Systemic Risk and Regulation of the U.S. Insurance Industry

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Definition of Systemic Risk

- Risk that an event will trigger a loss of economic value or confidence in a substantial segment of the financial system that is serious enough to have significant adverse effects on the real economy with a high probability

(Group of Ten, 2001)

Criteria for Systemic Risk

- Economic shocks become systemic because of spillover effects in which there is a contagious loss of value or confidence that spreads;
- Systemic financial events are serious enough to have significant adverse effects on real economic activity

- Example: Bursting of housing price bubble

Outline of presentation

- Are U.S. insurers systemically risky?
  - Core activities vs. Non-core
- Statistical Analysis
  - Correlation and Regression Analyses
- Regulatory responses to the financial crisis as relates to U.S. insurers

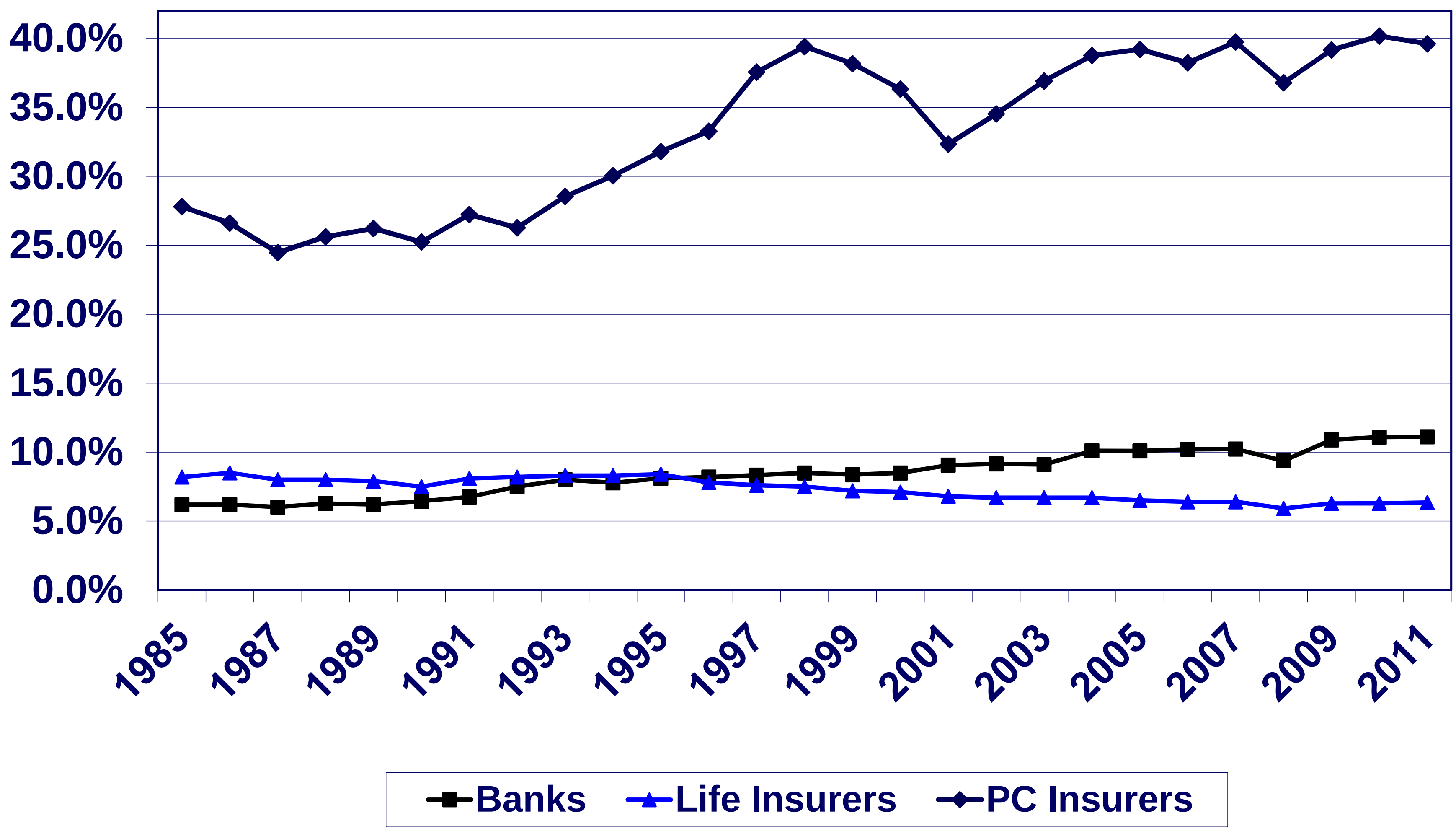
Preview

- Core activities of P-C insurers not systemic
- Some activities of life insurers contribute to systemic risk
- In general, insurers are victims of systemic risk rather than instigators
- Non-core activities can be systemic
- On worldwide scale, better supervision of insurance groups needed

Primary Factors for Systemic Risk: Core Activities

- Size
  - Insurers smaller than banks
  - $7.1 trillion vs. $12.6 trillion in banks
  - Insurance accounts for 3% of GDP
  - Insurers hold 7.8% of credit market debt outstanding

Equity Capital-to-Assets Ratios



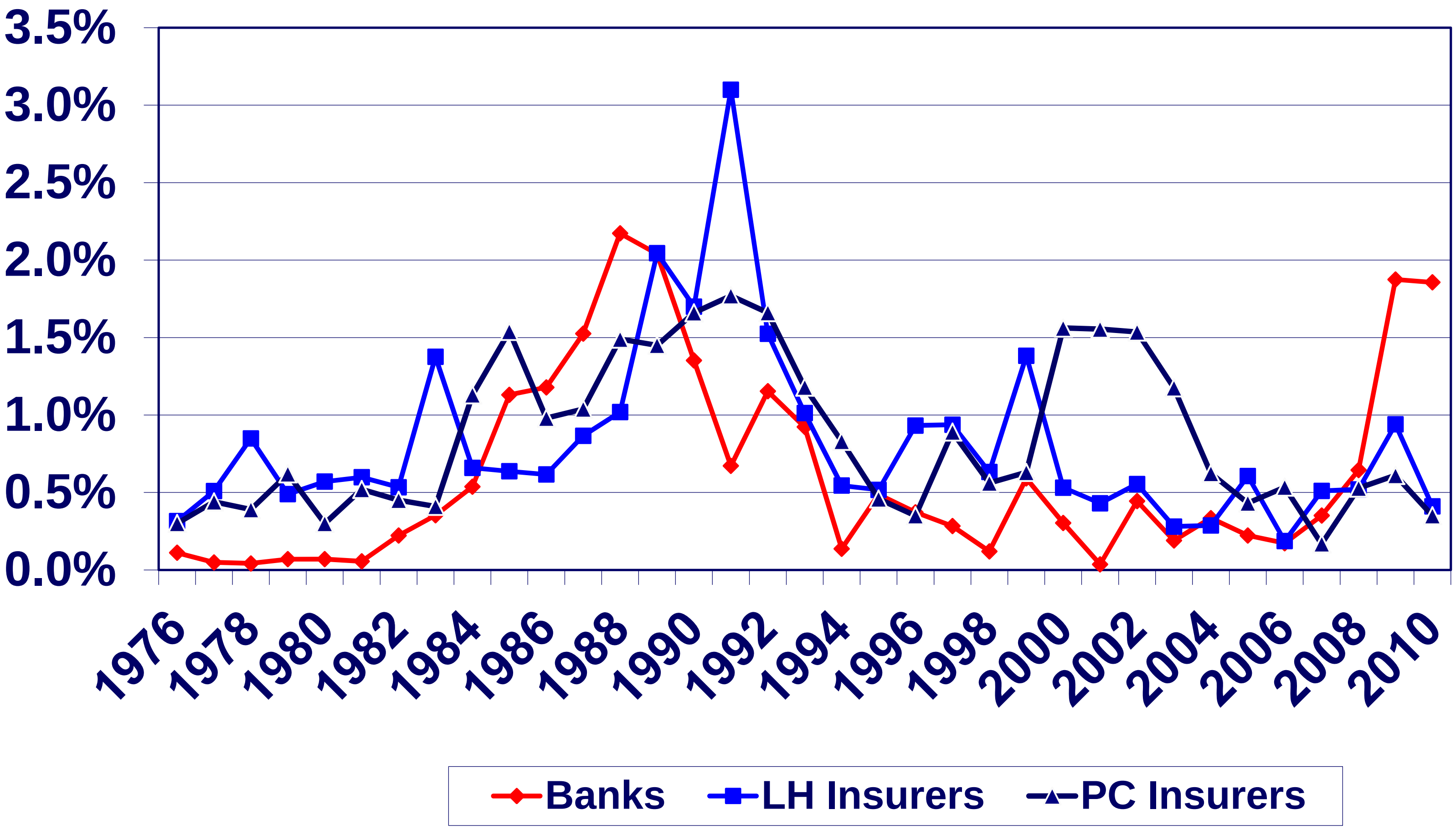
Source: Federal Reserve Flow of Funds accounts, American Council of Life Insurance, FDIC.

Primary Factors for Systemic Risk: Core Activities

- **Size (Continued)**
  - Low insolvency rate
  - Banks' failure rate in crisis vs insurers'
  - Insurer resolutions are orderly
    - Need valid claim to receive cash
    - Some life insurer claims optionable
- Conclusion: Liquidation of assets at distressed prices does not occur nor are immediate settlements to all policyholders made at time of bankruptcy

Failure Rates: US Banks & Insurers

"Crisis hit banks much harder than insurers."

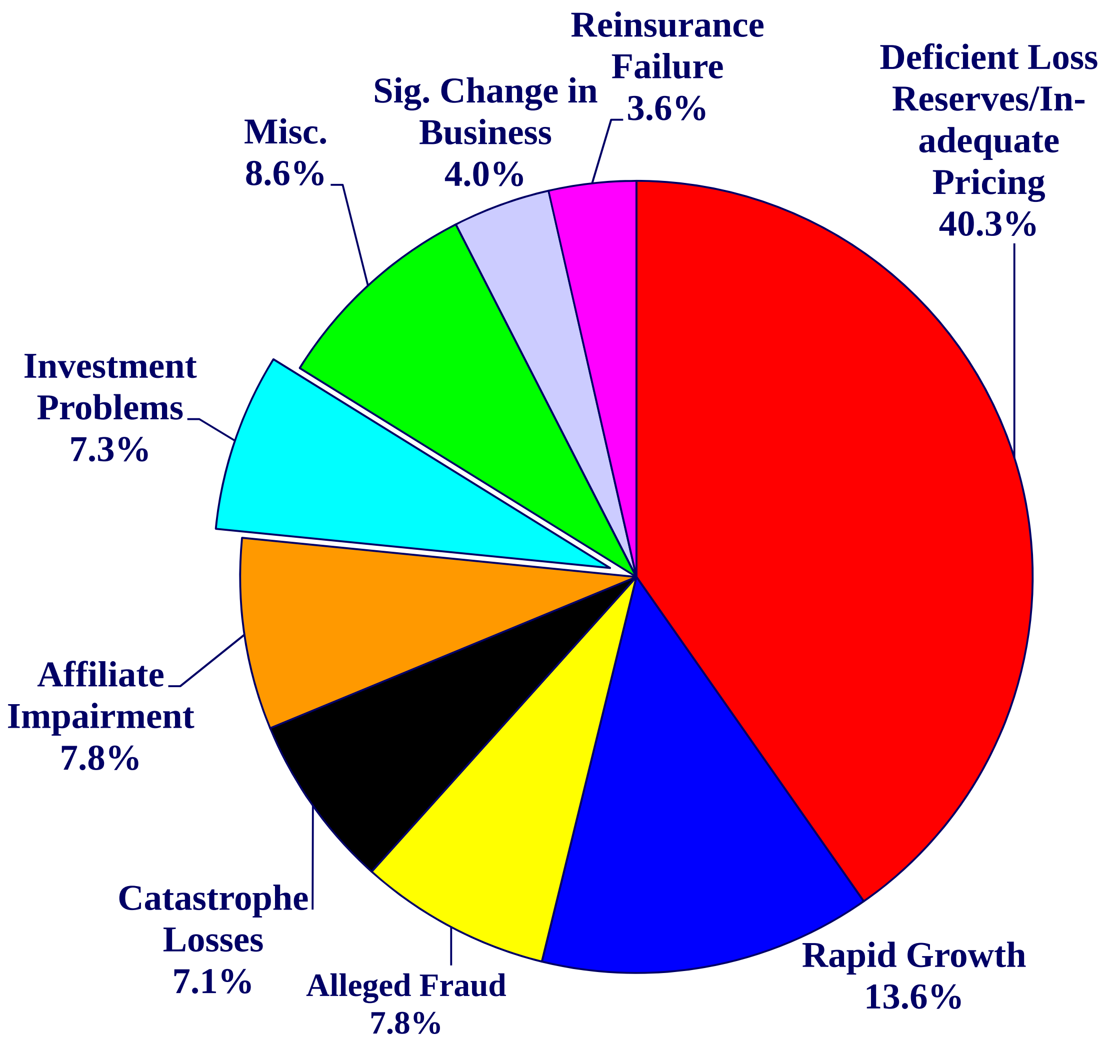


Primary Factors for Systemic Risk: Core Activities

Size (Cont'd)

- Insolvencies funded by guaranty funds
  - Assess insurers a small percent of premiums as claims arise for years into future
- Successful payment of some large insolvencies
- Annual assessment never exceeded 0.35% of premiums
- Conclusion: Guaranty fund system has stood up well, but has never been required to deal with widespread insolvency crisis

P/C Impairments: Triggering Events

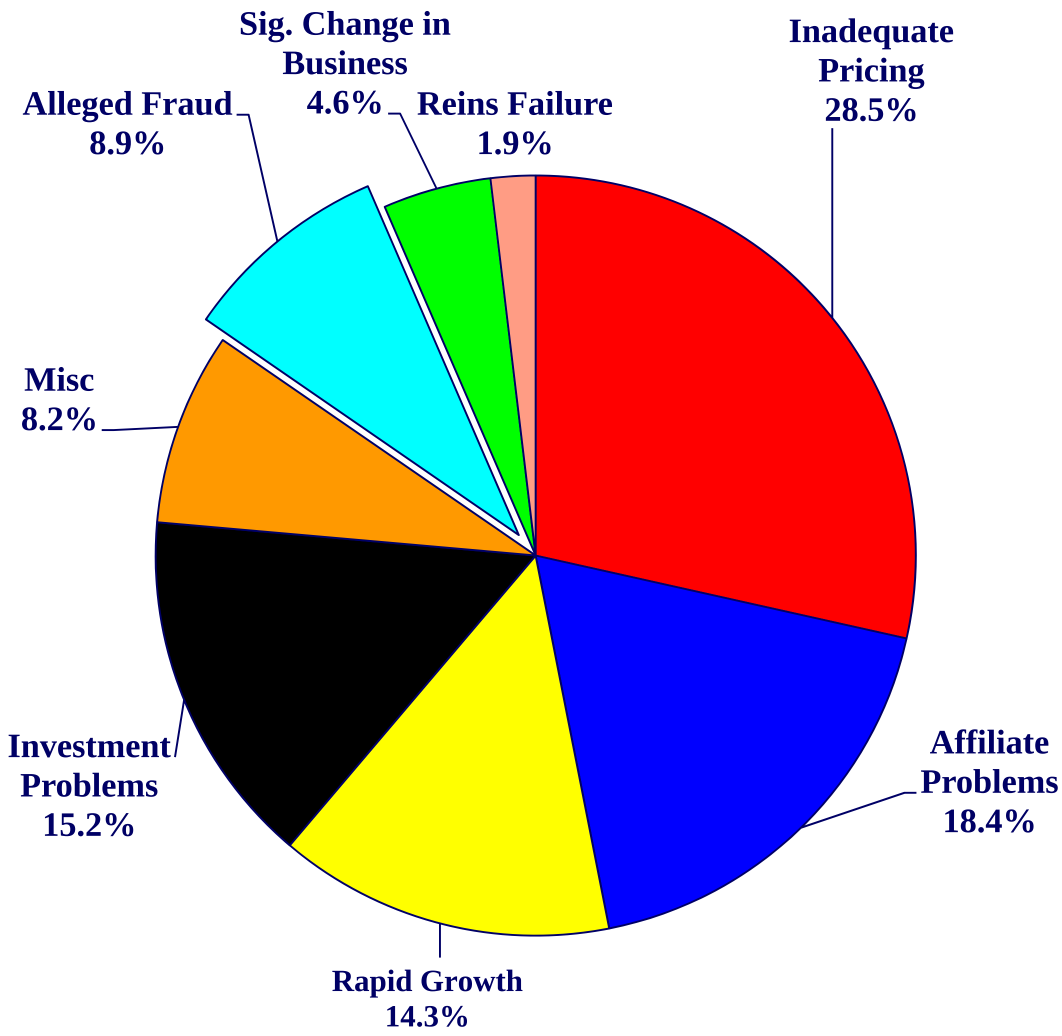


Deficient loss reserves, inadequate pricing, and rapid growth are the leading triggers. Investment catastrophe, and reinsurance losses play a much smaller role.

Source: A.M. Best: *1969-2010 Impairment Review,* Special Report, May 2, 2011.

L-H Impairments: Triggering Events

Life insurers more susceptible to affiliate problems.

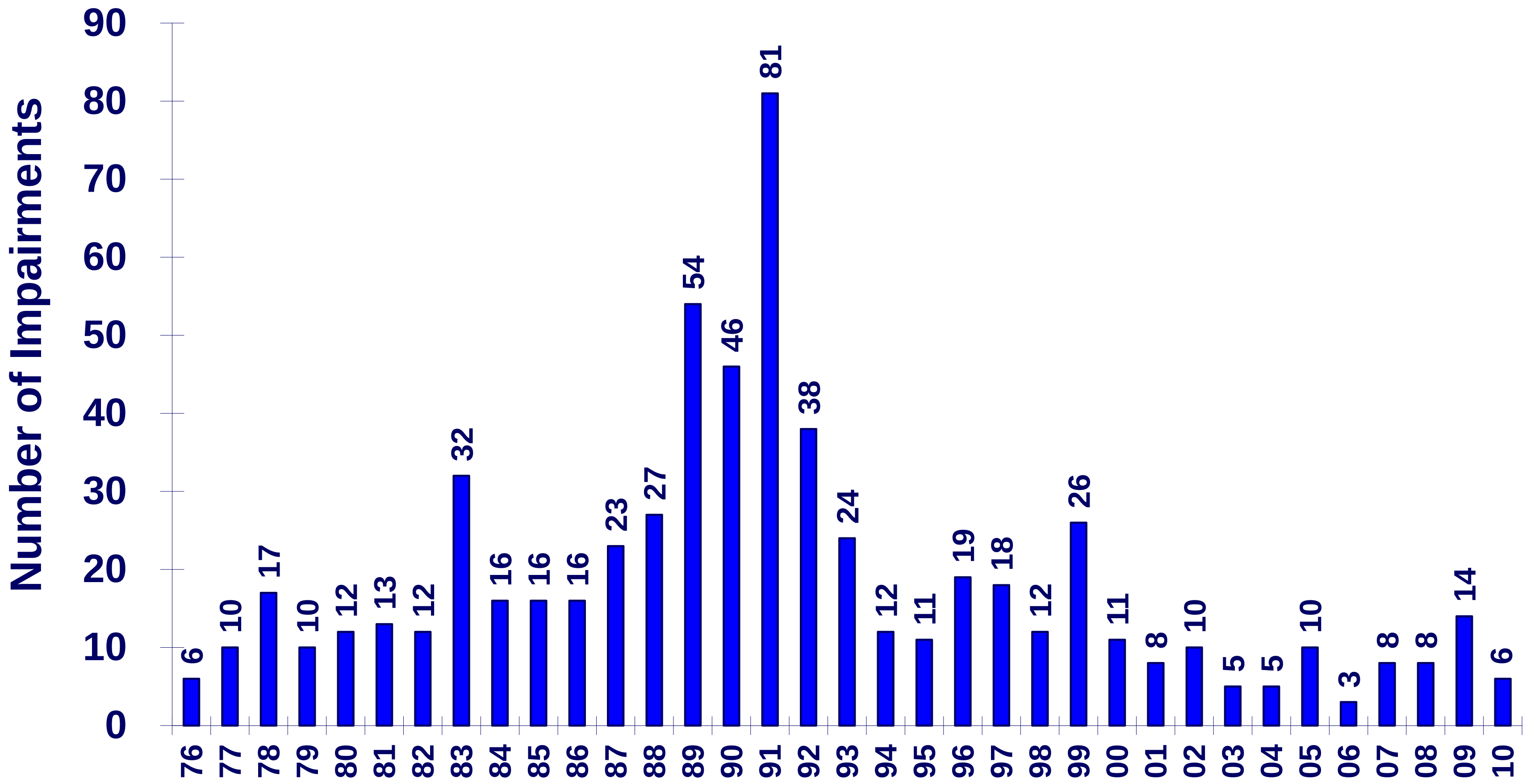


Inadequate pricing, affiliate problems, rapid growth, and investments are primary causes of L/H insolvencies.

Source: A.M. Best: *U.S. Life/Health – 1976-2010 Impairment Review*, Special Report, May 23, 2011.

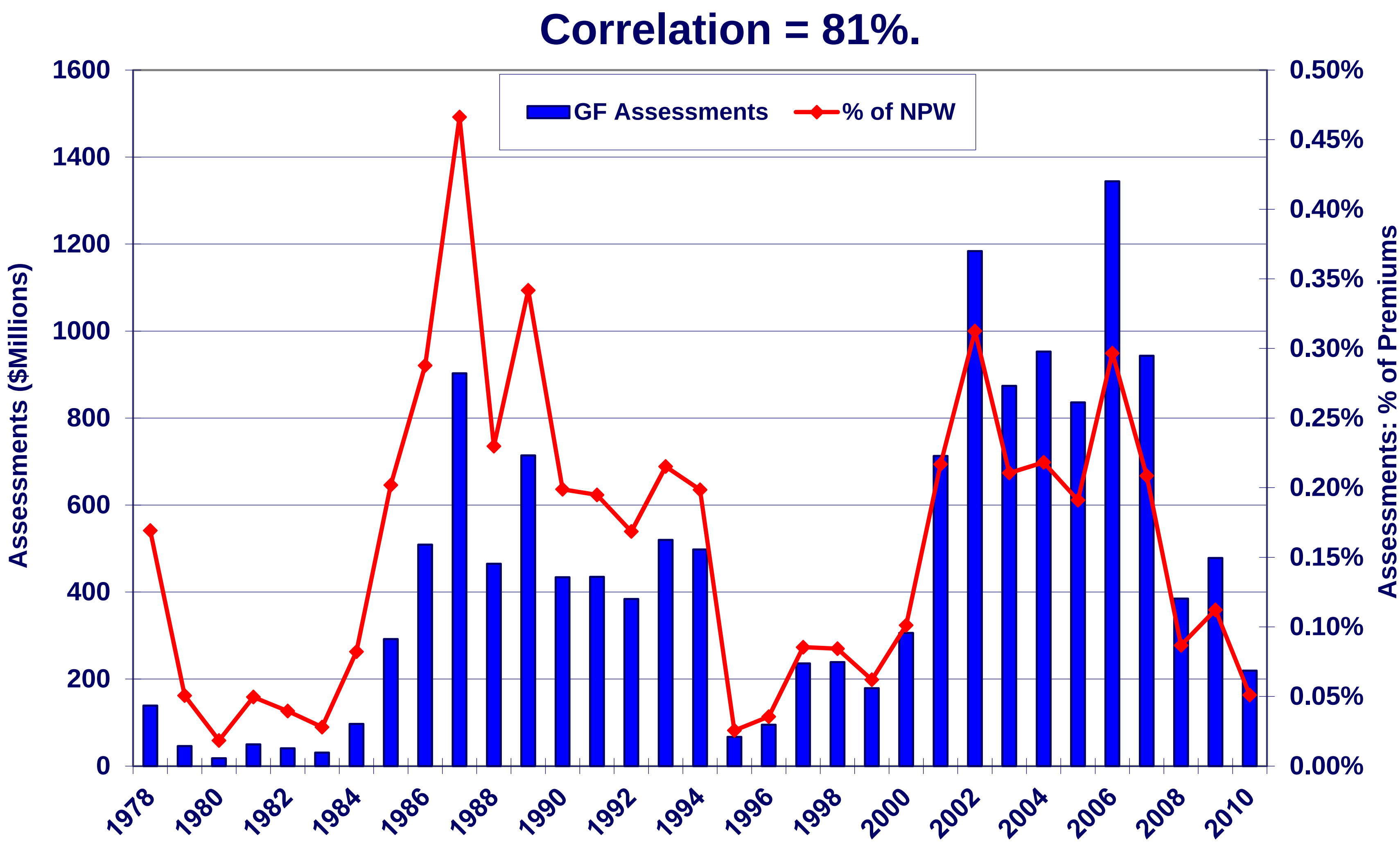
Life/Health Insurer Impairments:1976-2010

Life/health impairments less cyclical than P/C



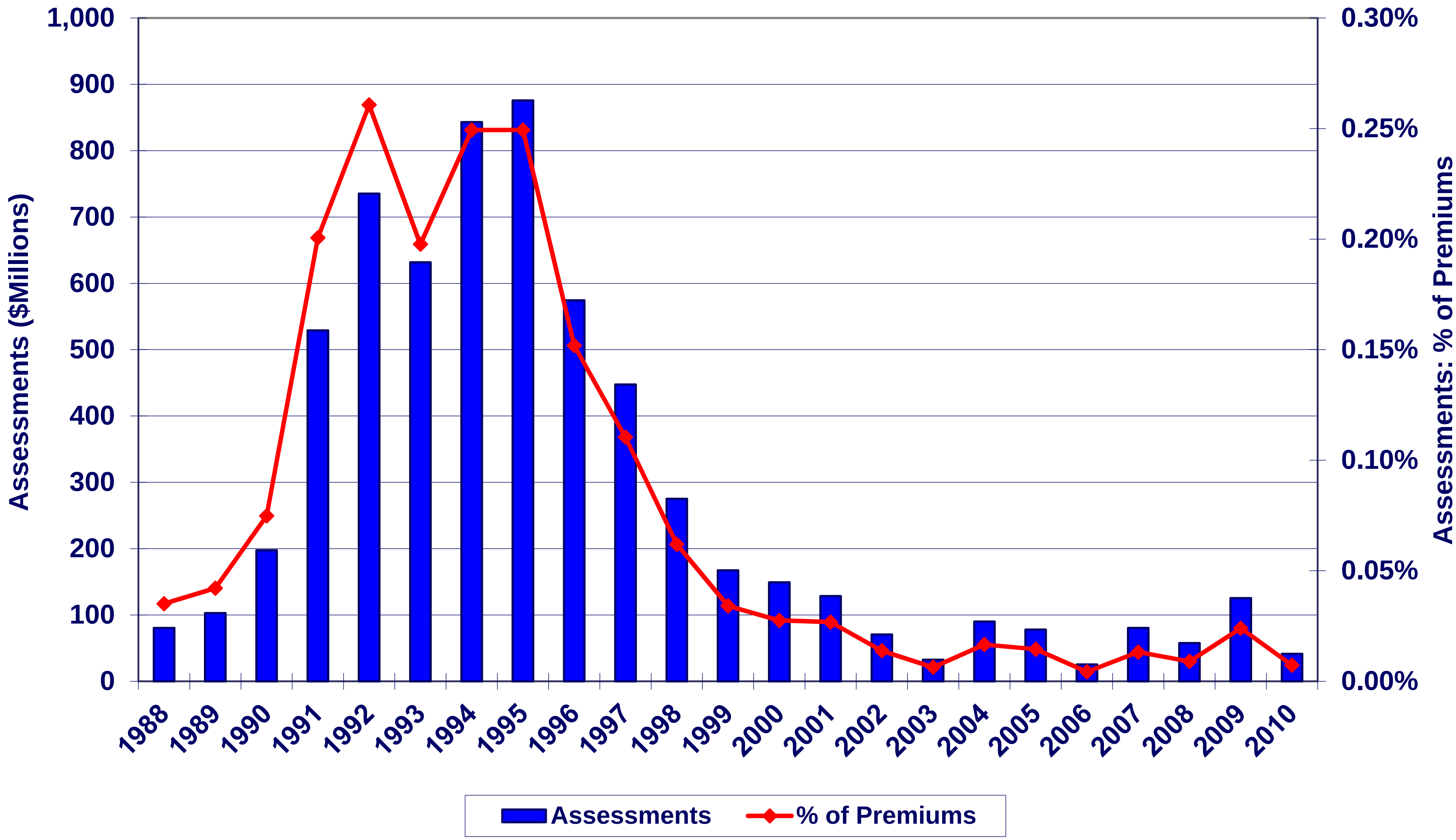
Source: A.M. Best, National Organization of Life and Health Insurance Guaranty Associations.

Property-Casualty Insurance Guaranty Fund Assessments: 1978-2010



Source: A.M. Best Company, National Conference of Insurance Guaranty Funds.

Life-Health Insurance Guaranty Fund Assessments: 1988-2010



Source: A.M. Best, National Organization of Life and Health Insurance Guaranty Associations.

Primary Factors for Systemic Risk: Core Activities

- **Interconnectedness**
  - Refers to degree of correlation and potential for contagion among financial institutions and sectors
  - Not a factor except perhaps for group annuities and separate accounts

Primary Factors for Systemic Risk: Core Activities

- **Interconnectedness (continuedd)**
  - Interconnectedness WITHIN insurance industry: Reinsurance
  - Primary (or originating insurer) ultimately responsible for (reinsured) losses meaning counterparty credit risk
  - In some cases, primary insurer reduces reported liabilities to extent reinsured
    - Life: 65.7% of surplus (non-affiliate)
      97% of surplus (affiliate)
    - P-C: 25.3% of surplus (non-affiliate)
      14.9% of surplus (affiliate)
  - Conclusion: Reinsurance interconnectedness within industry high but not systemic

Primary Factors for Systemic Risk: Core Activities

- **Lack of Substitutability**
  - Need lack of substitutability and critical functioning to economy to be systemic factor
  - Banks meet the above criteria
  - Life insurance has many substitutes and easy entry of new capital historically
  - P-C insurance not so many substitutes but ease of entry historically

Systemic Risk and Non-Core Activities

- **Insurers expanded operations into banking activities since 1970s:**
  - Privately placed bonds
  - Deferred annuities
  - Propriety mutual fund families
  - Financial guarantees
  - Asset lending
  - Securitization
  - Investment in MBS and ABS

Systemic Risk and U.S. Insurers

- **Conclusion:**
  - Systemic risk from insurance not attributable to core activities
    - Exception possible with certain life products
  - Interconnectedness between insurers and other financial firms more likely attributable to noncore or banking like activities, especially large, publicly traded firms.

Statistical Analysis and SRISK

- **Measure of systemic: SRISK**
  - Expected capital shortfall of the firm in a financial crisis in millions of dollars
  - Crisis defined as a situation where the broad market index declines by 40% over the next 6 months
  - SRISK cannot distinguish between instigating a crisis or being susceptible to crisis

Correlations: SRISK & Selected Variables I

Variable	Correlation	pvalue
Company Characteristics		
Ln(Assets)	0.5988	0.0000***
Capital/Assets	-0.0331	0.5676
Beta	0.4015	0.0000***
MBS/ Capital	-0.1229	0.1263
Total Premiums Ceded/ Capital	0.0205	0.7638
Total Reinsurance Liabilities/ Capital	0.1839	0.0043***
Separate Accounts Assets/ Total Assets	0.2081	0.0007***
Total Customer Deposits (Bank)/ Capital	0.4769	0.0000***
Commercial Paper/ Capital	0.3477	0.0000***
Life Insurer Dummy (=1 if Life Insurer)	-0.0327	0.5659
Life and P-C Insurer Business Dummy (=1 if both lines)	0.1191	0.0360**

Correlations: SRISK & Selected Variables II

Variable	Correlation	pvalue
Lines of Business		
Workers Compensation Premiums/ Capital	-0.1407	0.0522*
Homeowners Multiple Peril Premiums/ Capital	-0.2144	0.0029***
Total Other Liability Premiums/ Capital	-0.2477	0.0005***
Private Passenger Automobile Liability Premiums/ Capital	-0.1929	0.0075***
Individual Life Insurance Premiums/ Capital	0.0125	0.8378
Ordinary Individual Annuity Premiums/ Capital	-0.0019	0.9751
Group Life Premiums/Capital	-0.0234	0.7018
Group Annuity Premiums/Capital	0.1259	0.0384**
Workers Compensation Prem/Total Premiums	-0.2867	0.0022***
Homeowners Multiple Peril Prem/Total Prem	-0.2878	0.0023***
Total Other Liability Prem/ Total Premiums	-0.2848	0.0021***

Correlations: SRISK & Selected Variables III

Lines of Business (continued)	Correlation	pvalue
Private Passenger Auto Liability Prem/Total Prem	-0.3068	0.0010***
Individual Life Insurance Premiums/ Total Premiums	0.0400	0.6758
Ordinary Individual Annuity Premiums/ Total Prem	0.5178	0.0000***
Group Life Premiums/ Total Premiums	0.4189	0.0000***
Group Annuity Premiums/ Total Premiums	0.6675	0.0000***

Off Balance Sheet Activities		
Long Term Debt Due in One Year/Total Liabilities	0.3654	0.0000***
Total Fair Value of Derivatives/Capital	0.5123	0.0000***
Total Notional Value of Non-Hedge Derivatives/Capital	0.5427	0.0000***
Total Notional Amount of All Derivatives/ Capital	0.5226	0.0000***

Statistical Analysis and SRISK

Bivariate Correlation Summary:

- Insurer characteristics positively related to SRISK
  - Size
  - Market equity beta
  - Total reinsurance liabilities as % of capital
  - Commercial paper as % of liabilities
  - Separate accounts activity
  - Some life insurance product lines (e.g., group annuity)
  - Measures of off-balance-sheet activities
  - MBS as % of capital
- P-C lines of business negatively related to SRISK
- Reinsurance ceded as % of capital and leverage not significant

Regression 1: SRISK on Co Characteristics

Variable	Coefficient	t-statistic
Ln(Asset)	0.3584	2.61**
Capital/ Asset	-1.0322	-0.68
Beta	0.6538	1.28
MBS/ Capital	0.5990	1.79*
Separate Account Assets/ Assets	2.2916	2.29**
Life Insurance Dummy (=1 if Life Insurer)	1.6844	2.40**
Life and P-C Insurer Dummy (=1 if both lines)	0.4182	1.01
Total Other Liability/ Capital	-2.0791	-0.84
Group Annuity Premiums/ Capital	2.4306	1.54
Total Reinsurance Liabilities/ Capital	1.8765	4.46***
Total Premiums Ceded/ Capital	-0.1349	-0.22
Constant	-6.0470	-2.57**
Adjusted R-squared	0.6042	

Regression 2: SRISK on Co Characteristics

Variable	Coefficient	t-statistic
Ln(Asset)	0.3649	3.31***
Capital/ Asset	0.2751	0.22
Beta	0.6643	1.30
MBS/ Capital	0.5493	2.74**
Separate Account Assets/ Assets	2.7700	3.12***
Life Insurance Dummy (=1 if Life Insurer)	0.8668	0.98
Life and P-C Insurer Dummy (=1 if both lines)	0.4008	1.01
Total Other Liab. Premiums/Total Premiums	-0.3186	-0.25
Group Annuity Premiums/Total Premiums	5.4150	2.70***
Total Reinsurance Liabilities/ Capital	1.1456	2.07**
Total Premiums Ceded/ Capital	0.6390	1.14
Constant	-5.9180	-2.77***
Adjusted R-squared	0.6345	

Statistical Analysis and SRISK

- **Regression Analysis Summary:**
    - Smaller set of observations and variables
  - Positively and significantly related to SRISK:
    - MBS activity
    - Size
    - Total reinsurance liabilities (assumed business)
    - Group annuity variable
  - Not significantly related to SRISK:
    - P-C liability line of business
    - Leverage
    - Reinsurance premiums ceded

Systemic Risk and U.S. Regulation

- Historically, regulatory focus on legal entity
- Two Model Laws (ML) relate to insurance holding companies:
  - ML 440 – Insurance Holding Company System Regulatory Act
  - ML 450 – Insurance Holding Company System Model Regulation with Reporting Forms and Instructions

Systemic Risk and U.S. Regulation

- Revisions to ML 440 and 450 adopted in 9 states
- Focus of proposed revisions:
  - Enterprise risk management
  - Corporate governance
  - Increasing regulatory authority to obtain information and regulate activities of insurance holding companies

Systemic Risk and U.S. Regulation

- Risk Management and Own Risk and Solvency Assessment (ORSA) Model Act
- Purpose:
  - Provide requirements for maintaining a risk management framework
  - To provide instructions for filing an ORSA Summary Report with insurance commissioner
- ORSA requirement applies to insurer or insurance group
- Goal:
  - To foster an effective level of ERM for all insurers
  - To provide a group level view of risk management and capital

Systemic Risk and U.S. Regulation

- Financial Stability Oversight Council (FSOC)
  - 3 stage process for designating a nonbank holding company as a SIFI
  - Institutions designated SIFI come under regulatory purview of Federal Reserve which can impose:
    - "enhanced supervision and prudential standards, whether they are banks or nonbanks, and the ability to subject key market infrastructure firms to heightened risk management standards."
- "In 2011, 26 U.S. life insurance groups and 5 P-C groups exceeded stage I threshold of $50 billion in assets

Issues for Future Regulation

- Key to effective insurance regulation is to design a regulatory system that effectively encompasses both the core and non-core enterprises of the insurance sector and coordinate regulation across countries.
  - More disclosure on derivatives, asset lending, and other non-core activities of insurers
  - Large insurers need consolidated state or federal supervisor
  - Focused (not blanket) approach
  - Consistent with IAIS standards
  - Global accounting system needed

Conclusion

- Core activities of insurers, especially P-C insurers, not systemically risky
- Evidence that some core activities of life insurers associated with systemic risk
- Susceptibility not same as propagation
- Life and P-C insurers potentially vulnerable to reinsurance crises
- Non-core activities of insurers such as providing financial guarantees can be systemic
- Most non-core activities beyond traditional purview of insurance and banking regulators

Further Information

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