

# 2

## Risk and insurance

Contents	Syllabus learning outcomes
Learning objectives	
Introduction	
Key terms	
A Concept of risk	2.1
B Components of risk	2.2
C Insurable risks	2.3
D Risk transfer	2.4
E Pooling of risks	2.5
Key points	
Question answers	
Self-test questions	

### Learning objectives

After studying this chapter, you should be able to:

- explain the concept of risk in terms of insurance;
- explain the main components of risk;
- describe the risks that can be insured;
- describe the importance of insurance as a risk transfer mechanism;
- explain the concept of pooling of risks.

## Introduction

In chapter 1 we explained that insurance is based on the transfer of risk and we looked briefly at some of the risks that a person might face.

In this chapter we will look at the nature of risk in more detail and the types of risks that can be insured against, in addition to explaining a little more about how risks are transferred and pooled. Of course, as a life insurance agent you are concerned with the **risks relating to human life** and we shall focus our attention on these aspects in this chapter. However, we shall also be making reference to some risks that apply to general insurances as this will help you to gain a good understanding of the concept of risk in its broadest sense.



### Key terms

This chapter features explanations of the following terms and concepts:

Risk	Components of risk	Uncertainty	Hazard
Peril	Homogeneous risk	Accidental risk	Insurable risk
Financial risk	Pure risk	Risk transfer	Pooling of risks

## A Concept of risk

### A1 Definition of risk

The word 'risk' can be used in several different contexts. In insurance, risk is applied to certain assets that can be insured, such as a human life, a house, a car, etc.

There is no single definition of risk because of the different contexts in which it can be used.

Here are some of the definitions of risk:

- Risk is the chance of damage or loss.
- Risk is doubt concerning the outcome of a situation.
- Risk is something or someone considered to be a potential hazard.

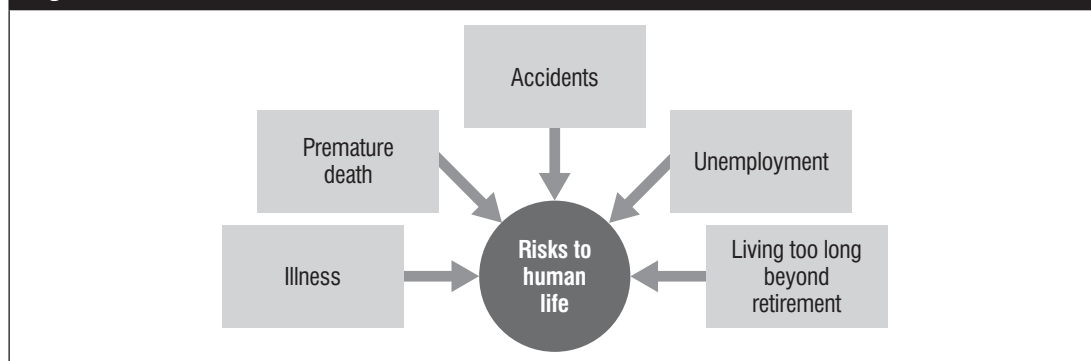


### Be aware

In **life insurance** the word 'risk' is used to describe the possibility of an unfavourable event occurring, for example untimely **death** or an unforeseen **disability**.

During a lifetime an individual can be exposed to many risks, some of these are:

**Figure 2.1**



Insurance cannot prevent the occurrence of these risks, but it can reduce their impact should they occur. Life insurance mainly deals with two risks – premature death and living too long. The other risks relating to human life are mostly covered under non-life insurance. However, life insurance companies offer additional benefits or riders along with life insurance plans to cover the following risks – death or disability due to accidents, illness and unemployment.

### Example

Rakesh Gupta is a sales executive working for a private company. His job involves frequent travelling to meet various retailers in his region in order to achieve his monthly and quarterly sales targets. Sometimes he has to travel continuously for days, without any rest.

Rakesh Gupta is exposed to the following risks, for which he should consider buying insurance:

**Premature death** – Rakesh's job profile is quite stressful and involves intense travelling. He is exposed to the risk of early death which could occur due to an accident or illness caused by stress. A life insurance plan can protect his family against the risk of Rakesh's early death.

**Accident** – Due to the frequent travelling that Rakesh has to do, he is prone to the risk of accidents that can result in either permanent or temporary disability. A life insurance plan with a disability benefit rider or a separate accidental death policy can protect his family against the risk of Rakesh becoming disabled.

**Illness** – Due to the stressful nature of his job, Rakesh is exposed to the risk of suffering from critical illnesses. A life insurance plan with a critical illness rider, or a health insurance policy, can help meet the hospitalisation expenses should Rakesh suffer from any critical illness.

**Unemployment** – If Rakesh has an accident and becomes disabled, he risks losing his job and becoming unemployed.

**Living too long** – Should none of the above events occur during his working life and Rakesh retires, he may be exposed to the risk of living too long beyond retirement. He is working for a private company that does not provide a monthly pension after retirement as part of his employee benefits. Hence he needs to work towards building a retirement fund during his working life by investing in a retirement pension plan. On retirement he can purchase an annuity plan from a life insurance company that will pay him regular annuity payments during his retirement years.

**Note:** Details about various life insurance plans, health insurance plans and riders will be discussed in later chapters.



### Be aware

Insurance companies provide cover for only a specified number of risks. These risks are listed in the policy document. The insurance company will not provide protection for claims arising out of risks other than the specified risks.



### Suggested activity

After studying the risks that an individual is exposed to, discuss with your family income provider which risks they are exposed to due to the nature of their job. If you are the main income provider what risks are you personally exposed to?



## A2 Attitude to risk

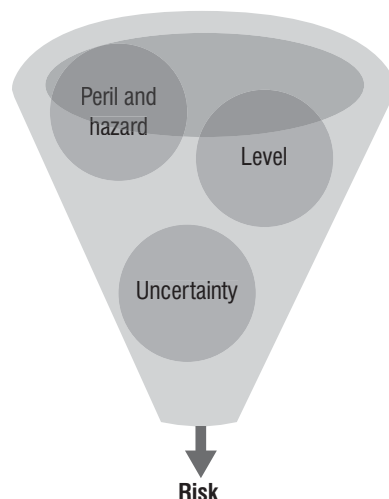
Each person's attitude to risk is different. Therefore, we all respond to risks in different ways.

Some people are willing to retain risks and carry them themselves, while others act cautiously and transfer them to an insurance company.

## B Components of risk

The components of risk include:

Figure 2.2



## B1 Uncertainty

Life is uncertain and so is our future. If we could know in advance that an event is going to take place we could plan to prevent it or overcome it, and thereby limit or even remove the risk involved.

As a general principle insurance is only available for risks that are uncertain. This statement raises a question: we all know that death is certain – but we also know that life insurance is available against death. So how can this statement be true?

It is true because, although we will all die one day, **when** we will die is uncertain. It is the **uncertainty about the timing of death** that makes death insurable. Once the timing of death becomes certain, when an individual is suffering from a fatal disease, for example, then an insurance company will not cover the risk. The following case studies show how this works.



### Case studies

1. Rishbah Agrawal is a 40-year-old businessman who leads a healthy lifestyle. Every morning he practices yoga and abstains from smoking, tobacco and alcohol. There is a family medical history of diabetes and both his parents suffer from it. But Rishbah Agrawal himself has not been diagnosed with diabetes. Can Rishbah be provided with life insurance?

The answer is **Yes**, because Rishbah maintains a healthy lifestyle and he has not been diagnosed with any disease. The timing of his death is uncertain.

2. Rakesh Sharma has been diagnosed with a brain tumour at a very advanced stage. The doctors know that they cannot save him and sadly Rakesh's death is almost certain in the near future. Can Rakesh Sharma be provided life insurance?

The answer is **No**, life insurance companies will not take the risk of providing insurance cover for Rakesh as his death in a very short time span is almost certain.

## B2 Level of risk

We know that there is a greater likelihood of some things happening than others and this affects the level of risk involved.

The level of risk is normally assessed in terms of the:

- **probability (or frequency)** of a certain event happening, and the
- **extent (or severity)** of the event if it does happen.

### Frequency

The probability that a certain person will die within one year is calculated by actuaries, from the past data collected, and is made available as mortality tables. This allows insurance companies to determine the probability of a particular event, such as death, occurring under various circumstances.

The probability of risk to life for individuals will differ on the basis of their age, medical wellbeing, family medical history, lifestyle, job profile etc.

The mortality rate is the chance of dying at a specified age based on the proportion of deaths among a specific number of a sample population.



### Example

Let's look at two different groups of 100 people. The first group is aged 30–39. Of these one person dies before the age of 31. The probability of death in this case is 1% – or a frequency of 1 in 100. The second group is aged 60–69. Of these 15 die before the age of 61 (15%). The frequency of death in the second group is therefore greater than in the first group.

### Severity

Insurance companies attempt to determine the amount of claims they would experience if the insured events were to actually occur based on the likely severity of the losses.



### Be aware

Life insurance companies determine the level of risk based on past data (claims experience). If the past data indicates that individuals within a certain age group (say, 60–70) are more prone to heart attacks, then the level of risk will be considered to be higher for that age group.

**Case study**

On 22 May 2010 Air India Express Flight 812 (Dubai – Mangalore) crashed. 158 passengers were killed. The total insurance claim for Air India is expected to run into crores of rupees for the plane crash victims.

The nature of airline insurance can be categorised as low frequency but high severity (impact) since the probability of an air crash is low, but when it does occur, the extent of the loss is very high.

**B3 Peril and hazard**

This is the final aspect of risk and relates to the cause of losses.

**Peril** refers to a specific event which might cause a loss. This loss can be loss of life or loss of property.

Natural disasters such as earthquakes, storms, floods etc. are all perils which cause loss of life and damage to assets.

Perils are the risk being insured against, e.g. the risk that an individual will die during the term of their policy.

A **hazard**, on the other hand, is a condition that either increases the chance that a peril will happen or may cause its effect to be worse if it does.

**Be aware**

A hazard influences the operation of the peril.

**Example**

If lung cancer is a peril then smoking can be a hazard that may increase the chance that the peril (lung cancer) will occur.

**Case study**

On 26 January 2001 one of the worst earthquakes in India's history hit Gujarat. Thousands of people lost their lives in this tragic event. Lakhs of people were injured and property worth thousands of crores of rupees was destroyed. The epicentre of the earthquake was located northeast of Bhuj Town in Western Gujarat.

In this case the earthquake was the peril and the poorly constructed houses and schools which were not earthquake resistant and easily collapsed were a hazard.

Similarly in the event of a tsunami (such as the one that happened on 26 December 2004) leading to widespread loss of life and property, the tsunami will be the peril and flimsy houses and buildings constructed near the seashore which are washed away causing their occupants to drown will be a hazard.

Remember that while insurance cannot prevent the peril from happening, the resulting loss from the occurrence of the peril can be insured against.

**Types of hazard**

Hazards can be categorised into one of the following types:

Physical hazards	Moral hazards
Refer to the dimensions and physical characteristics of the risk.	Refer to the habits and activities of the individual that increase risks. They may also arise from a state of mind, i.e. the attitude and behaviour of the individual.
Example: a family history of heart disease, high blood pressure etc. is a physical hazard.	Example: consumption of alcohol, smoking etc.

In the case of life insurance, companies take account of hazard by categorising policyholders as high or low risk individuals based on their risk exposure. This categorisation also extends to the assets owned by the policyholder if they wish to insure them as well. Some of the hazards that would cause an individual to be categorised as **high risk** are:

- **Risky job profile:** if the job profile of the individual requires them to work in dangerous situations then the exposure to risk increases. For example, a person working in a chemicals factory, explosives factory, underground mine etc. will be considered more at risk than someone working in an IT company or a bank.
- **Existing medical conditions:** if the individual has already been diagnosed with a medical condition such as high blood pressure or diabetes, they will be considered to be a greater risk than those who are not suffering from an illness.
- **Lifestyle of the individual:** if an individual maintains a healthy lifestyle and abstains from smoking and drinking, the risk reduces. In contrast, an individual who is a heavy smoker or drinker has a higher exposure to risk.
- **Age group of the individual:** an older individual seeking insurance will be considered a greater risk than a younger person.

If the individual is categorised as high risk, insurance companies can either accept or reject the proposal. High risk proposals can be accepted on other than standard terms such as charging a higher premium, imposing restrictions on the sum insured, term or a lien etc. We will look at this topic in more detail in chapter 4.



### Think

Identify any three perils that can happen in an individual's life. What are the hazards that might give rise to these perils?



### Question 2.1

Distinguish between perils and hazards.

## C Insurable risks

The following types of risk can be insured against:

- financial risks;
- pure risks; and
- particular risks.

### C1 Financial risks

The outcomes of risks that can be measured in monetary terms are known as financial risks. Some of the financial risks for which an individual needs to plan are as follows:

<b>Loss of life</b> – this refers to risk of death of the income provider of the family with unfulfilled financial liabilities.	<ul style="list-style-type: none"> <li>• To provide a steady source of income to dependants after death.</li> <li>• To help dependants in fulfilling various financial liabilities such as a home loan, car loan etc. in the event of their death.</li> </ul>
<b>Disease/disability</b> – these include medical expenses and loss of earnings.	<ul style="list-style-type: none"> <li>• To provide for any medical expenses that might arise.</li> <li>• To provide financial security in the event of being unable to work due to disease/disability.</li> </ul>
<b>Savings accumulation</b>	<ul style="list-style-type: none"> <li>• To provide for children's higher education.</li> <li>• To provide for children's marriage expenses.</li> <li>• To provide initial capital for a business etc.</li> </ul>
<b>Retirement</b> – this refers to the risk of insufficient income following retirement.	<ul style="list-style-type: none"> <li>• To accumulate sufficient capital to live comfortably post-retirement.</li> <li>• To provide a steady source of income post-retirement.</li> </ul>

**Example**

Raghav Mishra is an accountant who works with a local firm. He is married with two children. His wife Kavya is a housewife. His elderly father, Suhas, also lives with them. Suhas Mishra is a farmer and owns a small piece of farmland. However, income from the farmland is not sufficient to help him meet his expenses, hence he is reliant on Raghav.

Being the main earning member of the family, Raghav has a considerable responsibility to provide for different contingencies in the future, such as:

- **Loss of life** – Raghav needs to make sure that his wife, children and father are able to have a steady source of income in case something happens to him. This income should be sufficient to meet liabilities such as daily living expenses, children's school fees, managing his father's medical expenses etc.
- **Disease/disability** – there is a risk that Raghav may have an accident and become physically disabled so that he cannot work. To protect against this, he should have sufficient funds for meeting medical expenses and also routine living expenses.
- **Savings accumulation** – Raghav should make sure that his children's education is not affected due to a shortage of funds. He therefore needs to save for his children's higher education and marriage expenses.
- **Retirement** – Raghav needs to make sure that he receives a steady source of income post-retirement which should be sufficient to meet his medical and other living expenses.

**Question 2.2**

What are the main financial risks for which an individual needs to plan?

**C2 Pure risks**

Pure risks are those risks where there is no possibility of making a profit. In pure risks there can be a loss and the best possible outcome is one of breaking even.

With a pure risk the possibility of any benefit occurring as a result of the insured event taking place is nil. This type of risk is associated with those events which are totally out of the control of an individual.

**C3 Particular risks**

Particular risks are personal or local in their effect. The consequences of these risks occurring affect specific individuals or local communities.

**D Risk transfer**

As we saw in chapter 1, the primary function of insurance is to transfer the risk from an individual to an insurance company. The insurance company which bears the risk is known as the **insurer** and the individual who transfers his risk is known as the **insured**.

Risk transfer provides a sense of financial security to the insured in that if anything happens to them or their financial assets, the losses would be compensated for by the insurance company as per the policy terms and conditions. Against this transferred risk, the insured will have to pay a certain amount (consideration) to the insurer, which is known as the premium.

**E Pooling of risks**

Pooling of risks is one of the fundamental principles of insurance.

With pooling of risks an insurance company pools the premium collected from several individuals to insure them against similar risks. The insurance company maintains different sets of pools for different risks.

**Example**

Separate pools will be maintained by insurance companies for:

- life insurance;
- car insurance;
- home insurance; and
- travel insurance.



The premium collected from the individuals is deposited in the pool accounts. When there is a claim to be settled it is paid out of this pool. The insurance company has to make sure that the premium that is collected is enough to meet the claim payments. The premium that is charged by the insurance company should also be sufficient to meet the administrative and other expenses for maintaining the pool. The insurance company includes a certain percentage of the profit in the premium as well.



### Question 2.3

What is pooling of risk in insurance? Can the same pool be used for car insurance and life insurance for claims payment?

## E1 Law of large numbers

Insurance companies apply the 'law of large numbers' to determine the cost of total annual claims. Insurance companies determine the probability that a certain amount of claims will have to be paid by them if a large number of people are insured for a similar risk.



### Example

Out of the 1,000 individuals insured by an insurance company, if the probability of death is 1% then the company will have to pay claims for 10 people.

An insurance company will set the rates of its premiums according to the number of claims it will expect to pay over the term of the policy.