

# Insurance Company Financial Management Issues Chapter 16

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## An Overview of Insurance Operations

- New Product Design and Development to Satisfy Customer and Market Needs
- Production and Distribution and Advertisement
- Product Management
- Underwriting
- Claims Adjustment and Settlement
- Services
- Administration
- Finance and Investment

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## Insurance Industry's Structure

- Life Insurance
- Property/Casualty Insurance
- Other Types of Nonlife Insurance Firms and Products
  - Surety bonds
  - Financial guarantee insurance
  - Credit insurance (for short-term trade receivables)
  - Private mortgage guaranty insurance (PMI)
  - Reinsurance
  - Catastrophe bonds
  - Weather-related derivatives and insurance

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## Insurance Company Operations

### Source of revenues

- Premiums received on insurance policies
- Investment earnings on reserves

### Major expenses

- Benefit (loss) payments
- Additions to reserves
- Operating expenses
- Investment expenses

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## COMMON SIZE INCOME STATEMENT FOR INSURANCE COMPANIES

Life Insurance Companies			P/L Insurance Companies		
% Total Revenues:	2001	2002 %	%Total Revenues:	2001	2002
Premium Payments	66%	70%	Earned Premiums	89%	90%
Gross Investment Earnings	28%	25%	Net Investment Earnings	11%	10%
Other Income	6%	5%			
<b>% Total Expenses</b>			<b>%Total Expenses</b>		
Benefits Payments	60%	56%	Loss Expenses	75%	74%
Adds to Policy Reserves	25%	28%	Operating Expenses	24%	25%
Operating Expenses	11%	13%	Policyholder Dividends	1%	1%
Investment Expenses	2%	2%			
Taxes	2%	2%			
Dividends to Stockholders	2%				
Additions to Surplus	2%				

Source: Percentages calculated by Authors from average annual report data as presented by the American Council of Life Insurers: Life Insurers Fact Book, 2003, and Insurance Information Institute: Property/Casualty Insurance Financials and Outlook, 2003.

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## Statutory Accounting

Insurers are subject to statutory accounting principles (SAAP) as well as GAAP.

### Statutory accounting

- Affects P/L insurers more than life insurers
- Is more conservatory than GAAP
- Combination of cash & accrual accounting

### Under statutory accounting P/L insurers:

- are required to report unrealized gains or losses on stock holdings on the balance sheet; and
- may only include admitted assets in "other assets."

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## Insurance Company Balance Sheets

### Life Insurer versus P/C Insurer Assets

- Life insurance is long-term so financial assets are long term
- P/C insurers hold munis unlike life insurers
- P/C hold shorter-term securities since claims are unexpected (greater liquidity risk)

### P/C insurers Liabilities & Equity

- Hold less reserves
- Accrue tax payments since they must pay taxes
- Have much more equity relative to assets

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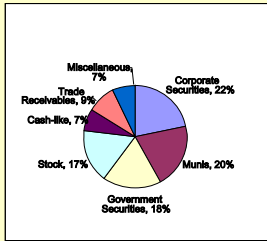
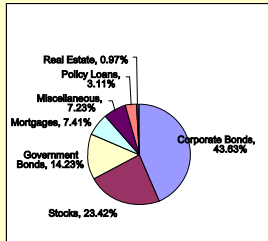
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## Life and P/C Insurers Comparison of Assets

Life Insurers

P/C Insurers




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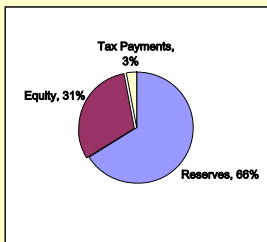
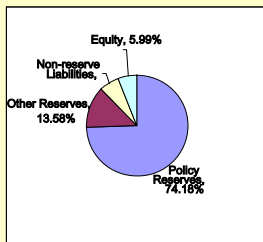
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## Life & P/C Insurers Comparison of Liabilities & Equity

Life Insurers

P/C Insurers




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## Life Insurer Reserves

Policy reserves  
 Reserves for deposit-type contracts  
 Asset valuation reserve  
 Interest maintenance reserve  
 Policy dividend reserve  
 Policy dividend accumulations

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## Net Underwriting Margin

Net underwriting margin, NUM, is

$$\text{NUM} = \frac{[\text{Premium Income} - \text{Policy Expenses}]}{\text{Total Assets}}$$

Sources of financial information

- A. M. Best
- Moody's
- SNL Financial

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## Performance Evaluation of P/C Companies

$$\text{Loss Ratio} = \frac{\text{Loss Expenses}}{\text{Total Premiums Earned}}$$

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

$$\text{Combined Ratio} = \text{Loss Ratio} + \text{Expense Ratio}$$

$$\text{Operating Ratio} = \text{Combined Ratio (after dividends)} \\ - \text{investment yield}$$

$$\text{Overall Profitability} = 100\% - \text{Operating Ratio}$$

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## P/C Insurer Ratios

$$\text{Loss Ratio} = \frac{\text{Loss Expenses}}{\text{Total Premiums Earned}}$$

Loss ratio >1, expenses greater than premiums

Loss ratio has changed over time

- 60% in 1951
- 80% in 1996
- 75% in 2003

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## Expense Ratio

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

The lower the ratio, the more efficient insurers are in controlling expenses

Expense ratio has fallen over time

- 34% in 1951
- 26.2% in 1996
- 26.3% in 2003

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## Combined Ratio

$$\text{Combined Ratio} = \text{Loss Ratio} + \text{Expense Ratio}$$

Combined ratio >1,

- insurer has losses & expenses greater than premium income
- Income from investments required to cover difference

Combined ratio has increased over time

- 94.3% in 1951
- Since 1981, over 100%

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## Overall Profitability

**Operating Ratio = Combined Ratio (after dividends)  
- investment yield**

**Overall Profitability = 100% - Operating Ratio**

1980s – 1990s

- Higher yields on stocks, higher interest rates increased investment yield to cover costs + losses
- Lower yields recently have led to low profitability and even losses in some years

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## Underwriting Cycles

Six year cycles, two periods to each

- Hard market period
  - Insurers raise premiums
  - Insurance coverage is hard to get
- Soft market period
  - Investment yield is high, premiums are lowered
  - Insurance coverage is amply available

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## Social and Economic Forces Affecting P/L Insurers

P/L insurers risk has increased

- Product liability suits, malpractice suits
- High jury awards
- Insurers buy reinsurance to cover increased risk

Increased competition has

- Restricted ability to increase premiums
- Added to squeeze on profits
- Caused some companies to drop some lines of insurance

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## Social and Economic Forces Affecting Life Insurers

### Health insurance

- Increased number of people don't qualify or can't afford it
- Malpractice suits increase jury awards

### Other trends

- Merger with other financial institutions
- Broader range of financial products offered
  - Bancassurance ventures
  - Assurbanking operation

### Distribution systems

- Direct writer and independent agent
- Sales through the internet

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## U.S. Risk-Based Capital Requirements

Risk-based capital requirements set in early 1990s

### Four P/L insurer risk categories

- Investment or asset risk
- Credit risk, such as reinsurance
- Off-balance-sheet risk, such as separate accounts
- Underwriting risk, such as the loss ratio and reserve adequacy

Sum of risks by category weighted by importance of risk yield minimum capital requirements

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## Monitoring & Rating for Solvency

Early warning systems monitor insolvency risk

- NAIC's Insurance Regulatory System (IRIS)
- Financial Analysis System Tracing (FAST)

Financial examination every 3 -5 years

Private agencies rate insurance companies

- A.M. Best
- Standard & Poor's
- Moody's
- Duff & Phelps

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## Types of Life Insurance Policies

- Whole life insurance
- Term life insurance
- Variable life insurance
- Universal life insurance

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## Determination of Life Insurance Premiums

Actual mortality table

- Probability of death at a given age
- If 2.2 men per 1000 die, probability is 0.0022

Insurer estimates yield on premiums to be paid

Loading factor added for operating costs, shareholder profits

$$\text{Pure Premium} = \frac{\text{Policy Amount} \times \text{Prob.}}{100\% + \text{Yield (\%)}}$$

$$\text{Total Premium} = \text{Pure Premium} + \text{Loading}$$

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## Asset Management Considerations

Life Insurers

- Correct estimates of risk essential
  - Default risk
  - Interest rate risk

P/C Insurers

- Increasingly using immunization techniques
  - Interest rate risk
  - Credit risk
  - Match cash inflows with estimated cash outflows

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