

Part I: Risk in Our Society and Its Treatment

1. Assume that the chance of loss is 3 percent for two different fleets of trucks. Explain how it is possible that objective risk for both fleets can be different even though the chance of loss is identical.

Answer:

Objective risk is the relative variation of actual loss from expected loss. Although the chance of loss may be identical for two different groups, the relative variation of actual from expected loss may be quite different. For example, if a company has a fleet of 1000 trucks, the expected number of collision losses each year may be 30. However, actual losses may vary each year from 25 to 35. In contrast, another fleet of 1000 trucks may have the same number of expected losses (30), but the annual variation may be considerably higher, such as 20 to 40. Thus, objective risk is greater for the second fleet.

2. Several types of risk are present in the American economy. For each of the following, identify the type of risk that is present. Explain your answer.

- a. The Department of Homeland Security alerts the nation of a possible attack by terrorists.

Answer: This is a nondiversifiable risk because the entire nation can be affected by a terrorist attack.

- b. A house may be severely damaged in a fire.

Answer: This is a pure risk. The insured rarely profits if his or her house is damaged in a fire.

- c. A family head may be totally disabled in a plant explosion.

Answer: This is pure risk because of the loss of earned income. You usually do not profit if you are totally disabled.

- d. An investor purchases 100 shares of Microsoft stock.

Answer: This is a speculative risk. Profit or loss is possible.

- e. A river that periodically overflows may cause substantial property damage to thousands of homes in the floodplain.

Answer: This is a nondiversifiable risk because large numbers of people can lose their homes in a major flood.

- f. Home buyers may be faced with higher mortgage payments if the Federal Reserve raises interest rates at its next meeting.

Answer: This is a nondiversifiable risk because large numbers of home buyers will be adversely affected by higher interest rates and higher monthly mortgage payments. From the viewpoint of home builders and realtors, a rise in interest rates is also a financial risk that can slow down the sale of new and used homes.

- g. A worker on vacation plays the slot machines in a casino.

Answer: This is a speculative risk because both profit and loss are possible.

3. There are several techniques available for managing risk. For each of the following risks, identify an appropriate technique, or combination of techniques, that would be appropriate for dealing with the risk.

a. A family head may die prematurely because of a heart attack.

Answer: Risk control such as exercise, losing weight, and following a healthy diet can reduce the chance of dying prematurely from a heart attack. Life insurance can also be used, which reduces or eliminates the financial consequences to surviving family members if a family head dies prematurely.

b. An individual's home may be totally destroyed in a hurricane.

Answer: Property insurance is an appropriate technique for dealing with the risk of a hurricane. Retention can also be used by purchasing the policy with a deductible.

c. A new car may be severely damaged in an auto accident.

Answer: Collision insurance on the new car is an effective way to deal with this exposure. Retention can also be used by purchasing the policy with a deductible for collision losses. The insured can also drive defensively, which is a form of risk control.

d. A negligent motorist may be ordered to pay a substantial liability judgment to someone who is injured in an auto accident.

Answer: A catastrophic loss exposure is present. Auto liability insurance should be purchased to deal with the exposure.

e. A surgeon may be sued for medical malpractice.

Answer: Professional liability insurance should be purchased to deal with malpractice suits. The surgeon could also use risk control to reduce the possibility of injuring a patient.

4. Andrew owns a gun shop in a high crime area. The store does not have a camera surveillance system. The high cost of burglary and theft insurance has substantially reduced his profits. A risk management consultant points out that several methods other than insurance can be used to handle the burglary and theft exposure. Identify and explain two noninsurance methods that could be used to deal with the burglary and theft exposure.

Answer:

a) *Avoidance. Andrew can avoid the risk of burglary or robbery by going into a different line of business. However, this is not a practical solution and may not be feasible.*

b) *Risk control. Risk control efforts can be undertaken to reduce both the frequency and severity of losses. A burglar alarm system can be installed. The pawn shop can be relocated to another part of the city where crime rates are lower. Losses also can be prevented by hiring a guard or patrol service to protect the property.*

c) *Retention. Andrew may decide to retain all losses, thereby eliminating the need for burglary insurance. However, since a large loss could result in financial ruin, he may decide to retain losses only up to a certain amount, such as \$1000. Excess insurance can be purchased for losses exceeding the retention limit.*

5. Risk managers use a number of methods for managing risk. For each of the following, what method for handling risk is used? Explain your answer.

a. The decision not to carry earthquake insurance on a firm's main manufacturing plant

Answer: Retention. The firm is retaining the earthquake exposure.

b. The installation of an automatic sprinkler system in a hotel

Answer: Risk control. If a fire occurs, the sprinkler system will operate automatically to extinguish the fire, thereby reducing the size of the loss.

c. The decision not to produce a product that might result in a product liability lawsuit

Answer: Avoidance. The firm is avoiding a lawsuit by not manufacturing products that could injure customers who use the product.

d. Requiring retailers who sell the firm's product to sign an agreement releasing the firm from liability if the product injures someone

Answer: Noninsurance transfer. The firm manufacturing the product has transferred the risk of a liability suit to the retailers by such an agreement. This agreement is often called a hold-harmless agreement. For example, a manufacturer may insert a hold-harmless clause in a contract with a retailer by which the retailer agrees to hold the manufacturer harmless if a scaffold collapses and someone is injured.

Part II: Insurance and Risk

1. Compare the risks of (i) fire with (ii) war in terms of how well they meet the requirements of an ideally insurable risk.

Answer:

(i) Risk of fire

- a) Large number of exposure units. This is generally met, since there are millions of homes*
- b) that are insured.*
- c) Accidental and unintentional loss. This requirement is generally met, since most insureds do not deliberately start a fire.*
- d) Determinable and measurable loss. A fire loss can be determined and measured. In case of disagreement, a property insurance policy has a provision for resolving disputes.*
- e) No catastrophic loss. This requirement is met, since most homes do not burn at the same time.*
- f) Calculable chance of loss. Insurers can estimate within ranges the probability of a fire loss.*
- g) Economically feasible premium. For most insureds, this requirement is fulfilled.*

(ii) Risk of war

- a) Large number of exposure units. This requirement is not fulfilled. Based on the law of large numbers, it is difficult to estimate accurately the number of wars that will occur.*
- b) Accidental and unintentional loss. This requirement is not met. Most wars are not accidental, but intentional.*
- c) Determinable and measurable loss. Although a war loss can be determined, the measurement of loss would be difficult.*
- d) No catastrophic loss. This requirement is not fulfilled, since large numbers of exposure units would simultaneously incur losses.*
- e) Calculable chance of loss. This requirement cannot be easily met.*
- f) Economically feasible premium. Because of the catastrophic potential of war, the premiums would not be economically feasible.*

2. a. Private insurers provide social and economic benefits to society. Explain the following benefits of insurance to society.

- (1) Indemnification for loss
- (2) Enhancement of credit
- (3) Source of funds for capital investment and accumulation

Answer:

- (1) Indemnification means that insureds are restored to their former financial position after a loss occurs, either partly or wholly. As a result, individuals and families can maintain their economic security and are less likely to apply for public assistance or welfare, or seek financial assistance from relatives and friends.*
- (2) Insurance makes a borrower a better credit risk because it guarantees the value of the borrower's collateral, or gives greater assurance that the loan will be repaid. For example, life insurance can be used to pay off a bank loan if the creditor dies prematurely, and so makes the creditor a better credit risk.*
- (3) Premiums are collected in advance, and funds not needed to pay immediate losses and expenses can be loaned to business firms. These funds typically are invested*

in capital goods, such as housing developments, shopping centers, new plants, and machinery and equipment. Since the stock of capital goods is increased, economic growth and full employment are promoted. In addition, since the supply of loanable funds is increased, the cost of capital to business firms is lower than it would be in the absence of insurance.

b. Explain the major costs of insurance to society.

Answer: The major social and economic costs of insurance are the following:

- Cost of doing business*
- Fraudulent claims*
- Inflated claims*

3. Buildings in flood zones are difficult to insure by private insurers because the ideal requirements of an insurable risk are difficult to meet.

a. Identify the ideal requirements of an insurable risk.

Answer: Ideal requirements of an insurable risk:

- Large number of exposure units*
- Accidental and unintentional loss*
- Determinable and measurable loss*
- No catastrophe loss*
- Calculable chance of loss*
- Economically feasible premium*

b. Which of the requirements of an insurable risk are not met by the flood peril?

Answer: The requirement of not having a catastrophe loss is not met because large numbers of exposure units in a flood zone would be incurring losses at the same time. Also, the requirement of an economically feasible premium generally is not met. Without a government backup, premiums for flood insurance in major flood zones generally would be unaffordable for many insureds.

4. Private insurance provides numerous coverages that can be used to meet specific loss situations. For each of the following situations, identify a private insurance coverage that would provide the desired protection.

a. Emily, age 28, is a single parent with two dependent children. She wants to make certain that funds are available for her children's education if she dies before her youngest child finishes college.

Answer: Life insurance can provide the needed funds for a college education.

b. Danielle, age 16, recently obtained her driver's license. Her parents want to make certain they are protected if Danielle negligently injures another motorist while driving a family car.

Answer: Auto liability insurance will protect the parents if Danielle negligently injures someone while driving a family car.

c. Jacob, age 30, is married with two dependents. He wants his income to continue if he becomes totally disabled and unable to work.

Answer: An individual or group disability income policy will provide periodic income payments if Jacob becomes totally disabled.

d. Tyler, age 35, recently purchased a house for \$200,000 that is located in an area where tornadoes frequently occur. He wants to make certain that funds are available if the house is damaged or destroyed by a tornado.

Answer: A homeowners' policy will provide the desired protection. Windstorm and hurricanes are covered perils.

e. Nathan, age 40, owns an upscale furniture store. Nathan wants to be protected if a customer is injured while shopping in the store and sues him for the bodily injury.

Answer: A commercial general liability insurance policy will cover Nathan if a customer is injured in his store.