

Risk Management

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MGM510

Risk in our society



Lecture 1

Risk in our society

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Lecture objectives

After this lecture, you should be able to

- ❖ Explain the historical definition of risk.
- ❖ Explain the meaning of loss exposure.
- ❖ Understand the following types of risk: (Pure risk ,Speculative risk , Diversifiable risk ,Nondiversifiable risk , Enterprise risk , Systemic risk)
- ❖ Identify the major pure risks that are associated with great economic insecurity.
- ❖ Show how risk is a burden to society

Introduction

This chapter discusses the nature and treatment of risk in our society. Topics discussed include the meaning of risk, the major types of personal risks that affect individuals and families, major commercial risks that affect business firms, the burden of risk on society, and the major methods for managing risk.

Definitions of Risk

- ❖ There is no single definition of risk. Economists, behavioral scientists, risk theorists, statisticians, actuaries, and historians each have their own concept of risk.
- ❖ Risk is defined as uncertainty concerning the occurrence of a loss. For example, the risk of being killed in an auto accident is present because uncertainty is present.
- ❖ According to the American Academy of Actuaries, the term risk is used in situations where the probabilities of possible outcomes are known or can be estimated with some degree of accuracy, whereas uncertainty is used in situations where such probabilities cannot be estimated.

Definitions of Risk

- ❖ Loss Exposure : Because risk is an ambiguous term and has different meanings, many authors and corporate risk managers use the term loss exposure to identify potential losses. A loss exposure is any situation or circumstance in which a loss is possible, regardless of whether a loss actually occurs. Examples of loss exposures include manufacturing plants that may be damaged by an earthquake or flood, defective products that may result in lawsuits against the manufacturer, possible theft of company property because of inadequate security, and potential injury to employees because of unsafe working conditions.

Definitions of Risk

- ❖ **Objective risk** : (also called degree of risk) is defined as the relative variation of actual loss from expected loss.
- ❖ **Subjective risk (perceived risk)**: is defined as uncertainty based on a person's mental condition or state of mind.
- ❖ **Chance of loss** : is closely related to the concept of risk. Chance of loss is defined as the probability that an event will occur. Like risk, 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.

Definitions of Risk

- ❖ **Subjective probability** is the individual's personal estimate of the chance of loss. Subjective probability need not coincide with objective probability.
- ❖ **Chance of loss** can be distinguished from objective risk. Chance of loss is the probability that an event that causes a loss will occur. **Objective risk** is the relative variation of actual loss from expected loss. The chance of loss may be identical for two different groups, but objective risk may be quite different.
- ❖ **Peril and Hazard** : **Peril** is defined as the cause of loss. If your house burns because of a fire, the peril, or cause of loss, is the fire. **A hazard is a condition** that creates or increases the frequency or severity of loss. There are four major types of hazards: (Physical hazard , Moral hazard , Attitudinal hazard (morale hazard), Legal hazard) .

Definitions of Risk

❖ **Physical Hazard :**

A physical hazard is a physical condition that increases the frequency or severity of loss. Examples of physical hazards include icy roads that increase the chance of an auto accident .

❖ **Attitudinal Hazard (Morale Hazard) :**

Attitudinal hazard is carelessness or indifference to a loss, which increases the frequency or severity of a loss. Examples of attitudinal hazard include leaving car keys in an unlocked car, which increases the chance of theft.

❖ **Legal Hazard Legal hazard:** refers to characteristics of the legal system or regulatory environment that increase the frequency or severity of losses. Examples include adverse jury verdicts or large damage awards in liability lawsuits; statutes that require insurers to include coverage for certain benefits in health insurance plans

Classification of Risk

Risk can be classified into several distinct classes. The most important include the following:

- ❖ Pure and speculative risk
- ❖ Diversifiable risk and non-diversifiable risk
- ❖ Enterprise risk
- ❖ Systemic risk



Classification of Risk

Pure Risk and Speculative Risk

Pure risk is defined as 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). Examples of pure risks include premature death, job related accidents, catastrophic medical expenses, and damage to property from fire, lightning, flood, or earthquake.

In contrast, **speculative risk** is defined as a situation in which either profit or loss is possible. For example, 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.

Classification of Risk

It is important to distinguish between pure and speculative risks for three reasons.

First, private insurers generally concentrate on pure risks and do not emphasize the insurance of speculative risks. However, there are exceptions. Some insurers will insure institutional portfolio investments and municipal bonds against loss. Also, enterprise risk management (discussed later) is another important exception where certain speculative risks can be insured.

Classification of Risk

Second,

the law of large numbers can be applied more easily to pure risks than to speculative risks. The law of large numbers is important because it enables insurers to predict future loss experience. In contrast, it is generally more difficult to apply the law of large numbers to speculative risks to predict future loss experience. An exception is the speculative risk of gambling, where casino operators can apply the law of large numbers in a most efficient manner.

Classification of Risk

Finally, society may benefit from a speculative risk even though a loss occurs, but is harmed if a pure risk is present and a loss occurs. For example, a firm may develop new technology for producing inexpensive computers. As a result, some competitors may be forced into bankruptcy. Despite the bankruptcy, society benefits because the computers are produced at a lower cost. However, society normally does not benefit when a loss from a pure risk occurs, such as a flood or earthquake that destroys a town or area.

Classification of Risk

Diversifiable Risk and Nondiversifiable Risk

• Diversifiable risk is a risk that affects only individuals or small groups and not the entire economy. It is a risk that can be reduced or eliminated by diversification. For example, a diversified portfolio of stocks, bonds, and certificates of deposit (CDs) is less risky than a portfolio that is 100 percent invested in common stocks. Losses on one type of investment, say stocks, may be offset by gains from bonds and CDs

Classification of Risk

Diversifiable Risk and Nondiversifiable Risk

In contrast, nondiversifiable risk is a risk that affects the entire economy or large numbers of persons or groups within the economy. It is a risk that cannot be eliminated or reduced by diversification.

Examples include rapid inflation, cyclical unemployment, war, hurricanes, floods, and earthquakes because large numbers of individuals or groups are affected. Because nondiversifiable risk affects the entire economy or large numbers of persons in the economy, it is also called as fundamental risk. The distinction between a diversifiable and nondiversifiable (fundamental) risk is important because government assistance may be necessary to insure nondiversifiable risks

Classification of Risk

Enterprise Risk

Enterprise risk is a term that encompasses all major risks faced by a business firm. Such risks include pure risk, speculative risk, strategic risk, operational risk, and financial risk.

Strategic risk : refers to uncertainty regarding the firm's financial goals and objectives; for example, if a firm enters a new line of business, the line may be unprofitable.



Classification of Risk

Operational risk:

results from the firm's business operations. For example, a bank that offers online banking services may incur losses if "hackers" break into the bank's computer.

financial risk:

also includes financial risk, which is becoming more important in a commercial risk management program. Financial risk refers to the uncertainty of loss because of adverse changes in commodity prices, interest rates, foreign exchange rates, and the value of money.

Treatment of financial risks typically requires the use of complex hedging techniques, financial derivatives, futures contracts, options, and other financial instruments.

Classification of Risk

Systemic Risk:

Systemic risk is an economic risk that is extremely important in the monetary policy of the Federal Reserve, fiscal policies of the federal government, and government regulation of the economy.

Systemic risk is the risk of collapse of an entire system or entire market due to the failure of a single entity or group of entities that can result in the breakdown of the entire financial system.

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Classification of Risk

Major Personal Risks and Commercial Risks:

This section discusses (1) important personal risks that affect individuals and families and (2) major commercial risks that affect business firms.

Personal Risks

Personal risks are risks that directly affect an individual or family. They involve the possibility of the loss or reduction of earned income, extra expenses, and the depletion of financial assets. Major personal risks that can cause great economic insecurity include the following:

- ❖ Premature death
- ❖ Inadequate retirement income
- ❖ Poor health
- ❖ Unemployment

Classification of Risk

Premature death is defined as the death of a family head with unfulfilled financial obligations

The human life value is defined as the present value of the family's share of the deceased breadwinner's future earnings.

Inadequate Retirement Income The major risk during retirement is inadequate income.

Poor health is another major personal risk that can cause great economic insecurity. The risk of poor health includes both the payment of catastrophic medical bills and the loss of earned income.

Unemployment : is a major cause of economic insecurity in the United States

Classification of Risk

Property Risks: Persons owning property are exposed to property risks—the risk of having property damaged or destroyed from numerous causes.

A direct loss: is defined as a financial loss that results from the physical damage, destruction, or theft of the property. For example, if you own a home that is damaged or destroyed by a fire, the physical damage to the home is a 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.

Classification of Risk

Liability risks: are another important type of pure risk that most persons face.

Under the U.S. legal system, you can be held legally liable if you do something that results in bodily injury or property damage to someone else.

Liability risks : are of great importance for several reasons:

First, there is no maximum upper limit with respect to the amount of the loss

Second, a lien can be placed on your income and financial assets to satisfy a legal judgment.

Finally, legal defense costs can be enormous.

Classification of Risk

Commercial Risks :

Business firms also face a wide variety of pure risks that can financially cripple or bankrupt the firm if a loss occurs. These risks include (1) property risks, (2) liability risks, (3) loss of business income, (4) cybersecurity and identity theft, and (5) other risks.

Property Risks

Business firms own valuable business property that can be damaged or destroyed by numerous perils.

Classification of Risk

Liability Risks

Business firms often operate in highly competitive markets where lawsuits for bodily injury and property damage are common.

Loss of Business Income

Another important risk is the potential loss of business income when a covered physical damage loss occurs.

Cybersecurity and Identity

Theft Cybersecurity and identity theft by thieves breaking into a firm's computer system and database are major problems for many firms.

Classification of Risk

Other Risks Business:

firms must cope with a wide variety of additional risks, summarized as follows:

Human resources exposures.

These include job related injuries and disease of workers; death or disability of key employees; group life and health and retirement plan exposures; and violation of federal and state laws and regulations.

Foreign loss exposures.

These include acts of terrorism, political risks, kidnapping of key personnel, damage to foreign plants and property, and foreign currency risks.

Classification of Risk

Intangible property exposures:

These include damage to the market reputation and public image of the company, the loss of goodwill, and loss of intellectual property. For many companies, the value of intangible property is greater than the value of tangible property.

Government exposures:

Federal and state governments may pass laws and regulations that have a significant financial impact on the company. Examples include laws that increase safety standards, laws that require reduction in plant emissions and contamination, and new laws to protect the environment that increase the cost of doing business.

Burden of Risk on

Society

The presence of risk results in certain undesirable social and economic effects. Risk entails three major burdens on society:

- The size of an emergency fund must be increased.
- Society is deprived of certain goods and services.
- 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 substantially the size of their emergency fund to pay for unexpected losses.

Burden of Risk on

Society

Loss of Certain Goods and Services:

A second burden of risk is that society is deprived of important goods and services. For example, because of the risk of a liability lawsuit, many corporations have discontinued manufacturing certain products.

Techniques for Managing

Risk:

Techniques for managing risk can be classified broadly as either risk control or risk financing. Risk control refers to techniques that reduce the frequency or severity of losses. Risk financing refers to techniques that provide for the funding of losses. Risk managers typically use a combination of techniques for treating each loss exposure..

Techniques for Managing Risk

Risk Control

Risk control is a generic term to describe techniques for reducing the frequency or severity of losses. Major risk-control techniques include the following:

- ❖ Avoidance
- ❖ Loss prevention
- ❖ Loss reduction
 - Duplication
 - Separation
 - Diversification

Techniques for Managing

Avoidance : is one technique for managing risk. For example, you can avoid the risk of being mugged in a high-crime area by staying away from high-crime rate areas; you can avoid the risk of divorce by not marrying; and business firms can avoid the risk of being sued for a defective product by not producing the product.

Loss prevention:

is a technique that reduces the probability of loss so that the frequency of losses is reduced. Several examples of personal loss prevention can be given.

Techniques for Managing Risk

Loss Reduction

Strict loss prevention efforts can reduce the frequency of losses; however, some losses will inevitably occur. Thus, another objective of loss control is to reduce the severity of a loss after it occurs.

Duplication

Losses can also be reduced by duplication. This technique refers to having back-ups or copies of important documents or property available in case a loss occurs.

Separation

Another technique for reducing losses is separation. The assets exposed to loss are separated

or divided to minimize the financial loss from a single event

Techniques for Managing Risk

Diversification

Finally, losses can be reduced by diversification. This technique reduces the chance of loss by spreading the loss exposure across different parties. Risk is reduced if a manufacturer has a number of customers and suppliers.

Techniques for Managing

Risk

Risk Financing

As stated earlier, risk financing refers to techniques that provide for the payment of losses after they occur. Major risk-financing techniques include the following:

- ❖ Retention
- ❖ Noninsurance transfers
- ❖ Insurance.

Techniques for Managing Risk

Retention

Retention is an important technique for managing risk. Retention means that an individual or a business firm retains part of all of the losses that can result from a given risk. Risk retention can be active or passive.

Techniques for Managing Risk

Retention

Active Retention

Active risk retention means that an individual is consciously aware of the risk and deliberately plans to retain all or part of it.

Passive Retention

Risk can also be retained passively. Certain risks may be unknowingly retained because of ignorance, indifference, laziness, or failure to identify an important risk

Techniques for Managing Risk

Self-insurance

is a special form of planned retention by which part or all of a given loss exposure is retained by the firm. Another name for self-insurance is self-funding, which expresses more clearly the idea that losses are funded and paid for by the firm.

Self-insurance is widely used in corporate risk management programs primarily to reduce both loss costs and expenses.

In summary, risk retention is an important technique for managing risk, especially in modern corporate risk management programs

Techniques for Managing

Risk

Noninsurance Transfers

Noninsurance transfers are another technique for managing risk. The risk is transferred to a party other than an insurance company.

A risk can be transferred by several methods , including:

Transfer of risk by contracts

- ❖ Hedging price risks
- ❖ Incorporation of a business firm

Techniques for Managing Risk

Transfer of Risk by Contracts :

Undesirable risks can be transferred by contracts. For example, the risk of a defective television or stereo set can be transferred to the retailer by purchasing a service contract, which makes the retailer responsible for all repairs after the warranty expires.

Finally, a risk can be transferred by a hold-harmless clause. For example, if a manufacturer of scaffolds inserts a hold-harmless clause in a contract with a retailer, the retailer agrees to hold the manufacturer harmless in case a scaffold collapses and someone is injured.

Techniques for Managing

Risk

Hedging Price Risks

Hedging price risks is another example of risk transfer. Hedging is a technique for transferring the risk of unfavorable price fluctuations to a speculator by purchasing and selling futures contracts on an organized exchange, such as the Chicago Board of Trade or New York Stock Exchange.

Incorporation of a Business Firm Incorporation

is another example of risk transfer. If a firm is a sole proprietorship, the owner's personal assets can be attached by creditors for satisfaction of debts.

Techniques for Managing Risk

Insurance

For most people, insurance is the most practical method for dealing with major risks. Although private insurance has several characteristics, three major characteristics should be emphasized.

First, risk transfer is used because a pure risk is transferred to the insurer.

Second, the pooling technique is used to spread the losses of the few over the entire group so that average loss is substituted for actual loss.

Finally, the risk may be reduced by application of the law of large numbers by which an insurer can predict future loss experience with greater accuracy.



Thank You