portion. If the chance of loss approaches 100%, the cost of the policy will exceed the amount that the insurance company is obliged to pay under the contract. For example, it would be possible for a life insurance company to issue a birr 1000 policy on a man aged 99. The net premium, however, would be about birr 980, to which would have to be added an amount for expenses which would bring the premium total to more than the amount of insurance. To make insurance attractive, the premium has to be far less than the face of the policy.

4.3. Benefits and Costs of Insurance

Insurance has peculiar (unique) advantages as a device to handle risk and so ought (deserve) to be extended as far as possible, in order to bring about the greatest economic advantage to a given society. Insurance, like most institutions, presents society with both benefits and costs.

Benefits

1. ***Indemnification***. The direct advantage of insurance is indemnification for those who suffer unexpected losses. These unfortunate businesses and families are restored or at least moved closer to their former economic position. The advantage to these individuals is obvious. Society also gains because these persons are restored to production, and tax revenues are increased.

2. ***Reduced Reserve Requirements***. If there is an insurance protection the amount of accumulated funds needed to meet possible losses is reduced. One of the chief economic burdens of risk is the necessity for accumulating funds to meet possible losses. One of the great advantages of the insurance mechanism is that it greatly reduces the total of such reserves necessary for a given economy. Since the insurer can predict losses in advance, it needs to keep readily available only enough funds to meet those losses and to cover expenses. If each individual has to set aside such funds, there would be a need for a far greater amount because the individual, not knowing precisely how much would be required, would tend to be conservative.

   For Example a birr 60,000 residence can be insured against fire and other physical perils for about birr 200 a year. If insurance were not available, the individual would probably feel a need to set aside funds at a much higher rate than birr 200 a year.

3. ***Capital Freed for Investment***. Cash reserves that insurers accumulate are freed for investment purposes, thus bringing about a better allocation of economic resources and increasing production. Insurers as a group and life insurance firms in particular, have become among the largest and most important institutions to collect and distribute a nation's savings. A substantial part of the contributions of insurance companies is derived from regular savings by individuals through life insurance contracts. The provision of the life insurance mechanism, which encourages individual savings, is a most important contribution of insurance to the savings supply.

   The insurance mechanism encourages new investment. For example, if an individual knows that his family will be protected by life insurance in the event of premature death, the insured may be more willing to invest savings in a long-desired project, such as a business venture, without feeling that the family is being robbed of its basic income security. In this way a better allocation of economic resources is achieved.

4. ***Reduced Cost of Capital***. (reduce interest) Since the supply of investable funds is greater than it would be without insurance, capital is available at lower cost than would otherwise be true. Other things being equal, this brings about a higher standard of living because increased investment itself will raise production and cause lower prices than would otherwise be the case. Also because insurance is an efficient device to reduce risk, investors may be willing to enter fields they would otherwise reject as too risky. Thus, society benefits by increased services and new products, the hallmarks of increased living standards.

5. ***Loss Control***. Another benefit of insurance lies in its loss control or loss- prevention activities. Insurers are actively engaged in loss-prevention activities. While it is not

the main function of insurance to reduce loss, but merely to spread losses among members of the insured group, nevertheless, insurers are vitally interested in keeping losses at a minimum.

Insurers know that if no effort is made in this regard, losses and premiums would have a tendency to rise, since it is human nature to relax vigilance when it is known that the loss will be fully paid by the insurer. Furthermore, in any given year, a rise in loss payments reduces the profit to the insurer, and so loss prevention provides a direct avenue of increased profit.

By charging extra for bad features and less for good, insurers can induce the insured to make improvements, which have beneficial effect on losses. This can clearly be seen, for example, in fire insurance, where the installation of good-fighting equipment, such as a sprinkler system, receives considerable reward by way of reduced premiums.

6. ***Business and Social Stability***. Insurance contributes to business and social stability and to peace of mind by protecting business firms and the family breadwinner (worker). Adequately protected, a business need not face the grim (harsh) prospect of liquidation following a loss. A family need not break up following the death or permanent disability of the breadwinner. A business venture can be continued without interruption even though a key person or the sole proprietor dies. A family need not lose its life savings following a bank failure. Old-age dependency can be avoided. Loss of a firm's assets by theft can be reimbursed. Whole cities ruined (bankrupt) by a hurricane (tornado) can be rebuilt from the proceeds of insurance.

7. ***Aid to Small Business***. Insurance encourages competition because without an insurance industry, small business would be a less effective competitor against big business. Big business may safely retain some of the risks that, if they resulted in loss, would destroy most small businesses. Without insurance, small business would involve more risks and would be a less attractive outlet for funds and energies.

8. ***Invisible Export***. A valuable contribution towards Ethiopia's balance of payments is made by invisible exports. These include banking, shipping and other services, as well as insurance transacted abroad by the Ethiopian Insurance Corporation. Overseas insurance as an export is enhanced when the insurer is selling a commodity, namely security, to an overseas buyer. Although this commodity is invisible it is an export in the same way as any material goods.

Costs of Insurance

1. ***Operating Expenses.*** Insurers incur expenses such as loss control costs, loss adjustment expenses, expenses involved in acquiring insureds, state premium taxes and general administrative expenses. These expenses, plus a reasonable amount for profit and contingencies, must be covered by the premium charged. In real terms, workers and other resources that might have been committed to other uses are required by the insurance industry. The advantages of insurance are not obtained for nothing. They should be weighed against the cost of obtaining the services.

2. ***Moral Hazard***. (Un ethically) A second cost of the insurance industry is the creation of moral hazards. A moral hazard is a condition that increases the chance that some person will intentionally (1) cause a loss or (2) increase its severity. Some unscrupulous (immoral) persons can make, or believe that they can make, a profit by bringing about a loss. For example, arson (fire/inflammable), inspired by the possibility of an insurance recovery, is a major cause of fires. Others abuse the insurance protection by:

i) Making claims that are not warranted (acceptable), thus spreading through the insurance system losses that they should bear themselves (eg. claiming automobile liability when there is no negligence on the part of the defendant).
ii) Over utilizing the services (eg. staying in a hospital beyond the period required for treatment).
iii) Charging excessive fees for services rendered to insured's, as is done by some doctors and garages, and
iv) Granting larger awards in liability cases merely because the defendant is insured. Some of these abuses are fraudulent (fake); others indicate a different (and indefensible) code of ethics where insurance is involved.

3. ***Morale Hazard***. (to be less careful) Another related cost is the creation of morale hazards. A morale hazard is a condition that causes persons to be less careful than they would otherwise be. Some persons do not consciously seek to bring about a loss, but the fact that they
4. have insurance causes them to take more chances than they would if they had no insurance.

Opinions differ on the degree to which moral and morale hazards are created by insurance, but all agree that some persons are affected in each way and that morale hazards are more common than moral hazards.

In weighing the social costs and the social values of insurance, the advantages far exceed the disadvantages. Insurance is used because of the great economic services attained thereby. These services cost something, of course; but like most expenses, insurance premiums are looked upon as essential to the successful maintenance of a family or a business.

4.4. Functions and Organization of Insurers

As part of the study of the insurance mechanism and the way in which it works, it will be helpful to examine some of the unique facets of insurance company operations. In general, insurers operate in much the same manner as other firms, however, the nature of the insurance transaction requires certain specialized functions which require a suitable organization structure. In this section, we will examine some of the specialized activities of insurance companies and the general forms of organization structure.

Functions of Insurers

Although there are definite operational differences between life insurance companies, and property and liability insurers, the major activities of all insurers may be classified as follows:

i) Production (selling)
ii) Underwriting (selection of risks)
iii) Rate making
iv) Managing claims
v) Investment

These functions are normally the responsibility of definite departments or divisions within the firm. In addition to these functions there are various other activities common to most business firms such as accounting, personnel management, market research and so on.

Production
One of the most vital functions of an insurance firm is securing a sufficient number of applicants for insurance to enable the company to operate. This function, usually called production in an insurance company, corresponds to the sales function in an industrial firm.

The term 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.

The production department of any insurer supervises the relationships with agents in the field. In firms such as direct writers, where a high degree of control over field activities is maintained, the production department recruits, trains and supervises the agents or salespersons.

Underwriting
Underwriting is the process of selecting risks offered to the insurer. It is an essential element in the operation of any insurance program, for unless the company selects from among its applicants, the inevitable result will be adverse to the company. Hence, the main responsibility of the underwriter is to guard against adverse selection. Underwriting is performed by home office personnel who scrutinize applications for coverage and make decisions as to whether they will be accepted, and by agents who produce the applications initially in the field.

It is important to understand that 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, thereby 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 must guard against congestion or concentration of exposures that might result in a catastrophe.

Process of Underwriting
The underwriter must obtain as much information about the subject of the insurance as possible within the limitations imposed by time and the cost of obtaining additional data. The desk underwriter must rule on the exposure submitted by the agents, accepting some and rejecting others that do not meet the company's underwriting requirements or policies. When a risk is rejected, it is because the underwriter feels that the hazards connected with it are excessive in relation to the rate.

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

i) The application containing the insured's statements
ii) Information from the agent or broker
iii) Investigations
iv) Physical examinations or inspections.

The application The basic source of underwriting information is the application, which varies from each line of insurance and for each type of coverage. The broader and more liberal the contract, usually the more detailed the information required in the application. The questions on the application are designed to give the underwriter the information needed to decide if he would accept the exposure, reject it, 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 varies, of course, with the experience the underwriter has had with the particular agent in question. In certain cases the underwriter will agree to accept an exposure that does not meet the underwriting requirements of the company. Such exposures are referred to as "accommodation risk," because they are accepted to accommodate a valued client or agent.

Investigations 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, and the extent to which he uses alcoholic beverages (or to which neighbors say he uses them.) All the information is pertinent in the decision to accept or reject the application.

For example, the financial status of the applicant is important in both the property and liability field, and in life insurance field, although for different reasons.

In the property and liability field, evidence of financial difficulty may be an indication of a potential moral hazard. In life insurance, there is concern because an individual who purchases more life insurance than he can afford is likely to let the policy lapse, a practice which is costly to the company.

Physical Examinations or Inspections In life insurance, the primary focus is on the health of the applicant. The medical director of the company lays down principles to guide the agents and desk writers in the selection of risks, and one of the most critical pieces of intelligence is the report of the physician. Physicians selected by the insurance company or recognized medical centers supply the insurer with medical reports after a physical examination; this report is a very important source of underwriting information. In the field of property and liability insurance, the equivalent of the physical examination in life insurance is the inspection of the premises. Although such inspections are not always conducted, the practice is increasing. In some instances this inspection is performed by the agent, who sends a report to the company with photographs of the property. In other cases a company representative conducts the inspection.

Rate Making

An insurance rate is the price per unit of insurance. Like any other price, it is a function of the cost of production. However, in insurance, unlike other industries the cost of production is not known when the contract is sold, and will not be known until some time in the future, when the policy has expired. One of the fundamental differences between insurance pricing and the pricing function in other industries is that the price for insurance must be based on a prediction. The process of predicting future losses and future expenses, and allocating these costs among the various classes of insureds is called rate making.

A second important difference between the pricing of insurance and pricing in other industries arises from the fact that insurance rates are subject to government regulation. Because insurance is considered to be vested in the public interest all nations have enacted laws imposing statutory restraints on insurance rates. These laws require that insurance rates must not be excessive, must be adequate, and may not be unfairly discriminatory.

Other characteristics considered desirable are that rates should be relatively stable over time, so that the public is not subjected to wide variations in cost from year to year. At the same time, rates should be sufficiently responsive to changing conditions to avoid inadequacies in the event of deteriorating loss experience.

Makeup of the Premium

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 of protection purchased. The unit of protection to which a rate applies differs for the various lines of insurance. In life insurance, for example, rates are computed for each 1,000 birr in protection; in fire insurance the rate applies to each of birr 100 coverage.

The insurance rate is the amount charged per unit of exposure. The premium is the product of the insurance rate and the number of units of exposure. Thus, in life insurance, if the rate is 25 birr per 1,000 birr of face amount of insurance, the premium for a 10,000 birr policy is 250 birr.

The premium is designed to cover two major costs:

i) The expected loss and
ii) The cost of doing business.

These are known as the pure premium and the loading, respectively. The pure premium is determined by dividing the total expected loss by the number of exposures. In automobile insurance, for example, if an insurer expects to pay 100,000 birr of collision loss claims in a given territory, and there are 1,000 autos in the insured group, the pure premium for collision will be 100 birr per car, computed as follows.

$$\text{Pure premium} = \frac{\text{Expected Loss}}{\text{Exposure units}} = \frac{\text{birr } 100{,}000}{\text{birr } \quad 100} = 1{,}000$$

The loading is made up of such items as agents' commissions, general company expenses, taxes and fees, and allowance for profit. The sum of the pure premium and loading is termed as the gross premium. Usually the loading is expressed as a percentage of the expected gross premium. In property – liability insurance, a typical loading might be 33↓ percent. The general formula for the gross premium, the amount charged the consumer, is

$$\text{Gross Premium} = \frac{\text{Pure Premium}}{\text{1-Loading percentage}}$$

In the above example, where the pure premium was birr 100 per car, the gross premium would be calculated as

$$\frac{\text{Birr 100}}{\text{1 - 0.333}} = \text{birr 150}$$

Rate - Making Methods

Two basic approaches to rate making, class and individual rating are discussed below.

Manual or Class Rating The manual or class rating method sets rates that apply uniformly to each exposure unit falling within some predetermined class or group. Everyone falling within a given class is charged the same rate. For example a class rate might apply to all types of dwelling of a given kind of construction in a specific city. Rates which apply to all individuals of a given age and sex are also examples of class rates.

The major areas of insurance that emphasize use of the manual rate making method include life, automobile, residential fire, etc. For example, in life insurance the central classifications are by age and sex. In automobile insurance the loss data are broken down territorially by type of automobile, by age of driver, and by major use of automobile. In each case it is necessary only to find the appropriate page in a manual to find out what the insurance rate is to be, hence, the term "manual rate making."

The obvious advantage of the class rating system is that it permits the insurer to apply a single rate to a large number of insureds, simplifying the process of determining their premiums. Class rating is the most common approach in use by the insurance industry today, and is used in various lines of insurance.

Individual Rating Under individual rating, each insured is charged a unique premium based largely upon the judgement of the person setting the rate. This rating is supplemented by whatever statistical data are available and by knowledge of the premiums charged similar insureds. It takes into account all known factors affecting the exposure, including competition from other insurers. If the characteristics of the units to be insured vary so widely it is desirable to calculate rates for each unit depending on its loss producing characteristics.

Managing Claims / Loss Adjustment /
The basic purpose of insurance is to provide indemnity to the members of the group who suffer losses. This is accomplished on the loss-settlement process, but it is sometimes more complicated than just passing out money. The payment of losses that have occurred is the function of the claims department. Life insurance companies refer to those employees who settle losses as "claim representatives," or "benefit representatives." Employees of the claims department in the field of property and liability insurance are called "adjusters."

The Adjustment Process
In determining whether to pay or contest (challenge) a claim, the adjuster follows a procedure with four main steps: notice of loss, investigation, proof of loss, and payment or denial of the claim. The details of these steps vary with the type of insurance.

Notice The first step in the claim process is the notice by the insured to the company that a loss has occurred. The requirement differ from one policy to another, but in most cases the contract requires that the notice be given "immediately" or "as soon as practicable." The policy usually requires that the notice be given in writing. Actually, however, oral notice to the insurer is usually sufficient unless the insurer or its agent objects.

The insured may also be expected to notify someone other than the insurer. Under a theft insurance, for example, the insured must tell the police, as well as the insurer, about the loss.

Investigation. The investigation is designed to determine if there was actually a loss covered by the policy, and if so, the amount of loss. Following the loss the insured should assist the loss adjuster in the investigation. The adjuster must determine:

i) Whether the loss actually occurred
ii) Whether it is covered under the contract, and
iii) The extent of the loss

Proof of Loss Within a specific time after giving notice, the insured is required to file a proof of loss. This is a sworn statement that the loss has taken place, and states the amount of the claim and the circumstance surrounding the loss. The adjuster normally assists the insured in the preparation of this document.

Payment or Denial If all goes well the insurance company draws a draft reimbursing the insured for the loss. If not, it denies the claim. The claim may be disallowed because there was no loss, the policy did not cover the loss, or because the adjuster feels that the amount of the claim is unreasonable.

Investment Function
When an insurance policy is written, the premium is generally paid in advance for periods varying from six months to five or more years. This advance payment of premiums gives rise to funds held for policyholders 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 finance department or a finance committee of the company to see that they are properly invested.

Not all the money collected by the insurer is to be invested. A certain proportion of it should be kept aside to meet future claims. However, the need for liquidity may vary from one state to another.

Organization of Insurers

The type of organization used by a given insurer and the types of departments created depend upon the particular problems it faces. The most common basis is a centralized management with departments organized on a functional basis. However, other bases, such as territorial, are commonly used, often concurrently with the functional type. Thus, the form of organization adopted depends on the scope of the line of business and the activities performed by the insurance organization.

Based on the line of business, there are two basic forms of organization of insurers; single line or product organization and all-line organization. Single line insurance organizations are those who deal only with one type business, say fire insurance or life insurance only. All-line organization refers to that type of arrangement by which an insurer may write literally all lines of insurance under one administrative frame work of a single organization, example, the Ethiopian Insurance Corporation.

CHAPTER FIVE
LEGAL PRINCIPLES OF INSURANCE CONTRACTS

Insurance is effected by legal agreements known as contracts or policies. A contract, contrary to the impressions of many, cannot be complete by 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.

5.1. Principle of Insurable Interest

A fundamental legal principle underlying all insurance contracts is insurable interest. Under this principle an insured must demonstrate a personal loss or the insured will be unable to collect amounts due when a loss due to the insured peril occurs. Insurable interest is always a legal requirement because to hold otherwise would mean that an insured could collect without personal loss.

When we say that a businessman has an "interest in several companies," we usually imply that he has more than mere mental attraction towards them. This is also the sense in which the term is used in insurable interest.

The essentials of insurable interest are as follows:

i) Presence of subject matter to be insured.
ii) Existence of monetary relationship between the subject matter and there would be policyholder.
iii) The relationship existing between the policyholder and the subject matter need to be legal.
iv) The policyholder must be economically benefited by the survival or suffer an economic-loss from the damage or destruction of the subject matter.

An insurable interest may be applied on life, property, or potential liability.

Life

i) ***Self insurance***. An individual has an insurable interest in his own life, and there is no limit to the sum for which a man may insure his own life. In practice, the sum insured is restricted by the insured's ability to pay premium.
ii) ***Husband and Wife***. A wife may insure the life of her husband because his continued existence is valuable to her and she would suffer a financial loss upon his death. Likewise, a husband may insure the life of his wife because her continued existence is valuable to him and he could suffer a financial loss upon her death.
iii) ***Creditors and Debtors.*** A creditor stands to loss if his debtor dies without paying the debt. Thus, he has the right to insure the debtor up to the amount of the loan.
iv) ***Partners***. The death of a partner could well cause financial loss to the survivor(s), who therefore, have a right to insure him. This could arise with a professional firm or perhaps with theatrical performers. The amount of insurable interest would be difficult to ascertain, but legally it is limited to the financial involvement in the person insured.

A father may insure the life of a minor child, but a brother may not ordinarily insure the life of his sister. In the latter case there would not usually be a financial loss to the

brother upon the death of his sister, but in the former case the father would suffer financial loss upon the death of his child.

Property

Insurable interest in property may arise as follows:

i) ***Ownership***. This is the most obvious form and in addition to full ownership, part or joint ownership gives the right to insure. With part ownership, the insurable interest is strictly limited to the financial involvement, but a part owner may insure the property for the full value, as he will be deemed (believed) to be acting as an agent for the other co-owners. Any amount he receives from the insurance, over and above his own interest, is to be held in trust for the co-owners.

ii) ***Husband and Wife***. A husband has an insurable interest in his wife's property as he is legally entitled to share her enjoyment of it, and a wife similarly has an insurable interest in her husband's property as their relationship is reciprocal.

iii) ***Administrators, Executors and Trustees.*** These are all persons entrusted with the estate and affairs of others. They have a right to insure the property for which they are responsible.

iv) ***Bailess***. These are persons or entities legally in possession of goods belonging to others, for example, laundries, cobblers, and the like have the right to insure for losses to goods in their custody representing interest of the owner.

v) ***Agents***. Provided the principal possesses an insurable interest, an agent may effect an insurance on his behalf. The insurance must, however, be authorized or ratified by the principal. A householder may effect a policy, which extends to cover the belongings of members of his family. Another example is with a private car insurance, which normally extends to cover the liability of other drivers using the vehicle with the insured's permission.

vi) ***Mortgagees and Mortgagors***. The interest of the mortgagee is limited to the sum of money that he has advanced.

Liability

Insurance of liability seldom (rarely) gives rise to any difficulty over the existence of insurable interest. A person clearly has an interest in the sums he may be called upon to pay to third parties as a result of accident.

When the Insurable Interest Must Exist

In property and liability insurance it is possible to effect coverage on property in which the insured does not have an insurable interest at the time the policy is written, but in which such an interest is expected in the future. In marine insurance a shipper often obtains coverage on the cargo it has not yet purchased in the anticipation of buying cargo for the return trip. As a result the courts generally hold that in property insurance, insurable interest need exist only at the time of the loss and not at the inception of the policy.

On the other hand, in life insurance it is the general rule that insurable interest must exist at the inception of the policy, but it is not necessary at the time of the loss. The courts view life insurance as an investment contract. To illustrate, assume that a wife who owns a life insurance policy on her husband later obtains a divorce. If she continues to maintain

the insurance by paying the premiums, she may collect on the subsequent death of her former husband, even though she is remarried and suffers no particular financial loss upon his death. It is sufficient that she had an insurable interest when the policy was first issued.

5.2. Principle of Indemnity

The principle of indemnity states that a person may not collect more than the actual loss in the event of damage caused by an insured peril. Thus, while a person may have purchased coverage in excess of the value of the property, that person cannot make a profit by collecting more than the actual loss if the property is destroyed. Many insurance practices result from this important principle. Only contracts in property and liability insurance are subject to this principle. Life and most health insurance policies are not contracts of indemnity. No money payment can indemnify for loss of life or for bodily injury to the insured, and that is why life insurance is an exception to the general rule.

The principle of indemnity is closely related to insurable interest. The problem in insurable interest is to determine whether any loss is suffered by a person insured, whereas in indemnity the problem is to obtain a measure of that loss. In the basic fire insurance contract, the measure of "actual cash loss" is the current replacement cost of destroyed property less an allowance for estimated depreciation. In liability insurance, the final measure of loss is determined by reference to a court action concerning the amount of legal liability of the insured for negligence. In any event, the purpose served by the principle of indemnity is to place the insured in the same position as before the loss.

One of the important results of the principle of indemnity is the typical inclusion in insurance contracts of clauses regarding other insurance. The purpose of such clauses is to prevent the insured from taking out duplicating policies with different insurers in the expectation of recovering more than the actual loss. Typically such clauses provide that all policies covering the same risk will share pro rata in the loss. Thus, if Desta carries 4,000 birr fire insurance in Company A and 6, 000 birr in Company B, the two insurers will divide a 1, 000 birr fire loss 40 percent and 60 percent, respectively.

Methods of Providing Indemnity

There are four basic methods of providing an indemnity:

i) ***Cash***. Many claims are settled by means of a cash payment to the insured. All that insurers require is reasonable proof of the cause and extent of the loss, and the cash payment is the measure of indemnity, or extent of the insurer's liability for any given loss.
ii) ***Repair***. An adequate repair constitutes an indemnity. This form of settlement is particularly common in motor insurance, where the insurer settles the repair bill direct with the garage concerned.
iii) ***Replacement***. It is sometimes advantageous for the insurer to replace an article rather than to pay cash. With a very new item or with such things as jewelry and furs, depreciation is likely to be negligible and the insured may well be content with a new replacement, which might possibly be acquired at a discount from the appropriate dealer. In glass insurance, it is the usual rule to replace, and all insurers pride

themselves on the speed with which they replace shop windows so that there is minimum disturbance of trade.

iv) ***Reinstatement***. This is a term usually found in fire insurance and concerns the restoration or rebuilding of premises (not necessarily on the same site) to their former condition.

5.3. Principle of Subrogation

The principle of subrogation grows out of the principle of indemnity. Under the principle of subrogation one who has indemnified another's loss is entitled to recovery from any liable third parties who are responsible. Thus, subrogation in insurance is the transfer by an insured to an insurer of any rights to proceed against a third party who has negligently caused the occurrence of an insured loss. For example, an automobile insurer that has paid a collision insurance claim obtains the right to collect reimbursement from any negligent third party who caused the accident.

The insured who has been indemnified by the insurance company may neglect to prosecute the wrongdoer where liability exists, or he might prosecute in order to get double recovery. Double recovery would violate the indemnity principle. By subrogation, the dilemma is resolved by assigning to the insurance company the right to prosecute the action against the wrongdoer and there by recoup a portion or all of the damages paid to the insured. Such salvage by insurance companies helps to maintain lower rate levels for insured's.

Subrogation is a corollary of the principle of indemnity and the right of subrogation, therefore, applies only to policies which are contracts of indemnity. Thus it does not apply to personal accident or life policies. For instance, if the death of a life insured should be caused by the negligence of a third party, his legal personal representatives may be able to recover damages in addition to the policy moneys. The insurers have no right of action against the third party and cannot benefit by any damages received.

5.4. Principle of Utmost Good Faith

Insurance is said to be a contract of utmost good faith. In effect, this principle imposes a higher standard of honesty on parties to an insurance agreement than is imposed in ordinary commercial contracts. Insurance contracts are based upon mutual trust and confidence between the insurer and the insured. Contracts of insurance are different because one party to the contract alone the proposer-knows, or ought to know, all about the risk proposed for insurance, and the other party-the insurer-has to rely largely upon the information given by the proposer in his assessment of that risk. For this reason, insurance contracts are contracts of the utmost good faith. The application of this principle may best be explained in a discussion of representations, concealments, and warrantees.

Representations

A representation is a statement made by an applicant for insurance before the contract is effected. Although the representation need not be in writing, it is usually embodied in a written application. It is a statement in response to a question by the insurer. An example of representation in life insurance would be "yes" or "no" to a question as to whether or

not the applicant had ever been treated for any physical condition by a doctor within the previous five years. If a representation is relied upon by the insurer in entering into the contract, and if it proves to be false at the time it is made or becomes false before the contract is made, there exists a legal ground for the insurer to avoid the contract.

Avoiding the contract does not follow unless the misrepresentation is material to the risk. That is, if the truth had been known, the contract either would not have been issued at all or would have been issued on different terms. If the misrepresentation is inconsequential, its falsity will not affect the contract. However, a misrepresentation of a material fact makes the contract voidable at the option of the insurer. The insurer may decide to affirm the contract or to avoid it. Failure to cancel a contract after first learning about the falsity of a material misrepresentation may operate to defeat to insurer's rights to cancel at a later time, under the doctrines of waiver (voluntary relinquishment of a known right) or estoppels (which prevents a person from asserting a right because he has acted previously in such a way as to deny any interest in that right).

Concealments

Concealment is defined as silence when obligated to speak. Concealment has approximately the same legal effect as a misrepresentation of a material fact. It is the failure of an applicant to reveal a fact that is material to the risk. Because insurance is a contract of utmost good faith, it is not enough that the applicant answer truthfully all questions asked by the insurer before the contract is effected. The applicant must also volunteer material facts, even if disclosure of such facts might result in rejection of the application or the payment of a higher premium.

The applicant is often in a position to know material facts about the risk that the insurer does not. To allow these facts to be concealed would be unfair to the insurer. After all, the insurer does not ask questions such as "Is your building now on fire?" or "Is your car now wrecked?"

The important, often crucial, question about concealments lies in whether or not the applicant knew the fact withheld to be material. The tests of concealment are: (1) Did the insured know of a certain fact? (2) Was this fact material? and (3) Was the insurer ignorant of this fact?

Warrantees

A warranty is a clause in an insurance contract holding that before the insurer is liable, a certain fact, condition, or circumstance affecting the risk must exist. For example, a marine insurance contract may state "warranted free of capture or seizure." This statement means that if the ship is involved in a war skirmish, the insurance is void. Or a bank may be insured on condition that a certain burglar alarm system be installed and maintained. Such a clause is condition precedent and acts as a warranty.

A warranty creates a condition of the contract, and any breach of warranty, event if immaterial, will void the contract. This is the central distinction between a warranty and a representation. A misrepresentation does not void the insurance unless it is material to the risk, while under common law any breach of warranty, even if held to be minor, voids the contract.

Warrantees may be express or implied. Express warranties are those stated in the contract, while implied warranties are not found in the contract, but are assumed by the parties to the contract. Implied warranties are found in ocean marine insurance. For example, a shipper purchases insurance under the implied condition that the ship is seaworthy, that the voyage is legal, and that there shall be no deviation from the intended course. Unless these conditions have been waived by the insurer (legally cannot be waived), they are binding upon the shipper.

A warranty may be promissory or affirmative. A promissory warranty describes a condition, fact, or circumstance to which the insured agrees to be held during the life of the contract. An affirmative warranty is one that must exist only at the time the contact is first put into effect. For example, an insured may warrant that a certain ship left port under convoy-affirmative warranty and the insured may warrant that the ship will continue to sail under convoy promissory warranty.

5.5. Principle of Contribution

Contribution is the right of an insurer who has paid under a policy, to call upon other insurers equally or otherwise liable for the same loss to contribute to the payment. Where there is over-insurance because a loss is covered by policies effected with two or more insurers, the principle of indemnity still applies. In these circumstances, the insured will only be entitled to recover the full amount of his loss and if one insurer has paid out in full, he will be entitled to nothing more.

Like subrogation, contribution supports the principle of indemnity and applies only to contracts of indemnity. There is, therefore, no contribution in personal accident and life policies under which insurers contract to pay specific sums on the happening of certain events. Such policies are not contracts of indemnity, except to the extent that they may incorporate a benefit by way of indemnity, e.g., payment of medical expenses incurred, in which respect contribution would apply.

It is important to understand the difference between contribution and subrogation. Subrogation is concerned with rights of recovery against third parties or elsewhere in respect of payment of an indemnity, and need not involve any other insurance, although it frequently does. Contribution necessarily involves more than one insurance each covering the interest of the same insured.

Basis of Contribution

At the time of a claim, insurers usually inquire whether any other insurance exists covering the loss. Where other insurances do exist and each policy is subject to a valid claim, contribution will apply so that the respective insurers share the loss ratably. This term allows two constructions, both of which are found in insurance:

i) ***Contribution According to Independent Liability***. This means that the amount payable by each insurer is assessed as if the other insurances do not exist. If the aggregate of the amounts so calculated exceeds the loss, each insurer's contribution is scaled down proportionately, so that an indemnity is provided.

This method is usually found where for some reason one or more of the policies will not cover the loss in full. This happens particularly in many fire policy contributions.

ii) ***Contribution According to the Sums Insured***. This is the normal method of contribution. Insurers will pay proportionately to the cover they have provided, in accordance with the following formula:

$$\frac{\text{Sum insured with the particular insurer}}{\text{Total sums insured with all insurers}} \times \text{Loss} = \text{Contribution}$$

Example: Assume that Ato Kebede has inured his house, which is worth 80,000 birr against fire insurers X, Y, and Z for 60,000 birr, 40,000 birr, and 20,000 birr respectively. Ato Kebede's house was completely destroyed by a fire caused by Ato Alemu's negligence. The amount of indemnity that Ato Kebede will be entitled to receive would be 80,000 birr, the value of the actual loss or the amount of insurance carried.

The amount that each insurer is entitled to contribute would be as follows:

X's share of the loss	$\frac{\text{Br. 60,000}}{\text{Br. 120,000}}$	X Br. 80,000 =	Br. 40,000
Y's share of the loss	$\frac{\text{Br. 40,000}}{\text{Br. 120,000}}$	X Br. 80,000 =	Br. 26,667
Z's share of the loss	$\frac{\text{Br. 20,000}}{\text{Br. 120,000}}$	X Br. 80,000 =	Br. 13,333
Total indemnity			Br. 80,000

5.6. Essential Requirements of an Insurance Contract

A contract is an agreement embodying a set of promises that are enforceable at law, or for breach of which the law provides a remedy. These promises must have been made under certain conditions before they can be enforced by law. In general, there are four such conditions, or requirements, that may be stated as follows:

1. The agreement must be for a legal purpose; it must not be against public policy or be otherwise illegal. For example a contract of insurance that covers a risk promoting a business or venture prohibited by law is void. Similarly a gambling contract will not be enforced by law.
2. The parties must have legal capacity to contract. This requirement excludes persons who have been deemed incapable of contracting, such as those who have been judicially declared insane; and persons who are legally incompetent such as infants, drunken persons, etc.

3. There must be evidence of agreement of the parties to the promises. In general this is shown by an offer by one party and acceptance of that offer by the other.
4. The promises must be supported by some consideration, which may take the form of money, or by some action by the parties that would not have been required had it not been for the agreement.

5.7. Events 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 persons 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 auto 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.

CHAPTER SIX
TYPES OF INSURANCE

LIFE AND HEALTH INSURANCE

Human values, aside from being more important to us from a personal standpoint, are far greater and more significant than all the different property values combined. The true wealth of a nation lies not in its natural resources or its accumulated property, but in the inherent capabilities of its population and the way in which this population is employed. A careful study of the specific types of economic loss caused by the destruction of life or health is vital to an understanding of the insurance methods available to offset these losses.

Life Values

A human life has value for many reasons. Many of these reasons are philosophical in nature, and would lead us into the realm of religion, esthetics, sociology, psychology, and other behavioral sciences. Of greatest interest here are economic values, although it is very difficult to separate the discussion in such a way that an economic analysis would have no implications or overtones for other viewpoints.

A human life has economic value to all who depend on the earning capacity of that life, particularly to two central economic groups-the family and the employer. To the family, the economic value of a human life is probably most easily measured by the value of the earning capacity of each of its members. To the employer, the economic value of human life is measured by the contributions of an employee to the success of the business firm. If one argues that in a free competitive society a worker is paid according to worth and is not exploited, the worker's contribution again is best measured by earning capacity. It develops that earning capacity is probably the only feasible method of giving measurable economic value to human life.

There are four main perils that can destroy, wholly or partially, the economic value of a human life. These include premature death, loss of health, old age, and unemployment.

6.1. Life Insurance

Every person faces two basic contingencies concerning life; he may die too soon, or he may live too long, to suit himself; it means that he may outlive his financial usefulness or his ability to provide for his needs. The first category is physical death. The second is economic death. A man, who is forced to retire at 55 from his job, unless he has substitute income, is financially dead. Economic death may also occur at early ages if the person becomes too disabled or ill to work. Life insurance is designed to provide protection against these two distinct risks premature death and superannuation. Thus, life insurance may be defined as a social and economic device by which a group of people may cooperate to ameliorate (make better) the loss resulting from the premature death or living too long of members of the group.

Unique Characteristics of Life Insurance

Life insurance is a risk pooling plan economic device through which the risk of premature death or superannuation is transferred from the individual to the group. However, the contingency insured against has certain characteristics that make it peculiar; as a result, the contract insuring against the contingency is different in many respects from other types of insurance.

First, the event insured against is an eventual certainty. No one lives forever or maintains his economic value. Yet we do not violate the requirements of an insurable risk in the case of life insurance, for it is not the possibility of death itself that we insure against, but rather untimely death. The uncertainty surrounding the risk in life insurance is not whether the individual is going to die, but when.

Second, life insurance is not a contract of indemnity. The principle of indemnity applies on a modified form in the case of life insurance. In most lines of insurance, an attempt is made to put the individual back in exactly the same financial position after a loss as before the loss. For obvious reasons, this is not possible in life insurance, the simple fact of the matter is that we cannot place a value on a human life.

Third, as a legal principle, every contract of insurance must be supported by an insurable interest, but in life insurance the requirement of insurable interest is applied somewhat differently than in property and liability insurance. When the individual taking out the policy is also the insured, there is no legal problem concerning insurable interest. The important question of insurable interest arises when the person taking out the insurance is someone other than the person whose life is concerned. In such cases, the law requires that an insurable interest exists at the time the contract is taken out. There are many relationships, as stated earlier, that provide the basis for an insurable interest.

Fourth, life insurance contracts are long-term contracts. Nearly all life policies are intended to continue until the insured's death or at least for several years. Other forms of insurance policies may be renewed many times, but are usually twelve-month contracts, which may be terminated by either party.

Finally the question of over insurance is immaterial in life insurance contracts.

6.1.1. Basic Types of Life Insurance Contracts

Not all people need exactly the same kind of protection from life insurance. Their ages differ, their incomes and financial obligations differ, and the number of their dependents differs. To provide all the different types of protection that are needed, insurance companies offer a variety of policies. The basic types of contracts are:

1. Term insurance
2. Whole life insurance.
3. Endowment insurance, and
4. Annuities.

Term Insurance

Term insurance provides protection only for a definite period (term) of time. A term insurance policy is a contract between the insured and the insurer whereby the insurer promises to pay face amount of the policy to a third party (the beneficiary) should the insured die within a given period of time. If the insured does not die during the period for which the policy was taken, the insurance company is not required to pay anything. Protection ends when the term of years expires. In other words, term life insurance resembles automobile insurance, fire insurance, and the like, which are always term insurance. Term insurance is sometimes called temporary insurance. Common types of term life insurance are 1-year term, 5-years term, 10-years term, 20-years term, and term to age 60 or 65. There are different forms of term insurance available to the potential purchaser, viz., straight term insurance, renewable term insurance, and convertible term insurance.

Straight term insurance is written for a year or for a specified number of years and terminates automatically at the end of the designated period.

Renewable term insurance is a type of contract under which the insured may renew his policy before its expiration date without making another medical examination or otherwise proving that he still is insurable. If the policy is renewable, the insurer will renew the policy, regardless of the insurability of the insured, for the number of times specified in the contract commonly to age 60 or 65.

Convertible term insurance is available from most life insurance companies. This insurance may be converted at any time during a specified period into a permanent form of insurance without taking a physical examination. Some insurance companies write a convertible term policy which provides that at the expiration of certain period of time the term insurance policy automatically will be converted into a permanent form of insurance. This is called automatic convertible term insurance. In most cases, these policies provide that term insurance will be converted to a continuous-premium whole-life policy.

Term insurance is suitable for insuring any need for protection, which is not life-long duration, non continuing needs for insurance. For example, a man with a mortgage that will take ten years to amortize can use term insurance to provide insurance protection during the mortgage period. Mortgage insurance protects homeowners from losing their homes in case the insured person dies before the mortgage is paid off.

Whole Life Insurance

As the name suggests, it is a permanent insurance that extends over the lifetime of the insured. The sum insured is payable on the death of the life insured. In other words whole life insurance protects the beneficiary when the insured dies, since the contract can be continued in force as long as the insured lives.

Whole life insurance contracts may be placed in two categories, depending upon the premium payment period:

1. Straight life insurance , and
2. Limited payment life insurance

Under straight life insurance, the premiums are payable for the remainder of the insured's lifetime. Under limited payment life insurance, the premiums are payable for the remainder of the insured's lifetime or until the expiration of a specified period, if earlier. A limited-payment life policy is one arranged so that the insured pays a higher premium than would be required on the straight life contract. Thus a definite termination date can be established beyond which no further payments are due. Limited installment plans could be 20-payment life, 30 payment life, and life paid up at age 65.

There are many different ways of arranging premium payments for whole life insurance, ranging from continuous installments over a person's entire life to a single installment (single premium whole life). In other words, an insured, at age 35, may pay a single sum, say 5,000 birr for a 10,000 birr policy, and never pay another premium. At the time of death the insurer pays the insured's beneficiary 10,000 birr. If the insured does not have 5,000 birr with which to pay the single premium (and few do), it may be paid by installments over whatever length of time is desired.

Whole life insurance is the ideal form of insurance for a person with dependent relatives, as substantial life cover is obtainable for the amount of premium payable.

Endowment Insurance

Endowment insurance promises to pay a stated amount of money to the beneficiary at once if the insured dies during the life of the policy called the "endowment period," or to the insured himself if he survives to the end of the endowment period. This is "you win if you live and you win if you die" contract. The endowment policy is, in a sense, a savings plan, which also gives insurance protection.

Under this type of contract the sum insured becomes payable at a maturity date (on the expiry of a fixed term, say 10 or 20 years,) or at death before that date.

Endowment insurance may be a useful way for some persons to accumulate a specified sum over a stated period of time whether they live or die. The objective may be funds to finance a child's college education, to pay living expenses during retirement, or to retire a debt.

Annuity Contracts

An annuity may be defined as a periodic payment to commence (begin) 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. First, annuities can be classified as immediate or deferred, depending upon whether the benefits are payable immediately after the purchase of the contract. The rent of an annuity can begin as soon as the annuity is purchased, in which case the transaction is called an immediate annuity. Alternatively, the rent can begin at some future time in which case the annuity is called a deferred annuity. Often the rent begins at retirement.

Second, annuities may be paid for by a single premium or by annual premiums. An annuity can be wholly paid up in a lump sum payment or it can be purchased in installments over a period of years. If the annuity is paid up at once, it is called a single-premium annuity. If it is paid for in installments, it is known as an annual-premium annuity.

Third, annuities may cover one life or joint lives. If two or more lives are covered, the payments may stop at the death of the first annuitant or at the death of the last annuitant. An annuity may be issued on more than one life. For example, the agreement might be to pay a given rent during the lifetime of two individuals, as long as either shall live.

This, a very common arrangement, is known as a joint and last survivorship annuity, because the rent is payable until the last survivor dies. The rent may be constant during the entire period or may be arranged to be reduced by, say, one-third upon the death of the first annuitant. Thus, a husband and wife both age 65 may elect to receive the proceeds of a pension plan on a joint and last survivorship basis, with an income guaranteed as long as either shall live.

6.1.2. Life Insurance Premiums

There are three primary elements in life insurance rate making:

1. Mortality
2. Interest
3. 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 know 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.

Table 6 – 1 illustrates the mortality experience in current use. It shows that a male age 20 has an expectation of living 52.37 years. At age of 20, only 190 men (105 women) in every 100,000 are expected to die before they become 21. The probability of death at age

20 is thus 0.19 percent. At age 96 the death rate is slightly over 38 percent, since 384 per 1,000 are expected to die during that year. At age 100 it is assumed that death is certainty. The probability of death expressed in a mortality table is based on insured lives and not the whole population.

Table 6-1
Commissioners Standard Ordinary (CSO) Mortality Table (1980)

	Male		Female		Male		Female		
Age	Deaths Per 1,000	Expectation of life (Years)	Death Per 1,000	Expectation of Life (Years)	Deaths Per 1,000	Expectation of life (Years)	Death Per 1,000	Expectation of Life (Years)	Age
0	4.18	70.83	2.89	75.83	7.30	24.52	5.31	28.67	51
1	1.07	70.13	0.87	75.04	7.96	23.70	5.70	27.82	52
2	0.99	69.20	0.81	74.11	8.71	22.89	6.15	26.98	53
3	0.98	68.27	0.79	73.17	9.56	22.08	6.61	26.14	54
4	0.95	67.34	0.77	72.23	10.47	21.29	7.09	25.31	55
5	0.90	66.40	0.76	71.28	11.46	20.51	7.57	24.49	56
6	0.86	65.46	0.73	70.34	12.49	19.74	8.03	23.67	57
7	0.80	64.52	0.72	69.39	13.59	18.99	8.47	22.86	58
8	0.76	63.57	0.70	68.44	14.77	18.24	8.94	22.05	59
9	0.74	62.62	0.69	67.48	16.08	17.51	9.47	21.25	60
10	0.73	61.66	0.68	66.53	17.54	16.79	10.13	20.44	61
11	0.77	60.71	0.69	65.58	19.19	16.08	10.96	19.65	62
12	0.85	59.75	0.72	64.62	21.06	15.38	12.02	18.86	63
13	0.99	58.80	0.75	63.67	23.14	14.70	13.25	18.08	64
14	1.15	57.86	0.80	62.71	25.42	14.04	14.59	17.32	65
15	1.33	56.93	0.85	61.76	27.85	13.39	16.00	16.57	66
16	1.51	56.00	0.90	60.82	30.44	12.76	17.43	15.83	67
17	1.67	55.09	0.95	59.87	33.19	12.14	18.84	15.10	68
18	1.78	54.18	0.98	58.93	36.17	11.54	20.26	14.38	69
19	1.86	53.27	1.02	57.98	39.51	10.96	22.11	13.67	70
20	1.90-	52.37	1.05	57.04	43.30	10.39	24.23	12.97	71
21	1.91	51.47	1.07	56.10	47.65	9.84	26.87	12.28	72
22	1.89	50.57	1.09	55.16	52.64	9.30	30.11	11.60	73
23	1.86	49.66	1.11	54.22	58.19	8.79	33.93	10.95	74
24	1.82	48.75	1.14	53.28	64.19	8.31	38.24	10.32	75
25	1.77	47.84	1.16	52.34	70.53	7.84	42.97	9.71	76
26	1.73	46.93	1.19	51.40	77.12	7.40	48.04	9.12	77
27	1.71	46.01	1.22	50.46	83.90	6.97	53.45	8.55	78
28	1.70	45.09	1.26	49.52	91.05	6.57	59.35	8.01	79
29	1.71	44.16	1.30	48.59	98.84	6.18	65.99	7.48	80
30	1.73	43.24	1.35	47.65	107.48	5.80	73.60	6.98	81
31	1.78	42.31	1.40	46.71	117.25	5.44	82.40	6.49	82
32	1.83	41.38	1.45	45.78	128.26	5.09	92.53	6.03	83
33	1.91	40.46	1.50	44.84	140.25	4.77	103.81	5.59	84
34	2.00	39.54	1.58	43.91	152.95	4.46	116.10	5.18	85
35	2.11	38.61	1.65	42.98	166.09	4.18	129.29	4.80	86
36	2.24	37.69	1.76	42.05	179.55	3.91	143.32	4.43	87
37	2.40	36.78	1.89	41.12	193.27	3.66	158.18	4.09	88
38	2.58	35.87	2.04	40.20	207.29	3.41	173.94	3.77	89
39	2.79	34.96	2.22	39.28	221.77	3.18	190.75	3.45	90
40	3.02	34.05	2.42	38.36	236.98	2.94	208.87	3.15	91
41	3.29	33.16	2.64	37.46	253.45	2.70	228.81	2.85	92
42	3.56	32.26	2.87	36.55	272.11	2.44	251.51	2.55	93
43	3.87	31.38	3.09	35.66	295.90	2.17	279.31	2.24	94
44	4.19	30.50	3.32	34.77	329.96	1.87	317.32	1.91	95
45	4.55	29.62	3.56	33.88	384.55	1.54	375.74	1.56	96
46	4.92	28.76	3.80	33.00	480.20	1.20	474.97	1.21	97
47	5.32	27.90	4.05	32.12	657.98	0.84	655.85	0.84	98
48	5.74	27.04	4.33	31.25	1,000.00	0.50	1,000.00	0.50	99
49	6.21	26.20	4.63	30.39					
50	6.71	25.36	4.96	29.53					

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 some time 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. For example, Br, 1.00 invested at 3% for a year will be worth Br. 1.03 at the end of the year. How much must we have now so that if we invest it at 3% will equal Br. 1.00 at the end of the year?

$$\frac{\text{Br. 1.00}}{\text{Br. 1.03}} = 0.97087379$$

So if we invest Br. 0.97087379 at 3% it will equal Br. 1.00 at the end of the year. Table 6–2 represents the value of Br.1.00 to be received at the end of some specified number of years at various rates of compound interest (interest upon interest.) It tells how much an individual (or an insurance company, for that matter) should have to invest at a given rate of interest to receive Br. 1.00 at some time in the future. Reading down the table, we can see that we should have to invest only about 55 cents at 3% to have Br. 1.00 at the end of 20 years.

Table 6-2
Present Value of Br. 1.00

$$\frac{1}{(1+1)^{n}}$$

Periods	.03(3%)	.06(6%)	.07(7%)	.08(8%)	.10(10%)
0					
1	0.9708 7379	0.9433 9623	0.9345 7944	0.9259 2593	0.9090 9091
2	0.9425 9591	0.8899 9644	0.8734 3873	0.8573 3882	0.8264 4628
3	0.9151 4166	0.8396 1928	0.8162 9788	0.7938 3224	0.7513 1480
4	0.8884 8705	0.7920 9366	0.7628 9521	0.7350 2985	0.6830 1345
5	0.8626 0878	0.7472 5817	0.7129 8618	0.6805 8320	0.6209 2132
6	0.8374 8426	0.7049 6054	0.6663 4222	0.6301 6963	0.5644 7393
7	0.8130 9151	0.6650 5711	0.6227 4974	0.5834 9040	0.5131 5812
8	0.7894 0923	0.6274 1237	0.5820 0910	0.5402 6888	0.4665 0738
9	0.7664 1673	0.5918 9846	0.5439 3374	0.5002 4897	0.4240 9762
10	0.7440 9391	0.5583 9478	0.5083 4929	0.4631 9349	0.3855 4329
11	0.7224 2128	0.5267 8753	0.4750 9280	0.4288 8286	0.3504 9390
12	0.7013 7988	0.4969 6936	0.4440 1196	0.3971 1376	0.3186 3082
13	0.6809 5134	0.4688 3902	0.4149 6445	0.3676 9792	0.2896 6438
14	0.6611 1781	0.4423 0096	0.3878 1724	0.3404 6104	0.2633 3125
15	0.6418 6195	0.4172 6506	0.3624 4602	0.3152 4170	0.2393 9205
16	0.6231 6694	0.3936 4628	0.3387 3460	0.2918 9047	0.2176 2914
17	0.6050 1645	0.3713 6442	0.3165 7439	0.2702 6895	0.1978 4467
18	0.5873 9461	0.3503 4379	0.2958 6392	0.2502 4903	0.1798 5879
19	0.5702 8603	0.3305 1301	0.2765 0833	0.2317 1206	0.1635 0799
20	0.5536 7575	0.3118 0473	0.2584 1900	0.2145 4821	0.1486 4363
21	0.5375 4928	0.2941 5540	0.2415 1309	0.1986 5575	0.1351 3057
22	0.5218 9250	0.2775 0510	0.2257 1317	0.1839 4051	0.1228 4597
23	0.5066 9175	0.2617 9726	0.2109 4688	0.1703 1528	0.1116 7816
24	0.4919 3374	0.2469 7855	0.1971 4662	0.1576 9934	0.1015 2560
25	0.4776 0557	0.2329 9863	0.1842 4918	0.1460 1790	0.0922 9600
26	0.4636 9473	0.2198 1003	0.1721 9549	0.1352 0176	0.0839 0545
27	0.4501 8906	0.2073 6795	0.1609 3037	0.1251 8682	0.0762 7768
28	0.4370 7675	0.1956 3014	0.1504 0221	0.1159 1372	0.0693 4335
29	0.4243 4636	0.1845 5674	0.1405 6282	0.1073 2752	0.0630 3941
30	0.4119 8676	0.1741 1013	0.1313 6712	0.0993 7733	0.0573 0855
31	0.3999 8715	0.1642 5484	0.1227 7301	0.0920 1605	0.0520 9868
32	0.3883 3703	0.1549 5740	0.1147 4113	0.0852 0005	0.0473 6244
33	0.3770 2625	0.1461 8622	0.1072 3470	0.0788 8893	0.0430 5676
34	0.3660 4490	0.1379 1153	0.1002 1934	0.0730 4531	0.0391 4251
35	0.3553 8340	0.1301 0522	0.0936 6294	0.0676 3454	0.0355 8410
36	0.3450 3243	0.1227 4077	0.0875 3546	0.0626 2458	0.0323 4918
37	0.3349 8294	0.1157 9318	0.0818 0884	0.0579 8572	0.0294 0835
38	0.3252 2615	0.1092 3885	0.0764 5686	0.0536 9048	0.0267 3486
39	0.3157 5355	0.1030 5552	0.0714 5501	0.0497 1341	0.0243 0442
40	0.3065 5684	0.0972 2219	0.0667 8038	0.0460 3093	0.0220 9493
41	0.2976 2800	0.0917 1904	0.0624 1157	0.0426 2123	0.0200 8630
42	0.2889 5922	0.0865 2740	0.0583 2857	0.0394 6411	0.0182 6027
43	0.2805 4294	0.0816 2962	0.0545 1268	0.0365 4084	0.0166 0025
44	0.2723 7178	0.0770 0908	0.0509 4643	0.0338 3411	0.0150 9113
45	0.2644 3862	0.0726 5007	0.0476 1349	0.0313 2788	0.0137 1921
46	0.2567 3653	0.0685 3781	0.0444 9859	0.0290 0730	0.0124 7201
47	0.2492 5876	0.0646 5831	0.0415 8746	0.0268 5861	0.0113 3819
48	0.2419 9880	0.0609 9840	0.0388 6679	0.0248 6908	0.0103 0745
49	0.2349 5029	0.0575 4566	0.0368 2410	0.0230 2693	0.0093 7041

50	0.2281 0708	0.0542 8836	0.0339 4776	0.0213 2123	0.0085 1855

Net Single Premium

The net single premium is the amount the insurer must collect in advance to meet all the claims arising during the policy period. To illustrate the general method of calculating the net single premium, we will assume that a given insurer wishes to determine the premium for a one-year term insurance contract with a face amount of birr 1,000 for a group of entrants, age 20. Reference to the CSO 1980 table of mortality reveals that the probability of death at age 20 for a male is 0.0019. This means that out of 100,000 men living at the beginning of the year, 190 will die during the year. The rate-maker in life insurance makes two assumptions in calculating the necessary premium:

1. All premiums will be collected at the beginning of the year and hence it will be possible to earn interest on the advance payment for a full year.
2. Death claims are not paid until the end of the year in question. In practice, of course, death claims are paid whenever death occurs.

Calculation of the premium under these assumptions is simplified because the insurer knows that if a 1,000 birr policy is issued to each of the 100,000 entrants, death claims of 190,000 will be payable at the end of the year. The problem then is one of discounting the sum for one year at some assumed rate of interest. Thus, if the insurer is to guarantee earnings of 3%, birr 0.9708 must be on hand now in order to have birr 1.00 at the end of one year.

Present value of birr 190,000 at the end of one year
= 190,000 birr X 0.9708
= 184,452 birr

The proportionate share of this obligation attached to each entrant is

$$= \frac{184{,}452 \text{ birr}}{100{,}000}$$
= 1.84 birr

If each entrant pays 1.84 birr, the insurer will have sufficient funds on hand to pay for death costs under the policy. The 1.84 birr is known as the net single premium.

The formula for net single premium is:

Face value of policy		Mortality rate		Discount factor	
Br. 1,000	X	0.0019	X	0.9708	= Br. 1.84

Assume that the actuary must calculate the net single premium for Br. 1,000 one-year term insurance policy for a 35-year-old male at 3% interest assumption and the C.S.O.1980 Table.

Net single premium = 1,000 birr x 0.00211 x 0.9708 = Br. 2.04

The net single premium for a birr 1,000 policy issued to 100,000 entrants at age 20, say, three years is calculated in a similar manner, except that the calculation is carried out over a three year period instead of one. The following table illustrates the method.

Number assumed to be living at	dying	Number death claims	Amount of of Br.1.00at 3% interest	Present value	Present value of death claims
Age 20	100,000	190	Br.190,000	0.9708	Br.184,452
Age 21	99,810	191	191,000	0.9425	180,018
Age 22	99,619	189	189,000	0.9151	172,954
					Br.537,424

The net single premium is then computed;

$$\frac{\text{Br. } 537{,}424}{100{,}000} = \text{Br. } 5.37$$

It will be observed that each person must pay in advance the sum of Br. 5.37 for three years of protection.

While the calculation above is a simple one, it illustrates the basic method of premium calculation in 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.

Alternatively the net single premium payable by an individual entrant for Br. 1,000 policy of 3 years term could also be computed using the following formula.

		Face value of policy		Mortality rate		Discount factor	
NSP	=		X		X		
	1)	Br. 1,000	X	0.0019	X	0.9708	= 1.8445
	2)	" 1,000	X	0.00191	X	0.9425	= 1.8001
	3)	" 1,000	X	0.00189	X	0.9151	= 1.7295
							5.3741

Net Level Premium

It would be impractical to attempt to collect a net single premium from each member of an insured group. Few people would have the necessary funds for an advance payment of all future obligations. Therefore, actuaries must calculate an annual premium.

Actuaries find the net level premium (NLP) by dividing the net single premium (NSP) by an amount known as the present value of an annuity due (PVAD).

$$\text{NLP} = \frac{\text{NSP}}{\text{PVAD}}$$

The present value of an annuity due of Br. 1 a year for three years is the present value of a series of payments of Br. 1 each year, the first payment due immediately, adjusted for the probability of survival each year.

The calculation is shown in the following table.

Age	Present value of Br. 1, First payment due immediately, at 3% interest	Number of entrant group still living	Discounted value of each payment
20	Br. 1.0000	100,000	Br.100,000
21	0.9708	99,810	96,896
22	0.9425	99,619	93,891
			Br.290,787

The value per entrant can then be computed:

$$\text{Br. } \frac{290{,}787}{100{,}000} = \text{Br.2.91}$$

The PVAD of Br. 1 a year for three years can also be calculated in the following manner.

PVAD = Payments of Each year X Discount Factor X Survival Rate

1)	Br.1	X	1.0000	X 1.0000	=	Br.1.0000
2)	Br.1	X	0.9708	X 0.9981	=	" 0.9690
3)	Br.1	X	0.9425	X 0.9962	=	" 0.9389
						Br.2.91

The present value of an annuity due may be interpreted as follows:
What is the present value of a promise of a large group of people to pay a sum of Br. 1 each year for three years? As the first payment is due immediately (corresponding to the fact that life insurance premiums are collected in advance), its present value is Br. 1. The second payment is due one year from now. If everyone lived to pay his or her share, the present value of the second payment would be Br. 0.9708. Not everyone will live, however, and so the Br. 0.9708 must be reduced to reflect this fact. The amount is therefore, reduced by a factor that specifies how many may be expected to live to pay their share (i.e., the amount is multiplied by the probability of survival of the original group of entrants).

This process is continued, and we find that the present value of the promise is Br.2.91. If the sum is divided into the present value of the total death claims (i.e., the net single premium), the insurer knows how much must be collected annually from a specified group of insured's in order to have a sum that will enable the insurer to pay all obligations. The net level premium for the three-year term policy is, thus,

$$\text{Br.}\frac{5.3741}{2.91} = \text{Br. } 1.85$$

Gross Premium

Gross premium is the pure premium plus loading for the necessary expenses of the insurer. The net level premium for life insurance represents the pure premium that is

unadjusted for the expenses of doing business. The pure premium is actually the contribution that each insured makes to the aggregate insurance fund each year for the payment of both death and living benefits.

6.2. Health Insurance

Health insurance may be defined broadly as the type of insurance that provides indemnification for expenditures and loss of income resulting from loss of health. Health insurance is insurance against loss by sickness or bodily injury. The loss may be the loss of wages caused by sickness or accident, or it may be expenses for doctor bills, hospital bills, medicine, etc.

6.2.1. Types of Health Insurance

There are two types of insurance in the generic term health insurance:

1) Disability income insurance, and
2) Medical expense insurance.

Disability Income Insurance

Disability income insurance is a form of health insurance that provides periodic payments when the insured is unable to work as a result of illness or injury. It may pay benefits only in the event of sickness or only in the event of accidental bodily injury or it may cover both contingencies in one contract. Benefit eligibility presumes a loss of income, but in practice this is usually defined as the inability to peruse an occupation. The fact that the insured's employer may continue his or her wages does not reduce the insurance benefit.

The disability must be one that prevents the insured from carrying on the usual occupation. Most policies continue payment of the benefits for only a specified maximum number of years, but lifetime benefits are available on some contracts. However, under all loss of income policies, the benefits are terminated as soon as the disability ends.

Certain types of accidents are excluded, for example, losses caused by war, suicide and intentionally inflicted injuries, and injuries while in military service during wartime.

Medical Expense Insurance

Medical expense insurance provides for the payment of the cost of medical care that result from sickness and injury. Its benefits help meet the expenses of physicians, hospital, nursing and related services, as well as medications and supplies. Benefits may be in the form of reimbursement of actual expenses, up to a limit, cash payments or the direct provision of services. The medical expenses may be paid directly to the provider of the services or the insured.

Medical expense insurance is divided into four major classes:

1) Hospitalization expense contract
2) Surgical expense contract
3) Regular medical expense contract
4) Major medical expense contract

Hospitalization Contract:- The hospitalization contract is intended to indemnify the insured for necessary hospitalization expenses, including room and board in the hospital, laboratory fees, nursing care, use of operating room, and certain medicines and supplies.

Hospitalization expense is usually written for a flat daily amount for a specified number of days such as 30,120, or 365. The contract provides that costs upto the maximum benefit per day (say 40 birr, 50 birr, 70 birr etc.) will be paid for the number of day specified, while the insured or an eligible dependent is in the hospital.

The agreement may set birr allowance for the different items or may be on a service basis. Typical contracts offered by insurance companies, for example, may state that the insured will be indemnified up to "X birr per day" for necessary hospitalization.

Exclusions under hospitalization contracts:

Like all insurance policies, hospitalization contracts offered by insurers are subject to exclusions. The following exclusions are typical of hospitalization contracts:

1) Expenses resulting from war or any act of war.
2) Expenses resulting from self-inflicted injuries.
3) Expenses payable under worker's compensation or any occupational disease law.
4) Expenses incurred while on active duty with the armed forces.
5) Expenses incurred for purely cosmetic purposes.
6) Expenses incurred by individuals on an outpatient basis.
7) Services received in any government hospital not making a charge for such services.

Surgical Contract**:** - The surgical contract provides set allowances for different surgical procedures performed by duly licensed physicians. In general, a schedule of operations is set forth together with the maximum allowance for each operation. It reimburses the policyholder according to a schedule that lists the amounts the policy will pay for a variety of operations.

Regular Medical Contract: - The regular medical expense insurance pays part or all of a physicians ordinary bills, such as his calls at the patient's home or at a hospital or a patient's visit to his office. It is a contract of health insurance that covers physicians' services other than surgical procedures. Normally, regular medical insurance is written in conjunction with other types of health insurance and is not written as a separate contract.

Major Medical Contract: - The major medical expense insurance provides protection against the very large cost of a serious or long illness or injury. The major medical policy is most appropriate for the large medical expenses that would be financially unaffordable for the individual.

The contract is issued subject to substantial deductibles of different sorts and with a high maximum limit. Since this kind of policy is designed to cover only serious illness or accidents, a deductible is used to eliminate small claims. A major medical policy might have a 5,000 birr maximum limit for any one accident or illness, have a 200 birr

deductible for any one illness, and contain an agreement to indemnify the insured for a specified percentage of the bills, such as 80% over and above the amount of the birr deductible. This means the insurance company pays 80% of the loss in excess of the deductible, and the insured pays the 20%. In the absence of the coinsurance clause, there would be no incentive for the insured or the doctor to keep expenses within reasonable limits.

CHAPTER SEVEN
PROPERTY AND LIABILITY INSURANCE

Property and liability insurance consists of those forms of insurance that are designed to provide protection against losses resulting from damage to or loss of property and losses resulting from legal liability.

7.1. Property Insurance

Property may be exposed to a wide range of perils – fire, theft, perils of the sea, and damage by persons (whether accidental or carelessness).

7.1.1. Fire Insurance

Fire insurance is designed to indemnify the insured for loss of, or damage to, buildings ad personal property by fire, lighting, windstorm, hail, explosion, and a vast array of other perils. Coverage may be provided for both the direct loss (that is the actual loss represented by the destruction of the asset), and indirect loss (defined as the loss of income and/or extra expenses caused by the loss of use of the asset protected). Originally, only fire was an insured peril, but the number of perils insured against has gradually been expended.

Business may therefore, purchase fire insurance contracts covering their building and its contents, to both the perils of fire and lightning. The standard fire policy promises in its insuring clause to indemnify the insured for "direct loss by fire, lightning and by removal from premises endangered by the perils insured against."

Insurers, however, may offer protection against a very great number of perils other than fire and lightning by extending the contract in relation to the interest of the insured through additional premium payment. For additional premium, the standard fire policy may be extended to cover any of the following perils: windstorm, explosion, damage by aircraft, damage by vehicle, flood, earthquake fire and shock, bursting of pipes and water damage, etc.

Not all fires are covered under the fire insurance contract, but the exclusions are few:
1. fires caused by war
2. fires intentionally set by public authorities, and
3. fires set intentionally by the insured.

Policy Format

Most of the first page of the standard fire policy is a declarations section in which is printed such information as the insured's name and address, the policy inception and expiration dates, the description and location of the property covered, the perils insured against, the amount of insurance applicable to each peril, and the code numbers of the forms and endorsements that are attached. The standard fire policy plus the descriptive form may be modified by one of more other forms or endorsements. These other forms may add, for example, business interruption insurance or extra expense insurance. Endorsements may increase or decrease the coverage. For example, they may add additional perils or exclude some parts of a covered building, such as the foundations.

The first page also contains a brief insuring agreement that states the insurer's basic promise. The second page describes such matters, as perils not included, uninsurable and excepted, property, cancellation, and requirements in case a loss occurs.

Types of Policies

There are different types of fire policies, some of the important policies include the following:

1. Valued Policy: This is a policy where the value of the property to be insured against fire and allied perils is determined at the time the policy is issued. Under valued policy also referred to as "ordinary fire insurance policy," the insurer pays the total value of damaged property irrespective of the market value of the property at the time of destruction or loss.
2. Valuable (Automatic Reporting) policy: Under this policy the indemnity to be paid by the insurer is to be determined at the time of the loss or after the loss has taken place. This policy is often used for properties where their value cannot be accurately determined at the inception of the contract, example, a building in process.
3. Floating Policy: Under this policy the insurer covers the interest of the insured on assets in different locations. Comprehensive Policy: This form of fire insurance policy gives full protection, not only against the risk of fire but all related perils such as riot; theft; damage by vehicles, animals or articles from the air, including aircraft and the like.

Rating

The rate of any given policy of protection varies in relation to the nature of the property, location, type of perils insured against, the actual cash value of the property, duration of the policy, and other similar factors that will have a bearing impact on the risk to be assumed by the insurer. In general, after consideration of such factors, fire insurance basic rates are expressed in terms of cents per 100 birr value for a base of one year. In other words the rule of percentages is used in the computation of the premium rates.

To illustrate, assume that a property valued at 80,000 birr was insured at 60¢ per one hundred for a protection of one year, the premium required can be computed as follows:

$$\text{Premium} = \frac{\text{Value of the property}}{100} \text{ X Protection rate}$$

$$= \frac{\text{Birr } 80{,}000}{100} \text{ X } 0.60$$

= Birr 480, premium for one year

Once the premium for one year is determined, it can be extended for any number of years as required by multiplying the annual rate and the long-term rate that can be determined by the company as in case of the mortality rate for different stages of age. To illustrate let us assume that the long-term rates for a given insurer are determined as follows:

Term	Long-term rates

2 years	1.85 times the annual rate
3 "	2.70 " " "
4 "	3.50 " " "
5 "	4.40 " " "

Further, if we assume that there is an insured who wants to have an insurance policy for his 20,000 birr worth at the annual rate of 25¢ per one hundred birr value, we can determine the premium required for one year or three years policy as follows:

$$\text{Premium for one year} = \frac{\text{Br. } 20{,}000}{100} \times 0.25 = \text{Br. } 50$$

Premium for three years = Br. 50 X 2.70 = Br. 135

Similarly, a house valued at 24,000 Br. is insured annually for 80 percent of its value at 36 ¢ per one hundred birr, the premium for four years can be computed as follows:

Premium base (insurable value) is:

$$\text{Br. } 24{,}000 \times \frac{80}{100} = \text{Br. } 19{,}200$$

$$\text{Annual premium} = \frac{19{,}200 \times 0.36}{100} = \text{Br. } 69.12$$

Premium for four years = Br. 69.12 X 3.5 = Br. 241.92

Settlement of Losses

Settlement of loss depends on the type of policy carried or the agreement made at the inception of the policy between the insurer and the insured. For illustration consider the following cases:

1) Settlement under ordinary fire insurance policy (OFIP) or standard fire insurance policy. Here the insurer pays the full amount of the loss up to the face value of the policy.

Example: A house that was valued at Br. 30,000 was insured for Br. 25,000. If a loss of 20,000 birr 25,000 birr and 30,000 birr has occurred, the insurer will pay 20,000 birr, 25,000 birr and 25,000 birr respectively.

2) Settlement of loss from more than one insurer: when the insured has carried insurance from more than one insurer and a loss has occurred the different insurers would contribute to the loss on pro rata basis up to the amount of the face value of the policy on the amount of the actual loss.

Example: An apartment building was insured under the following: with insurer 'A' for Br. 50,000 and with insurer 'B' for Br. 30,000. Assuming a loss of Br. 32,000 has occurred, the two insurers would contribute to the loss as follows:

A = Br. 50,000 X Br. 32,000 = Br. 20,000

$$B = \frac{\text{Br. 30,000} \times \text{Br. 32,000}}{\text{Br. 80,000}} = \text{Br. 12,000}$$

Total indemnity for the insured = Br. 32,000

3) Settlement under coinsurance fire policy. When the policy is carried on the basis of coinsurance clause the insurer will have the right to make the insured pay part of the loss if he is underinsured.

Example: Assume that an insured six months ago purchased Br.100, 000 of insurance on property with an actual cash value of Br.150, 000. Assume further that the insurance contract contained an 80 percent coinsurance clause. If the property is worth 200,000 birr today, the amount the insurer would pay toward a loss today would be computed as follows:

$$\text{Indemnity} = \frac{\text{Amount of insurance carried}}{\text{(Coinsurance \%) value at time of loss}} \times \text{loss}$$

But not to exceed the loss or the amount of insurance, or

$$\frac{\text{Br. 100,000}}{0.80(\text{Br. 200,000})} \times \text{loss}$$

$$= 5/8 \times \text{loss}$$

If the loss were Br. 80,000 the insurer would pay Br. 50,000.
If the loss were Br. 170,000, the insurer would pay Br. 100,000, the amount of insurance. The answer will always be the amount of insurance when the loss exceeds the required insurance.

The term coinsurance has different meanings in insurance. In health insurance the coinsurance clause is simply a straight, deductible, expressed as a percentage. Its purpose in health is to make the insured bear a given proportion, say 20%, of every loss, because it has been found through experience that without such a control, the charges for doctors and other medical services tend to be greatly enlarged, thus increasing the premium to a prohibitive level. The insured that must personally bear a substantial share of the loss is less inclined to be extravagant in this regard.

In fire insurance, the coinsurance clause is a device to make the insured bear a portion of every loss ***only when underinsured***.

7.1.2. Marine Insurance

Marine insurance is designed to protect against financial loss resulting from damage to, or destruction of owned property, due to the perils primarily connected with transportation. It is a contract of transport insurance whereby the insurer undertakes to

indemnify the insured in the manner and to the extent thereby agreed, against losses and damages involved in being transported. In consideration of the payment of a certain sum called the "premium," the insurer (underwriter), agrees to indemnify the insured (the client) against loss or damage caused by certain specified perils, termed "maritime perils.

The marine Cargo Policies of Ethiopian Insurance Corporation are internationally accepted, worded and standardized insurance policies. Accordingly, the coverage it affords is to indemnify the insuring public as per the terms, conditions, warranties, and exceptions of the policy in respect of loss of or damage to the cargo insured mainly resulting from maritime perils: (heavy weather, stranding, collision, etc.) or inland-transit accident (such as collision, overturning of the carrying conveyance, explosion, fire, theft, non-delivery of the goods, etc.)

Marine insurance is divided into two classes: ocean marine and inland marine.

Ocean Marine Insurance

Contracts concerned primarily with water transportation are considered to be ocean marine insurance. For a considerable time ocean marine insurance was the only kind of modern insurance.

Insurance has been developed and has attained a high degree of refinement in modern-day commerce. As world trade grew and values at risk became larger, the need for coverage become more apparent. Larger ships and more refined instruments of navigation made long voyages possible, and with this development insurance protection was looked upon as almost a necessity.

Major Types of Coverage

The four chief interests to be insured in an ocean voyage are:

1. The vessel, or the hull
2. The cargo
3. The shipping revenue or freight received by the ship owners
4. Legal liability for proved negligence

If a peril of the sea causes the sinking of a ship in deep water, one or more of these losses can result. However, each of these potential losses can be covered under various insurance policies.

Hull Policies

Policies covering the vessel itself or hull insurance are written in several different ways. The policy may cover the ship only during a given period of time, usually not to exceed one year. The insurance is commonly subject to geographical limits. If the ship is laid up in port for an extended period of time, the contract may be written at a reduced premium under the condition that the ships remain in port. The contract may cover a builder's risk while the vessel is constructed.

Cargo Policies

Contracts insuring cargo against various types of loss may be written to cover only during a specified voyage, as in the case of a hull contract, or on an open basis. Under the open contract, there is no termination date, but either party may cancel upon giving 30 days' written notice to the other; otherwise the insurance is continuous. All shipments, both incoming and outgoing, are automatically covered. The shipper reports to the insurer at regular intervals as to the values shipped or received during the previous period.

Cargo policies written on a voyage basis cover that single voyage, but open policies usually cover all shipments made on and after a certain date. If an open policy is cancelled, the coverage continues on shipments made prior to the cancellation date.

Freight Coverage

The money paid for the transportation of the goods, known as freight, is an insurable interest because in the event that freight charges are not paid, someone has lost income with which to reimburse expenses incurred in preparation for a voyage. The earning of freight by the hull owner is dependent on the delivery of cargo unless this is altered by contractual agreements between the parties. If a ship sinks, the freight is lost and the vessel owner loses the expenses incurred plus the expected profit on the venture. The carrier's right to earn freight may be defeated by the occurrence of losses due to perils ordinarily insured against in an ocean marine insurance policy. The hull may be damaged so that it is uneconomical to complete the voyage, or the cargo may be destroyed, in which case, of course, it cannot be delivered. Also the owner of cargo has an interest in freight arising from the obligation to pay transportation charges. Freight insurance is normally made a part of the regular hull or cargo coverage instead of being written as a separate contract.

Legal Liability for Proved Negligence

In ocean marine insurance policies the hull owner is protected against third – party liability claims that arise from collisions. Collision loss to the hull itself is included in the peril clause as one of the perils of the sea. The liability insurance is intended to give protection in case the ship owner is held liable for negligent operation of the vessel which is the proximate cause of damage to certain property of others. The vessel owner or agent of that owner who fails to exercise the proper degree of care in the operation of the ship may be legally liable for damage to the other ship and for loss of freight revenues.

Loss Settlement

If the cargo is totally destroyed, the insurer must pay the face value of the policy. If the cargo is only partially damaged the insured and the insurer must agree on the percentage of damage. If they cannot agree, the damaged cargo is to be sold for the account of the owner and the amount received compared, with what would have been received had the cargo been in sound condition. In either case, the liability of the insurer is determined by applying the percentage of damage to the amount of insurance.

For example, assume that a cargo insured for 4,000 birr could have been sold for 6,000 birr in sound condition but are worth only 4,500 birr in damaged condition. Since, the damage is 25 percent; the insurer must be pay 25 percent of 4,000 birr. Note that if the

amount of insurance is less than the value of the cargo in sound condition, the amount of the insurance payment is equal to the amount under a 100 percent coinsurance clause.

Inland Marine Insurance

Inland marine cargo insurance covers shipments primarily by land or by air. Although the trucker, railroad, or airline may be a common carrier with the extensive liability (balled liability exposures), the shipper may still be interested in cargo insurance because:

1. It is usually more convenient to collect from an insurer than a carrier,
2. A common carrier is not responsible for perils such as an act of war, exercise of public authority, or inherent defects in the cargo.

No one cargo insurance contract exists. Instead, different insurers may issue different contracts, and a given insurer will tailor the contract to the insured's needs. A convenient way to classify the contracts is according to the type of transportation covered. One or more of the following modes of transportation may be covered-railroad, motor truck, or air. Shipments by mail are covered under separate first- class mail, parcel port, or registered mil insurance.

7.1.3. Fidelity Guarantee Insurance

Fidelity guarantee insurance indemnifies an employer for any loss suffered at the hands of dishonest employees. It provides guarantee against loss through the dishonesty or incapacity of individuals who are trusted with money or other property and who violate this trust.

Cashiers and others who handle money, and other persons employed in positions of trust, are frequently required by their employers to provide security as protection against their personal dishonesty usually in the form of fidelity guarantee policy. The policy indemnifies the employer against losses from the dishonesty of his employees. The employer himself often takes out the policy. He may insure a number of employees either individually or in a group basis under a variety of policies.

Unlike other policies, fidelity guarantee policies specify a time limit to discover the loss and report it to the insurer after the resignation, dismissal, retirement, or death of the employee in question. Hence, while the insurer undertakes to make the insured's financial losses lighter, it is also a requirement that the insured should

1) Inform the insurer of such fraudulent act immediately upon discovery
2) Either obtain admission of fraud or take appropriate legal action to establish fraud, and
3) Cooperate with the insurer to bring the defaulter before the court of law.

In addition, before accepting the risk the insurer considers employer's type of establishment, methods of selecting employees, working conditions, emoluments and benefits in relation to the responsibility assigned, supervision and control measures effectiveness.

7.1.4. Theft Insurance

Although theft is generally one of the perils covered under an all risks policy, the contract usually excludes or limits the amount of protection on certain types of property, such as money, that is highly susceptible to theft losses.

Theft insurance protects a business against losses by burglary, robbery, or some other form of theft by persons other than employees. Fidelity guarantee insurance or dishonesty insurance covers losses caused by dishonest acts of employees.

Burglary is the act of unauthorized entry, with criminal intentions into any building or residence. It is the unlawful taking of property from within premises closed for business, entry to which has been obtained by force. There must be visible marks of the forcible entry. Thus, if a customer hides in a store until after closing hours, or enters by an unlocked door, steals some goods, and leaves without having to force a door or a window, the definition of burglary is not met under a burglary policy.

Robbery, on the other hand, is defined to mean the unlawful taking of property from another person by force, by threat of force, or by violence. Personal contract is the key to understanding the basic characteristic of the robbery peril. However, if a burglar enters a premise and steals the wallet of a sleeping night guard, this crime is not one of robbery because there was no violence or threat thereof. The person robbed must be cognizant of this fact. On the other hand if the thief knocks out or kills the guard and then robs the guard or the owner, the crime would be classed as robbery. Robbery thus means the forcible taking of property from a messenger or a custodian.

According to the EIC burglary policy it does not cover losses or theft committed by:

1) Members of the insured's household,
2) The insured himself or his assignee,
3) Theft connected with war (declared or undeclared) or any kind of population uprising, or
4) Theft of valuables including documents and works of art unless agreed pre hand. In addition, failure to disclose material facts at the time of writing the policy will also make any theft claims null and void.

7.2. Liability Insurance

Liability insurance is a contract that protects the insured against legal responsibility for losses to the person or property of others.

7.2.1. Automobile Insurance

Most automobile insurance contracts are schedule contracts that permit the insured to purchase both property and liability insurance under one policy. The contract can be divided, however, into two separate contracts one providing insurance against physical damage to automobiles and the other protecting against potential liability arising out of the ownership or use of an automobile.

The object of automobile insurance is to indemnify the insured against accidental loss or damage to his auto and/or his liability at law for bodily injury or material damage caused by the use of the motor vehicle, subject to the terms and conditions and to the cover granted.

There are two main types of insurance covers in both motor commercial and motor private insurance, viz.
Comprehensive cover and third party cover.

a) Comprehensive Cover:- A comprehensive cover provides protection against a wide range of contingencies. It includes indemnity in respect of the insured's legal liability for death or bodily injury or damange caused to the property of third parties arising out of the insured's vehicle. The policy also indemnifies the insured in respect of all damages to the vehicle caused by an accidental, external physical means as a result of collision, overturning, fire, self-ignition, lightning, explosion, and burglary.

The policy excludes, among other things, the following:

- Consequential loss sustained by the insured,
- Wear and tear /depreciation/ of motor vehicle,
- Mechanical or electrical breakdown of failure of any part of a motor vehicle,
- Death of or injury to members of insured family or his employees,
- Damage to property of the insured or held by him in trust or in custody.

b) Third Party Cover: - There are two parties involved in an insurance contract, the insurer and the insured. Accordingly, any other person who may become linked in some way with the insurance is regarded as third party. A third party only policy covers the insured's legal liability (i.e., property damage, death, and injury) towards other people in the event of an accident arising out of the use of a motor vehicle.

A third party policy may be extended to include at an additional premium the policy holder's vehicle against the risks of fire and theft as follows:-

- Third party, fire and theft
- Third party and fire
- Third party and theft.

The basic cover guaranteed by the Ethiopian Insurance Corporation's policies can be extended to cover additional risks at an additional premium.

Classification of Risks

There are various categories of automobile risks and a distinction is made in accordance with the use and type of the vehicles. The main classifications are as follows:-

1. Private Vehicles: - A motor vehicle used solely for private (social, domestic, pleasure, professional purpose or business calls of the insured) purposes are classified as "private vehicles" and are insured under the "private motor vehicles policy." The term "private purposes" does not include use for hiring, racing, and carriage of goods in connection with any trade or business.

2. Commercial Vehicles:- A wide rage of vehicles which carry goods and passengers are classified under this heading and different rates of premium are applied depending on their use and type.

7.2.2. Aviation Insurance

Aviation insurance is a comparatively recent phenomenon that has been developing with the development of passenger planes, particularly "Jumbo Jets." The overall increase in the number of different passenger planes and the increase in their value called for aviation insurance. Aviation insurance is an insurance that provides protection against loss of or damage to the different types of passenger and cargo planes, and associated losses.

Like automobile insurance, aviation insurance includes both property insurance, on the planes and liability insurance.

Types of Policies

The most common types of policies under aviation insurance are:-

1) Aircraft comprehensive policy
2) Freight liability policy which includes airmail liability policy.

Aircraft Comprehensive Policy:- This policy covers against three type's of potential losses:

a) Accidental damage to the aircraft, where protection is provided for damage to the aircraft by accidents except those that are specifically excluded on the policy;
b) Third party legal liability, where the insurer assumes the responsibility to indemnify the insured for death of or bodily injuries to, third parties (excluding passengers) and ground damage;
c) Legal liability of the insured in respect of death of, or bodily injuries to, passengers. Passengers' baggage and personal effects, which are registered, are also covered by the insurance.

7.2.3. Workers' Compensation/Employers' Liability/ Insurance

Workers' compensation insurance covers loss of income, medical, and rehabilitation expenses that result from work related-accidents and occupational disease. Insured workmen always retain the right to claim damages. Employers' liability claims become much more common, aided by Trade Unions.

If an employee is killed or injured at work as a result of an accident arising from defective premises or equipment than a court may award damages against the employer. Any employer is liable for an employee who suffers accidental bodily injury or disease while working for him. The employee is thus entitled to compensation for injuries that may be temporary or permanent. This compensation being unforeseen expenditure, the employer finds it difficult to compensation such losses especially when it involves a huge amount. An employer may therefore, take out an insurance policy insuring himself against such claims by his employees.

The insurance which provided protection for injuries to employees while at work, and a s a result make the employer liable for the loss, is called workers' compensation insurance.

In addition to buying insurance, the insured (employer) can lower the loss claims by:

a) Providing a safe place of work to his employees,
b) Proper plant tolls, machinery and working implements, and
c) Hiring competent and sober fellow employees.

7.2.4. Public Liability Insurance

Public liability insurance was developed with employees' liability insurance. Once, public opinion had accepted the morality of being able to insure one's liability, and the availability of such insurance became known, the business grew rapidly.

The policy provides compensation for legal liability for death, injury, or disease to people other than employees (which should be covered by employers' liability policy). Public liability insurance provides what is popularly termed "third party cover". It indemnifies the insured in respect of his legal liability for accidents to members of the public, or for damage to their property, occurring in circumstances set out in the policy.

Under public liability insurance, policies are available to cover liabilities attaching to:

a) Pedal cyclists
b) Private individuals. The so called "personal liability" policy is available to protect private persons from claims arising due to injury caused by such things as polished floor, a loose rooftile or by pet animal. A pedestrian, for example, can incur heavy liabilities by causing a serious road accident.
c) Product liability: liability arising out of defects of goods produced or sold.
d) Professional men such as doctors, dentists, solicitors, and bankers may take out policies to protect themselves from claims arising out of negligence or mistake committed in the exercise of their professional duties.

It should be noted that this form of cover might include or be included with other risks. For example, a householder's policy covering loss or damage to the building an/or contents can be extended to cover the personal liability of the owner and his family towards the public. Whereas liability arising from the use of motor vehicles is always exclude, and must be covered by a separate motor policy.

CHECK- List

Make sure that your level of understanding. Hence if you clearly understand the given concept (s) put (✓) mark in the box, Other wise put (x) mark in the box and reread the section again.

Check - List

Make sure that your level of understanding. Hence if you clearly understand the given concept (s) put (✓) mark in the box; Other wise put (x) in the box and reread the section again.

- Property insurance ☐
- Fire insurance ☐
- Type of policies ☐
- Rating ☐
- Settlement of losses ☐
- Marine insurance ☐
- Ocean marine insurance ☐
- Inland marine insurance ☐
- Liability insurance ☐
- Aviations insurance ☐

Self Assessment questions 7-A

1. the main fire insurance not covered under the fire insurance contract /policies are:

2. The four chief interests to be insured in an ocean voyage are:

1.
2.
3.
4.

3. According to the Ethiopia insurance corporation(EIC) burglary policy it does not cover loss or theft committed by

_____
_____
_____
_____
_____
_____

True or false questions 7-B

1. Robber is the unlawful taking of property from another person by force.
2. Burglary is the act of unauthorized entry, with criminal intentions into any building on residence.
3. Liability insurance is a contract that protects the insured against legal responsibility for losses to the person or property of others.
4. Contracts concerned primarily with water transportation are considered to be none ocean marine insurance.

5. Fidelity guarantee insurance indemnities one employee for any loss suffered at the hands of dishonest employer.
6. Theft insurance protects a business against losses by burglary, robbery or some other form of theft by persons other than employees.
7. Automobile insurances contracts are schedule contracts that permit the insured to purchase both property and liability insurance under one policy.
8. Public liability insurance was developed with liability insurance.
9. Settlement of loss does not depend on the type of policy carried or the agreement made of the inception of the policy between the insurer and the insured.
10. The marine cargo policies of Ethiopia Insurance Corporation are not internationally accepted, worded, and standardized insurance policies.

CHAPTER 8
FUNCTIONS OF INSURERS

Leaning Objectives:-

After studying this chapter, you should be able to:

- Explain the rate - making function and its major objectives
- Describe the basic rate - making methods that are used improperly and liability insurance.
- Differentiate between experience and retrospective rating
- Define under writing and explain the steps in underwriting process.
- Identify the principle sources of information on which on underwriter may rely.
- Explain why "production" in insurance is called "selling" else where.
- Identify and explain the steps in the loss - adjustment process.
- Explain the reason for insurance and the different types of reinsurance.
- Describe the development of insurance business in Ethiopia.

Although there are definite operational differences between life insurance companies and property and liability insurers the major activities of all insurers may be classified as follows:

- Rate making
- Underwriting (selection of risks)
- Production (selling)
- Claim settlement
- Investment
- Reinsurance

In addition to these, there are of course, other activities common to most business firms such as accounting, personnel management, market research, and so on.

8.1 Rate Making

Rate making refers to the pricing of insurance. An insurance rate is the price per unit of insurance. Like any other price, if depends on the const of production. However, in insurance, unlike other industries the cost production is not known when the contract is sold, and will not be known until sometime in the future, when the policy has expired. One basic difference between insurance pricing and the pricing function in other industries is that the price for insurance must be bagged on prediction. The process of predicting future losses and future expenses and allocating these costs among the various classes of insureds is called rate making.

8.1.1 Objectives of Rate Making

Ratemaking objectives can be classified in to two basic categories.

- Regulatory objectives and
- Business objectives

Regulatory Objectives

The goal of insurance regulation is to protect the public. In general rates charged by insurers must be adequate, not excessive, and not comfily discriminatory.

Adequate rates: The first regulatory requirement is that rates must be adequate. This means the rate charged by insurers should be high enough to pay all losses and expenses. If rates are inadequate, on insurance may become insolvent and fail. As a result, policy owners, beneficiaries, and third party claimants may be financially harmed if their claims are not paid. However, rate adequacy is complicated by the fact that the insurer does not know its actual costs when the policy in first sold.

Not Excessive: The second regulatory requirement is that the rates must not be excessive. This means that the rates should not be so high that policy - owners are paying more than the actual value of their protection.

Not Unfairly Discriminatory: The third regulatory requirement is that the rate must not be unfairly discriminatory. This means that exposures that are similar with respect to losses and expenses should not be charged substantially different rates. For example, if two healthy males, age 30, buy the some type and amount of two different rates. However, if the loss exposures are substantially different, it is not unfair rate discrimination to charge different rates. Thus, if two males, age 30 x 65, apply for the some type and amount of life insurance, it is not unfair to charge the older male a higher rate because of the higher probability of death.

Business Objectives

Insurers are also guided by certain business objectives in designing a rating system. The rating system should be meeting the following objectives.

- Simplicity
- Stability
- Responsiveness
- Encouragement of loss control

Simplicity: The rating system should be easy to understand also that producers can quote premium with a minimum amount of time and expense. This is especially important in the personal lines market, where the relatively small premium do not justify a large amount of time and expense in the pre parathion of premium quotations. In addition, commercial insurance purchasers should understand how their premiums are determined so that they can take active steps to reduce their insurance costs.

Stability: Rates should also relatively stable over time so that the public is not subjected to wide variations is cost form year to year.

Responsiveness: The rate should also be responsive over time to changing loss exposures and changing economic conditions. In order to meet the objectives of rate adequacy the rates should increase when loss exposure increase.

Encouragement of loss control: The rating system should also encourage loss control activities that reduce both loss frequency and severity. This is important since loss control tends to keep insurance affordable. The rate should provide some incentive for the insured to prevent loss.

8.1.2. Basic Definitions of Rate Making

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 of protection purchased. The unit of protection to which is rate applies differs for various lines of insurance. In life insurance, for example, rates are computed for each Birr 1,000 in protection, in fire insurance, the rate applies to each Birr 100 of coverage. Thus, in life insurance, if the annual rate in Birr 25 per Birr 1,000 of face amount of insurance, the premium for of Birr 10,000 policy in Birr 250.

The premium is designed to cover two major costs: the expected loss and the cost of doing business. These are known as the pure premium and the loading, respectively. The pure premium is determined by dividing the total expected loss by the number of exposures.

$$\text{Pure premium} \frac{\text{Total expected loss}}{\text{Number of Expossure units}}$$

In automobile insurance, for example, if an insurer expect to pay Birr 750,000 of collision loss claims in a given territory and there are 1,000 outs in the insured group, the pure premium for collision will be Birr 750,000 ÷ 1,000 or Birr 750 per car.

The loading refers to the amount that must be added to the pure premium for other expenses, profit, and a margin for contingencies. The sum of the pure premium and loading is termed the gross premium. Usually the loading is expressed as a percentage of the expected gross premium, in property - liability insurance, for example, a typical loading might be 25 amount charged the consumer is:

$$\text{Gross Premium} = \frac{\text{Pure Premium}}{1 - \text{Loading Percentage}}$$

In the above example, where the pure premium was Birr 750 per car, the gross premium would be calculated as:

$$\text{Gross premium} = \frac{\text{Birr } 750}{1 - 0.25} = \text{Birr } 1{,}000$$

Modifying the example above so that the pure premium is again assumed to be Birr 750 per car but the loading is 30 percent means that gross premium would be calculated as follows:

$$\text{Gross premium} = \frac{\text{Birr } 750}{1 - 0.30} = \text{Birr } 1{,}1071$$

8.1.3. Rate Making Methods

It is possible to distinguish between tow different approaches to rate making: Class and individual rating methods.

Manual/Class rating Methods: The term class manual rating refers to the practice of computing a price per unit of insurance that applies to all applicants possessing a given set of characteristics. The manual, or class rating method sets rate that apply uniformly to each exposure unit falling within some predetermined class or group.

Every one falling within a given class is charged the same rate. For example, a class rate might apply to all types dwelling of a given type of construction in a specific town. Rates that apply to all individual of a given age and sex are also examples of class rates.

The major areas of insurance that emphasize use of the manual rate making method are life, workers' compensation, liability automobile, health, residential fire, and surety. For example, in life insurance the central classifications are by age & sex. In automobile insurance the loss data are broken down territorially by type of automobile, by age of driver, and by major use of automobile. In each case it is necessary only to find the appropriate page in a manual to find out what the insurance rate is to be, hence the term "manual rate making."

The obvious advantage of the class/manual rating system is that it permits the insurer to apply a single rate to a large number of insured's, simplifying the process of determining their premium.

Individual, or Merit Rating, Method

⇨ The individual, or merit rating method is used when the characteristics of the units to be insured vary so widely. This method is used when it is desirable to depart from the manual or class approach and calculate rates on a basis that attempts to more precisely the loss – producing characteristics of the individual. There are four approaches to individual or merit rating.

- Judgment rating
- Schedules rating
- Experience rating
- Retrospective rating

Judgment rating: Judgment rating means that teach exposure is individually evaluated, and the rate is determined largely by the underwriter's judgment. This method is used when the loss exposures are so diverse that a class rate can not calculate, or when credible loss statistics and not available. This technique is most frequently applied in the ocean marine filed, although it is also used in other lines of insurance.

Schedule rating: Under schedule rating plan each exposure is individually rated. A basic rate is determined for each exposure which is then modified by debits or credits for undesirable or desirable physical features. In commercial fire insurance, for example the rate for many buildings are determined by adding debits (for bad features) and subtracting credits (for good features) from a base rate, which represents a standard building. The debit & credits represent those features of the particular building's construction, occupancy, fire protection, and neighborhood that deviate form the standard. Through the application of these debits and credits the physical characteristics of each schedule - rated building determine that building's rate.

Experience rating: Under on experience rating plan, the class, or manual rate is adjust up word or down ward based on post less experience. The most distinctive characteristic of experience rating is that the insured's past loss experience is used to determine the premium for the next policy period.

Retrospective rating: Under a retrospective rating plan, the insured's loss experience during the current policy period determines the actual premium paid for that period. Under this rating plan, the insured is charged a minimum and maximum premium. This is deposit premium charged at eh inception of the policy and then adjusted after the policy period has expired, to reflect actual losses incurred. If actual losses during the current policy period are small, the minimum premium is paid. If losses are large, the maximum premium is paid. The actual premium paid generally will fall some where between the minimum and maximum premium depending on the insured's loss experience during the current policy period.

8.2 Underwriting

Underwriting: Refers to the process of selecting and classifying applicants for insurance. The underwriter is the person who decides to accept or reject an application. The primary objective of underwriting is to guard against adverse selection.

It is important to understand that the goal of underwriting is not the selection of risks that will not have losses. It is 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 on adequate volume of exposures in each class. In addition, he/she must guard against congestion or concentration of exposure that might result in a catastrophe.

Stop and check questions

- State major activities of all insurers
- What are the objectives of rate making?
- Identify the rate making methods

The underwriting process

Underwriting starts with a clear statement of underwriting policy. An insurer must establish underwriting policy that is consistent with company objectives. The objectives may be a large volume of business with low unit profits or a smaller volume of a larger unit of profit. The underwriting policy establishes the frame work within which the desk underwriter makes decisions. This policy specifies the lines of insurance that will be written as well as prohibited exposures, the amount of coverage to be permitted on various types of exposure, the areas of the country in which each line will be written, and similar restriction.

To perform effectively, the underwriter must obtain as much information about the subject of the insurance as possible within the limitations imposed by time and cost of

obtaining additional data. The desk underwriter must rule on the exposure submitted by the agents, accepting some and rejecting others that do not meet the company's underwriting requirements.

When a risk is rejected, it is because the underwriter feels that the hazards connected with it are excessive in relation to the rate. There are four sources from which the underwriter obtains information regarding the hazards inherent in an exposure:

- Application
- Agent's or broker's report
- Investigation
- Physical examination or inspections

Application: The Application is the basic source of underwriting information. The application varies depending on the type insurance. For example, in life insurance, the application will show the individual's age, sex, weight, occupation, per formal, and family health history, and any hazardous hobbies. The question on the application are designed to give the underwriter the information needed to decide if he/she will accept the exposure, reject it or seek additional information.

Information from the Agent or Broker- In many cases the underwriter places much weight on the recommendation of the agent/broker. This varies, of course, with the experience the underwriter has had with the particular agent in question.

Investigations: An inspection report may be required, especially if the underwriter suspects moral hazard. An outside firm investigates the applicant for insurance and makes a detailed report to the company. The report may include the applicant's present financial condition, drinking habits, marital status amount of outstanding debt and others. These reports provide additional information the underwriter can use in evaluating the exposure.

Physical Examination or Inspection - In life insurance, the primary focus is on the health of the applicant. One of the most critical pieces of intelligence in underwriting is the report of the physician. Physician selected by the insurance company supply the insurer with medical reports after a physical examination; these reports are a very important source of underwriting information.

8.3 Production

It is one of the most vital needs of an insurance firm securing a sufficient number of applicants for insurance to enable the company to operate. This function is often called production in the context of the insurance industry; it correspond to the sales or marketing function in an industrial firm. The term is a proper one for insurance because the act of selling is production in its true sense. Insurance is an intangible item and thus does not exit until a policy is sold.

⇨ The production department of an insurance company, sometimes called agency department, is its sales or marketing division.

8.4 Claim Settlement

It is one basic purpose insurance to provide for the indemnification of those members of the group who suffer losses. This is accomplished in the claim settlement process, but it is sometimes a great deal more complicated than just passing of the claims department.

Life insurance companies refer to employees who settle losses as claim representatives or benefit representatives. The nature of the difficulties frequently encountered in the properly and liability field is evidenced by the fact that employees of the claims department is this field are called "adjusters".

Types of claims Adjusters

An adjuster is an individual who investigates losses. He or she determines the liability and the amount of payment to be made. The major types are:

- Agent
- Company adjuster
- Independent Adjuster
- Public adjuster

An agent: Often has authority to settle small first party claim up to some maximum limit. This approach to clime settlement has three advantages: It is speedy, 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 in compensated by a fee.

Public Adjuster: A public Adjuster can be involved in settling a claim. A public adjuster, however, represents the insured rather than the insurance company and paid a fee based on the amount of the claim settlement.

Steps in settlement of a claim

In determining whether to pay or contest a claim, the adjuster follows a relatively set settlements procedure with four main steps.

- Notice loss
- Investigation
- Proof of loss
- Payment or denial of the claim.

8.5 REINSURANCE

There are many risks in all classes of business which are too great for one insurer to bear solely on his won account. Reinsurance is a method created to divide the task of handling risk among several insurers. Naturally, the insuring public wishes to effect cover with one insurer and the insurer who in these circumstances accepts a risk greater

than he considers it prudent to bear, reinsures all or part of the risk with other direct insurers or with companies which transact reinsurance business only.

Reinsurance may be defined as the shifting by a primary insurer, called the ceding company, of a part of the risk it assumes to another company, called the re-insurer. That portion of the risk kept by the ceding company is known as the line, or retention, and varies with the financial position of the insurer and the nature of the exposure. When a re-insurer passes on risks to another re-insurer, the process is known as retrocession.

It is not good business to refuse to write insurance in excess of the retention amount. Imaging the displeasure of the applicant and particularly of the producer when the application is rejected or accepted in part. For these and other reasons insurers commonly insure that portion of their liability under their contracts in excess of their retention with one or more insurers. This process is called reinsurance, the originating insurer is the "primary insurer", or "direct insurer", and the accepting insurer is the "re-insurer".

8.6. Methods of Reinsurance

There are two main methods in which risks can be shared: facultative reinsurance and automatic treaty.

Facultative Reinsurance

Facultative reinsurance is reinsurance on an optional basis. There is no advance agreement between the ceding company and the re-insurer regarding the sharing of risks and premiums. Under this arrangement a primary insurer, in considering the acceptance of a certain risk, shops around for reinsurance on it, attempting to negotiate coverage specifically on this particular contract. Each risk, which is offered, is described and this is shown to the prospective re-insurers who are free to accept or decline as they see fit. A life insurer, for example, may receive an application for birr 1 million of life insurance on a single life. Not wishing to reject this business, but still unwilling to accept the entire risk, the primary insurer communicates full details on this application to another insurer with whom it has done business in the past. The other insurer may agree to assume 40% of any loss for a corresponding percentage of the premium. The primary insurer then puts the contract in force.

The reinsurance agreement does not affect the insured in any way. The insured is generally not aware of the reinsurance process and the primary insurer remains fully liable to the insured in event of loss.

As stated earlier the insurer retains the right to decide whether and how much of his risk to submit for reinsurance. The re-insurer also retains the right to accept or reject any business offered by the insurer.

Automatic Treaty

Under an automatic reinsurance treaty the ceding insurer agrees to pass on to the re-insurer all business included within the scope of the treaty, the re-insurer agrees to accept this business, and the terms e.g., the premium rates and the method of sharing the insurance and the losses-of the agreement are set. The ceding company is required to

cede some certain amounts of business, and the re-insurer is required to accept them. The ceding company known in advance that it will be able to obtain reinsurance for all exposures that meet the conditions specified in the treaty. The amount that the ceding company keeps for its own account is known as its retention, and the amount ceded to others is known as cession.

Forms of Reinsurance

The most important types of reinsurance treaties include:

a. Quota-share reinsurance
b. Surplus-share reinsurance
c. Excess of loss reinsurance

Quota Share Reinsurance: by this method the direct office arranges with re-insurers to cede a fixed proportion of all its business of a certain class and the re-insurer accepts that proportion in return for a corresponding proportion of the premiums. Under a quota share split, the insurance and the loss are shared according to some pre-agreed percentage. For example, if a 100,000 birr policy is written and the agreed split is 50-50, the re-insurer assumes one-half of the liability; the insurer and the re-insurer each pays one-half on any loss.

The method is not greatly favored because it means paying away a proportion of the premium income where the direct office might safely retain the whole of a risk. It is, however, a useful method for small offices or those starting up a new class of business where in the early days one or two heavy losses could swallow up all the income. The method is sometimes also used between parent and subsidiary companies.

Surplus Share Reinsurance: Under surplus share reinsurance the ceding company decides what its net retention will be for each class of business. The direct office cedes to the re-insurer only those amounts, which it does not wish to hold for its own account-the surplus or its retention. The re-insurer does not participate unless the policy amount exceeds this net retention. This retention is known also as a "line" and reinsures have a maximum capacity of so many lines, or so many times the direct office's retention.

For example, if the agreement calls for cession of up to "ten lines" and the direct office retain 25,000 birr, then ten times this amount can be ceded to the re-insurer, i.e., 250,000 birr: in this way sums insured up to 275,000 birr can be accepted by the direct insurer knowing that he automatically has the reinsurance he requires. It is of course not necessary (or possible) to fill the whole capacity of the reinsurance treaty on each individual acceptance: sometimes the acceptance will be entirely within the direct insurer's retention and the treaty will not be interested at all, and on other occasional the treaty underwriters will only be ceded a limited amount which they divide equally between them.

Using the earlier example of a ten line reinsurance treaty the position of the treaty (reinsures) in different circumstances would be as follows:

Original sum	direct insurer's retention	Ceded to treaty (reinsure)	Proportion to insured treaty (reinsure)
Br. 25,000	Br. 25,000	Nil	Nil
50,000	25,000	Br. 25,000	50%
100,000	25,000	75,000	75%
275,000	25,000	250,000	90.9%
300,000	25,000	250,000*	83.3%

*The balance of 25,000 would have to be reinsured facultative of under a second reinsurance treaty.

Excess of Loss Reinsurance- In this form of reinsurance the direct insurer decides the maximum loss arising from any event or series of events he is prepared to bear, and then arranges with re-insurers for them to pay the excess of that amount up to an upper limit. The re-insurer agrees to be liable for all losses exceeding a certain amount on a given class of business during a specific period.

For example, the primary insurer may be prepared to pay up to 50,000 birr any one loss, and he secures reinsurance for the excess of 50,000 birr up to a further 200,000 the way in which various losses are divided is shown below:

Loss	Direct insurer	Excess treaty (Re-insurer)
Br. 10,000	Br. 10,000	Nil
50,000	50,000	Nil
70,000	50,000	Br. 20,000
100,000	50,000	50,000
250,000	50,000	200,000
300,000	100,000*	200,000

*I.e., its original retention of birr 50,000 plus a further birr 50,000 in excess of the treaty's (reinsurer's) liability.

Such a contract is simple to administer because the re-insurers are liable only after the ceding company has actually suffered the agreed amounts of loss. Since the probability of large losses is small, premiums for this reinsurance are likewise small.

Stop and check question

- Discus the types of claim Adjuster
- What are the steps in settlement of a claim?
- Define the forms of reinsurance

8.7. Government Regulation of Insurance

Government has laid down rules governing the conduct of business, and insurance is no exception.

In the case of insurance (as one component of business activities) special attention was given by the government to restructure and organize it in a new form to satisfy social and economic interests of the general public through the proclamation No. 68 of 1975, to provide for the establishment of Ethiopian Insurance Corporation with an initial capital of 11 million dollars. Thus, the insurance industry was challenged and stimulated by the government to do its best.

Why Insurance is regulated

There are characteristics of insurance that set it apart from tangible-goods industries and that account for the special interest in government regulation.

First, insurance is a commodity people pay for in advance and whose benefits are reaped in the future (sometimes in the far distant future), often by someone entirely different from the insured and who is not present to protect self-interest when the contract is made.

Second, insurance is effected by a complex agreement that few lay people understand and by which the insurer could achieve a great and unfair advantage if disposed to do so.

Third, insurance costs are unknown at the time the premium is agreed upon, and there exists a temptation for unregulated insurers to charge too little or too much. Charging too little results in the long run in removing the very security the insured thought was being purchased; changing too much results in unwarranted profits to the insurer.

Finally, insurance is regulated to control abuses in the industry. As in any line of business, abuses of power and violations of public trust occur in insurance. These include failure by the insurer to live up to contract provisions, during up contracts that are misleading and that seem to offer benefits they really do not cover, refusal to pay legitimates claims, improper investments of policyholders' funds, false advertising, and many others.

The Ethiopian Insurance Corporation was sole entity, which was responsible for all affairs and practices of the insurance industry in the country before two decades. The general objectives and function of the corporation being to:

1. Engage in all classes of insurance business in Ethiopia
2. Ensure that insurance services reach the bread masses of the people.
3. Subject to government regulations and provisions, promote efficient utilization of both material and fanatical insurance resources.
4. Enter into contract.
5. Appoint agents or act as an agent for others in matters related to its activities.
6. Manage, administer, supervise, and direct all insurance business transactions and
7. Negotiate, arrange, underwrite and contract reinsurance treaties and with foreign re-insurers.

Check - List

Make sure that your level of understanding. Hence if you clearly understand the given concept (s) put (✓) mark in the box; Other wise put (x) mark in the box and reread the section again.

- Rate making ☐
- Underwriting ☐
- Underwriting process ☐
- Claim settlement ☐
- Steps in settlement of a claim. ☐
- Method of reinsurance ☐
- Forms of Reinsurance ☐
- Government regulations of insurance ☐

Self Assessment questions 8-A
Multiple choices

1. An insurance rate is:
   A. The price per unit of insurance
   B. The underwriting process
   C. Investigation
   D. All of the above
   E. None of the above
2. The objectives of rate making are:
   A. Regulatory objective
   B. Adequate rates
   C. Business objective
   D. A and C
   E. A and B
3. An individual /employee of insurance / who investigates losses is known as:
   A. Agent
   B. Company adjuster
   C. Independent adjuster
   D. Public adjuster
   E. All of the above
   F. None of the above
4. The shifting of part or all of the insurance originally written by one insurer to another insurer is called:
   A. Contract of insurance
   B. Policy of insurance
   C. Re insurance
   D. All of the above
   E. None of the above
5. The following are the types of reinsurance treaties & arrangements except:
   A. Quta – share treaty
   B. Surplus – share treaty
   C. Excess – of – loss treaty
   D. Reinsurance pool
   E. All of the above
   F. None of the above
6. In determining whether to pay on contest a claim, the adjuster follows the following a relatively set settlement procedure except:
   A. Notice of loss
   D. Investment

B. Investigation
C. Proof of loss
E. All of the above
F. None of the above

True or False 8-B

1. The goal of insurance regulation is to protect the public.
2. One of the most vital needs of an insurance firm is securing a sufficient member of applicants for insurance to enable the company to operate.
3. The two major costs of insurance that covers by premium are the expected loss and the cost of doing business.
4. The pure premium is determined by dividing the total expected loss by the number of exposures.
5. The production department of an insurance company sometimes called engineering department.

CHAPTER NINE

Development of Insurance in Ethiopia

Objective of the lesson
After studying this chapter, you should be able to:

- Understand how insurance in developed in Ethiopia:
- Explain what nationalization of the insurance companies mean.

9.1 Developments of Insurances in Ethiopia

The insurance business in Ethiopia is its modern application is a recent phenomenon. A branch of a foreign insurance company know as " Baloise Fire Insurance company" was opened by on Austrian (Weinziner) in Addis Ababa in 1923 for the first time in Ethiopia. The company paid compensation to a client in 1929 for damage to his store caused by fire. Beginning form this time until the Italian invasion of 1936 some foreign insurance companies were operating through their agents. During the Italian occupation of Ethiopia in 1936 - 1941, Italian insurance companies operated and non-Italian companies closed down.

A survey was undertaken by the then Ministry of Trade and Industry in 1954 to find out the situation of the insurance industry and to indicate ways how the industry could develop. The survey revealed that there were 19 insurance companies operating in Ethiopia of which there was only one domestic company, Imperial Insurance Company, established in 1951). The companies had agents in port towns and commercial centers, namely Addis Ababa, Asamara, Assab, Dessie, Diredawa and Msassaw.

A second survey on insurance companies was undertaken by the Ministry of Trade and Industry in 1960. The survey revealed that the number of insurance companies operating in the country increased to 33. In this survey also, Imperial Insurance Company was the only domestic insurer.

Due to some malpractices of insurers and companies on the insurance industry the Addis Ababa chamber commerce conducted a survey I 1967. The survey revealed that there

were 30 foreign companies operating either through branches or agents and 10 domestic companies in the insurance business.

The chamber of commerce in its report recommended that a detailed legislation to control the practice of insurance business be enacted.

In order to direct and control the insurance business, a low (proclamation No. 281/1970) was passed. Prior to this low the commercial code of Ethiopia of 1960, articles 654-712 tried to define the insurance contracts and the right and duties of the contracting parties.

Proclamation No. 281/1970 gave the responsibility of controlling the insurance business to the Ministry of Trade and Industry. Based on the provision of the proclamation a council was established chaired by the Minister of the Ministry of Trade and Industry and consisting the following as members.

Minister of the Ministry of Finance and, Minster of the Ministry of communication, Head of the planning Commission, Minister of the Ministry of Social Affairs and Environment Development, and Governor of the National Bank of Ethiopia

The main objective of this council was to encourage and control the insurance business and to formulate policies that enhance insurance and investment. Under the council the office of the controller of Insurance was established. This office licensed 15 domestic insurance companies, 36 agents, 7 brokers, 11 loss assessors and 3 actuaries.

Nationalization of the Insurance Companies

In 1974 the military government came to power and nationalized al the 13 insurance companies that were operating in the country. The boards of all the initialized companies were dissolved and a new provisional Insurance Board was set up. The nationalized companies were operating independently but all were required to report to the provisional Insurance Board.

The Ethiopian Insurance corporation was established under proclamation No. 681/1975 with a paid up capital of 11 million dollars. The assets, liabilities, rights and obligation of the nationalized private insurance companies were transferred to the Ethiopian Insurance Corporation. The purpose of the corporation was:

- To engage in all classes of insurance business in Ethiopia.
- To ensure that insurance services reach the board masses of the people and
- To promote efficient utilization of both material and financial insurance resources.

Insurance Business Since 1991

Following that change of government in 1991 a new economic policy that increased the role of the private sector in the economy was formulated. A new comprehensive law to regulate the licensing operation and supervision of insurance business was promulgated by the Transitional Government of Ethiopia under proclamation No.86/1994. Under this legislation the task of the licensing and supervision of insurance business was given to the National Bank of Ethiopia.

The law allowed private companies whose capital is wholly owned by Ethiopian nationals and/or organizations wholly owned by Ethiopian nations and registered under the laws of the having their head office in Ethiopia to engage in insurance business. Proclamation No. 86/1994 further provides that the minimum share capital is Birr 3 million for general insurance business, Birr 4 million for long term insurance business and Birr 7 million if the business to be done is both general and long term insurance business.

It is with this legal frame work that one public enterprise and more than 8 private insurance companies with a total of more than 106 branches are operating at present.

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