

Systemic Risk and the U.S. Insurance Sector

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Introduction

Focus on core activities of U.S. insurers

Consider interrelationships between U.S. licensed insurers and reinsurance worldwide

Monolines not considered

Questions to Answer



What is systemic risk?

Why do we care about systemic risk?

What factors are associated with systemic risk?

Are insurers systemically risky?

Does reinsurance contribute to systemic risk in insurance?

Are any insurers “too big to fail” (TBTF)?

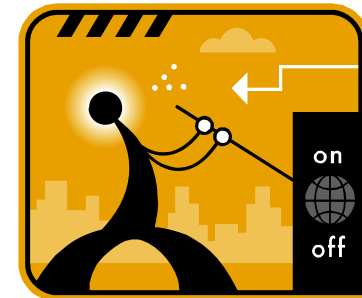
Role of Insurance in Systemic Risk

Susceptible to systemic risk



VS.

Instigator of systemic risk



Has regulation implications

What is systemic risk?

The risk that an event will trigger a loss of economic value or confidence in a substantial segment of the financial system serious enough to have significant adverse effects on the real economy. Group of 10 (2001)

Systemic financial risk involves

a system-wide financial crisis...accompanied by a sharp decline in asset values and economic activity

The spread of instability throughout the financial system

(contagion)

Sufficient to affect the real economy World Economic Forum (2008)

Systemic risk is exposure to extreme correlations

What is Systemic Risk II

Two key ideas in definition:

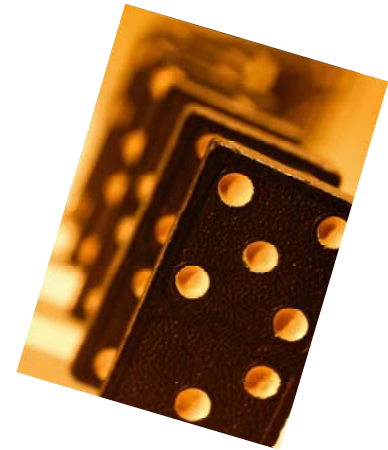
1. Contagious loss of value or loss of confidence that spreads through financial system
2. Event sufficiently serious to have significant adverse impact on economic activity

Examples: Japanese asset collapse of 1990s, Asian financial crisis of 1997, Russian default of 1998 and fall of Long-term Capital Management.

Where does systemic risk come from? I

Systemic risk may arise from interconnectedness among financial institutions that cascades throughout the financial system like a domino effect

“Too big to fail” (TBTF)
too interconnected to fail



Where does systemic risk come from? II

Systemic risk may arise from a significant common shock to which many firms have a large exposure



In this crisis, bursting of housing price bubble

Why do we care about systemic risk?



- Financial crisis

- prices of risky assets drop sharply

- prices of safe assets increase (flight to quality)

- asset price volatility increases

- liquidity dries up (raising bid-ask spread & price impact)

- Financial institutions become financially distressed

- Credit markets dry up, economic activity depressed

- Financial systemic risk: Financial crisis in which **many** institutions become financially distressed, with a potential impact on **real** economic activity

Financial distress does not mean systemic risk!

What are the factors associated with systemic risk? I

Distinguish between **primary** indicators of systemic risk and factors **contributing** to the development of systemic risk (contributing factors)

Primary factors (Financial Stability Board)

- Size
- Lack of substitutability
- Interconnectedness



Interactions among the factors

What are the factors associated with systemic risk? II

- Contributing Factors
 - Leverage
 - Liquidity Risks and Maturity Mismatches
 - Complexity
 - Regulation



Primary Factor -- Size

- Size and TBTF (Continental Illinois)
- Size may be associated with large spillover effects (e.g., interbank activities)
- Size can be measured
 - Assets
 - Equity
 - Proportion of GDP

But ...size does not always capture impact!
(AIG Financial Products Division!)

Size and Insurance I

Macroeconomic role of insurance industry:

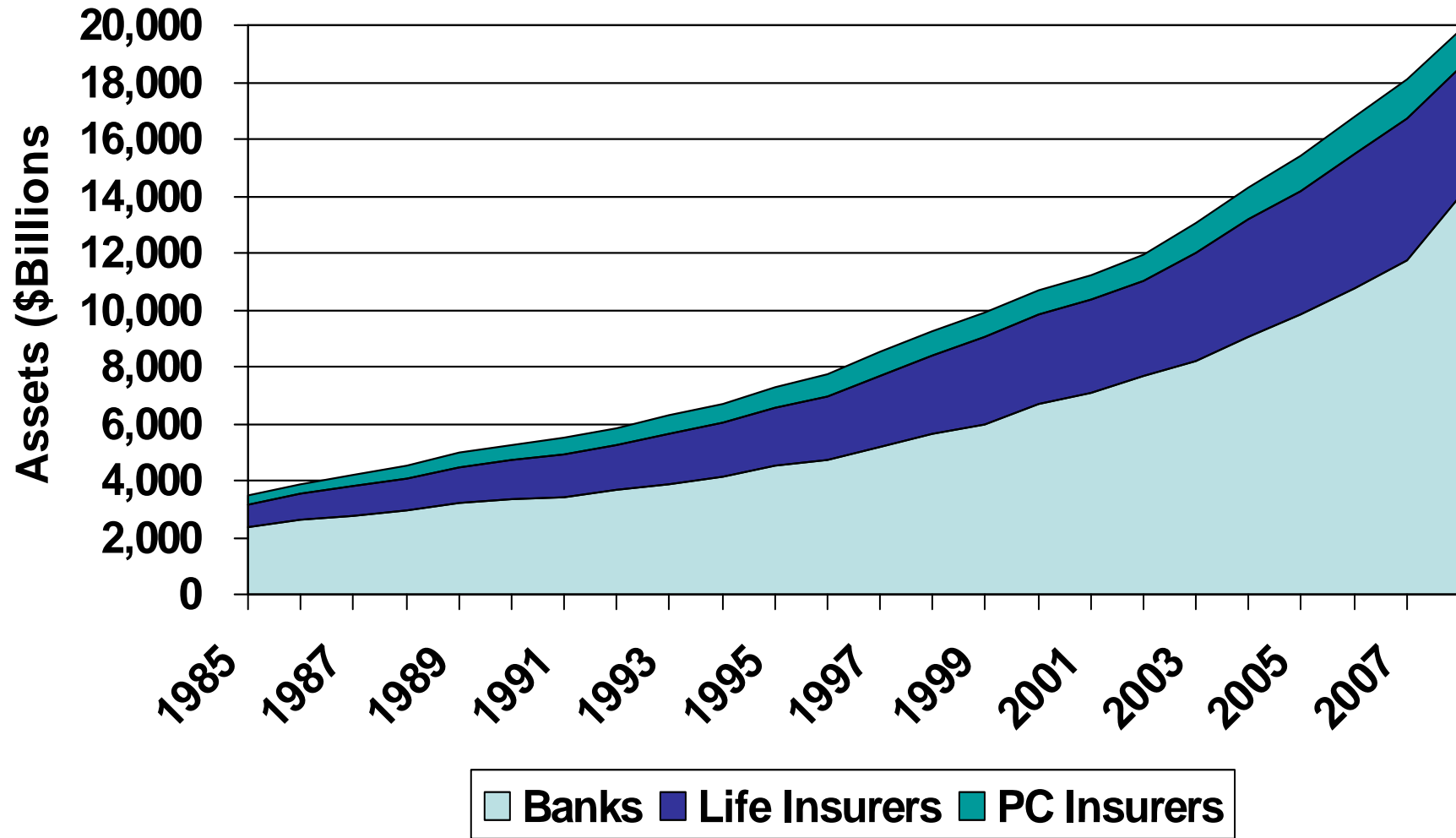
World premiums in 2009 -- \$4.1 trillion
or 7% of world GDP

Contribution to GDP is value-added
2 to 3% of world GDP
slight upward trend



Assets: Banks \$14 trillion, insurers \$5.8 trillion.

Total Assets: US Banks and Insurers



Source: Federal Reserve Flow of Funds accounts.

Size and Insurance II

Size of industry as source of credit --
important but not leading source

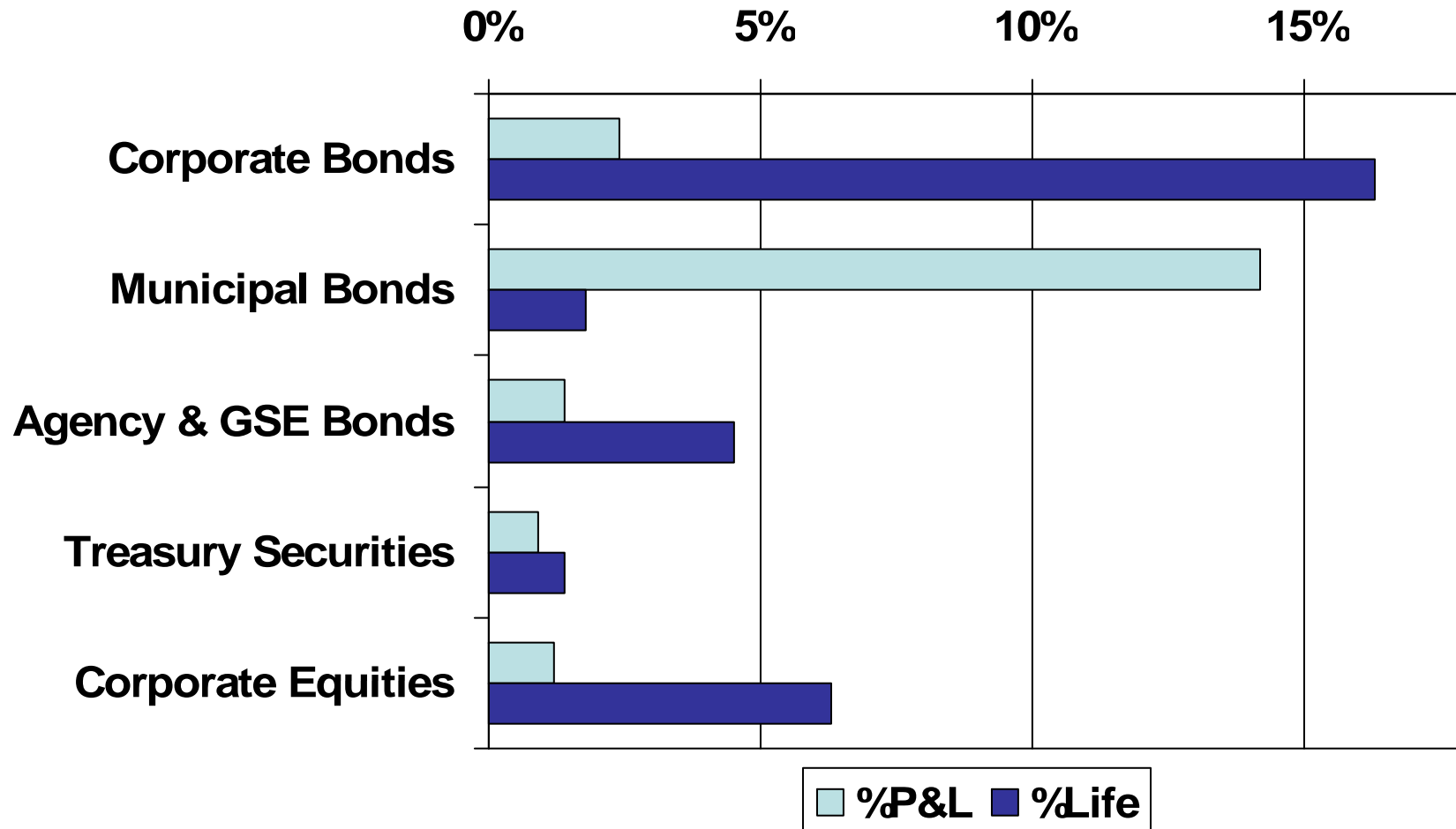
Assets as % of total outstanding debt:

Life-health: 5.9%

Property-casualty: 1.7%



Insurance Companies: Share of Total Assets



Source: Federal Reserve Flow of Funds Accounts.

Insurance and Size III

- Even if important in securities market, does not necessarily mean systemic
- In an insurer insolvency
 - Cash needed when losses paid
 - Losses paid years in the future
 - Insurers have large amount of assets because premiums prefunded
- **Conclusion:** Fire sales of insurers' assets not usually required

Primary Factor – Lack of Substitutability I

Lack of substitutability defined in terms of:

1. extent to which other institutions or financial system can provide same services as failed institution
2. product must be of critical importance for functioning of other institutions or financial system

Primary Factor – Lack of Substitutability II

Quantitative indicators of substitutability:

Concentration (e.g., market share)

Ease of entry or barriers to entry

if barriers exist, new entrants prevented from providing vital product or financial service

Lack of Substitutability and Insurance I

Concentration and Insurance Groups

top 4 (10) nonlife groups – 29 (50)%

top 4 (10) life groups – 24 (45)%



Nationally significant groups reviewed every quarter plus FAWG



Lack of Substitutability and Insurance II

Concentration and Insurance (Cont'd)

But ...

Legal entity basis

Ring-fencing

Company concentration

top 4 insurers – 16-18%

top 10 insurers – 28-31%



Lack of Substitutability and Insurance III

Do insurance products have substitutes?

Life Insurance

mostly asset accumulation products rather than mortality/longevity risk bearing

many non-insurance substitutes for asset accumulation and investing products

many insurers available to fill coverage gaps by insolvency of one or few firms

Lack of Substitutability and Insurance IV

Do insurance products have substitutes? (Cont'd)

Property-casualty

provide mainly risk management and risk bearing

no substitute for some individual products (e.g., auto)

maybe no substitute for small commercial customers

But, many insurers available to fill gap of one or few insurers

large corporate buyers have substitutes

Lack of Substitutability and Insurance V

Insurability and Uninsurability

Periodic shortages of some types of insurance

Not systemic



Primary Factor -- Interconnectedness

Extent to which financial distress at one or a few institutions increases the probability of financial distress at other institutions due to

- network of financial claims
- other interrelationships among institutions

Example – Bank run



Common shock usually needed

Interconnectedness and Insurance I

Do U.S. insurers invest heavily in financial institutions?

Banks:

5.6% -- Corporate and foreign bonds

1% -- corporate equities



Securities firms:

1.6% -- Corporate and foreign bonds

1% -- Corporate equities

Conclusion: Problem in financial sector such as banking should not affect insurers' assets significantly

Interconnectedness and Insurance II

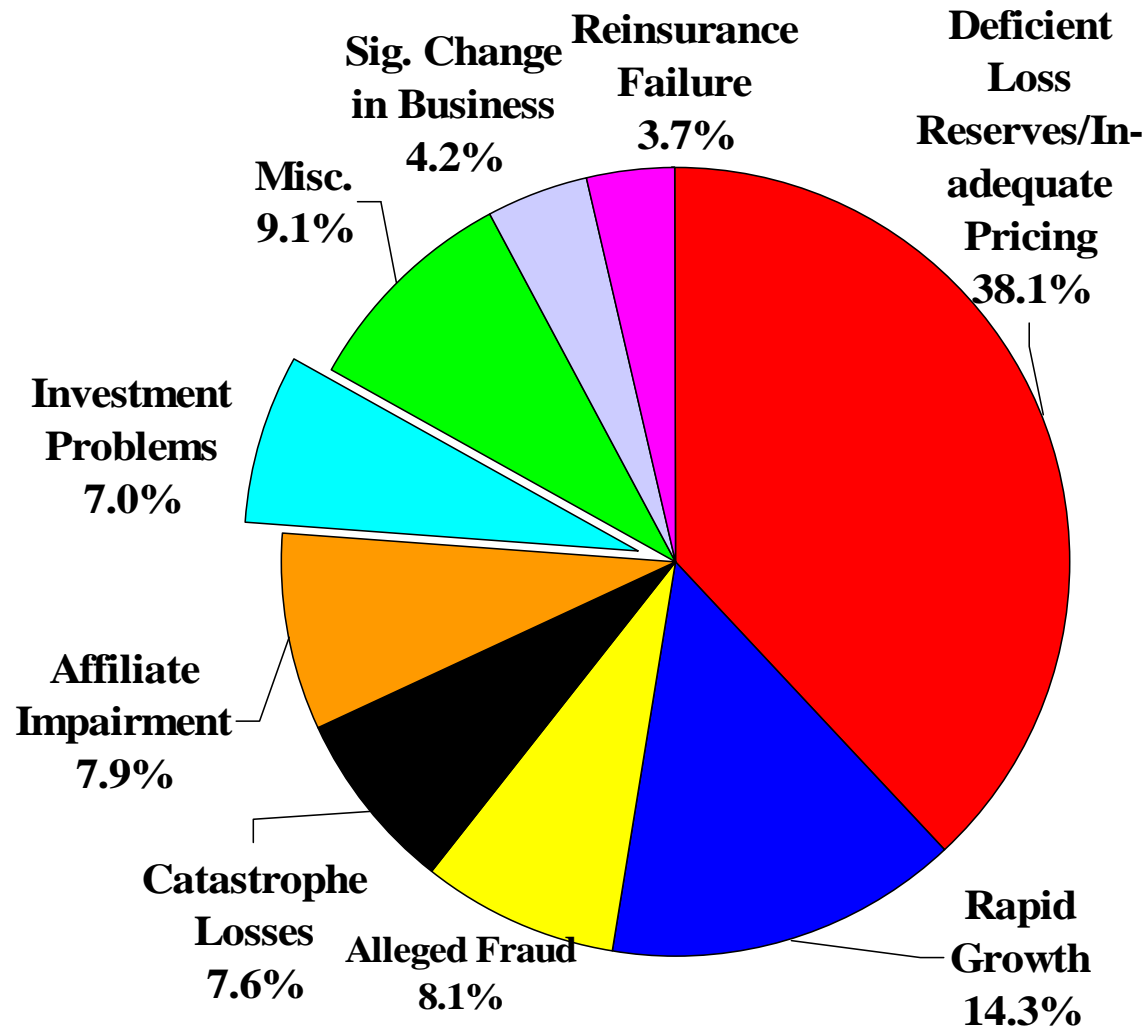
Do firms in financial sector rely heavily on insurance funding?

Life insurers hold 9.4% of outstanding borrowed money for banks and 14.1% of outstanding bonds of securities firms

But these account for only 10% of funding for banks and securities firms

So, no spillover effect to other financial institutions

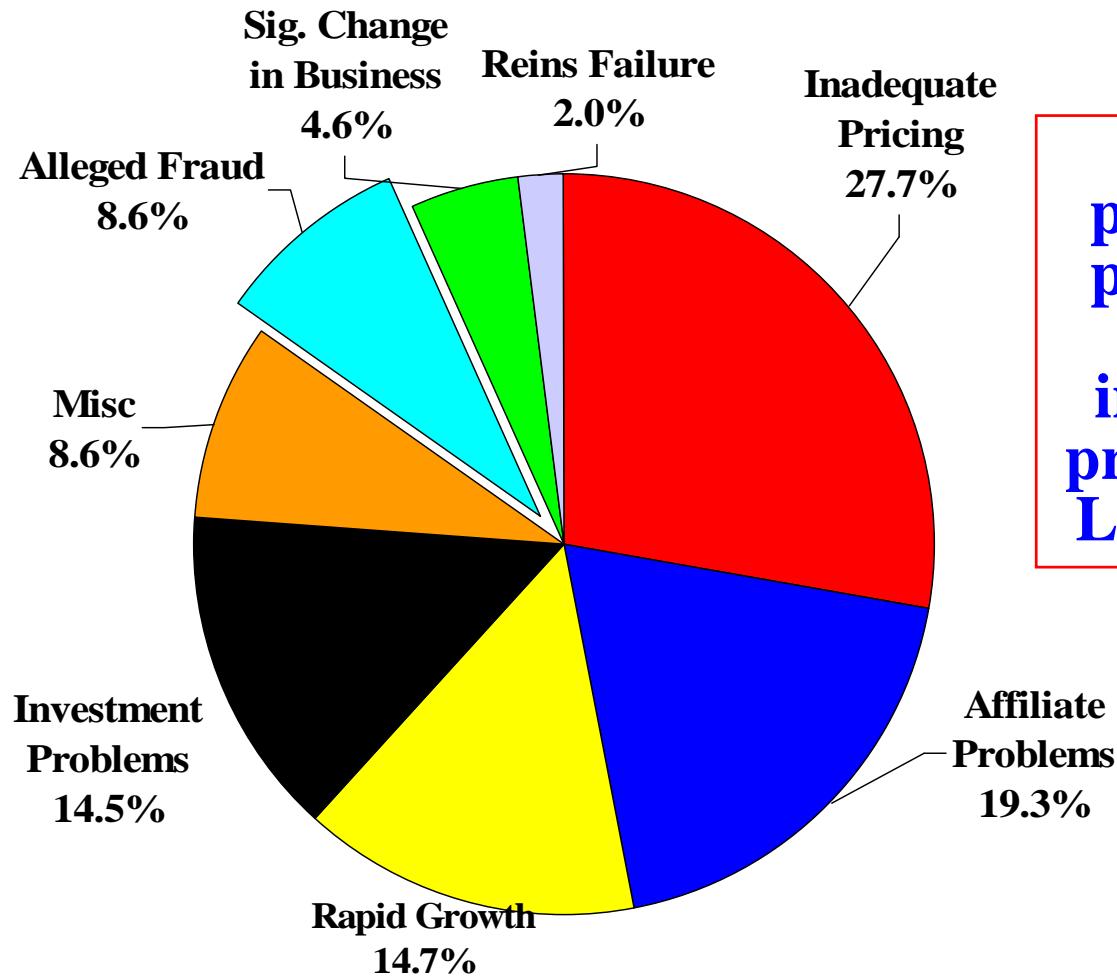
P/C Impairment: Triggering Events



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

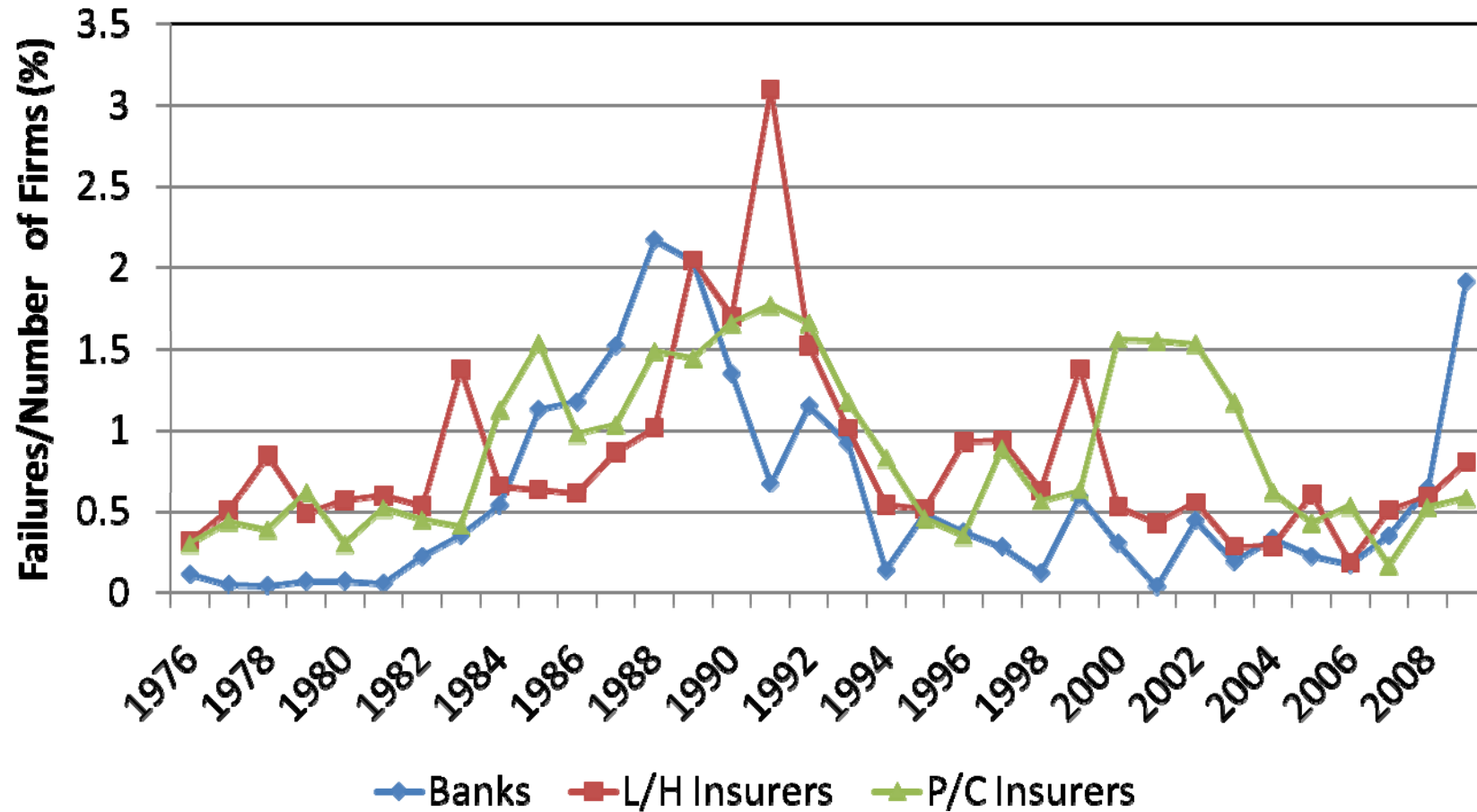
Life insurers more susceptible to affiliate problems.

L-H Impairments: Triggering Events



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

Bank and Insurer Failure Rates



Interconnectedness and Reinsurance I

Reinsurance is *intra-industry* activity

2006 report of Group of 30– reinsurance not systemic

But....

more mergers & acquisitions

retrocessions and interconnectedness

Interconnectedness and Reinsurance II

Affiliate and non-affiliate reinsurance –
affiliate problems associated with
insolvencies
consider both

Reinsurance cessions considered
counterparty risk
ceding reinsurer holds premiums (usually)

Interconnectedness and Reinsurance III

Measures of reins. interconnectedness:

Reinsurance premiums ceded

Insurance in force ceded (life)

Reinsurance recoverables

Write-down of liabilities:

reserve credit taken (life)

net amount recoverable from reins (p-c)



Interconnectedness and Reinsurance IV

Reinsurance premiums ceded

p-c ceded DPW of 86.6% surplus (most affiliate)

life ceded DPW of 40% surplus

Insurance in force ceded (life)

averages 49% of surplus

Reinsurance recoverables

25% p-c this is more than 40% surplus

25% life this is more than 100% surplus

Write-down of liabilities:

reserve credit taken (life)

130% of surplus (57% non-affiliate)

net amount recoverable from reins.

160% of surplus (33% non-affiliate)

Interconnectedness and Reinsurance V

Reins. and Interconnectedness Conclusion:

Property-casualty insurers more exposed to counterparty risk

Unlikely that reinsurance problems would spill over to banking and securities industries – not sufficiently interconnected in core activities.

Interconnectedness and Non-insurance activities

Insurers' non-core activities can give rise to systemic risk
(e.g., Geneva Report (2010))

Hard to get information about this

Consider credit default swaps (CDS)

Insurers held \$492B in 2007

and \$330B in 2009



Examples of insurers involved: Allianz, AXA, Generali,
Swiss Re, Munich Re, Hannover Re

Conclusion: Insurance and Primary Factors

Insurers not sufficiently large or interconnected with other firms to pose systemic risk in core activities

Lack of substitutability for some individual insurance and commercial insurance for small buyers, but many insurers available to fill coverage gap from insolvencies.

Ample substitutes for life investment products and commercial insurance for large corporations

Contributing Factors

Recall:

1. Leverage
2. Liquidity risk and maturity mismatches
3. Complexity
4. Government policy and regulation



Analysis of contributing factors mainly relates to their creation of vulnerability to **intra-sector** crises for insurers (i.e., core activities not systemic)

Contributing Factor: Leverage

Leverage: Debt vs Equity

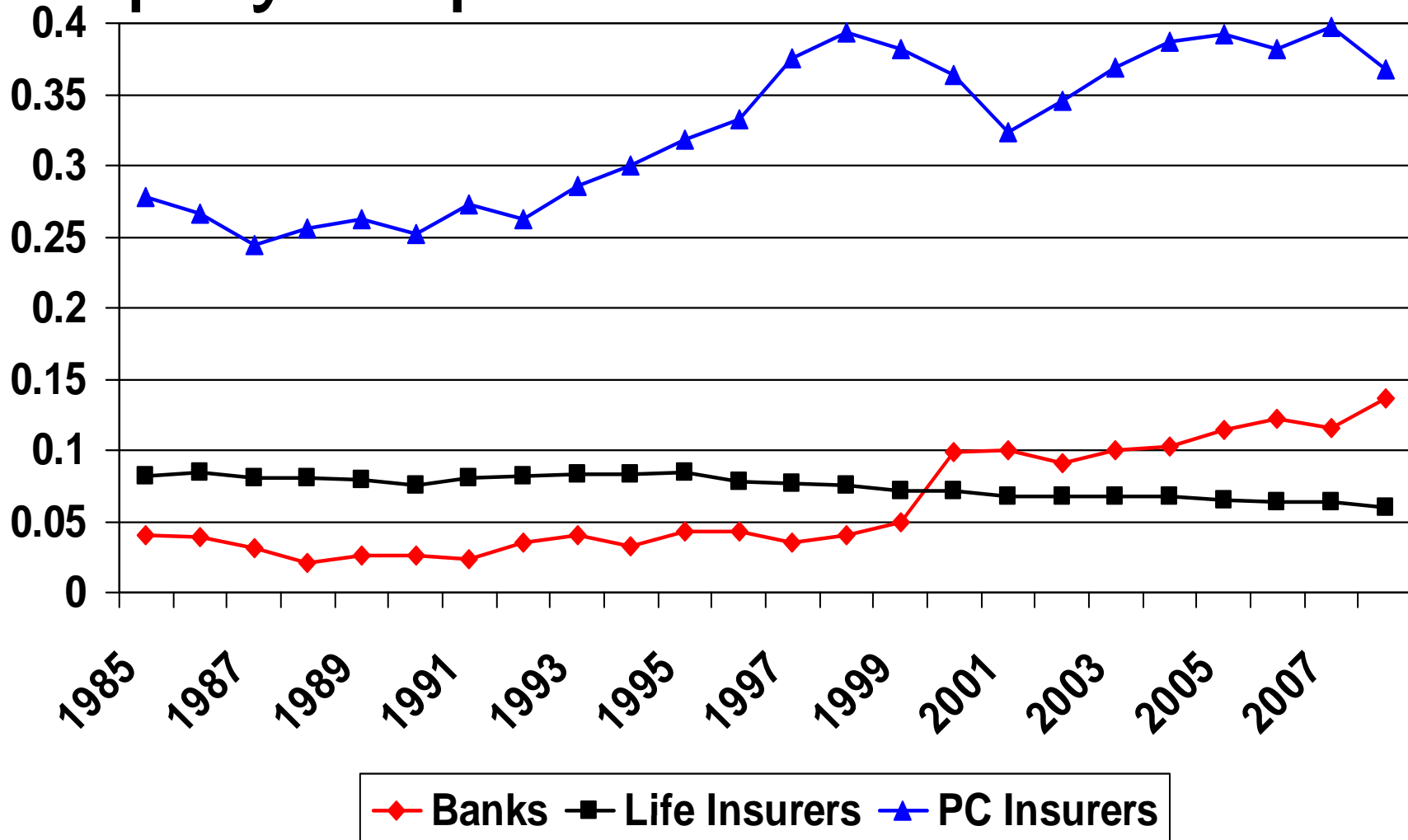
But – options, buying on margin, some financial instruments



Higher leverage means less equity to absorb shocks, less ability to withstand market volatility



Equity Capital-to-Assets Ratios



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

Leverage and Insurance

Leverage and Insurance Conclusion:

Property-casualty insurers hold more capital than life insurers or banks.

Life insurers probably excessively leveraged especially considering their exposure to mortgage-backed securities and privately placed bonds.



Contributing Factor – Liquidity Risk and Asset-Liability Maturity Mismatches

Liquidity risk associated with holding illiquid assets

Makes institution vulnerable if firm has trouble obtaining needed funding (risk is that illiquid assets must be liquidated an inopportune time)



Liquidity risks worse by asset-liability mismatch.



Liquidity Risk and Asset-Liability Maturity Mismatches and Insurance I

Asset and liability maturities tend to be long-term for insurers (compare banks)



Property-casualty liabilities not “puttable”
must experience loss and file claim

Most life insurance long-term and not puttable

Exceptions: cash value life insurance and some types of variable annuities

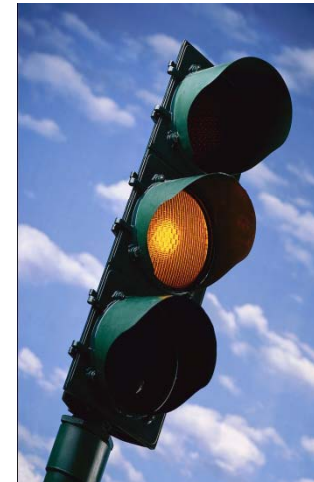
Liquidity Risk and Asset-Liability Maturity Mismatches and Insurance II

Danger signals for life insurance industry

- mortgage-backed securities represent 167.2% surplus (34.5% surplus for property-casualty)
- private placements represent 171.5% of surplus (7.2% surplus for property-casualty)

But, significant cash from operations

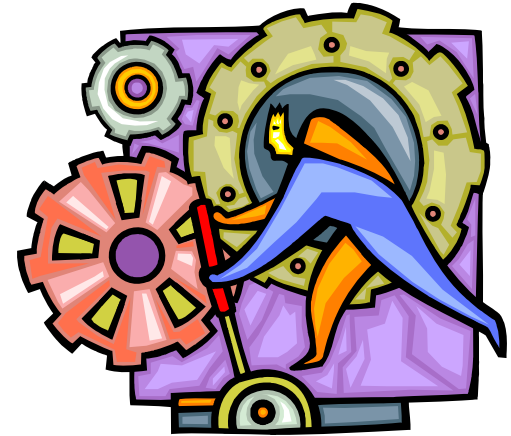
- 46.1% of surplus
- 26.3% benefit payments



Contributing Factor: Complexity

Dimensions of complexity:

1. Complexity of organization
(group structure and subs)
2. Geographical complexity
(multinationals)
3. Product complexity (especially new and complex financial products)



Complexity and Insurance

AIG poster child for complexity

complicated group structure

geographically dispersed

complex, new financial products

Life insurance more complex than property-casualty insurance

Large, multinational firms operating today in industry

Contributing Factor: Government Policy and Regulation

FDIC insurance and market discipline

Underpricing of FDIC
insurance and moral hazard



AIG Financial Products and regulation

Regulation can exacerbate a crisis

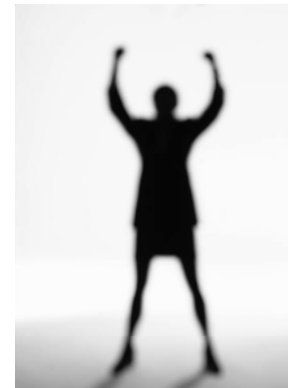
Government Policy and Regulation and Insurance

Some moral hazard in operation of guaranty funds

risk premiums not risk-based



But, guaranty fund limits lead to more market discipline in insurance than banking



Conclusion: Contributing Factors I

Life Insurance

higher leverage

higher liquidity risk

more complex

(products with embedded options)



Only contributing factor not a major problem for life insurers is maturity risk.

Conclusion: Contributing Factors II

Property-casualty insurance

lower leverage

less liquidity risk

low to moderate product complexity

reinsurance exposure?

But – subject to
catastrophes



Non-core Activities

Types of non-core activities

derivatives trading

over-leveraging of non-core subs

bank-like operations

asset lending

asset management

Better group supervision needed

key is to design a regulatory system
that encompasses core and non-core
activities of conglomerates



Conclusion

Core activities of insurers do not create systemic risk

Non-core activities can be source of systemic risk

Most non-core activities beyond the purview of insurance regulation and banking

Regulation of groups needs to be vastly improved.



Thank You!