Insurance and Risk

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BAF 421 Risk Management and Insurance

Fall Semester 2023

Week 7-8

19/10/2023

Outline

- Basic Characteristics of Insurance
- Characteristics of an Ideally Insurable Risk
- Insurance and other related concepts

Objectives

- Understand the basic characteristics of insurance
- Understand the characteristics of an ideal insurable risk
- Understand the basics of Insurance and its related concepts.

Basic Characteristics of Insurance

What is Insurance?

According to ***the Commission on Insurance Terminology of the American Risk and Insurance Association***, "Insurance is the pooling of fortuitous losses by transfer of such risks to insurers, who agree to indemnify insured for such losses, to provide other pecuniary benefits on their occurrence, or to render services connected with the risk".

In another words, Insurance is a financial arrangement in which an individual or entity, known as the policyholder (insured), pays a premium to an insurance company (known as the insurer) in exchange for the promise of compensation or coverage for specified risks or losses.

The primary purpose of insurance is ***to mitigate the financial impact of unforeseen and adverse events, helping individuals and businesses manage risks and uncertainties***.

Basic Characteristics of Insurance

Based on the preceding definitions, an insurance plan or arrangement typically includes the following characteristics:

- Pooling of losses
- Payment of fortuitous losses
- Risk transfer
- Indemnification

- **Pooling of losses**: Pooling is the sharing of losses in insurance. Pooling is the spreading of losses incurred by the few over the entire group, so that in the process, average loss is substituted for actual loss.

pooling involves the grouping of a large number of exposure units so that the ***law of large numbers*** can operate to provide a substantially accurate prediction of future losses.

Basic Characteristics of Insurance

The primary purpose of pooling, or the sharing of losses, is to reduce the variation in possible outcomes as measured by the standard deviation or some other measure of dispersion, which reduces risk.

Therefore, the more additional individuals are added to the pooling arrangement, ***the standard deviation continues to decline while the expected value of the loss remains unchanged***.

By pooling or combining the loss experience of a large number of exposure units, an insurer might be able to predict future losses with greater accuracy.

From the viewpoint of the insurer, if future losses can be predicted, objective risk is reduced. Thus, another characteristic often found in many lines of insurance is ***risk reduction based on the law of large numbers***.

Basic Characteristics of Insurance

- **Payment of Fortuitous Losses**: fortuitous loss is one that is unforeseen and unexpected by the insured and occurs as a result of chance. The law of large numbers is based on the assumption that losses are accidental and occur randomly.

In another word, Fortuitous loss refers to loss that occur as a result of something happening by chance or accident, rather than by deliberate planning.

- **Risk Transfer**: Risk transfer means that a pure risk is transferred from the insured to the insurer, who typically is in a stronger financial position to pay the loss than the insured. Risk transfer is another essential element of insurance. A true insurance plan always involves risk transfer.

Risks that are typically transferred to insurers include the risk of premature death, poor health, disability, destruction and theft of personal and commercial property, pure risks, and personal & professional liability lawsuits.

Basic Characteristics of Insurance

- **Indemnification:** Indemnification means that the insured is restored to his or her approximate financial position prior to the occurrence of the loss.

Example: if a person carry adequate property insurance, and his/her house burns in a fire, a homeowners policy will indemnify or restore the house to its previous financial position, less a relatively small deductible.

If you are sued because of the negligent operation of an automobile, your auto liability insurance policy will pay those sums that you are legally obligated to pay.

Similarly, if you become seriously disabled, a disability-income insurance policy will restore at least part of the lost wages.

Characteristics of an Ideally Insurable Risk

Private insurers generally insure only pure risks. However, some pure risks are not privately insurable. There are ideally six characteristics of an insurable risk:

1. There must be a large number of exposure units.
2. The loss must be accidental and unintentional.
3. The loss must be determinable and measurable.
4. The loss should not be catastrophic.
5. The chance of loss must be calculable.
6. The premium must be economically feasible.

1. **Large number of exposure units**: This is the first requirement of an Insurable risk. Ideally, there should be a large group of roughly similar, but not necessarily identical, exposure units that are subject to the same peril or group of perils.

Characteristics of an Ideally Insurable Risk

The purpose of this first requirement is to enable the insurer to predict losses based on the law of large numbers. Loss data can be compiled over time, and losses for the group as a whole can be predicted with some accuracy. The loss costs can then be spread over all insured in the underwriting class.

2. **Accidental and Unintentional Loss**: A second requirement is that the loss should be accidental and unintentional. ideally, the loss should be unforeseen and unexpected by the insured and outside of the insured's control. Thus, if an individual deliberately causes a loss, he or she should not be indemnified for the loss.

Several reasons exist for this requirement. First, the loss should be accidental because the law of large numbers is based on the random occurrence of events.

Second, moral hazard is increased if the insured deliberately intends to cause a loss.

Characteristics of an Ideally Insurable Risk

3. Loss must be Determinable and Measurable Loss: This means the loss should be definite as to cause, time, place, and amount. Life insurance, in most cases, meets this requirement easily. The cause and time of death can usually be readily determined, and if the person is insured, the face amount of the life insurance policy is the amount paid.

Some losses, however, are difficult to determine and measure. For example, under a disability-income policy, the insurer promises to pay a monthly benefit to the disabled person if he or she meets the definition of disability stated in the policy.

For example, assume two bankers who are insured under separate disability-income contracts are injured in a car accident, and both are classified as totally disabled. One banker, however, might be more determined to return to work. If that banker undergoes rehabilitation and returns to work, the disability-income benefits will terminate. Meanwhile, the other banker would still continue to receive disability-income benefits according to the terms of the policy.

Characteristics of an Ideally Insurable Risk

In general, determining when a person is actually disabled is often difficult. However, all losses ideally should be both determinable and measurable.

The basic purpose of this requirement is to enable an insurer to determine whether the loss is covered under the policy, and if it is covered, how much should be paid.

For example, assume that Zana has an expensive coat that is insured under a homeowners policy. It makes a great deal of difference to the insurer if a thief breaks into her home and steals the coat, or the coat is missing because his wife forgets it in a dry-cleaning establishment but forgot to tell him.

The loss is covered in the case of the theft but not in the case of the loss in dry-cleaning.

Characteristics of an Ideally Insurable Risk

4. **Loss should not be catastrophic**: This means that a large proportion of exposure units should not incur losses at the same time. As we stated earlier, pooling is the essence of insurance. If most or all of the exposure units in a certain class simultaneously incur a loss, then the pooling technique breaks down and becomes unworkable.

Insurers ideally want to avoid all catastrophic losses. In reality, however, that is impossible, because catastrophic losses periodically result from floods, hurricanes, tornadoes, earthquakes, forest fires, and other natural disasters. Catastrophic losses can also result from acts of terrorism.

Approaches to Mitigate the Problem of a Catastrophic Loss

Several approaches are available for meeting the problem of a catastrophic loss:

- Firstly: Reinsurance can be used by which insurance companies are indemnified by reinsurers for catastrophic losses.

Characteristics of an Ideally Insurable Risk

What is Reinsurance?

Reinsurance is an arrangement by which the primary insurer that initially writes the insurance transfers to another insurer (called the reinsurer) part or all of the potential losses associated with such insurance. The reinsurer is then responsible for the payment of its share of the loss.

- Secondly, Insurers can avoid the concentration of risk by dispersing their coverage over a large geographical area. If the loss exposures are geographically dispersed, the possibility of a catastrophic loss is reduced.

- Thirdly, financial instruments are now available for dealing with catastrophic losses. These instruments include catastrophe bonds, which are designed to help fund catastrophic losses.

Characteristics of an Ideally Insurable Risk

5. **Chance of loss must be calculable**: The insurer must be able to calculate both the average frequency and the average severity of future losses with some accuracy. This requirement is necessary so that a proper premium can be charged that is sufficient to pay all claims and expenses and yields a profit during the policy period.

Certain losses, however, are difficult to insure because the chance of loss cannot be accurately estimated, and the potential for a catastrophic loss is present. For example, floods, wars, and cyclical unemployment occur on an irregular basis, and prediction of the average frequency and severity of losses is difficult. Thus, without government assistance, these losses are often difficult for private carriers to insure.

6. **The premium must be economically feasible**: This means that the insured must be able to afford the premium. In order for the insurance to be an attractive purchase, the premiums paid should be substantially less than the face amount of insurance or policy limit. However, To have an economically feasible premium, the chance of loss must be relatively low.

Characteristics of an Ideally Insurable Risk

Based on these requirements most personal risks, property risks, and liability risks can be privately insured because the ideal characteristics of an insurable risk generally can be met.

In contrast, most market risks, financial risks, production risks, and political risks are difficult to insure by private insurers. These risks are speculative, and calculation of a correct premium might be difficult because the chance of loss cannot be accurately estimated.

For instance, insurance that protects a retailer against loss because of a change in consumer tastes, such as a style change, generally is not available. Accurate loss data are not available. Thus, calculating an accurate premium would be difficult. The premium charged might or might not be adequate to pay all losses and expenses.

Fire as an Insurable Risk

Requirements	*Does the risk of fire satisfy the requirements?*
1. Large number of exposure units	Yes. Numerous exposure units are present.
2. Accidental and unintentional loss	Yes. With the exception of arson, most fire losses are accidental and unintentional.
3. Determinable and measurable loss	Yes. If there is disagreement over the amount paid, a property insurance policy has provisions for resolving disputes.
4. No catastrophic loss	Yes. Although catastrophic fires have occurred, all exposure units normally do not burn at the same time.
5. Calculable chance of loss	Yes. Chance of fire can be calculated, and the average severity of a fire loss can be estimated in advance.
6. Economically feasible premium	Yes. Premium rate per $100 of fire insurance is relatively low.

EXHIBIT 2.2

Unemployment as an Insurable Risk

Requirements	*Does the risk of unemployment satisfy the requirements?*
1. Large number of exposure units	Not completely. Although a large number of employees exist, predicting unemployment is often difficult because of the different types of unemployment and different types of labor.
2. Accidental and unintentional loss	Not always. Some unemployment is due to individuals who voluntarily quit their jobs.
3. Determinable and measurable loss	Not completely. The level of unemployment can be determined, but the measurement of loss might be difficult. Most unemployment is involuntary because of layoffs or because workers have completed temporary jobs. However, some unemployment is voluntary; workers voluntarily change jobs because of higher wages, a change in careers, family obligations, relocation to another state, or other reasons.
4. No catastrophic loss	No. A severe national recession or depressed local business conditions in a town or city could result in a catastrophic loss.
5. Calculable chance of loss	Not completely. The different types of unemployment in specific occupations make it difficult for actuaries to calculate accurately the chance of loss.
6. Economically feasible premium	Not completely. Adverse selection, moral hazard, policy design, and the potential for a catastrophic loss could make the insurance too expensive to purchase. Some plans, however, will pay unemployment benefits in certain cases where the unemployment is involuntary, and the loss payments are relatively small, such as waiver of life insurance premiums for six months, or payment of credit card minimum payments for a limited period.

Insurance and other related concepts

Adverse Selection and Insurance

When insurance is sold, insurers must deal with the problem of adverse selection. **What is adverse selection in Insurance?**

Adverse selection is the tendency of persons with a higher-than-average chance of loss to seek insurance at standard (average) rates, which, if not controlled by underwriting and policy provisions, results in higher-than-expected loss levels and unprofitable business.

For example, smokers have higher mortality rates than non-smokers and must pay substantially higher rates for life insurance. Some smokers might conceal or provide false information to obtain life insurance at a lower rate. Other examples of adverse selection are high-risk drivers with poor driving records who seek auto insurance at standard rates, and persons with serious health problems who seek life or disability income insurance at standard rates.

Insurance and other related concepts

If the applicants for insurance with a higher than-average chance of loss succeed in obtaining the coverage at standard rates or even preferred rates, we say that the insurer is "***adversely selected against***."

Adverse selection is due, at least in part, from asymmetries in insurance information. This means that applicants for insurance might have greater knowledge about the risk to be insured than the insurance company, or might even have knowledge about the risk that is unknown to the insurer. Adverse selection can be controlled by careful underwriting.

What is Underwriting?

Underwriting refers to the process of selecting and classifying applicants for insurance. Applicants who meet the underwriting standards are insured at standard or preferred rates. If the underwriting standards are not met, an extra premium must be paid; the coverage offered might be more limited; or coverage might be denied.

Insurance and other related concepts

Policy provisions are also used to control adverse selection. For example, the suicide clause in a life insurance policy excludes payment of the policy proceeds if the insured commits suicide within one or two years after purchasing the insurance.

Difference Between Insurance and Gambling

Two important differences exist between insurance and gambling:

- **Gambling creates a new speculative risk, whereas insurance is a technique for handling an already existing pure risk**: Example if you bet $500 on a horse race, a new speculative risk is created, but if you pay $500 to an insurer for a homeowners policy, which includes coverage for a fire, the risk of fire is already present. No new risk is created by the transaction.

- **Gambling is socially unproductive, because the winner's gain comes at the expense of the loser**: In contrast, insurance is always socially productive, because neither the insurer nor the insured is placed in a position where the gain of the winner comes at the expense of the loser. Both the insurer and the insured have a common interest in the prevention of a loss.

Insurance and other related concepts

Both parties win if the loss does not occur. Moreover, frequent gambling transactions generally never restore the losers to their former financial position. In contrast, insurance contracts restore the insured financially in whole or in part if a loss occurs.

Insurance and Hedging

In the last chapter we discussed the concept of hedging, by which risk can be transferred to a speculator through the purchase of a futures contract. An insurance contract, however, is not the same thing as hedging.

Although both techniques are similar in that risk is transferred by a contract, and no new risk is created, some important differences exist between the two.

- First, an insurance transaction typically involves the transfer of pure risks because the characteristics of an insurable risk generally can be met. However, hedging is a technique for handling speculative risks that might be uninsurable, such as protection against a decline in the price of agricultural products and raw materials.

Insurance and other related concepts

- A second difference between insurance and hedging is that moral hazard and adverse selection are more severe problems for insurers than for speculators who buy or sell derivatives assets.

Purchasers of insurance contracts can directly influence the profit or loss on the transaction because of intentional losses, fraudulent claims, or inflated claims. In contrast, individual entities, such as corn or wheat producers, generally cannot directly influence the financial outcome of the transaction when a futures contract is used to hedge a potential price decline.

Any Question?

Thank You

Questions Bank

1. a. Define Insurance

   b. Explain the law of large numbers
2. Explain the four (4) basic characteristics of Insurance
3. Explain how pooling can reduce objective risk and more appropriately determine the chance of loss.
4. List the six (6) characteristics of an insurable risk
5. Explain the reason behind the requirement that the loss of insurable risk must be accidental and unintentional.
6. Insurable risk's loss must be determinable and measurable. Explain what does this statement mean with at least one example?
7. Insurable risk's loss must be catastrophic. True or false? Explain your answer.
8. Explain the three (3) approaches to mitigate the problem of a catastrophic loss
9. a. What is reinsurance?

   b. What is adverse selection in Insurance?
10. Explain the two (2) main differences between Insurance and Gambling
11. Explain the two (2) main differences between Insurance and Hedging

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