ESSENTIALS OF

INSURANCE AND
RISK MANAGEMENT

[As per New Syllabus (CBCS) for First Semester, B.Com. (Hons.),
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Dedicated to the Sacred Memory of my father
Preface

With the increasing dynamism of risk and the growth of professional risk management, the insurance device has become more and more popular these days. Looking at the recent catastrophic events, demand for insurance has increased tremendously with more and more demand for complex and sophisticated products.

Also, the liberalization of markets especially in developing countries has accentuated the need for risk products. Also the recent government policy initiatives like crop insurance, financial guarantee schemes for unemployed, various social security programmes and raising limits of FDI in insurance has resulted into a sudden spurt in the demand of insurance professionals. More and more academic institutions all over the countries are offering highly specialized insurance programmes to cater to this demand.

Recently, the universities in India and abroad have introduced insurance as a specialized study both at graduate and postgraduate level. This has accentuated the dire demand for the literature on insurance in the Indian context. It is expected that the book shall be useful to the students and as well as the trainers. I would be highly obliged for comments from the readers that would further help me in improving the book.

**Organization of the Book**

The book has been organized into five modules.

**Part 1** introduces the concept of risk management to the readers. It conceptualizes the risk definitions, classes of risk; risk management process also discusses the various aspects of disaster risk management.

**Part 2** discusses the concept of insurance, its need and presents a global view of insurance. Also, various reinsurance strategies have been discussed.

**Part 3** enumerates the underlying principles of insurance. Legal aspects of insurance and various non-life insurance categories, viz., Fire, Marine, Motor and Health insurance have been discussed.

**Part 4** deals with IRDA legislation, rules and regulations and other important aspects of insurance.

I hope that book shall definitely be useful to the readers and provide an in-depth insight into the various facets of insurance business in India.

*New Delhi, July 2016*  
P.K. Gupta
Acknowledgements

I am inspired by my wife Rachna Gupta who strongly suggested me to write a customized book on the subject from a pure student’s perspective. Her inspiration has been continuously flowing since my first attempt of Insurance and Risk Management, 2004 and 2010 editions.

I am indebted to my beloved Ayush and Manvi who have made sacrifices at all levels in various forms and contexts for timely completion of this book. I also thank my mother, brother and other family members for necessary support.

I also thank my Ph.D. supervisor, Dr. B.L. Surolia, who has provided me necessary presentation skills, which, I feel is the most important tool in any literary work.

I thank from my heart Mr. Vijay Rawat at Delhi office who provided me immense support and motivation for timely completion of this edition.

I also thank Nimisha and other staff members of Mumbai office of Himalaya Publishing House Pvt. Ltd. for their support in various forms.

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P.K. Gupta
Syllabus

B.Com. (Hons.) Semester – I
Paper BCH 1.4(b): Insurance and Risk Management

Duration: 3 Hrs

Objective: To develop an understanding among students about identifying, analyzing and managing various types of risk. Besides, the students will be in a position to understand principles of insurance and its usefulness in business, along with its regulatory framework.

Unit I:

Unit II:
Concept of Insurance, Need for Insurance, Globalization of Insurance Sector, Reinsurance, Co-insurance, Assignment, Endowment.

Unit III:

Unit IV:
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Part I
Introduction to Risk Management
Objectives

After reading this chapter, you will be able to understand

- Concept of Risk
- Risk vs. Uncertainty
- Loss, Perils and Hazards
- Types of Risks
- Risk for Banks and Financial Institutions
- Categories of Pure Risks
- Risk Perception and Misconceptions

Human beings are considered the most intelligent creatures on this earth. The thinking power available to human beings is enormous and this has led human beings to define their style of living and distinguish between good and bad situations. The criteria for deciding whether the situation is good or bad depend upon individual’s perception. However, one thing is sure — that human beings always prefer and strive for happy situations and wants to avoid the adverse ones. Actually, the zeal to be happy always has given birth to the jargon risk!

1.1 The Concept of 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. Different authors on the subject have defined risk differently. However, in most of the terminology, 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. Look at the popular definitions of risk.

According to the dictionary, risk refers to the possibility that something unpleasant or dangerous might happen.\(^1\)

Risk is a condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for.\(^2\)

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At its most general level, risk is used to describe any situation where there is uncertainty about what outcome will occur. Life is obviously risky.\(^3\)

The degree of risk refers to the likelihood of occurrence of an event. It is a measure of accuracy with which the outcome of a chance event can be predicted.

In most of the risky situations, two elements are commonly found:

- The outcome is uncertain, i.e., there is a possibility that one or other(s) may occur. Therefore, logically, there are at least two possible outcomes for a given situation.
- Out of the possible outcomes, one is unfavourable or not liked by the individual or the analyst.

### 1.2 Risk vs. Uncertainty

Uncertainty is often confused with the risk. 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.\(^4\) Uncertainty is said to exist in situations where decision-makers lack complete knowledge, information or understanding concerning the proposed decision and its possible consequences.

Risk is sometimes defined as an implication of a phenomenon being uncertain – that may be wanted or unwanted.

Uncertainty can be perceived as opposite of certainty where you are assured of outcome or what will happen. Accordingly, some weights or probabilities can be assigned into risky situations but uncertainty, the psychological reaction to the absence of knowledge lacks this privilege.

Decision under uncertain situations is very difficult for the decision-maker. It all depends upon the skill, the judgment and of course luck. Uncertainties and their implications need to be understood to be managed properly.

Uncertainty being a perceptual phenomenon implies different degrees to different person. Assume a situation where an individual has to appear for the first in the newly introduced insurance examination.

(a) an individual student undergone a training in insurance.
(b) an individual with training or experience in insurance.

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\(^4\) Vaughan, *op. cit.*, p. 3.
A’s perception towards uncertainty of performance in examination is different from that of B. Nonetheless, in both situations, outcome that is the questions which will be asked in the examination are different.

Uncertainty may be –

(a) **Aleatory uncertainty** – uncertainty arising from a situation of pure chance, which is known; or

(b) **Epistemic uncertainty** – uncertainty arising from a problem situation where the resolution will depend upon the exercise of judgment.

<table>
<thead>
<tr>
<th>Risk</th>
<th>Uncertainty</th>
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<tbody>
<tr>
<td>Quantifiable</td>
<td>Non-quantifiable</td>
</tr>
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<td>Statistical Assessment</td>
<td>Subjective Probability</td>
</tr>
<tr>
<td>Hard Data</td>
<td>Informed Opinion</td>
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</table>

### 1.3 Loss and Chance of 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.

The chance of loss refers to a fraction or the relative frequency of loss. 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.

From the insurer’s perspective, it is the probability of loss that accentuate the need for insurances. The probabilities of losses may be ex-post or ex-ante. In practice, the ex-ante probabilities are widely used for undertaking risk in insurance business.

The chance or probabilities of loss estimation requires accounting for causes of losses popularly characterized as *perils* and *hazards*.

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1.4 Perils
A peril refers to the cause 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.

1.5 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. Hazards can be classified as follows:

(1) **Physical Hazards** — Property Conditions — consists of those physical properties that increase the chance of loss from the various perils. For example, stocking crackers in a packed commercial complex increases the peril of fire.

(2) **Intangible Hazards** — Attitudes and Culture — Intangible hazards are more or less psychological in nature. These can be further classified as follows:

(a) **Moral Hazard** — Fraud — These refer to the increase in the possibility or severity of loss emanating from the intention to deceive or cheat. For example, putting fire to a factory running in losses. With an intention to make benefit out of exaggerated claims, deliberately indulging into automobile collusion or damaging it or tendency on part of the doctor to go for unnecessary checks when they are not required, since the loss will be reimbursed by the insurance company.

(b) **Morale Hazard** — Indifference — It is the attitude of indifference to take care of the property on the premise that the loss will be indemnified by the insurance company. So, it is the carelessness or indifference to a loss because of the existence of insurance contract. For example, smoking in an oil refinery, careless driving, etc.

(c) **Societal Hazards** — Legal and Cultural — These refer to the increase in the frequency and severity of loss arising from legal doctrines or societal customs and structure. For example, the construction or the possibility of demolition of buildings in unauthorized colonies.

1.6 Types of Risks
**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

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8 Dorfman, *op.cit.*, p. 5.
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. When the possibility of a
financial loss does not exist, the situation can be referred to as non-financial in
nature. Financial risks are more particular 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. As far
as insurance is concerned, risk is involved with an element of financial loss.

**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. The methods of handling fundamental and particular risks differ by their
very nature, 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.

The distinguishing characteristics of the pure and speculative risks are:

(a) Pure risks are generally insurable while the speculative ones are not.

(b) The conceptual framework of the risk pooling can be applied to pure risks, while
in most of the cases of speculative risks it is not possible. However, there may
be some situation where the law of mathematical expectation might be useful.

(c) Speculative risk carry some inherent advantages to the economy or the society at
large while pure risks like uninsured catastrophes may be highly damaging.

**Static and Dynamic Risks**

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. Since the dynamic risk emanates from
the economic environment, these are very difficult to anticipate and quantify. Dynamic
risk involves losses mainly concerned with financial losses. These risks affect the public and society. These risks are the best indicators of progress of the society, because they are the results of adjustment in misallocation of resources.

On the other hand, static risks are more or less predictable and are not affected by the economic conditions. Static risk involves losses resulting from the destruction of an asset or changes in its possession as a result of dishonesty or human failure. Such financial losses arise, even if there are no changes in the economic environment. These losses are not useful for the society. These arise with a degree of regularity over time and as a result, are generally predictable. 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 vs. Static Risks

<table>
<thead>
<tr>
<th>Dynamic Risks</th>
<th>Static Risks</th>
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</thead>
<tbody>
<tr>
<td>Losses are not easily predictable</td>
<td>Losses can be predicted</td>
</tr>
<tr>
<td>These risk result from the changes in economic environment</td>
<td>There occur even if there is no change in economic environment</td>
</tr>
<tr>
<td>These risks are not covered by insurance</td>
<td>These risk can be covered by insurance</td>
</tr>
<tr>
<td>These risks benefit the society</td>
<td>These risks don’t benefit the society</td>
</tr>
</tbody>
</table>

### 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.

### 1.7 Risk for Financial Institutions

In line with the BASEL accord, the risks for banks, financial institutions, etc. can classified as follows:

**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, credit risk is faced by lending institutions like banks, investors in debt instruments of corporate houses, and by parties involved in contractual agreements like forward contracts. There are independent agencies that assess the credit risk in the form of credit ratings.

Credit rating is an opinion (of the credit rating agency) on the ability of the organization to perform its contractual obligations (pay the principle and/or interest of the loan) on a timely basis. Each level of rating indicates a probability of default.

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International credit rating agencies (like Moody’s, Fitch, and S&P) use quantitative models along with their experience to predict the credit ratings. Credit scoring models of banks and lending institutions use stock prices (if available), financial performance and sector-specific data, and macroeconomic forecasts to predict the credit rating.

Credit risk can be further segregated as:
(a) Direct Credit Risk – due to counterparty default on a direct, unilateral extension of credit
(b) Trading credit risk – counterparty default on a bilateral obligation (repos)
(c) Contingent credit risk – counterparty default on a possible future extension of credit
(d) Correlated credit risk – magnified effect
(e) Settlement risk – failure of the settlement conditions
(f) Sovereign risk – due to government policies (exchange controls)

**Market Risk:** The risk that process will move in a way that has negative consequences for a company. 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. Organizations with huge exposures, either have a dedicated treasury department, or outsource market risk management to banks.

Modeling market risk requires forecasting the changes in the economic factors, and assesses their impact on the asset value. Almost popular measure for expressing market risk is Value-at-Risk, which is ‘the maximum loss’ from an unfavourable event, within a given level of confidence, for a given holding period. Various financial instruments like options, futures, forwards, swaps, etc. can be used effectively to hedge the market risk. Availability of huge data on various markets has facilitated the development of many sophisticated models.

These risks can be broken into following components:
(a) Directional Risk – deviations due to adverse movement in the direction of the underlying reference asset.
(b) Curve Risk – deviation due to adverse change in the maturity structure of a reference asset.
(c) Volatility risk – unexpected volatility of financial variable.
(d) Time decay risk – risk due to passage of time.
(e) Spread risk – adverse change in two reference assets that are unrelated.
(f) Basis risk – adverse change in two reference assets that are related
(g) Correlation risk – risk due to adverse correlations.
Operational: The risk that people, processes, or systems will fail or that an external event will negatively affect the company. Practically speaking, all organizations face operational risk. 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. No concrete model of managing credit risk is available till today. Still lot of research is being done in this direction.

Other: Extensions of the above categories, viz., business risk is that future operating results may not meet expectations; organizational risk arises from a badly designed organizational structure or lack of sufficient human resources.

1.8 Classifying Pure Risks

Since pure risks are generally insurable, the discussion on risk in further chapters of the book is skewed towards pure risks only. On the presumption that insurable pure risks being static can be classified as follows:

Pure Risk

- Personal
- Property
- Liability

Personal Risks

Personal risks are risks that directly affect an individual. They involve the possibility of the complete loss or reduction of earned income. There are four major 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. In case of long-term
disability, things will become worst and someone must take care of the disabled person. The loss of earned income can be financially painful.

**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**

It refers to the risk of having property damaged or lost because of fire, windstorm, earthquake and numerous other causes. There are two major types of loss associated with the destruction or theft of property.

**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. Regardless of the cost, business may lose its customers. In this case, it is necessary to setup a temporary operation at some alternative location and extra expenses would occur. These are the indirect expenses resulting from the damage of the factory.

**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.

In addition to the above categories, risks may also arise due to the failure of others. For example, the financial loss arising from the non-performance or standard performance in an engineering or construction contract.

**1.9 Risk Perception and Misconceptions**

Different people respond to seemingly similar risky situations in very different ways. It is seen that empirical evidence concerning individual risk response is often ignored in the risk analysis process. Also, experience, subjectivity and the way risk is framed plays a major role in decision-making. Risk perception has a crucial influence on risk-taking behavior. The perceived importance attached to decisions influences team behavior and the consequent implementation methods.
Psychological Risk Dimensions

(a) People use heuristics to evaluate information – That may lead to inaccurate judgments in some situations – become cognitive biases.

(b) Representativeness – Usually employed when people are asked to judge the probability that an object or event belongs to a class or processes by its similarity implying – insensitivity to prior probability, sample size, misconception of chance, insensitivity to predictability, illusion of validity and misconception of regression.

(c) Availability heuristic – Events that can be more easily brought to mind or imagined are judged to be more likely than events that could not easily be imagined:
- biases due to retrievability of instances
- biases due to the effectiveness of research set
- biases of imaginability
- illusory correlation

(d) Anchoring and adjustment heuristic – People will often start with one piece of known information and then adjust it to create an estimate of an unknown risk – but the adjustment will usually not be big enough:
- insufficient adjustment
- biases in the evaluation of conjunctive and disjunctive event
- anchoring in the assessment of subjective probability distributions

(e) Cognitive Psychology – Factors that are common and generic are more expressed.

(f) Psychometric Paradigm – People perceive risks to be high in general. Also, perceived risk is quantifiable and predictable.

Broad domain of risk characteristics is represented by three high order factors:
- the degree to which a risk is understood
- the degree to which it evokes a feeling of dread and
- the number of people exposed to the risk.

Misconceptions of Risk
- Risk can be eliminated.
- Risk management is always better.
- Risk set is finite.
- Risk management is implied/automatic.
- Top valued (rated) organizations have best risk management practices.

Key Terms
- Credit Risk
- Risk
- Market Risk
- Dynamic Risk
Questions for Review

1. Define risk. List some ways in which risk creates an economic burden for society.
2. Differentiate between the following types of risk:
   (a) Pure versus speculative
   (b) Static versus dynamic
   (c) Subjective versus objective.
3. Give an example of a risk that is both pure and static.
4. An insurable loss is:
   (a) An event that has not been predicted.
   (b) An exposure that cannot be easily measured before the event has occurred.
   (c) An unexpected reduction of economic value.
   (d) Being without something one has previously possessed.
5. Differentiate between a peril and a hazard and give an example of each.
6. For each of the following hazards, state the peril to which the hazard relates.
   (a) A drunken driver of a truck
   (b) A person with damaged kidneys
   (c) A house with poor quality of electricity cable fittings
   (d) An unlocked car in no-parking area
7. “Pure risks are always insurable.” Comment.
8. List the various types of risks as per BASEL accord.
10. Enumerate the various psychological dimensions of risk.

Suggested Readings


**Web Resources**

• www.erisks.com
• www.rims.org
• www.risk.net
• www.bimaonline.com