**CHAPTER ONE**

**THE NATURE OF RISK**

In the present day context, individuals have a strong desire for financial security and protection against those events that threaten their financial security. Financial security can be threatened by numerous factors such as;

* If the family head is killed in an accident
* Destruction of property by fire, floods, earth quakes and other natural factors.
* Infected by serious diseases such as AIDS, Cancer, Heart disease, etc.

Thus, it is apparent/ obvious that certain factors can threaten the financial security of individuals and their families.

MEANING OF RISK

There is no single definition of risk. Economists, behavioral scientists, risk theorists, statisticians, and actuaries each have their own concept of risk. There are common elements in all the definitions:

 Indeterminacy and loss.

* The notion/idea of an indeterminate outcome is implicit in all definitions of risk: the outcome must be in question. When risk is said to exist, there must always be at least two possible outcomes. If we know for certain that a loss will occur, there is no risk.
* At least one of the possible outcomes is undesirable. This may be a loss in the generally accepted sense, in which something the individual possesses is lost, or it may be a gain smaller than the gain that was possible.

Risk is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for. Risk is uncertainty regarding loss. The individual hopes that adversity will not occur, and it is the possibility that this hope will not be met that constitutes risk. If you own a house, you hope that it will not catch fire.

RISK AND UNCERTAINTY

Uncertainty refers to a state of mind characterized by doubt, based on a lack of knowledge about what will or will not happen in the future. Uncertainty is simply a psychological reaction to the absence of knowledge about the future. The existence of risk creates uncertainty on the part of individuals when that risk is recognized.

 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.

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 accurately, the probability that a loss will occur to one of insured objects. Actually, probability has little meaning if applied to the chance of occurrence of a single event. It has meaning only when applied to the chance of occurrence among a large number of events.

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 one. Objective risk can be measured meaningfully only in terms of a group large enough to analyze statistically.

Probability has both objective and subjective aspects.

**Objective Probability**

Refers to the long-run relative frequency of an event based on the assumptions of an infinite number of observations and of no change in the underlying conditions. Objective probabilities can be determined in two ways. First, they can be determined by deductive reasoning. These probabilities are called a priori probabilities. For example, the probability of getting a head from the toss of a perfectly balanced coin is ½ because there are two sides, and only one is a head. Second, objective probability can be determined by inductive reasoning. For example, the probability that a person age 21 will die before age 26 cannot be logically deductive. However, by a careful analysis of past mortality experience, life insurers can estimates the probability of death and sell a five year term insurance policy issued at age 21.

**Subjective probability**

It is the individual’s personal estimate of the chance of loss. For example, people who buy a lottery ticket on their birthday may believe it is their lucky day and overestimate the small chance of winning.

RISK DISTINGUISHED FROM PERIL AND HAZARD

**Peril**

Peril is defined as a cause of loss. It is a contingency that may cause a loss. Example, if your house is burns because of a fire, the peril, or cause of loss, is the fire. If your car is damaged in a collision with another car, collision is the peril, or the cause of the loss.

**Hazard**

A hazard is a condition that may create or increase the chance of a loss arising from a giver peril. A hazard is a condition that introduces 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 the collision is the peril.

There are basic types of hazards

**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. For example, the existence of dry forests (hazard for fire), earth faults (hazard for earthquakes), icy road (hazard for auto accident).

**Moral hazard**

Moral hazard is dishonesty or character defects in an individual that increase the frequency or severity of loss. Moral hazard refers to the increase in the probability of loss that result from dishonest tendencies in the character of the insured person. Example of moral hazard includes intentionally burning unsold merchandise that is insured.

**Morale hazard**

Morale hazard is carelessness or indifference to a loss because of the existence of insurance. Some insured are careless or indifferent to a loss because they have insurance. Examples of morale hazard include leaving car keys in the ignition of an unlocked car and thus increasing the chance of theft, leaving a door unlocked that allows a burglar, etc.

CLASSIFICATION OF RISK

1. **Static and Dynamic Risks**

**Dynamic risks** are those resulting from changes in the economy. Changes in the price level, consumer tastes, income and output, and technology may cause financial loss to members of the economy. These dynamic risks normally benefit society over the long run, since they are the result of adjustments to misallocation of resources. Although these dynamic risks may affect a large number of individuals, they are generally considered less predictable than static risks, since they do not occur with any precise degree of regularity.

**Static risks** involve those losses that would occur even if there were no changes in the economy. If we could hold consumer tastes, 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. Unlike dynamic risk, static risks are not a source of gain to society. Examples of static risks include the uncertainties due to random events such as fire, windstorm, or death. Static losses involve either the destruction of the asset or a change in its possession as a result dishonesty or human failure. Static losses tend to occur with a degree of regularity overtime and, as a result, are generally predictable. Because they are predictable, static risks are more suited to treatment by insurance than are dynamic risks.

1. **Fundamental and Particular Risks**

The distinction between fundamental and particular risks is based on the difference in the origin and consequences of the losses.

**A fundamental risk** is a risk that affects the entire economy or large numbers of persons or groups within the economy. Fundamental risks involve losses that are impersonal in origin and consequence. They are group risks, caused for the most part by economic, social and political phenomena, although they may also result from physical occurrences. They affect large segments or even all of the population. Examples of fundamental risks include high inflation, war, drought, earthquakes, floods and other natural disasters.

**A particular risk** is a risk that affects only individuals and not the entire community. Particular risks involve losses that arise out of individual events and are felt by individuals rather than by the entire group. They may be static or dynamic. Examples of particular risks are the burning of a house, the robbery of a bank, and the damage of a car.

1. **Objective and Subjective Risks**

**Objective risk** is defined as the relative variation of actual from expected loss. Objective risk, or statistical risk, applicable mainly to groups of objects exposed to loss, refers to the variation that occurs when actual losses differ from expected losses. For example assume that a property insurer has 10.000 houses insured over a long period and, on average, 1 percent, or 100 houses, burn each year. However, it would be rare for exactly 100 houses to burn each year. In some years, as few as 90 houses may burn, while in other years, as many as 110 house my burn. Thus, there is a variation of 10 houses from the expected number of 100, or a variation of 10 percent. This relative variation of actual loss from expected loss is known as objective risk.

**Degree of Risk**

Degree of risk is the range of variability around the expected losses, which are calculated using the chance of loss concept by means of the following formula:

 Objective risk = $\frac{Probablevariationofactualfromexpectedlosses}{Expectedlosses}$

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

$Risk\_{A}$ = $\frac{105-95 }{100}=10 percent$

$Risk\_{B}$ = $\frac{120-80 }{100}=40 percent$

As shown, the degree of risk for town B is four times that for town A, even though the chances of loss are the same. Chance of loss is expressed as the ratio of the number of losses that are likely to occur compared to the larger number of possible losses in a given group.

**Subjective risk** is defined as uncertainty based on a person’s mental condition or state of mind. A subjective risk is a psychological uncertainty that stems from the individual’s mental attitude or state of mind. Some writers have used the word “uncertainty” to be synonymous with subjective risk as defined here. 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 to predict risk-taking behavior, such as insurance-buying behavior, from test of risk-taking attitudes.

1. **Pure and Speculative Risks**

**Pure risk** is defined a situation in which there are only the possibilities of loss or no loss. The only possible outcomes are adverse (loss) and neutral (no loss). A pure risk exists when there is a chance of loss but not 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 does not gain. The owner’s position remains unchanged. Other examples of pure risks include premature death, job-related accidents, and damage to property from fire, lighting, flood, or earthquake.

**Speculative Risk** is defined as a situation in which either profit or loss is possible. A speculative risk exists when there is a chance of gain as well as a chance of loss. For instance, investment in a capital project might be profitable or it might prove to be a failure. If you purchase 100 shares of common stock, you would profit if the price of the stock increases but would lose if the price declines. Other examples of speculative risks are betting on a football match, investing in real estate, and going into business for yourself. In these situations, both profit and loss are possible.

**Classifications of Pure Risk**

The major types of pure risk that can create great financial insecurity include personal risks, property risks, liability risks, and risks arising from failure of others.

1. **Personal Risks**

**Personal risks** are risks that consist of the possibility of loss of income or assets as a result of the loss of the ability to earn income. Personal risks are risks that directly affect an individual; they involve the possibility of the complete loss or reduction of earned income, extra expenses, and the depletion of financial asset. There are four major personal risks:

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

**Risk of premature death**

**Premature death** is defined as the death of a household head with unfulfilled financial obligations. These obligations can include dependents to support, a mortgage to be paid off, or children to educate. If the surviving family members receive an insufficient amount of replacement income from other sources, or have insufficient financial assets to replace the lost income, they may be financially insecure.

Premature death can cause financial problems only if the deceased has dependents to support or dies with unsatisfied financial obligations. Thus, the death of a child age 10 is not “premature” in the economic sense.

There are at least four costs that result from the premature death of a household head. First, the human life value of the family head is lost forever. The human life value is defined as the present value of the family’s share of the deceased breadwinner’s future earnings. Second, additional expenses may be incurred because of funeral expenses, uninsured medical bills and others. Third because of insufficient income, some families will experience a reduction in their standard of living. Finally, certain non-economic costs are also incurred, including emotional grief, loss of a role model, and counseling and guidance for the children.

**Risk of insufficient income during retirement**

Risk of insufficient income during the retirement is another major risk associated with old age. The majority of workers in America retire before age 65. When they retire, they lose their earned income. Unless they have sufficient financial assets, or have access to other sources of retirement, they will be exposed to financial insecurity during retirement

**Risk of poor health**

The risk of poor health includes both the payment of catastrophic medical bills and the loss of earned income. Unless a person has adequate health insurance, private saving and financial assets, or other sources of income to meet medical expenditures, he or she will be financially insecure.

The loss of earned income is another major cause of financial insecurity if the disability is severe. In cases of long-term disability, there is a substantial loss of earned income, medical bills are incurred, employee benefits may be lost, or reduced, savings are often depleted/exhausted sand someone must take care of the disabled person. The loss of earned income during an extended disability can be financially very painful.

**Risk of Unemployment**

The risk of unemployment is another major threat to financial security. Unemployment can cause financial insecurity in at least three ways. First, the worker loses his or her earned income. Unless there is adequate replacement income or past savings on which to draw, the unemployed worker will be financially insecure. Second, because of economic conditions, the worker may be able to work only part-time. The reduced income may be insufficient in terms of the worker’s needs. Finally, if the duration of unemployment is extended over a long period, past savings may be exhausted.

1. **Property Risks**

Anyone who owns property faces property risks simply because such possessions can be destroyed or stolen. There are two major types of loss associated with the destruction or theft of property: direct loss and indirect or consequential loss.

**Direct Loss**

**A direct loss** is defined as a financial loss that results from the physical damage, destruction, or theft of the property. Direct loss is the simplest to understand; if a house is destroyed by fire, the owner loses the value of the house. This is a direct loss.

**Indirect 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 indirect loss** is a financial loss that results indirectly from the occurrence of a direct physical damage or theft loss.

An even better example is the case of a business firm. When a firm’s facilities are destroyed, it losses not only the value of those facilities but also the income that would have been earned through their use. Property risks, then, can involve two types of losses:(a) the loss of the property and (b) loss of use of the property resulting in lost income or additional expenses.

1. **Liability Risks**

The basic peril in the liability risk is the unintentional injury of other persons or damage to their property through negligence or carelessness; however, liability may also result from intentional injuries or damage. Under our legal system, you can be held legally liable if you do something that result in bodily injury or property damage to someone else. 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 of others.

Liability risks are of great importance for several reasons. First, there is no maximum upper limit with respect to the amount of the loss. You can be sued for any amount. In contrast, if you own property, there is a maximum limit on the loss. Second, a lien can be placed on your income and financial assets to satisfy a legal judgment. For example, assume that you injure someone, and a court of law orders you to pay substantial damages to the injured party. If you cannot pay the judgment, a lien may be placed on your income and financial assets to satisfy the judgment. Finally, legal defense costs can be enormous. If you have no liability insurance, the cost of hiring an attorney to defend you can be staggering.

1. **Risks Arising from Failure of Others**

When another person agrees to perform a service for you, he or she undertakes an obligation that you hope will be met. When the person’s failure to meet this obligation would result in your financial loss, risk exists. Examples of risks in this category would include failure of a contractor to complete a construction project as scheduled, or failure of debtors to make payments as expected.

BURDEN OF RISK ON SOCIETY

Regardless of the manner in which risk is defined, the greatest burden in connection with risk is that some losses will actually occur. When a house is destroyed by fire, or money is stolen, or a wage earner dies, there is a financial loss. These losses are the primary burden of risk and the primary reason that individuals attempt to avoid risk or alleviate its impact.

In addition to the losses themselves, there are other detrimental aspects of risk; Risk entails two major burdens on society.

* The size of an emergency fund must be increased
* Worry and fear are present.

**Larger emergency fund**

It is prudent to set aside funds for an emergency. However, in the absence of insurance, individuals and business firms would have to increase the size of their emergency fund in order to pay for unexpected losses (one great danger of this approach is the possibility that a loss may occur before a sufficient fund has been accumulate). Accumulation of such a reserve fund carries an opportunity cost, for funds must be available at the time of the loss and must therefore be held in a highly liquid state. The return on such funds will presumably be less than if they were put to alternative uses.

**Worry and fear**

The uncertainty connected with risk usually produces a feeling of frustration and mental unrest. This is particularly true in the case of pure risk. Speculative risk is attractive to many individuals. The gambler obviously enjoys the uncertainty connected with wagering more than the certainty of not gambling-otherwise he or she would not gamble. But here it is the possibility of gain or profit, which exists only in the speculative risk category that is attractive. In the cases of pure risk, where there is no compensating chance of gain, risk is distasteful. Some examples can illustrate the mental unrest and fear caused by risk. Parents may be fearful if a teenage son or daughter departs on a hiking trip. Some passengers in a commercial jet may become extremely nervous and fearful if the jet encounters severe turbulence during the flight. A college student who needs a grade of C in a course in order to graduate may enter the final examination room with a feeling of apprehension and fear.