



INTRODUCTION TO RISK

People express risk in different ways. To some, it is the chance or possibility of loss; to others, it may be uncertain situations or deviations or what statisticians call dispersions from the expectations.

The term risk includes exposure to adverse situations. The indeterminateness of outcome is one of the basic criteria to define a risk situation. Also, when the outcome is indeterminate, there is a possibility that some of them may be adverse and therefore need special emphasis.



Risk vs. Uncertainty

According to the dictionary, risk refers to the possibility that something unpleasant or dangerous might happen.

Uncertainty refers to a situation where the outcome is not certain or unknown. Uncertainty refers to a state of mind characterised by doubt, based on the lack of knowledge about what will or what will not happen in the future. Uncertainty is said to exist in situations where decision makers lack complete knowledge, information or understanding concerning the proposed decision and its possible consequences.



Loss

A risk refers to a situation where there is the possibility of a loss. What is a loss?

Loss has been defined in many ways. Loss, in accounting sense, means that portion of the expired cost for which no compensating value has been received.

Loss refers to the Act or instance of losing the detriment or a disadvantage resulting from losing.

Loss means being without something previously possessed.

Example

The chance of loss in insurance sense is the probability of loss. For example, assume there are 10,000 factories in the insurance pool which may be affected due to earthquake and on the basis of past experience, 5 have been affected, then the probability of loss is 0.0005.

The whole game of insurance business is based on the probability of loss. If the insurer estimates correctly, he wins else loses or is forced to close the business.



Perils

A peril refers to the source of loss or the contingency that may cause a loss. In literary sense, it means the serious and immediate danger. Perils refer to the immediate causes of loss. Perils may be general or specific, e.g., fire may affect assets like building, automobile, machinery, equipment and also, humans. Collusion may cause damage to the automobile resulting in a financial loss.

Hazards

Hazards are the conditions that increase the severity of loss or the conditions affecting perils. These are the conditions that create or increase the severity of losses.

Economic slowdown is a peril that may cause a loss to the business, but it is also a hazard that may cause a heart attack or mental shock to the proprietor of the business.



Types of Risks

- Financial and Non-financial Risks
- Individual and Group Risks
- Pure and Speculative Risk
- Static and Dynamic Risk
- Quantifiable and non-quantifiable Risk

Financial and Non-financial Risks

Financial Risk involves the simultaneous existence of three important elements in a risky situation –

- (A) that someone is adversely affected by the happening of an event,
- (B) the assets or income is likely to be exposed to a financial loss from the occurrence of the event and
- (C) the peril can cause the loss.

For example, loss occurred in case of damage of property or theft of property or loss of business. This is financial risk since risk resultant can be measured in financial terms. Financial risks are more particular in nature.



Non-financial Risk : The possibility of a financial loss does not exist; the situation can be referred to as non-financial in nature.

For example, risk in the selection of career, risk in the choice of course of study, etc. They may or may not have any financial implications. These types of risk are difficult to measure.

Individual and Group Risks

A risk is said to be a group risk or fundamental risk if it affects the economy or its participants on a macro basis. These are impersonal in origin and consequence. They affect most of the social segments or the entire population. These risk factors may be socio-economic or political or natural calamities, e.g., earthquakes, floods, wars, unemployment or situations like 11th September attack on US, etc.

Individual or particular risks are confined to individual identities or small groups. Thefts, robbery, fire, etc. are risks that are particular in nature. Some of these are insurable.

e.g., social insurance programmes may be undertaken by the government to handle fundamental risks. Similarly, fire insurance policy may be bought by an individual to prevent against the adverse consequences of fire.



Pure and Speculative Risks

Pure Risk situations are those where there is a possibility of loss or no loss. There is no gain to the individual or the organization. For example, a car can meet with an accident or it may not meet with an accident. If an insurance policy is bought for the purpose, then if accident does not occur, there is no gain to the insured. Contrarily, if the accident occurs, the insurance company will indemnify the loss.

Speculative Risks are those where there is possibility of gain as well as loss. The element of gain is inherent or structured in such a situation. For example – if you invest in a stock market, you may either gain or lose on stocks.

Static and Dynamic Risks

Static Risk involves losses resulting from the destruction of an asset or changes in its possession as a result of dishonesty or human failure.

Example for static risk includes possibility of loss in a business: unemployment after undergoing a professional qualification, loss due to act of others, etc.



Dynamic Risks are those resulting from the changes in the economy or the environment. For example, economic variables like inflation, income level, price level, technology changes etc. are dynamic risks.

These risks are the best indicators of progress of the society, because they are the results of adjustment in misallocation of resources.

Quantifiable and Non-quantifiable Risks

The risk which can be measured like financial risks are known to be quantifiable while the situations which may result in repercussions like tension or loss of peace are called as non-quantifiable.



Risk for Financial Institutions

Credit Risk: The risk that a customer, counterparty, or supplier will fail to meet its obligations. It includes everything from a borrower default to supplier missing deadlines because of credit problems. Credit risk is the change in value of a debt due to changes in the perceived ability of counterparties to meet their contractual obligations (or credit rating). Also known as default risk or counterparty risk.

Market Risk: is the change in value of assets due to changes in the underlying economic factors such as interest rates, foreign exchange rates, macroeconomic variables, stock prices, and commodity prices. All economic entities that own assets face market risk.

For example, bills receivable of software exporters that are denominated in foreign currencies are exposed to exchange rate fluctuations; while value of bonds/government securities owned by investors depend on prevailing interest rates.

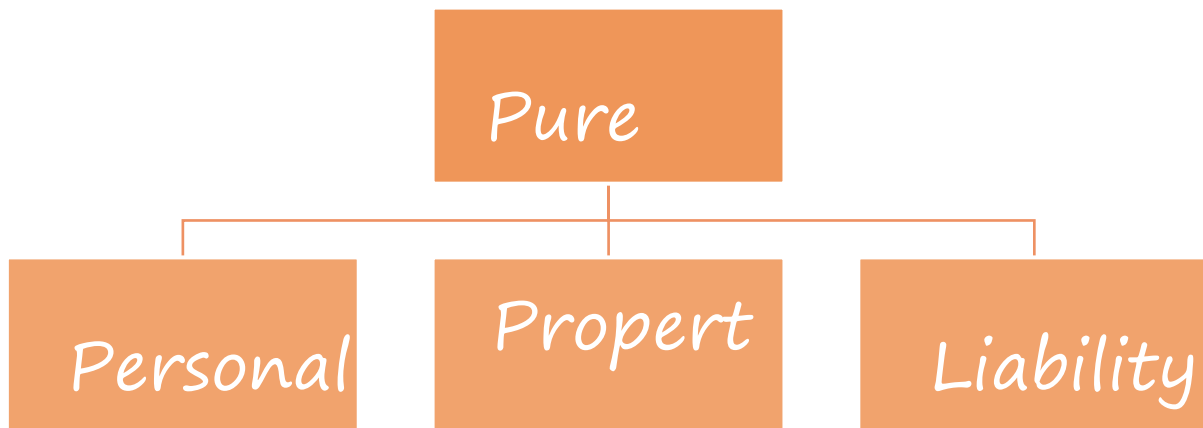


Operational Risk: The risk that people, processes, or systems will fail or that an external event will negatively affect the company. All organizations face operational risk.

Example: For a financial institution/bank, operational risk can be defined as the possibility of loss due to mistakes made in carrying out transactions such as settlement failures, failures to meet regulatory requirements, and untimely collections.



Classifying Pure Risks



Personal Risks

Risk of Premature Death: Premature death is defined as the death of the household head with unfulfilled financial obligations. 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 does with unsatisfied financial obligations. Thus, the death of a child aged 5 is not premature in the economic sense.



Risk of Insufficient Income during Retirement: It refers to the risk of not having sufficient income at the age of retirement or the age becoming so that there is a possibility that individual may not be able to earn the livelihood. When one retires, he loses his earned income. Unless he has sufficient financial assets from which to draw or has access to other sources of retirement income such as social security or a private pension, he will be exposed to financial insecurity during retirement.

Risk of Poor Health: It refers to the risk of poor health or disability of a person to earn the means of survival. For example, losing the legs due to accident, heart surgery that is costly. Unless the person has adequate health insurance, private savings or other sources of income to meet these losses, he will be financially insecure. The loss of insecurity is significant if the disability is severe.

Risk of Unemployment: The risk of unemployment is another major threat to financial security. Unemployment can result from business cycle downswings, technological and structural changes in the economy, seasonal factors, etc. Employers are increasingly hiring temporary or part-time workers to reduce labor costs. Being temporary employees,



workers lose their employee benefits. Unless there is adequate replacement income or past savings on which to draw, the workers (unemployed, part-time and temporary) will be financially insecure. By passage of time, past savings and unemployment benefits may be exhausted.

Property Risks

Direct Loss: A direct loss is defined as a financial loss that results from the physical damage destruction, or theft of the property.

For example, physical damage to a factory due to fire is known as direct loss.

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.

For example, in factory, there may be apparent financial losses resulting from not working for several months while the factory was rebuilt and also extra expenses termed as indirect loss.



Liability Risks

These are the risks arising out of the intentional or unintentional injury to the persons or damages to their properties through negligence or carelessness. Liability risks generally arise from the law.

For example, the liability of an employer under the workmen's compensation law or other labor laws in India.

Question Answer Session

Module 1

Topic 1.2 Risk Management

Risk Management Process



Implementing a risk management process is vital for any organization. Good risk management doesn't have to be resource intensive or difficult for organizations to undertake or insurance brokers to provide to their clients. With a little



formalization, structure, and a strong understanding of the organization, the risk management process can be rewarding.

Risk management does require some investment of time and money, but it does not need to be substantial to be effective. In fact, it will be more likely to be employed and maintained if it is implemented gradually over time.

The key is to have a basic understanding of the process and to move towards its implementation.

The 5 Step Risk Management Process

1. Identify potential risks

What can possibly go wrong?

The four main risk categories of risk are *hazard risks*, such as fires or injuries; *operational risks*, including turnover and supplier failure; *financial risks*, such as economic recession; and *strategic risks*, which include new competitors and brand reputation. Being able to identify what types of risk you have is vital to the risk management process.



An organization can identify their risks through experience and internal history, consulting with industry professionals, and external research.

It's important to remember that the risk environment is always changing, so this step should be revisited regularly.

2. Measure frequency and severity

What is the likelihood of a risk occurring and if it did, what would be the impact?

Many organizations use a heat map to measure their risks on this scale. A risk map is a visual tool that details which risks are frequent and which are severe (and thus require the most resources). This will help you identify which are very unlikely or would have low impact, and which are very likely and would have a significant impact.

Knowing the frequency and severity of your risks will show you where to spend your time and money and allow your team to prioritize their resources.

3. Examine alternative solution



What are the potential ways to treat the risk and of these, which strikes the best balance between being affordable and effective? Organizations usually have the options to accept, avoid, control, or transfer a risk.

Accepting the risk means deciding that some risks are inherent in doing business and that the benefits of an activity outweigh the potential risks.

To *avoid a risk*, the organization simply has to not participate in that activity.

Risk control involves prevention (reducing the likelihood that the risk will occur) or mitigation, which is reducing the impact it will have if it does occur.

Risk transfer involves giving responsibility for any negative outcomes to another party, as is the case when an organization purchases insurance.

4. Decide which solution to use and implement it

Once all reasonable potential solutions are listed, pick the one that is most likely to achieve desired outcomes.



Find the needed resources, such as personnel and funding, and get the necessary buy-in. Senior management will likely have to approve the plan, and team members will have to be informed and trained if necessary.

Set up a formal process to implement the solution logically and consistently across the organization and encourage employees every step of the way.

5. Monitor results

Risk management is a process, not a project that can be “finished” and then forgotten about. The organization, its environment, and its risks are constantly changing, so the process should be consistently revisited.

Determine whether the initiatives are effective and whether changes or updates are required. Sometimes, the team may have to start over with a new process if the implemented strategy is not effective.

If an organization gradually formalizes its risk management process and develops a risk culture, it will become more resilient and adaptable in the face of change. This will also mean making more informed decisions based on a complete



picture of the organization's operating environment and creating a stronger bottom line over the long-term.

Risk Management Objectives

The objectives of risk management can be broadly classified into two:

1. Pre-loss Objectives
2. Post-loss Objectives

Pre-loss Objectives:

An organization has many risk management objectives prior to the occurrence of a loss. The most important of such objectives are as follows.

- a. The first objective is that the firm should prepare for potential losses in the most economical way possible. This involves as analysis of safety program, insurance premiums and the costs associated with the different techniques of handling losses.
- b. The second objective is the reduction of anxiety. In a firm, certain loss exposures can cause greater worry and fear for the risk manager, key executives and unexpected stockholders of that firm. For example, a threat of a



lawsuit from a defective product can cause greater anxiety than a possible small loss from a minor fire. However, the risk manager wants to minimize the anxiety and fear associated with such loss exposures.

- c. The third preloss objective is to meet any externally imposed obligations. This means that the firm must meet certain obligations imposed on it by the outsiders. For example, government regulations may require a firm to install safety devices to protect workers from harm. Similarly, a firm's creditors may require that property pledged as collateral for a loan must be insured. Thus, the risk manager is expected to see that these externally imposed obligations are met properly.

Post-loss Objectives:

Post-loss objectives are those which operate after the occurrence of a loss. They are as follows:

- a. The first post-loss objective is survival of the firm. It means that after a loss occurs, the firm can at least resume partial operation within some reasonable time period.
- b. The second post-loss objective is to continue operating. For some firms, the ability to operate after a severe loss is an extremely important objective. Especially, for public



utility firms such as banks, dairies, etc., they must continue to provide service.

- c. Stability of earnings is the third post-loss objective. The firm wants to maintain its earnings per share after a loss occurs. This objective is closely related to the objective of continued operations. Because, earnings per share can be maintained only if the firm continues to operate. However, there may be substantial costs involved in achieving this goal, and perfect stability of earnings may not be attained.

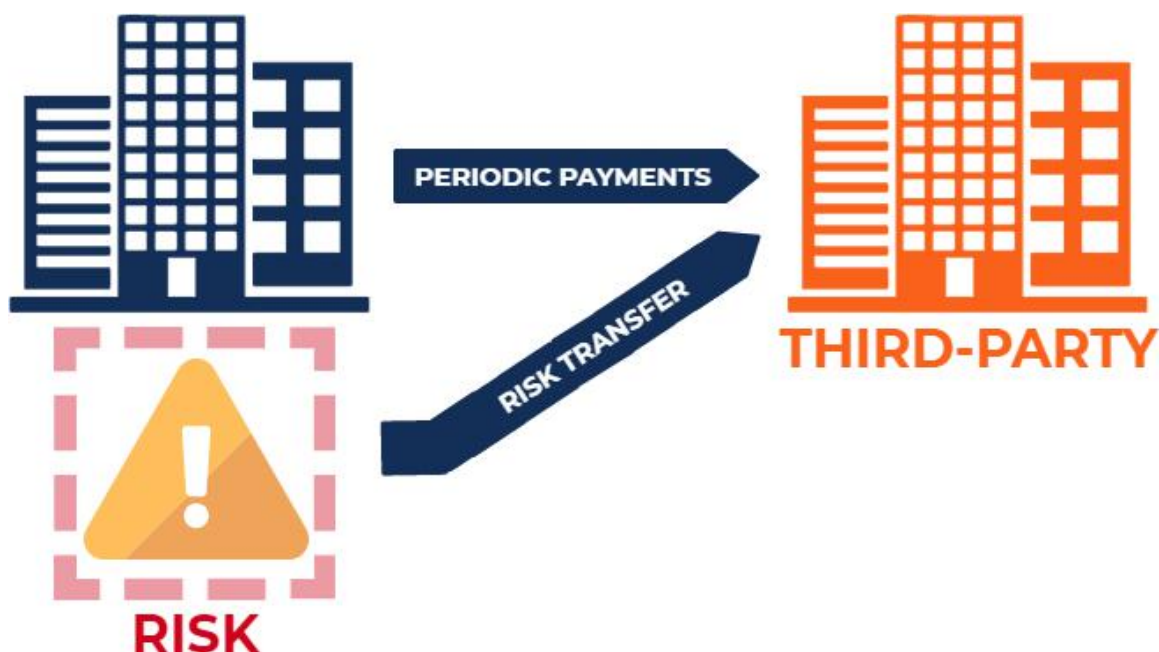
- d. Another important post-loss objective is continued growth of the firm. A firm may grow by developing new products and markets or by acquiring or merging with other companies. Here, the risk manager must consider the impact that a loss will have on the firm's ability to grow.

- e. The fifth and the final post-loss objective is the social responsibility to minimize the impact that a loss has on other persons and on society. A severe loss can adversely affect the employees, customers, suppliers, creditors and the community in general. Thus, the risk manager's role is to minimize the impact of loss on other persons.

Thus, there are the pre-loss and post-loss objectives of risk management. A prudent risk manager must keep these objectives in mind while handling and managing the risk.

What is Risk Transfer?

Risk transfer refers to a risk management technique in which risk is transferred to a third party. In other words, risk transfer involves one party assuming the liabilities of another party. Purchasing insurance is a common example of transferring risk from an individual or entity to an insurance company.





How It Works

Risk transfer is a common risk management technique where the potential loss from an adverse outcome faced by an individual or entity is shifted to a third party. To compensate the third party for bearing the risk, the individual or entity will generally provide the third party with periodic payments.

The most common example of risk transfer is insurance. When an individual or entity purchases insurance, they are insuring against financial risks. For example, an individual who purchases car insurance is acquiring financial protection against physical damage or bodily harm that can result from traffic incidents.

As such, the individual is shifting the risk of having to incur significant financial losses from a traffic incident to an insurance company. In exchange for bearing such risks, the insurance company will typically require periodic payments from the individual.



Meaning of Risk Retention:

It is nothing than presuming that we are going to incur certain losses on a particular issue but at the same time are not willing to transfer such risks to another party.

For example in an individual case a person's decides to bear all the losses caused to his property by himself and never cares to get his property insured means all the risk shall be retrained by that particular individual and in case of any eventuality he shall only be paying from his own pocket for the losses caused to his property.

And in case of a corporation or a company engaged in construction works, if it is decided to pay to the accidental expenses of its employees instead of entering into an agreement with any insurance company to compensate the expenses.

In such a case the corporation or the company concerned have decided to bear the cost themselves instead of transferring it to any insurance company and are also willing to retain the loss.



Levels of Risk Management

There are four basic categories into which business risks can fall. In ascending order of potential significance, they are as follows:

Low frequency – Low severity

High frequency – Low severity

Low frequency – High severity

High frequency – High severity

Low frequency – low severity

Risks are those that occur very infrequently and have only a slight or marginal impact upon their occurrence.

For example, office supplies may on occasion go missing or be stolen, or employees may occasionally lose, or damage lower-cost equipment entrusted to their position

High frequency – low severity

Risks are those that occur frequently, but still have only a slight or marginal impact upon their occurrence.

An example of such a risk may include shoplifting losses at a retail store, in which any individual theft is not terribly significant.



Low frequency – high severity

Risks are those that may not occur often, but when they do, the consequences are profound.

Examples of these risks include such things as fire and natural disaster losses, or third-party liability and employment lawsuits.

High frequency – high severity

Risks are those that are almost certain to occur and would likely be devastating upon their occurrence.

For example, a property management company that learns one of its properties is so structurally unsound as to be highly dangerous and completely beyond repair.

What Is Corporate Risk Management?

Corporate risk management refers to all of the methods that a company uses to minimize financial losses. Risk managers, executives, line managers and middle managers, as well as all employees, perform practices to prevent loss exposure through internal controls of people and technologies. Risk management also relates to external threats to a corporation,



such as the fluctuations in the financial market that affect its financial assets.

Protecting Shareholders

A corporation has at least one shareholder. A large corporation, such as a publicly-traded or employee-owned firm, has thousands, or even millions, of shareholders. Corporate risk management protects the investment of shareholders through specific measures to control risk. For example, a company needs to ensure that its funds for capital projects, such as construction or technology development, are protected until they are ready to use.

Types of Risk

Consider the types of risk that a corporation must address every day. A corporation may become insolvent if it hasn't bought insurance, implemented loss control measures and used other practices to prevent financial loss. Insurance is no substitute for successfully identifying measures to prevent losses, such as safety training to prevent worker injuries and deaths. Risks can include hazard risks, financial risks, personal injury and death, business interruption/loss of services, damage to a corporation's reputation, errors and omissions and lawsuits.



Probability and Consequences

To prevent financial losses, a corporation engages in a certain amount of speculation. A risk manager calculates the probability of each type of event that would damage the firm's financial position and the consequences. Calculating the likelihood that something will happen, and its associated costs enables a risk manager to recommend ways to address the most probable risks to senior management, the board of directors and owners of the corporation.

Solutions

A corporate risk manager is a multi-disciplinary professional with an understanding of internal business processes and many financial instruments. This professional might have a background in business management, finance, insurance or actuarial science. She might suggest solutions to a corporation to protect its assets. For instance, she might recommend buying millions of dollars in commercial liability insurance coverage. Some risks that she calculates, as potentially damaging to the corporation, are ignored while others are covered by this liability policy. She might recommend buying other types of insurance, such as fire or fraud, after first weighing the costs versus the benefits of each type of coverage.



Management Of Risk By Individuals

There are typically four key steps in the risk management process for individuals: Specify the objective, identify risks, evaluate risks and select appropriate methods to manage the risks, and monitor outcomes and risk exposures and make appropriate adjustments in methods.

Measurement Of Risk

1. Statistical

Risk measures are statistical measures that are historical predictors of investment risk and volatility.

The four measures include the alpha, beta, R-squared, standard deviation.

Alpha measures risk relative to the market. It takes the volatility (price **risk**) of a security or fund portfolio and compares its **risk**-adjusted performance to a benchmark index. The excess return of the investment relative to the return of the benchmark index is its **alpha**.

Beta measures the volatility or systemic risk of a fund in comparison to the market or the selected benchmark.



R-Squared measures the percentage of an investment's movement that is attributable to movements in its benchmark index.

Standard deviation is a method of measuring data dispersion in regards to the mean value of the dataset and provides a measurement regarding an investment's volatility.

2. Scenario Analysis

Scenario Analysis is the process of calculating the value of a specific investment, or a certain group of investments, under a variety of scenarios i.e. future possibilities.

In other words, estimate expected cash flows and asset value under various scenarios, with the intent of getting a better sense of the effect of risk on value.

These scenarios may be very likely to occur or their occurrence might be doubtful, yet quite possible.

A key point to consider here is that scenario analysis is not dependent on past results.

Types of scenario

There are mainly two types of scenario analysis that are widespread & used by most executives, managers, and investors. Following are the two types:

Best case/ worst case scenario



Multiple scenario analysis

3. Sensitivity Analysis

The technique used to determine how independent variable values will impact a particular dependent variable under a given set of assumptions is defined as sensitive analysis.

Its usage will depend on one or more input variables within the specific boundaries, such as the effect that changes in interest rates will have on a bond's price.

It is also known as what – if analysis.

There are mainly two approaches to analyzing sensitivity:

1. Local Sensitivity Analysis

2. Global Sensitivity Analysis

Local sensitivity analysis is derivative based (numerical or analytical). The term local indicates that the derivatives are taken at a single point.

Global sensitivity analysis is the second approach to sensitivity analysis, global sensitivity analysis is the process of apportioning the uncertainty in outputs to the uncertainty in each input factor over their entire range of interest.



4. Value at Risk

Value at risk (VaR) is a statistic that measures and quantifies the level of financial risk within a firm, portfolio or position over a specific time frame.

This metric is most commonly used by investment and commercial banks to determine the extent and occurrence ratio of potential losses in their institutional portfolios.

Risk managers use VaR to measure and control the level of risk exposure. One can apply VaR calculations to specific positions or whole portfolios or to measure firm-wide risk exposure.

