



Institute of Actuaries of Australia

# 5th Financial Services Forum

*Renovating the Financial System*

# 2010

13 and 14 May 2010 – SYDNEY

## **Systemic risk management: Implications for insurers**

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## Section 1

**What is systemic risk and how are policy makers responding to it?**



## We think of systemic risk as the risk of the financial system not being able to fulfil its critical functions

### Components of the financial system

- **Institutions**, in particular banks, insurers, securities firms, institutional investors, specialty finance companies, etc.
- Financial **infrastructure**, in particular legal, payment, settlement, and accountancy systems
- Financial **markets**, in particular stock, bond, money and derivative markets



### Critical functions of the financial system

- **Allocates resources** between different activities and across time
- Facilitates **maturity transformation** between lenders and borrowers with diverging preferences
- Provides **pricing and management of economic and financial risk**
- Enables **efficient transactions** through payment systems

**Systemic risk typically involves failure of one part of the system having negative externalities for other parts of it, and the real economy**



## Systemic risk can take on a broad range of forms

### Institutions

- Financial risks
  - Credit
  - Market
  - Liquidity
  - Interest rate
  - Currency
- Non-financial risks
  - Operational
  - Legal
  - Reputational
  - Business
- Concentration risk
- Capital adequacy risk

### Infrastructure

- Clearance/payment/settlement system risk
- Infrastructure short-comings
  - Legal
  - Regulatory
  - Accounting
  - Supervisory
- Technology
- Loss of confidence
- Domino effects

### Markets

- Counterparty risk
- Asset price misalignment
- Run on markets
  - Credit
  - Liquidity
- Contagion



Relevant institutions include banks, insurers, re-insurers, monolines, investment banks, private pools of capital (hedge funds and private equity), public pools of capital (asset managers and pension funds), financing companies (retail and corporate), non-financial institutions, sovereign funds

## Many of the key systemic risks are now on the regulatory agenda – but some have still received insufficient attention

	Being addressed	Not sufficiently addressed	Not broadly discussed
<b>Institutions</b>	<ul style="list-style-type: none"> <li>• Capital                             <ul style="list-style-type: none"> <li>– Arbitrage</li> <li>– Tier 1 composition</li> <li>– Pro-cyclarity</li> </ul> </li> <li>• Liquidity risk underestimated</li> <li>• Incentive structures not risk aligned</li> </ul>	<ul style="list-style-type: none"> <li>• Conglomerate interconnectedness</li> <li>• NBF1 maturity transformation</li> </ul>	<ul style="list-style-type: none"> <li>• Non-financial institutions' lending and trading activities</li> <li>• Country risk concentrations</li> <li>• Under-funded pension funds</li> </ul>
<b>Infrastructure</b>	<ul style="list-style-type: none"> <li>• Systematic overreliance on unregulated rating agencies                             <ul style="list-style-type: none"> <li>– Conflict of interests</li> <li>– Quality of methodologies</li> </ul> </li> <li>• Fair value accounting – pro-cyclical impact</li> </ul>	<ul style="list-style-type: none"> <li>• Ownership and soundness of critical infrastructure</li> <li>• Outsourcing and off-shoring</li> <li>• Legal framework for post-default processes</li> </ul>	
<b>Markets</b>	<ul style="list-style-type: none"> <li>• Oversight of CDS and other OTC markets                             <ul style="list-style-type: none"> <li>– Central clearing</li> <li>– Trade reporting</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Treatment of new classes of products</li> </ul>	<ul style="list-style-type: none"> <li>• Asset price bubbles</li> </ul>





## Beyond addressing specific risks, the policy community also needs to improve its ability to monitor and respond to risks across the system as a whole

### National level response

- Establishment of systemic risk policy functions:
  - Explicit remit to assess threats to systemic stability
  - Proximity to central bank capabilities
  - Effective engagement with prudential supervisors
- Increased integration of micro-prudential regulation
  - Across FS industries
  - Including 'unregulated' sector



**Partial progress by most countries to date**

### International early warning systems

- Micro-data framework agreements
- Data gathering processes
- Data analysis function
- Policy response function
- Monitoring of country level policy implementation
- Oversight of national regulator effectiveness



**Technical work underway by FSB/IMF, unclear political will to support at national level**



## A key issue for insurers in the application of the regulations is the definition of systemic importance

- Being defined as systemically important will have significant (generally negative) implications for a financial institution:
  - Differentiated treatment in a crisis
  - Potentially differentiated capital requirements
  - More significant business model restrictions
  - Greater scrutiny and oversight
- The Financial Stability Board and other public bodies are investing significant effort into developing working definitions for systemic relevance
- Much of this work is highly bank focused and risks overlooking the very different nature of the insurance/wealth business

**Insurance and wealth players will need to engage with regulators on the definition and implications of systemic relevance**



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## Section 2

# **Financial Stability Board approach to systemic risk and relevance for insurance and wealth**



## FSB and IAIS have set out a number of criteria for measuring the “systemic importance” of a financial institution or sector

### FSB/IAIS criteria for assessing systemic importance

#### 1 Size

- The volume of financial services provided by the individual component of the financial system

#### 2 Substitutability

- The extent to which other components of the system can provide the same services in the extent of failure

#### 3 Interconnectedness

- Linkages with other components of the system

#### 4 Other contributing factors

- **Leverage** – impact of small price movements on the capital base
- **Liquidity and large mismatches** – ability to roll-over funding without need to liquidate large holdings
- **Complexity** – a complex institution is more prone to information asymmetries and have poorly monitored exposures

#### 5 Timing (additional factor suggested by IAIS)

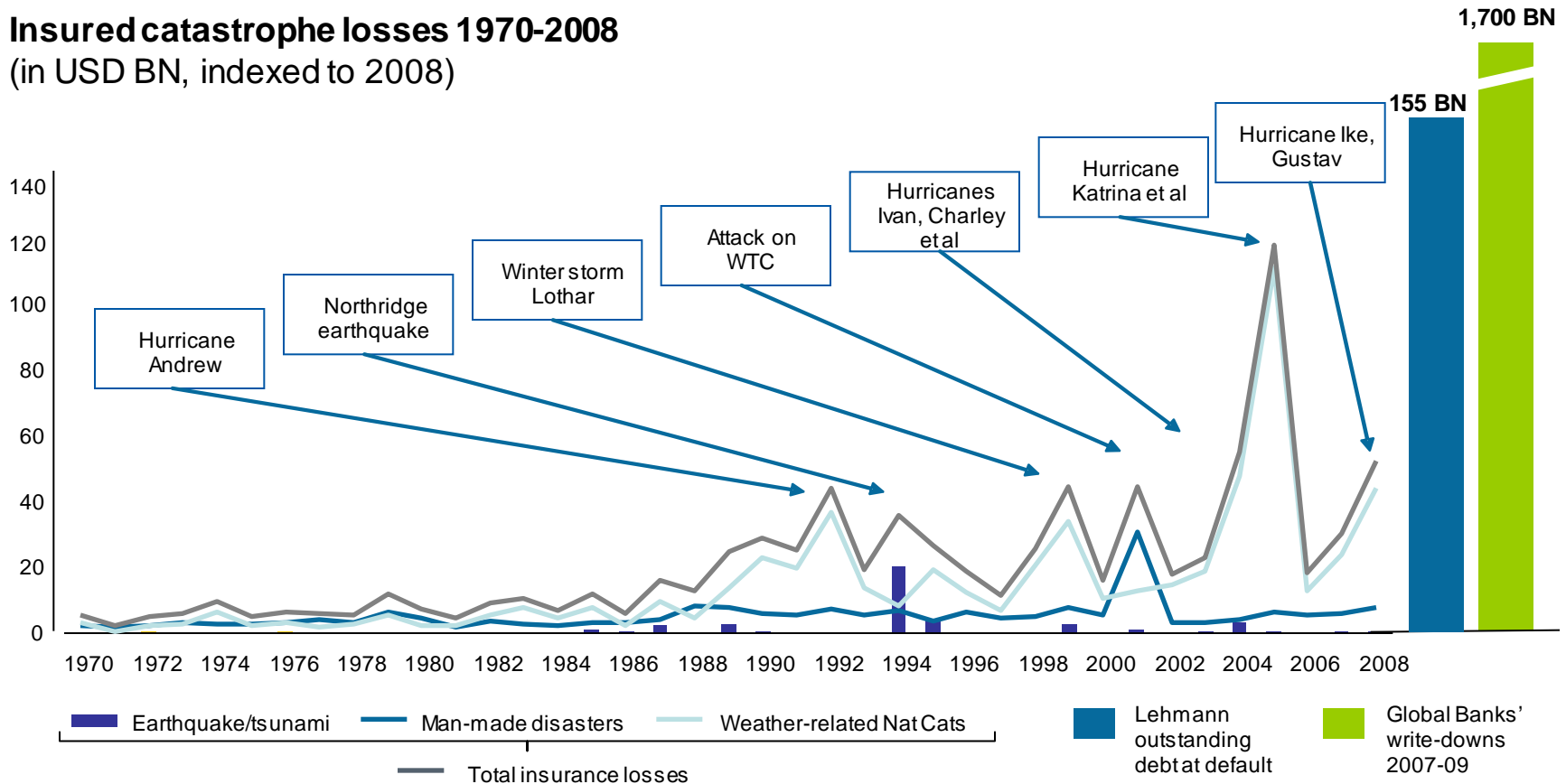
- Timeframe over which financial impact of events is transmitted through to cash flow and balance sheet

**FSB is said to have compiled a list of 30 “systemically important” financial institutions including 5 global (re)insurers**

FSB/IAIS criteria – Size

**No natural or man-made catastrophe loss has ever reached the losses caused by defaulted Lehmann debt or by the banks' writedowns during the recent crisis**

**Insured catastrophe losses 1970-2008**  
(in USD BN, indexed to 2008)



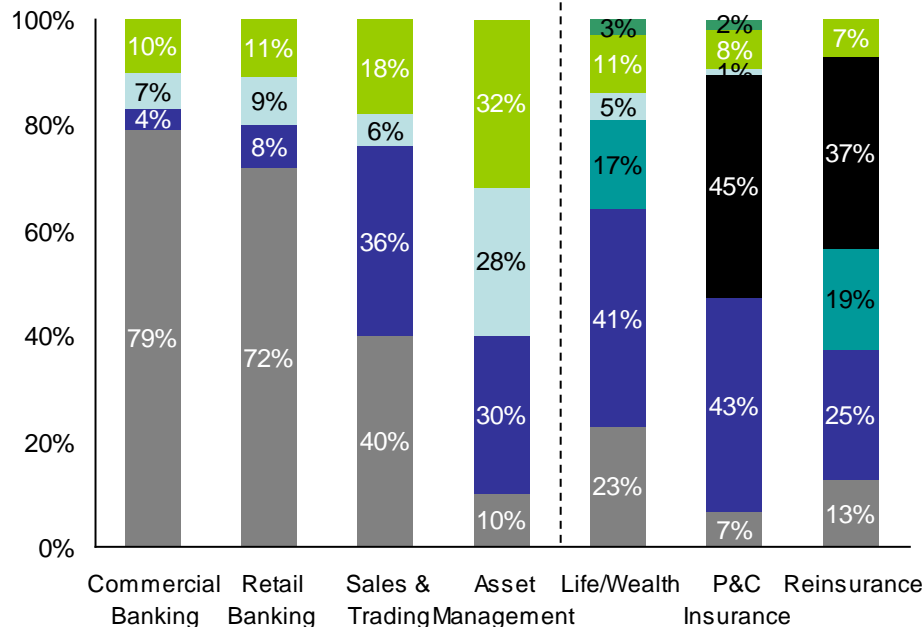
Source: *Sigma* 02/2009, Swiss Re 2009; Oliver Wyman analysis

**Although natural and man-made catastrophes are growing more frequent and intense they are not nearly large enough to cause systemic risk**

### FSB/IAIS criteria – Size

**Typically, a large insurer/wealth manager is much more diversified than a similar bank: so the size of an institution's balance sheet alone is a poor indicator**

### Breakdown of Economic Capital for European banks and insurers



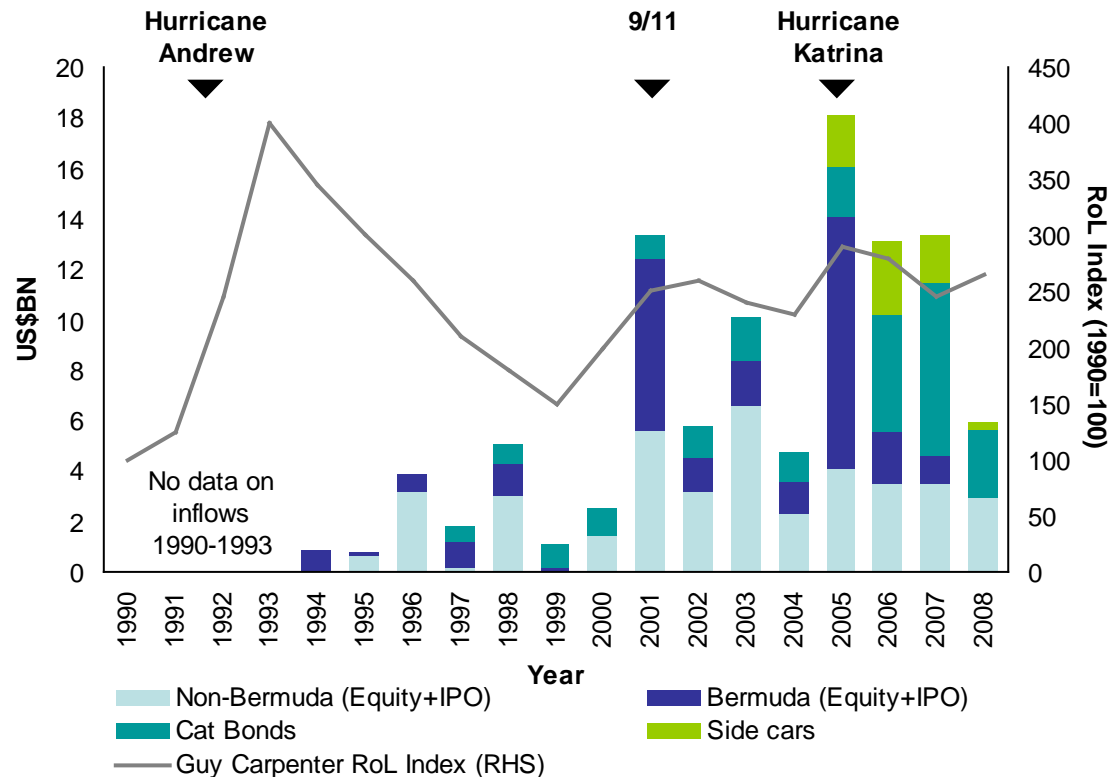
- Insurers are exposed to a combination of risks in different geographies...
  - Credit and market risks
  - Insurance risks
  - Other risks
- ...while banks' activities, whether retail or commercial banks, are mostly concentrated on credit risk and, to a lesser extent, market risk
- Insurers' risks are generally less correlated than banks' risks, e.g.
  - Mortality/longevity vs. market risks
  - P&C/cat risk vs. market risks
- Composite insurers achieve a diversified risk profile by combining
  - P&C insurance business
  - Life insurance business
  - Asset management
  - Retail banking activities
- Reinsurers' business model is driven by diversification of nat cat exposures in terms of risks and geographies

FSB/IAIS criteria – Substitutability

## Reinsurance capacity has always reappeared after natural catastrophes

Hence insurance capacity is highly substitutable

### New capital flows into nat cat reinsurance and nat cat reinsurance rates



- Reinsurance rates increases for years following big catastrophes
- This attracts steady inflow of capital in the industry through new entrants or capital increases of existing reinsurers
  - Including side cars and cat bonds
- In addition, capital base of reinsurers is also progressively rebuilt after large natural catastrophes through the higher reinsurance rates

Source: Thomson, Guy Carpenter, AON Benfield, Dealogic, Oliver Wyman analysis

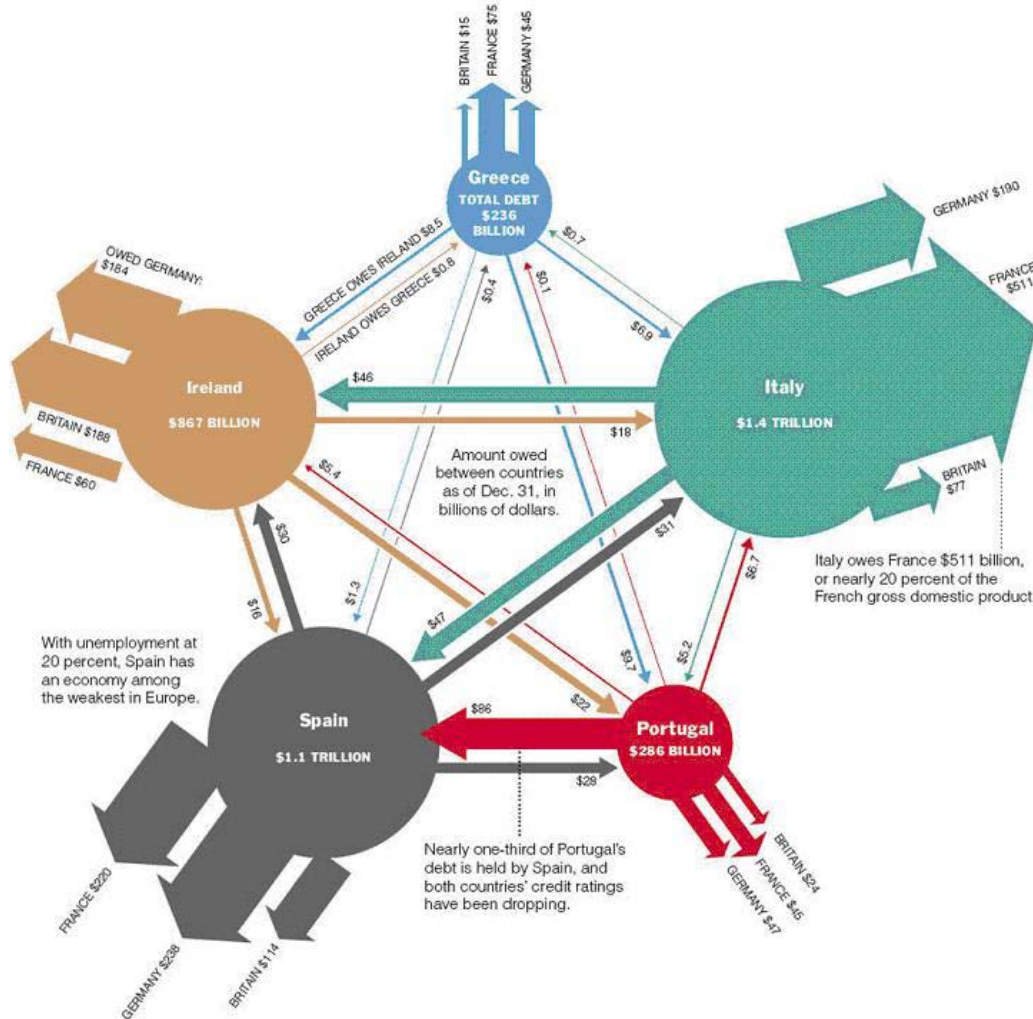
**Insurance capacity is highly substitutable if the underlying event is insurable**





FSB/IAIS criteria – Interconnectedness

## The Eurozone PIGS crisis is the latest example of the perils of interconnectedness

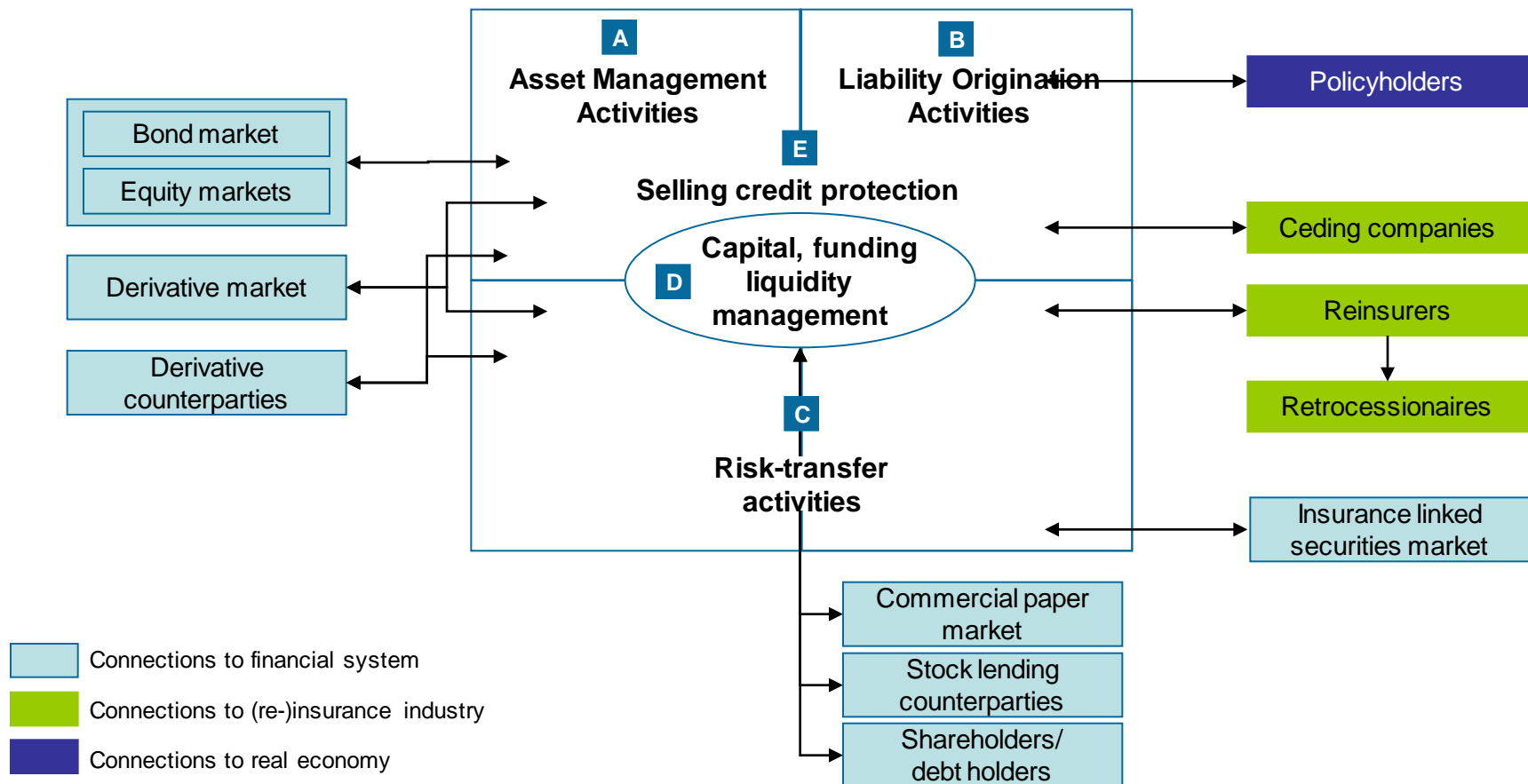




FSB/IAIS criteria – Interconnectedness

## Through their various activities, insurers and wealth managers are linked to many components of the financial system

### Inter-connections of key risk activities in which insurers are engaged

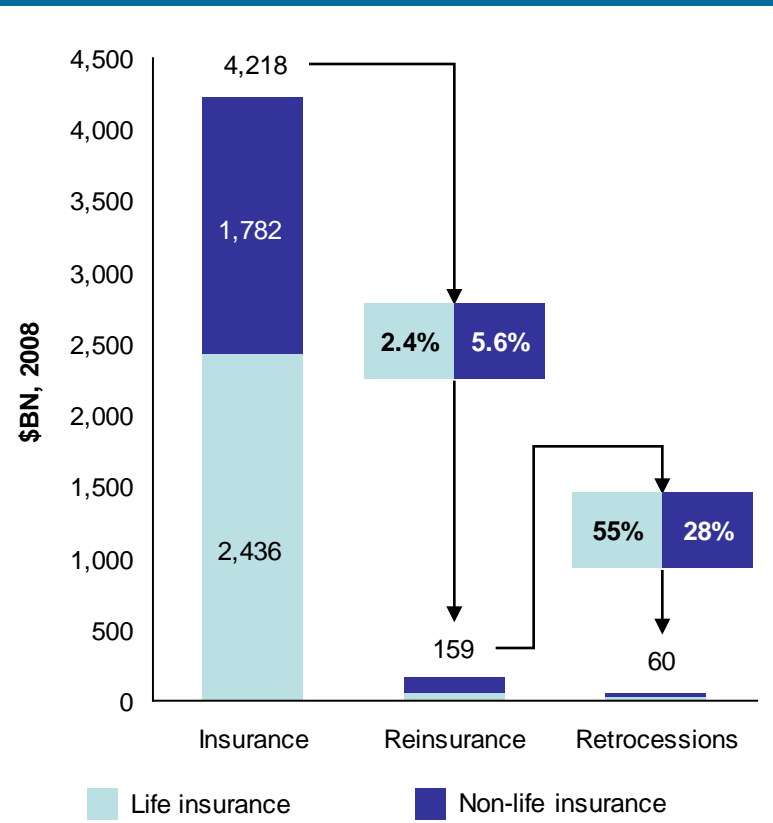


FSB/IAIS criteria – Interconnectedness

## The CDS and reinsurance markets are both interconnected but the balance-sheet importance is of a different order of magnitude

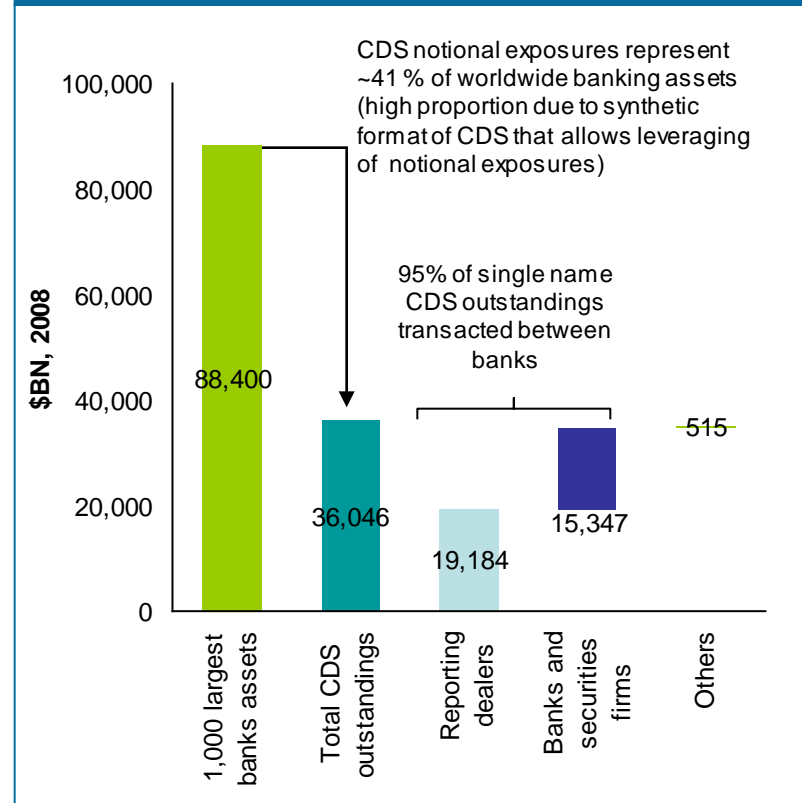
### Insurance

Low level of business ceded by insurers, based on gross written premiums, USD 2008



### Banking

Banks transact significant CDS amounts among themselves





FSB/IAIS criteria – Other contributing factors

## During the crisis some insurers did hit problems, especially where they were part of institutions with large banking or credit operations

### Size and risk of banking operations within insurance companies triggered insurers' performance

Type	None/limited banking activities	Bank-insurance conglomerates	Wholesale banking operations	Credit Monoliners
Characteristics	<ul style="list-style-type: none"> <li>Insurance companies with none or limited banking-type operations</li> </ul>	<ul style="list-style-type: none"> <li>Insurance conglomerates with significant banking operations in multiple countries</li> </ul>	<ul style="list-style-type: none"> <li>Insurance companies engaged in highly risky wholesale banking activities using non-insurance entities</li> </ul>	<ul style="list-style-type: none"> <li>"Insurance companies" selling only credit insurance – highly leveraged and concentrated on US public and structured finance</li> </ul>
Performance	<ul style="list-style-type: none"> <li>Some examples of exposure to US housing market leading to State intervention</li> <li>Not clear if these posed a systemic threat</li> </ul>	<ul style="list-style-type: none"> <li>Problems in banking operations easily sufficient to overwhelm total conglomerate</li> <li>Insurance bal. sheet ring-fenced</li> </ul>	<ul style="list-style-type: none"> <li>Severe problems in wholesale credit operations unconnected to insurance balance sheet</li> <li>Clear systemic threat</li> </ul>	<ul style="list-style-type: none"> <li>Severe losses led to questioning of business model in general (AMBAC, MBIA)</li> </ul>
State support <sup>1</sup>	\$8 BN	\$40 BN	\$180 BN	Questioning of business model

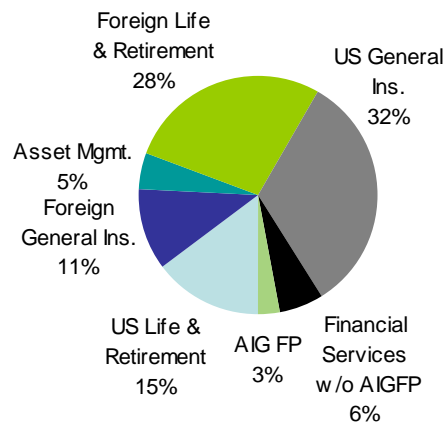
1. State support reflects capital injections and asset support provided by states. Exchange rates as of 31.12.2008

FSB/IAIS criteria – Other contributing factors

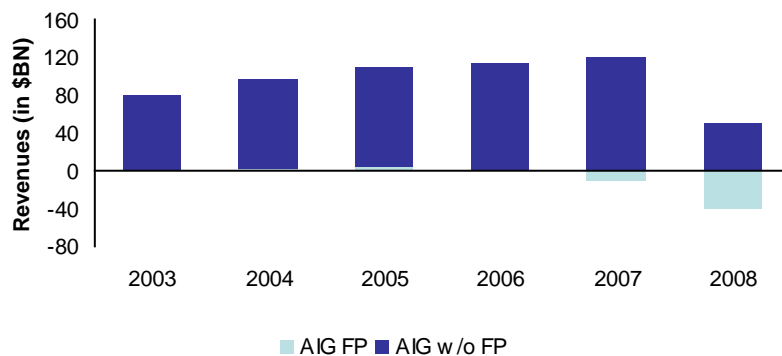
## AIG was brought down by its Financial Products arm, which hid huge risk positions that went unnoticed due to inadequate regulation

Total State support \$180 BN

AIG 2005 revenues by business lines<sup>1</sup>



AIG FP vs. AIG revenues 2003-2008



- AIG FP was founded in 1987 as AIG's capital markets division based in London
  - It avoided UK regulation as AIG holding was registered with an equivalent US regulator: the Office of Thrift Supervision (OTS)
  - After this AIG FP operated effectively unregulated
  - OTS supervised AIG FP in the course of assuring integrity of the thrift within the holding but failed to draw the right conclusions
- AIG FP marginally contributed to AIG revenues
- As of Sept. 2008, AIG FP portfolio had \$2.7 TN of derivatives notional
  - Concentrated on US housing market and corporate CDOs/CLOs
  - \$440 BN CDS exposure guaranteed by AIG holding
- AIG fall began in 2007
  - 2007: downgrades of US subprime securities, AIG's CDS counterparties request cash collateral
  - Sept. 08: AIG's downgrade is announced, triggering further cash collateral calls on CDS contracts and securities lending programme
  - Unable to meet liquidity need, AIG is bailed out on Sept. 18th
- As of 2009, AIG had received a total \$182 BN of governmental support, of which \$129 BN is still outstanding

Sources: AIG Annual Report 2005, CIA World Fact Book, Testimony to the United States Senate Committee on Banking by Superintendent Eric Dinallo of the New York State Insurance Department, Testimony to the Subcommittee on Capital Markets, Insurance, and Government Sponsored Enterprises by Insurance Commissioner Joel Ario of the Pennsylvania State Department

1: 2005 revenues shown at the peak of AIG FP – loss generating thereafter

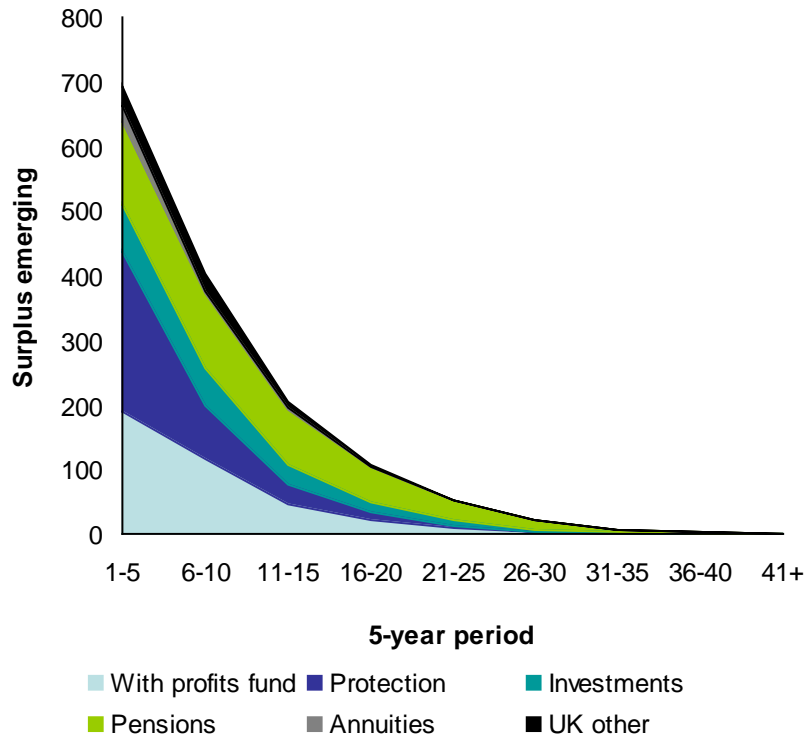


### FSB/IAIS criteria – Timing

**Insurance/wealth also differs from banking in the timing of activities – banking events happen with enormous speed whereas insurance events are rather slow**

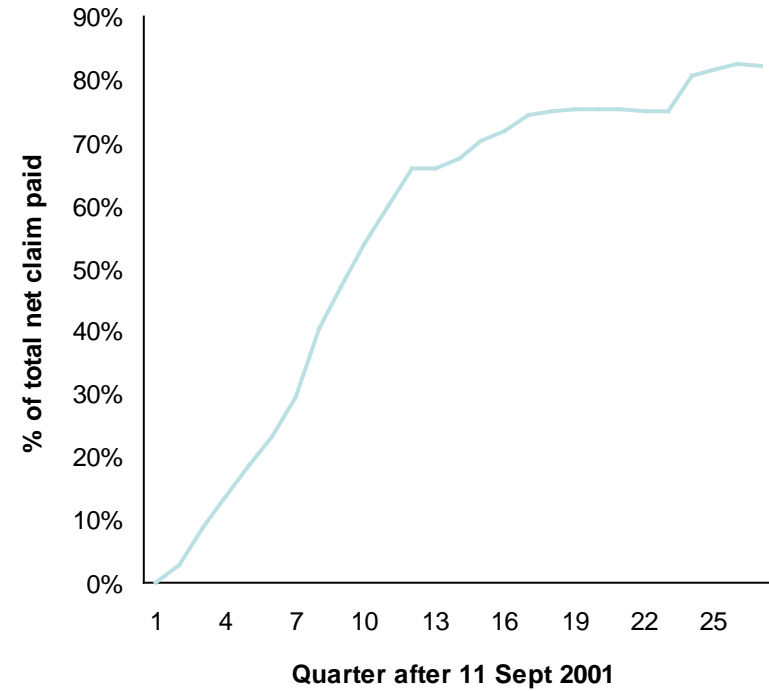
#### Friends Provident cash-flow disclosure

Surplus emerges over 30+ years



#### Timing of World Trade Centre Insurance Claims

Cumulative proportion of claims made



Source: Friends Provident, Reinsurance Association of America, Catastrophe Loss Development Study, 2008

**The timing of insurance claims settlements reduces the risk of contagion as insurers are not exposed to sudden liquidity crunches**



**In summary, although the FSB criteria are relevant to determine systemic risk, we need to consider them at a risk activity level – insurers get a mixed scorecard**

## FSB/IAIS criteria for assessing systemic relevance

### 1 Size

- Size is often an advantage in insurance as it allows a better pooling of risks across individuals and risks
- Rather than size, it is therefore more relevant to look at the risk of insurers' activities



### 2 Substitutability

- Only limited number of unique service or product offerings by one market participant that cannot be provided quickly by other market participants in case of disruption. Unique offerings tend to be too small to have systemic impact
- Risk-bearing and price-clearing capacity of the insurance sector does not suffer from non-substitutability



### 3 Interconnectedness

- Some (re)-insurers are inter-connected with other financial institutions for their investments and risk management
- Intra-connectedness of insurance activities and operations within a group differ from those in banks



### 4 Other contributing factors

- Leverage – not as relevant for insurance/wealth
- Complexity and opacity given for some groups but by itself not a systemic risk
- Liquidity and large mismatches only of limited relevance for insurance/wealth



### 5 Timing

- The activities in which insurers (insurance, asset management, derivatives trading, reinsurance and funding and treasury activity) are engaged show different timing in transactions and liquidity constraints from banking





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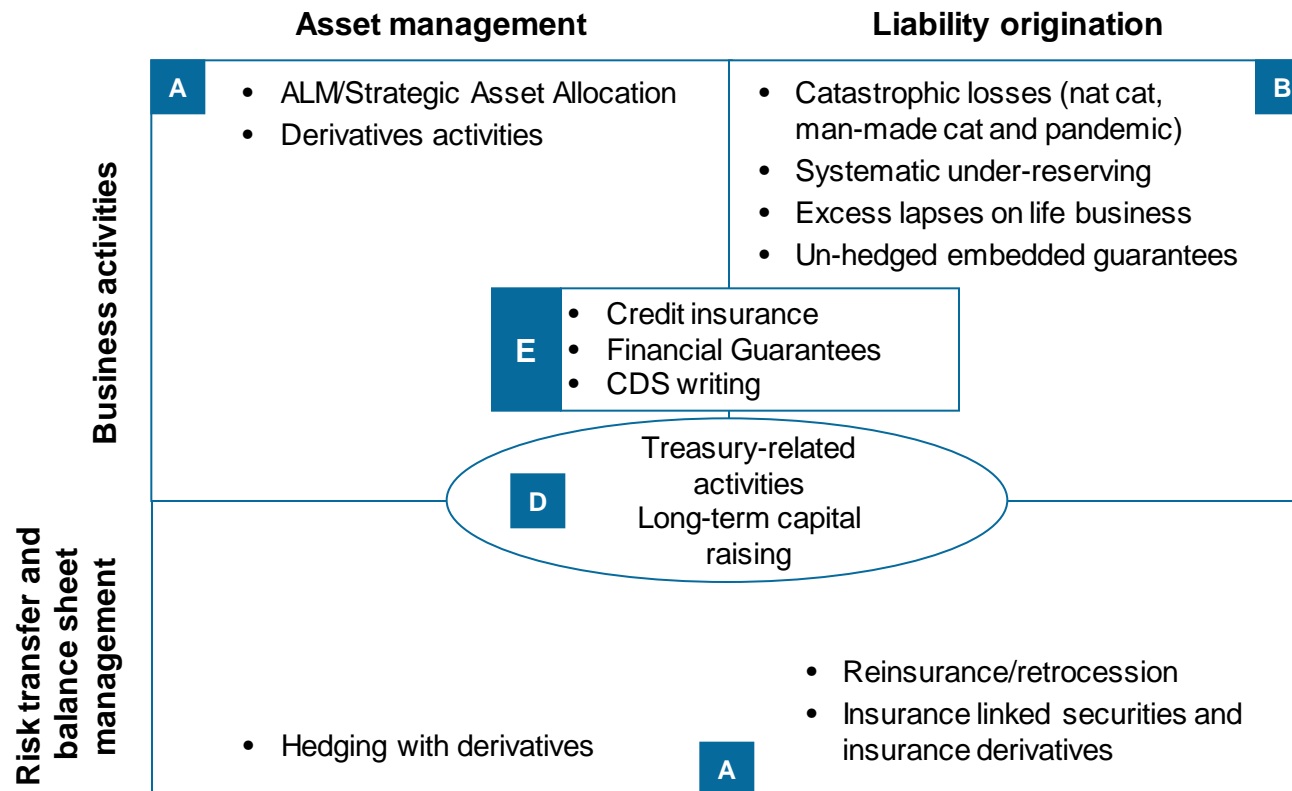
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## Section 3

# Implications for insurers and wealth managers

**Overall there are a number of activities that could contribute to a wider systemic problem, many of which are non-core and possibly under-scrutinised**



Source: Oliver Wyman Assessment

**However most of these are “one-way” impacts – insurers could be the victims of another systemic crisis but are unlikely to be the cause**



## **Risk management functions need to look beyond the core risks in the core businesses and understand what external factors could drive losses**

- Global/macro risk scenario analysis to determine interconnectedness with other financial markets, with particular focus on the impact of broader FS reform
  - Likelihood
  - Impact
  - Timing
  - Risk management responses
- Deepen understanding of all business lines to understand which could cause disproportionate losses
  - In particular are there small or non-core businesses that have not been analysed from a risk perspective
- Clearly articulated capital/liquidity strategy including allowance for contingencies
- Comprehensive risk appetite statement ensuring that all risks are acknowledged and accepted – even if they can't be managed
- Engage in the regulatory process to ensure that the voice of the industry is heard
  - Don't be mis-regulated by default