

Insurance Risk 101

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Life Insurance Risk 101

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Overview

- Principles of insurance
- Life insurance products and pricing
- Risks a life insurer faces
- Mortality risk and underwriting
- Other risks



Principles of Insurance

- Gambling vs. Insurance
 - Gambling creates a risk that did not previously exist
 - Insurance transfers the financial consequences of an existing risk for a known dollar amount (premium)

Principles of Insurance

- Law of Large Numbers
 - Statistics (Bernoulli's Theorem)
 - The greater the number of similar exposures, the more predictable the outcome
 - Used to develop reliable assumptions for pricing and risk management

Principles of Insurance

- Risks insured (life insurance)
 - Premature death
 - Outliving accumulated savings



Life Insurance Products

- Term Life - Pure death protection
- Permanent Life - Term + Savings
 - Whole, Universal and Variable
- Deferred Annuities - Tax deferred savings product (SPDA, VA)
- Payout Annuities - income for life with a period certain

Considerations in Setting Premium Rates

- Premium rate adequacy
 - Premiums charged must in aggregate, cover the benefits promised and expenses associated with paying the benefits
 - Inadequate premiums can lead to severe financial problems including insolvency

Considerations in Setting Premium Rates

- Premiums must be equitable
 - Insureds who have similar risk profiles should be charged the same premium
 - No unfair subsidies - for example, nonsmokers vs. smokers
 - Equity is a goal

Considerations in Setting Premium Rates

- Premiums should be fair
 - The amount charged should not be excessive in relation to the benefits
 - Market competition is a major factor to ensuring fairness

The Pricing Process

- Probability of event occurring
- Time value of money
- The benefit promised
- Expenses
- Contingencies (risks)
- Profit



Insurance Company Risks

- Some examples
 - Legal - litigation
 - Operational - mistakes, errors, etc.
 - Pricing - inadequate premiums
 - Regulatory - new requirements
 - Reputation - negative press

Life Insurance Pricing Risks

- Mortality - when death occurs
- Persistency - how long the customer keeps the policy
- Expenses - how efficient the company operates
- Investment - return of and on invested cashflows



Mortality Risk

- Historical perspective
 - The bedrock in the growth and development of the life insurance industry
 - Based on a single-wage earning family model
 - Premature death of breadwinner had devastating financial consequences

Mortality Risk

- Trends
 - Improvement in life expectancy at virtually every age
 - Traditional model has changed, but the basic concerns regarding the prudent management of mortality risk still exist

Mortality Risk

- Insured vs. Population Data
 - Insured life mortality reflects a selection process (underwriting) to determine the appropriate premium rate classification for the benefit being insured against
 - Population mortality reflects the general population and does not reflect any selection process (eg. census data). Many that would not qualify for insurance



Mortality Risk

- The Adverse Selection Problem
 - The buyer usually knows more than the insurer about their own health and other risk components
 - Adverse Selection is when a buyer uses this information to gain an advantage on the insurer
 - Underwriting is used to deter and detect adverse selection

Underwriting

- Selection
 - The process by which insurers decide whether to issue insurance according to specific terms and prices
- Classification
 - The process of assigning a proposed insured to a group (class) of insureds with approximately the same expected loss probabilities

Underwriting

- Major factors considered
 - Age
 - Gender
 - Physical condition
 - Family history
 - Personal history and habits
 - (eg. tobacco, alcohol and drug use, hazardous avocations, financial status)



Underwriting

- Classification Methods
 - Method should accurately measure each factor affecting risk on an equitable, yet relatively simple basis
 - Judgement Method - Requires highly skilled and experienced personnel
 - Numerical Method - Point system where debits and credits are applied to risk factors



Underwriting

- Classification Categories
 - “Standard”
 - Preferred, smoker, nonsmoker, other
 - Substandard
 - Multiple or flat extra premium
 - Decline
 - Not eligible for coverage

Other Risks

- The traditional model has changed
- Concern for outliving retirement assets is becoming a greater concern than premature death
- This has caused growth in asset accumulation products
- Investment risks and competition with banks and securities firms is significant for insurers

An Overview of Property & Casualty Insurance

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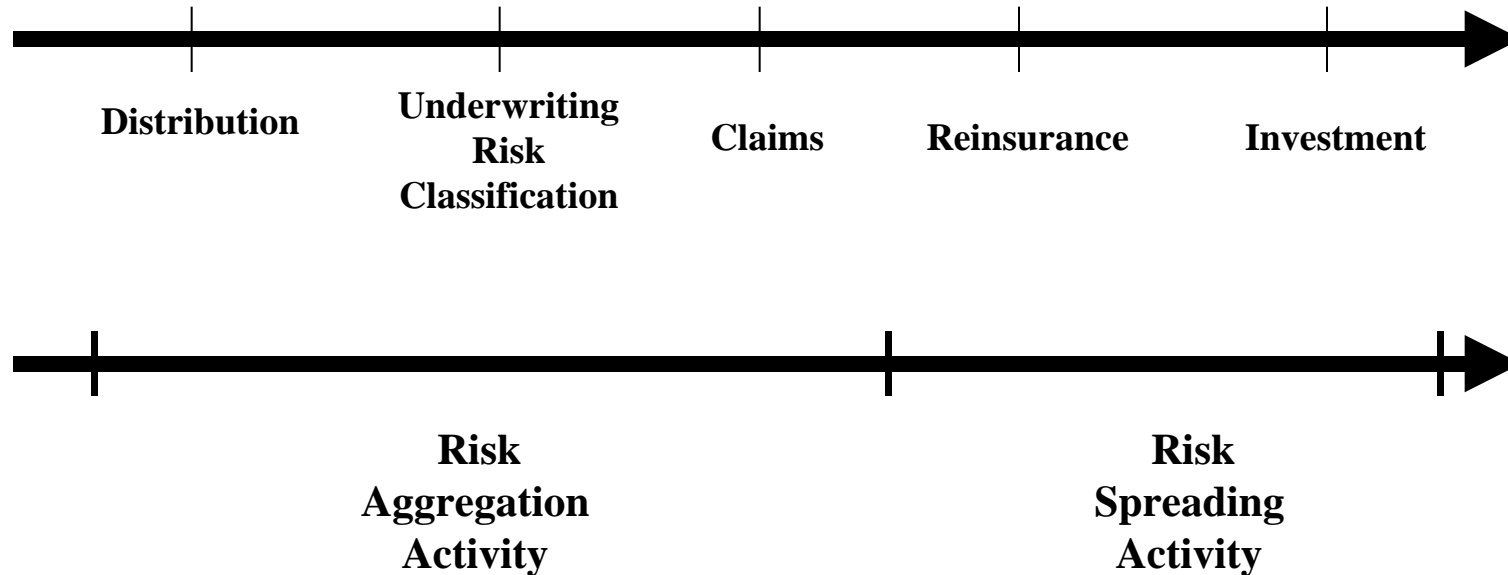
Property & Casualty Insurance

Outline of Discussion

Insurance Value Chain
Risk Aggregation Activities

Risk Spreading Activities

Insurance Value Chain



Insurance Value Chain

P&C Lines of Business (LOB)

- Personal Lines
- Commercial Lines
- Reinsurance

Insurance Value Chain

Personal Lines

- Personal Automobile
- Homeowners
- Fire, Allied Lines, Earthquake
- Inland Marine

Insurance Value Chain

Commercial Lines

- Commercial Auto
- Commercial Multiple Peril
- Workers Compensation
- Other Liability
- Fidelity
- Surety
- Boiler & Machinery
- Medical Malpractice
- Professional Liability
- Other Accident & Health
- Fire, Allied Lines, EQ
- Farm-owners Multiple Peril
- Ocean Marine
- Aircraft



Insurance Value Chain

Risk Aggregation Activities

Distribution Channels

Underwriting Services

Claims Services

Risk Spreading Activities

Reinsurance Services

Investment Services



Risk Aggregation Activity

Distribution Channels

- Direct Writers -- Develop, maintain and manage their own agency force
- Agency Writers -- Use independent contractors (insurance agents) as their insurance sales force
- Association/Group Purchasing Programs
- Internet



Risk Aggregation Activity

Risk Pooling

- Each insured contributes to a common fund or pool from which all amounts are paid
- Some insureds pay premiums that are insufficient to adequately cover their actual losses; the premiums of other insureds are used to subsidize those losses
- Law of Large Numbers -- Risk Reduction

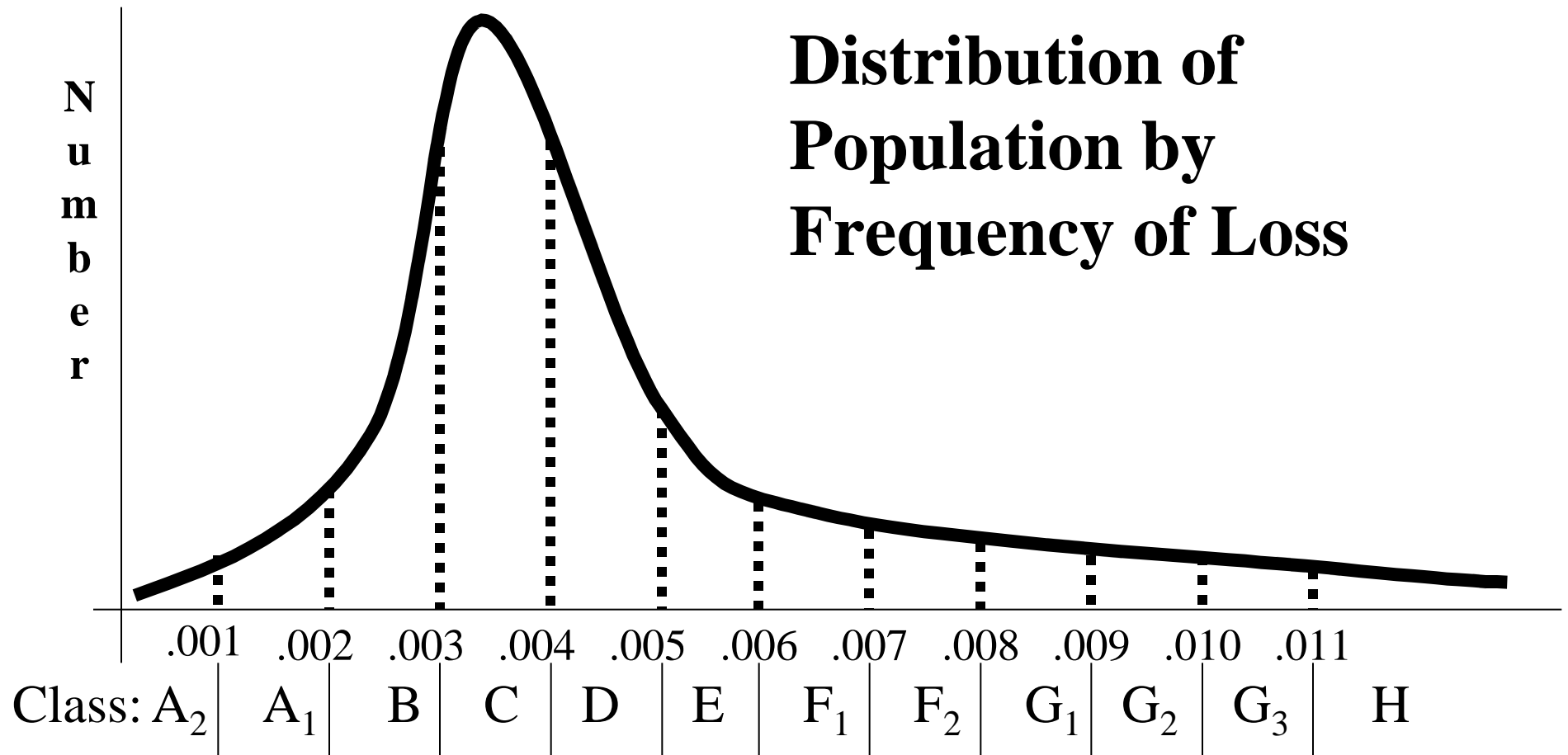


Risk Aggregation Activity

Underwriting Services

- Selection
 - The process by which an insurance company decides whether to issue requested insurance.
- Classification
 - The process of assigning a proposed insured to a group of insureds of approximately the same expected loss probabilities.

Risk Aggregation Activity



Risk Aggregation Activity

The Adverse Selection Problem

- The buyer usually knows more about his own risk components than the insurer
- This information asymmetry encourages adverse selection by the buyer
- Underwriting is necessary to deter and detect adverse selection
- Inadequate underwriting will cause an antiselection spiral and collapse of the risk pool



Risk Aggregation Activity

Underwriting Guiding Principles

- Large standard groups
- Balancing size of substandard groups
- Balance within each class
- Equity among insureds
- Social acceptability
- Recognition of underlying loss assumptions

Risk Aggregation Activity

Claims Services

Variable Claim Values

- Efficacy in Claims Settlement -- Paying the “right” amount for claims
- Efficiency in Claims Operations -- Performing services at the “lowest” cost



Risk Spreading Activity

Reinsurance Services

- Loss Portfolio Management
 - Solvency Risk
-

Individual Claim Severity Risk

Catastrophe Risk

Pricing Risk

Risk Spreading Activity

Investment Services

- Investment Portfolio Management
 - Asset/Liability Matching
 - Asset Class Allocation
 - Investment Risks
-
- > Market Risk
 - > Liquidity Risk
 - > Default Risk
 - > Political Risk
 - > Exchange Risk
 - > Interest Rate Risk

Insurance Risk 101

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