

FN241: Session 6

The Insurance Mechanism

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Reading

George, E. Rejda, and Michael McNamara,
“Principals of Risk Management and Insurance”,
Pearson; 12th Edition (2013).

Chapter: 5, 6, and 7



How does insurance industry work?

Key issue ...

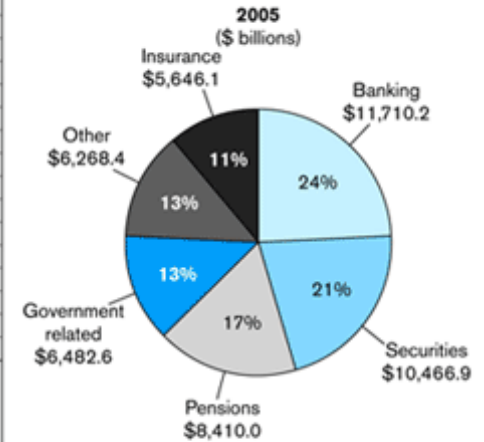
- Overview of Private Insurance in the Financial Services Industry
- Types of Private Insurers
- Agents and Brokers
- Types of Marketing Systems
- Group Insurance Marketing

Overview of Private Insurance in the Financial Services Industry

- The financial services industry consists of:
 - Commercial banks
 - Savings and loan institutions
 - Credit unions
 - Life and health insurers
 - Property and casualty insurers
 - Mutual Funds
 - Securities brokers and dealers
 - Private and state pension funds
 - Government-related financial institutions

Assets of Financial Services Sectors by Industry, 2005 (\$billions, end of year)

Sector	2005
Banking	
Commercial banking (1)	\$9,236.0
Savings institutions (2)	1,788.7
Credit unions	685.5
Total	\$11,710.2
Insurance	
Life insurance companies	\$4,380.7
All other insurers	1,265.4
Total	\$5,646.1
Securities	
Mutual and closed-end funds	\$8,322.8
Securities broker/dealers (3)	2,144.1
Total	\$10,466.9
Pensions	
Private pension funds (4)	\$4,613.3
State and local government retirement funds	2,721.7
Federal government retirement funds	1,075.0
Total	\$8,410.0
Government-related	
Government lending enterprises	\$2,805.1
Federally-related mortgage pools	3,677.5
Total	\$6,482.6
Other	
Finance companies	\$1,334.6
Real estate investment trusts	354.6
Mortgage companies (5)	32.1
Asset-backed securities issuers	3,059.1
Funding corporations	1,488.0
Total	\$6,268.4
Total All Sectors	\$48,984.2
<p>(1) Commercial banking includes U.S.-chartered commercial banks, foreign banking offices in the United States, bank holding companies, and banks in U.S.-affiliated areas. (2) Savings institutions include savings and loan associations, mutual savings banks, and federal banks. (3) Securities broker/dealers include investment banks. (4) Private pension funds include defined benefit and defined contribution plans [including 401(k)s and the Federal Employees Retirement Thrift Savings Plan]. (5) Data are for 1997 (latest data available)</p> <p>NOTE: Data are from Board of Governors of the Federal Reserve System.</p>	



Overview of Private Insurance in the Financial Services Industry

- Changes in the financial services industry include:
 - Consolidations
 - The number of firms has declined due to mergers and acquisitions
 - Convergence
 - Existing financial institutions now sell a wide variety of financial products that earlier were outside their core business area

Thai Life Insurance Market Share

(Value in Million Baht)

(Jan – Jun 2016)

Source: www.tlaa.org

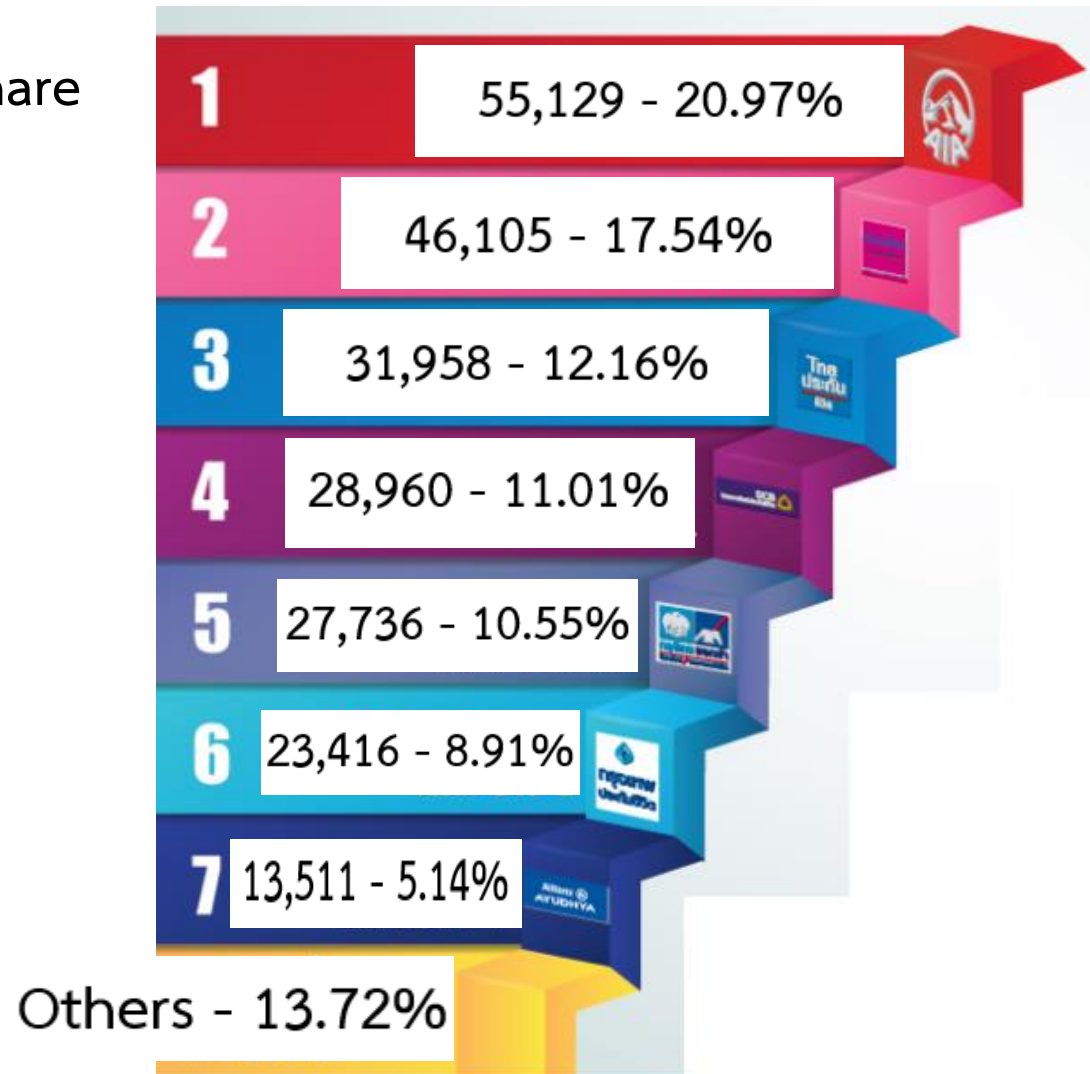
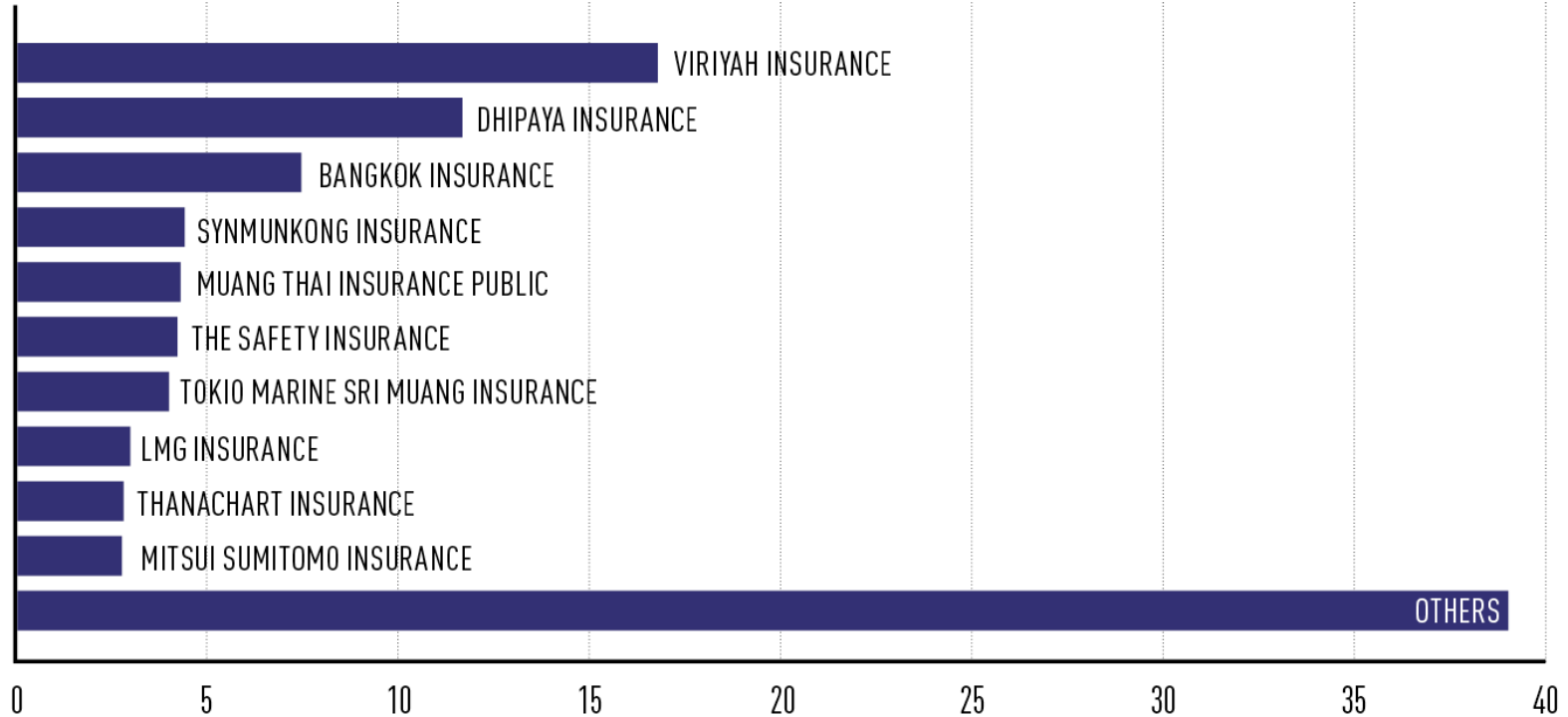


Fig 2

Thai non-life insurance market share, 2013

PERCENTAGE



Source: Viriyah Insurance

Types of Private Insurers

- A stock insurer is a corporation owned by stockholders
 - Objective: earn profit for stockholders
 - Increase value of stock
 - Pay dividends
 - Stockholders elect board of directors
 - Stockholders bear all losses
 - Insurer cannot issue an assessable policy

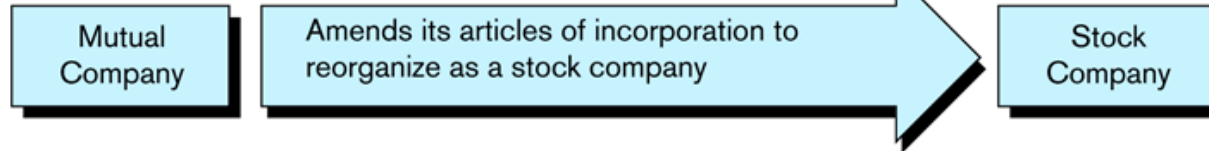
Types of Private Insurers

- A mutual insurer is a corporation owned by the policyowners
 - Policyowners elect board of directors, who have effective management control
 - May pay dividends to policyowners, or give a rate reduction in advance
 - There are three main types of mutual insurers:
 - An advance premium mutual is owned by the policyowners; there are no stockholders, and the insurer does not issue assessable policies
 - An assessment mutual has the right to assess policyowners an additional amount if the insurer's financial operations are unfavorable
 - A fraternal insurer is a mutual insurer that provides life and health insurance to members of a social or religious organization

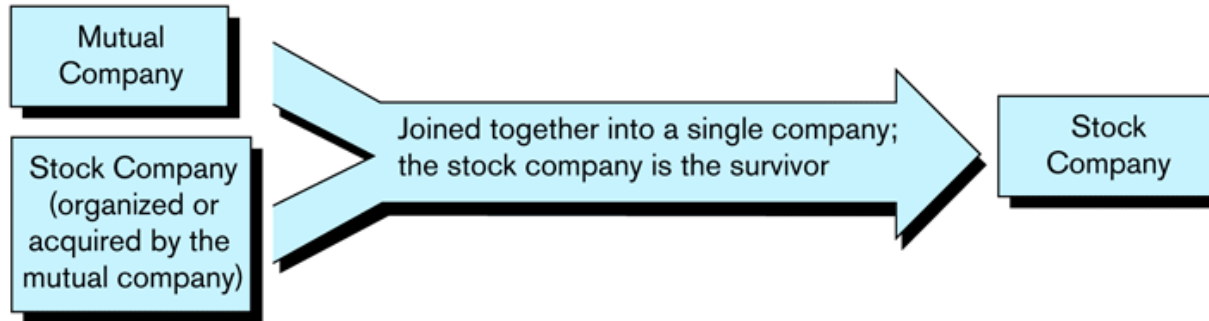
Types of Private Insurers

Demutualization

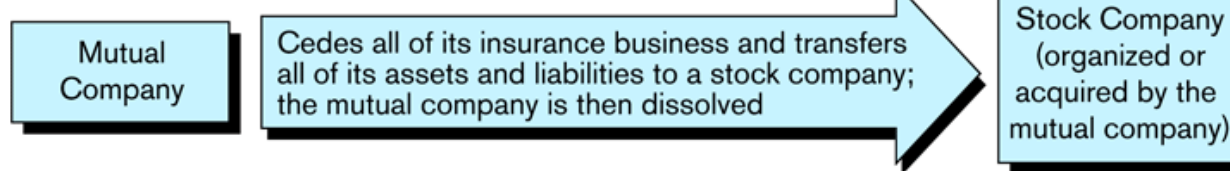
Pure Conversion



Merger



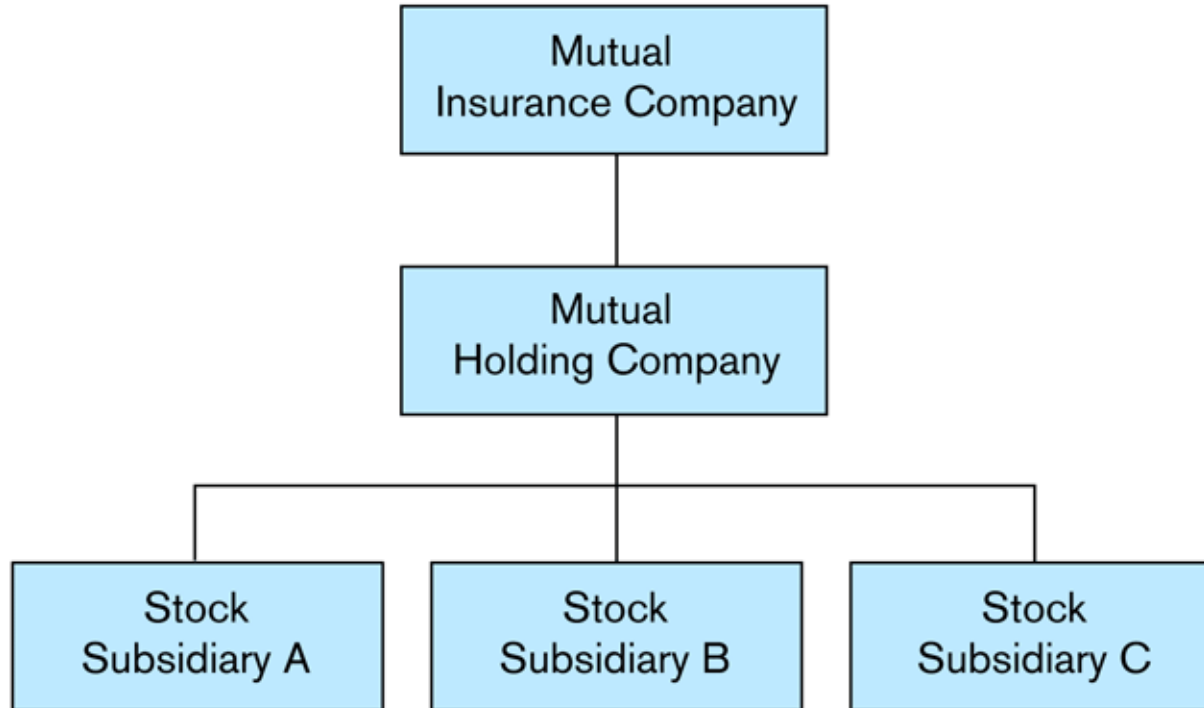
Bulk Reinsurance



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Types of Private Insurers

[Holding Company](#)



Agents and Brokers

- An agent is someone who legally represents the principal and has the authority to act on the principal's behalf
 - The principal is responsible for all acts of an agent when the agent is acting within the scope of authority
- A property and casualty agent has the power to bind the insurer
 - A binder provides temporary insurance until the policy is actually written
- A life insurance agent normally does not have the authority to bind the insurer
 - The applicant for life insurance must be approved by the insurer before the insurance becomes effective

Agents and Brokers

- A broker is someone who legally represents the insured, and:
 - solicits applications and attempts to place coverage with an appropriate insurer
 - is paid a commission from the insurers where the business is placed
 - does not have the authority to bind the insurer
- A surplus lines broker is licensed to place business with a nonadmitted insurer
 - Surplus lines refer to any type of insurance for which there is no available market within the state, and coverage must be placed with a nonadmitted insurer

Marketing Systems in Life Insurance

- An agency building system is a system by which an insurer builds its own agency force by recruiting, financing, training, and supervising new agents
- A nonbuilding agency system is a marketing system by which an insurer sells its products through established agents
- Under a direct response system, insurance is sold directly to customers without the services of an agent

Marketing Systems in Property and Liability Insurance

- The independent agency is a business firm that usually represents several unrelated insurers
- Under the exclusive agency system, the agent represents only one insurer or group of insurers under common ownership
- A direct writer is an insurer in which the salesperson is an employee of the insurer, not an independent contractor.
- A direct response insurer sells directly to the consumer by television or some other media
- Many property and casualty insurers use multiple distribution systems

Group Insurance Marketing

- Many insurers use group marketing methods to sell individual insurance policies to:
 - Employer groups
 - Labor unions
 - Trade associations
- Some property and liability insurers use mass merchandising plans to market their insurance
- Employees pay for insurance by payroll deduction

What are insurance company
operations?

Key issue ...

- Rate making
- Underwriting
- Production
- Claim settlement
- Reinsurance
- Investments

Rate making

- Rate making refers to the pricing of insurance
 - Total premiums charged must be adequate for paying all claims and expenses during the policy period
 - Rates and premiums are determined by an actuary, using the company's past loss experience and industry statistics

Underwriting

- Underwriting refers to the process of selecting, classifying, and pricing applicants for insurance
 - The objective is to produce a profitable book of business
- A statement of underwriting policy establishes policies that are consistent with the company's objectives, such as
 - Acceptable classes of business
 - Amounts of insurance that can be written
- A line underwriter makes daily decisions concerning the acceptance or rejection of business

Production

- Production refers to the sales and marketing activities of insurers
 - Agents are often referred to as producers
 - Life insurers have an agency or sales department
 - Property and liability insurers have marketing departments
- An agent should be a competent professional with a high degree of technical knowledge in a particular area of insurance and who also places the needs of his or her clients first

Claim Settlement

- The objectives of claims settlement include:
 - Verification of a covered loss
 - Fair and prompt payment of claims
 - Personal assistance to the insured
- Some laws prohibit unfair claims practices, such as:
 - Refusing to pay claims without conducting a reasonable investigation
 - Not attempting to provide prompt, fair, and equitable settlements
 - Offering lower settlements to compel insureds to institute lawsuits to recover amounts due

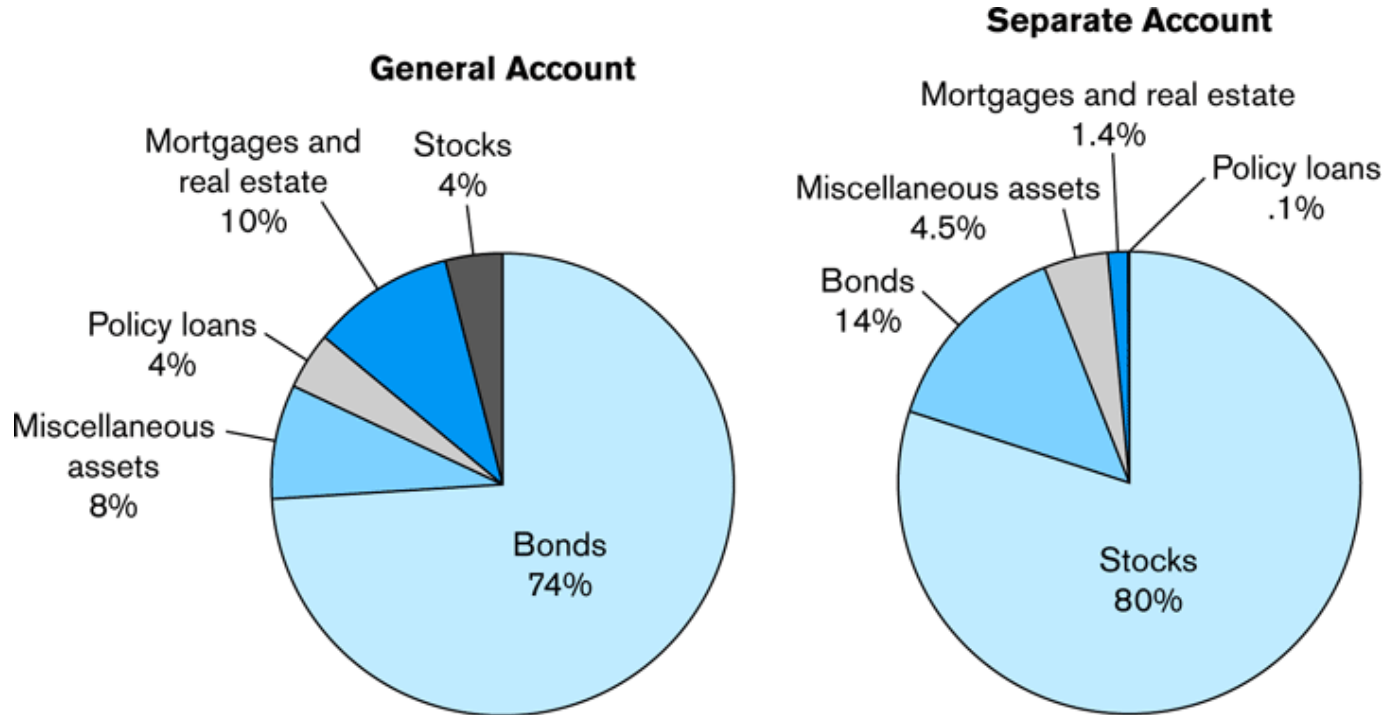
Reinsurance

- Reinsurance is an arrangement by which the primary insurer that initially writes the insurance transfers to another insurer part or all of the potential losses associated with such insurance
- There are two principal forms of reinsurance:
 - Facultative reinsurance is an optional, case-by-case method that is used when the ceding company receives an application for insurance that exceeds its retention limit
 - Treaty reinsurance means the primary insurer has agreed to cede insurance to the reinsurer, and the reinsurer has agreed to accept the business

Investments

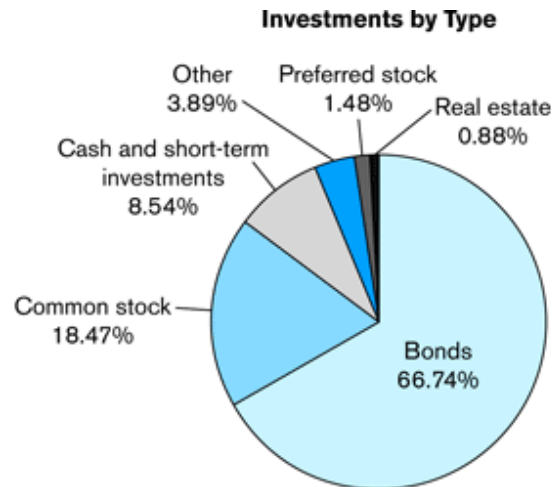
- Because premiums are paid in advance, they can be invested until needed to pay claims and expenses
- Investment income is extremely important in reducing the cost of insurance to policyowners and offsetting unfavorable underwriting experience
- Life insurance contracts are long-term; thus, safety of principal is a primary consideration
- In contrast to life insurance, property insurance contracts are short-term in nature, and claim payments can vary widely depending on catastrophic losses, inflation, medical costs, etc

Asset Distribution of Life Insurers 2004

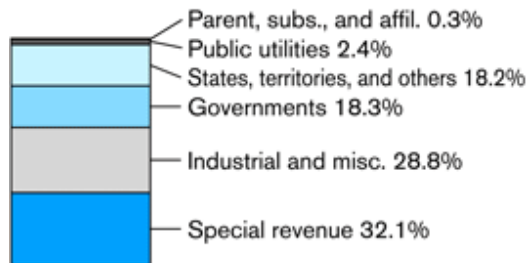


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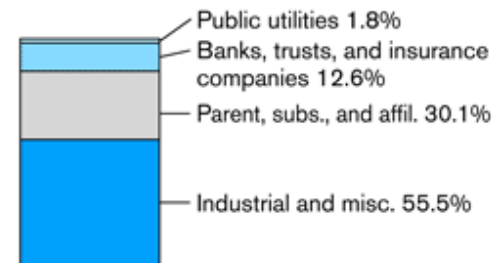
Investments of Property and Casualty Insurers, 2004



Bond Portfolio*
(Represents 66.7% of total investments)



Stock Portfolio*
(Represents 19.9% of total investments)



*As of December 31, 2004.

NOTE: Data are from NAIC Annual Statement Database, via National Underwriter Insurance Data Services/Highline Data.

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What are financial
operations of insurers?

Key issue ...

- Property and Casualty Insurers
 - Financial Statements
 - Measuring Financial Performance
- Life Insurance Companies
 - Financial Statements
 - Measuring Financial Performance
- Ratemaking in Property and Casualty Insurance
- Ratemaking in Life Insurance

Financial Statements of Property and Casualty Insurers

- Balance Sheet: a summary of what a company owns (assets) and what it owes (liabilities)

$$\text{Total Assets} = \text{Total Liabilities} + \text{Owners' Equity}$$

ABC Insurance Company

ABC Insurance Company Balance Sheet			
December 31, 2006			
Assets:		Liabilities:	
Bonds	\$250,000,000	Loss Reserves	\$120,000,000
Common Stock	80,000,000	Unearned Premiums	101,000,000
Real Estate	20,000,000	Loss Adjustment Expenses	14,000,000
Cash & Short-term Investments	12,000,000	Commissions Payable	9,000,000
Mortgage-backed Securities	30,000,000	Other Liabilities	11,000,000
Total Invested Assets	\$392,000,000	Total Liabilities	255,000,000
Premiums Receivable	29,600,000	Surplus and Capital	
Data Processing Equipment	400,000	Paid-in Surplus	16,000,000
Other Assets	18,000,000	Unassigned Surplus	169,000,000
Total Admitted Assets	<u>\$440,000,000</u>	Total Liabilities and Surplus	<u>\$440,000,000</u>

Financial Statements of Property and Casualty Insurers

- The primary assets for an insurance company are [financial assets](#)
- Insurers' liabilities include [required reserves](#)
- A [loss reserve](#) is an estimated amount for:
 - Claims incurred but not yet reported to the company
 - Claims reported and filed, but not yet adjusted
 - Claims reported and adjusted, but not yet paid
- [Case reserves](#) are loss reserves that are established for each individual claim

Financial Statements of Property and Casualty Insurers

- The unearned premium reserve is a liability item that represents the unearned portion of gross premiums on all outstanding policies at the time of valuation
 - Its purpose is to pay for losses that occur during the policy period
 - It is also needed so that refunds can be paid to policyholders that cancel their coverage
 - It also serves as the basis for determining the amount that must be paid to a reinsurer for carrying reinsured policies
- Policyholders' surplus is the difference between an insurance company's assets and liabilities
 - The stronger a company's surplus position, the greater is the security for its policyholders

ABC Insurance Company
Income and Expense Statement
January 1, 2012–December 31, 2012

Income and
Expense
statement

Revenues:		
Premiums Written*	\$206,000,000	
Premiums Earned		\$205,000,000
Investment Income:		
Interest	14,000,000	
Dividends	2,400,000	
Rental Income	600,000	
Gain on Sale of Securities	1,000,000	
Total Investment Income		18,000,000
Total Revenues		\$223,000,000
Expenses:		
Net Losses Incurred	133,600,000	
Loss Adjustment Expenses	14,000,000	
Total Losses and Loss Adj. Expenses		147,600,000
Commissions	18,000,000	
Premium Taxes	5,050,000	
General Insurance Expenses	41,590,000	
Total Underwriting Expenses		64,640,000
Total Expenses		212,240,000
Net Income Before Taxes		10,760,000
Federal Income Tax		3,260,000
Net Income		7,500,000

*Premiums written reflect coverage put in force during the accounting period.

Measuring the Performance of Property and Casualty Insurers

- The loss ratio is the ratio of incurred losses and loss adjustment expenses to premiums earned

$$\text{Loss Ratio} = \frac{\text{Incurred Losses} + \text{Loss Adjustment Expenses}}{\text{Premiums Earned}}$$

- The expense ratio is equal to the company's underwriting expenses divided by written premiums

$$\text{Expense Ratio} = \frac{\text{Underwriting Expenses}}{\text{Premiums Written}}$$

- The combined ratio is the sum of the loss ratio and the expense ratio. A positive ratio indicates an underwriting loss

Measuring the Performance of Property and Casualty Insurers

- The investment income ratio compares net investment income to earned premiums

$$\textit{Investment Income Ratio} = \frac{\textit{Net Investment Income}}{\textit{Earned Premiums}}$$

- The overall operating ratio is equal to the combined ratio minus the investment income ratio
 - This ratio measures the company's total performance (underwriting and investments)

Financial Statements of Life Insurers

Notes:

- The assets of a life insurer have **a longer duration**, on average, than those of property and casualty insurers
- Policyholders' surplus is **less volatile** in the life insurance industry than in the property and casualty insurance industry
- Benefit payments, including **death benefits paid to beneficiaries and annuity benefits paid to annuitants**, are the life insurer's major expense
- A life insurer's net gain from operations equals total revenues less total expenses, policyowner dividends, and federal income taxes

Ratemaking in Property and Casualty Insurance

(1) Judgment rating

= each exposure is individually evaluated, and the rate is determined largely by the judgment of the underwriter

(2) Merit rating

= a rating plan by which class rates are adjusted upward or downward based on individual loss experience

Ratemaking in Property and Casualty Insurance

(3) Class rating

= exposures with similar characteristics are placed in the same underwriting class, and each is charged the same rate

- Class rates are determined using two basic methods:
 - Under the pure premium method, the pure premium can be determined by dividing the dollar amount of incurred losses and loss-adjustment expenses by the number of exposure units
 - Under the loss ratio method, the actual loss ratio is compared with the expected loss ratio, and the rate is adjusted accordingly

Ratemaking in Property and Casualty Insurance

Example: Pure Premium Method Assume that in auto collision insurance, 500,000 autos in a given underwriting class generate incurred losses and loss-adjustment expenses of \$33 million over a one-year period.

- What is the pure premium?
- If expenses are 40 percent of the gross rate, what is the final gross rate?

Ratemaking in Property and Casualty Insurance

Example: Loss Ratio Method Assume that a line of insurance has incurred losses and loss-adjustment expenses of \$800,000 and earned premiums of \$1 million.

- What is the actual loss ratio?
- If the expected loss ratio is 0.70 or 70 percent, how much will the rate be increased?

Ratemaking in Life Insurance

- Life insurance actuaries use **a mortality table or individual company experience** to determine the probability of death at each attained age
- The annual expected value of death claims equals the probability of death times the amount the insurer must pay if death occurs

Question?