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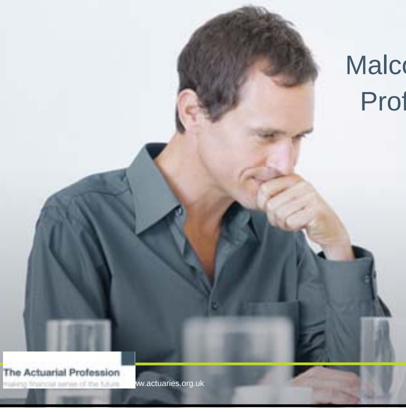
Regulatory frameworks: lessons learned and potential implications of the Credit Crisis



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Agenda

- The Credit Crisis:
  - Timeline
  - The different roles of money in the economy
- Analysis and possible solutions – Banks
- Analysis and possible solutions – Other Financials

	Banks	Other Financial Institutions
Background / analysis of crisis	(1)	(3)
Possible solutions that have been suggested	(2)	(4)

Draft paper, www.nematrian.com/docs/LessonsFromCreditCrisis20100614.pdf, covers (1) and (2)

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The Credit Crisis: timeline

- See e.g. Kemp (2009) or Bank of England (2008)
  - Up to July 2007: extended global credit boom, 'search for yield'
- Rising defaults on US sub-prime mortgages, Bear Stearns, losses spill over into other global financial markets including CP market (and CDOs & SIVs)
- Critical phase, late Summer and Autumn 2008
  - Problems at Fannie Mae and Freddie Mac
  - Collapse of Lehman Brothers, support package for AIG (15/16 Sept 2008)
  - Breakdown of interbank funding markets
  - Broader institutional distress, governments recapitalise banks, guarantee bank debt and introduce/increase size of liquidity schemes (Oct 2008)

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An overview

- At the risk of oversimplifying matters:
  - Bank balance sheets overstretched. Some business models too reliant on continued access to easy liquidity
  - E.g. Funding loans via 'shadow' banking system, using repackaged loans as collateral
  - In hindsight, repackage structures (SIVs, CDOs etc.) exposed to liquidity risk
  - Credit Crisis arguably primarily a liquidity crisis
  - Solved by government injection of liquidity, at significant cost to the public purse
- Regulators/supervisors/governments keen to avoid history repeating itself

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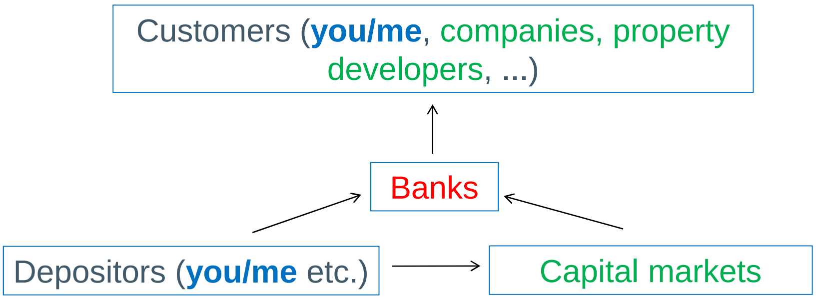
The different roles of money in the economy



- *The banking system is crucial to our use of money as a 'medium of exchange'*

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Two main roles of money

Role:	'Medium of exchange'	'Store of value'
Use:	Exchange goods between economic participants (e.g. division of labour)	Shift consumption along the timeline
If ceased to function?	Essential, unless we want to return to barter	Money itself is not typically a large part of a developed economy's total asset base
Required features for function to be effective	Short-term value stability and perceived 'soundness' of money	Ability to buy/sell what we want later, i.e. to have functioning markets
Parts of financial services industry most linked to role	Retail banking, commercial banking	Life insurance, asset management, investment banking
Typical focus of regulatory activity	Avoid undue calls on depositor insurance arrangements	Greater focus on providers 'honouring their promises'

- *The two roles create different types of systemic risk exposures, see e.g. Besar et al. (2009)*

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However, the boundaries are blurred

- Banks, insurers and others overlap, e.g.
  - Bank-assurers, AIG and credit derivatives
  - Mono-line insurers insuring bonds against credit deterioration
  - Money market funds, especially ones that invested in SIVs
  - Investment vs. commercial banking, proprietary vs. agency trading
- Governments (and economists) also worry about inflation, and the loss of confidence in 'money' that it can create
  - Especially hyper-inflation, e.g. Weimar Republic
- **BOTTOM LINE**: from governments' perspective, major social upheavals often triggered by economic problems

Analysis and proposed solutions (banks)

- Emphasis on maintaining money as a viable 'medium of exchange'
- Hence primary focus of policy response to date has been on banks

(1) **Enhance capital adequacy** – both quantum and methodology

(2) **Ring-fence activities** subject to deposit protection schemes

(3) **Have existing investors carry more** of the burden of a firm failure

(4) **Change business behaviours**

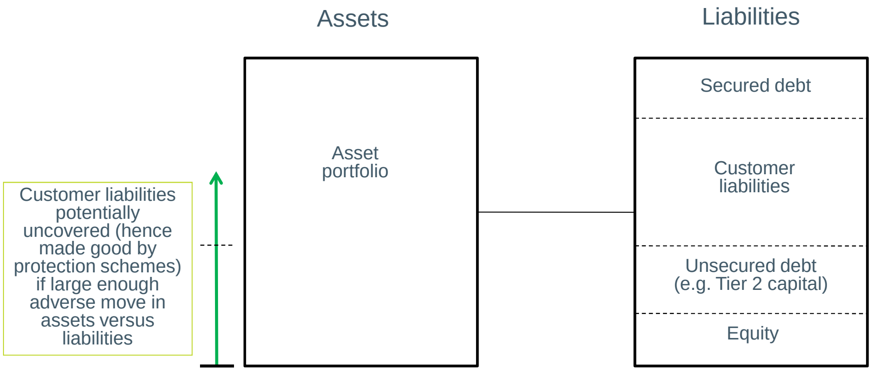
(1) Capital adequacy

- More capital and more of the 'right' sort of capital
- BCBS (2009):
  - Improve quality, consistency and transparency of capital base
  - Strengthen risk coverage of capital framework, e.g. capital requirements for counterparty credit risk and securities financing
  - Leverage ratio limits to supplement existing risk-based framework
  - Capital buffers (incl. 'contingent capital') that aim to be counter-cyclical
  - Liquidity standards

(2) Ring-fence activities carrying deposit protection

- Implicit compact between banks and governments
  - Banks provide framework allowing money to be a medium of exchange
  - Governments protect depositors against failure of banks and in return impose regulatory frameworks on banks, including minimum capital requirements
- If depositor protection too costly then limit base creating exposures
  - Forced unbundling of banks that are 'too big to fail'
  - Unbundle commercial banking from investment banking? Glass-Steagall?
  - Proprietary versus agency trading
- Or reduce deposit protection limits? Not palatable to governments/electorate

(3) Existing investors to carry more bailout burden



- More proactive control of dividend behaviour
- ‘Quality’ of capital (equity vs. debt) – capital tiers relevant to going vs. gone concern situations

(3 ctd.) Resolution frameworks for failing firms

- Governments (and electorates) don’t like bailing out failing firms
  - They particularly don’t like having to pay more than they really have to
  - Complex structures, interconnectedness, bankruptcy frameworks etc. seen as contributing to drain on public purse
- Living wills (aka ‘recovery and resolution plans’)
  - People die. Doing so without a will creates problems for heirs
  - Companies also die, despite existing management’s protestations to the contrary
  - Advocates see living wills as facilitating process. Companies worried that it may lead to less efficient corporate structuring (or more work?)
- Also planned changes to legal frameworks for winding up such companies

(4) Improve business behaviours

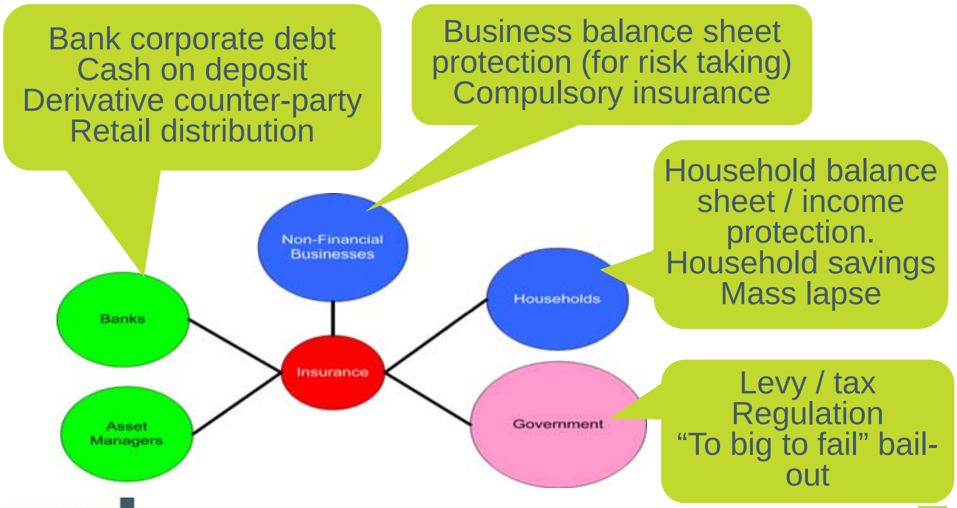
- Furore over banker's bonuses (and loan availability)
- Enhanced risk management practices.
  - Walker Review and FSA (2010) require risk function
  - CEBS (2010)
    - Appointment of a CRO or equivalent
    - Governance and risk culture, risk appetite and tolerance, CRO and risk function, risk models and integration of risk management areas, new product approval processes
    - Opportunities for actuaries (and others!), e.g. "Institutions should avoid over reliance on any specific risk methodology or model. Modelling and risk management techniques should always be tempered by expert judgement"
- Wider issue of social usefulness of some recent banking innovations

Other ideas/proposals

- More intrusive regulation
  - Including regulating previously unregulated market participants, e.g. EU's Alternative Investment Fund Manager Directive
- Abandon marking-to-market, but see Kemp (2009)
- Impose new taxes/levies
  - To pre-fund government support or a convenient revenue target (c.f. furore over bank bonus policies)?
  - Inconsistent with increasing capital bases?
  - Are all systemic risk exposures the same?
- Market structure:
  - Central counterparties (derivatives), shorting, credit ratings
  - Gather better market-wide position information

Systemic Risk and Insurance

Linkages



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Systemic Risk and Insurance

Insurance Activity That Could Cause / Amplify Systemic Risk

- Investment
  - Exposure to the same investment market
- Risk Reduction
  - Risk mitigation trading, exposures to common counterparties
  - Cross-holdings and other inter-connectedness
  - Innovation faster than governance changes
- Products
  - Credit protection, investment guarantees, CAT protection
  - Positive feedback spirals?
- Balance Sheet Structure
  - Leverage, short-term funding / liquidity issues
  - Uncertainty over valuation

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Systemic Risk and Insurance
Former Insurance Systemic Risks

- UK General Insurance - London Market Spiral – 1980s/1990s
  - Cross-holdings and lack of transparency over risk reporting
- UK Insurance - Mortgage Indemnity Insurance – early 1990s
  - Underestimation of property value loss
  - Exposure to systemically important sector
- UK Life Insurance – late 1990s
  - Forced asset selling due to resilience test
  - Exposure to a common market
- US Health Insurance – Death Spiral – 1970s
  - Positive feedback loop – pricing / lapse

Systemic Risk and Insurance
Insurance Fallout from 2008 Systemic Risk Event Examples

- AIG
  - [AIG Financial Products was] “a hedge fund, basically, that was attached to a large and stable insurance company”. – Ben Bernake, 2009
  - Regulated by the US OTS which had “equivalent” regulator status to FSA
    - Regulatory failure + arbitrage
  - Writing CDS on super-senior CDO tranches (USD 2.7 trillion nominal)
  - AIG rating downgrades led to unsustainable collateral cash calls
- Mono-lines
  - Selling a banking product under insurance supervision?
- European bank-assurer support
  - ING - Large portfolio of US mortgages after setting up as a US thrift to expand into the US market.

Central Bank Viewpoint

US + EURO

- Federal Reserve (Bernake)
  - *“The current financial crisis has clearly demonstrated that risks to the financial system can arise not only in the banking sector, but also from the activities of other financial firms – such as investment banks or insurance companies – that traditionally have not been subject to the type of regulation and consolidated supervision applicable to bank holding companies.”*
- ECB (Trichet)
  - Insurers are systemically important due to their:
    - **Size**: moving large volumes of assets quickly can move markets.
    - **Interconnectedness**: EUR Insurers and Pension Funds hold 10% of the outstanding debt issued by EUR banks- EUR 435 billion
    - **Economic function of insurance**: insurers help safeguard the stability of household and business balance sheets by insuring their risk

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Industry Viewpoints

Geneva Association and PEIF

- Geneva Association
  - *“Applying the FSB criteria to the main activities of insurers and reinsurers, we conclude that none pose a systemic risk.”*
- PEIF
  - *“Policy makers reacting to the financial crisis need to take into account that the business model of the insurance industry differs substantially from that of other financial services sectors.”*
  - *“Specifically, insurers do not generate the kind of systemic risk that arises in banking. Government interventions in support of insurance companies have to be carefully evaluated and justified against insurance specific criteria.”*

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Regulator Viewpoint

International Association of Insurance Supervisors

- IAIS
  - *"[generally] there is little evidence of insurance either generating or amplifying systemic risk, within the financial system or the real economy"*
  - *"it is important to note the stabilisation role the insurance sector plays … to limit systemic risk"*

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Professional Viewpoint

International Actuarial Association

- The IAA think there:
  1. has been an excessive focus on insurer's individual solvency rather than the system.
  2. A lack of firms and regulators thinking systematically
  3. Behavioural Issues – The CRO Dilemma
     - Optimal time to hedge
- The IAA cite examples of systemic insurance risk as:
  - Reinsurer failure
  - Failure of non-regulated entities
  - Inter-connectedness
  - Investment guarantee ALM mismatches

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Proposed Solutions

Actuaries

- Besar et al. (2009)
  - Regulatory capital requirements should never be applied to force asset sales or limit portfolio growth during financial distress.
  - Financial authorities should require financial institutions to reveal all necessary information to allow regulators and other market participants to assess risks at the wider systemic level.
  - The industry should move to establish sufficient ‘redundancy and flexibility in over-the-counter (“OTC”) markets for securities, derivatives and insurance trading; so that counterparty risk from dealers or other participants is effectively controlled
- IAA
  - Counter-cyclical regulatory arrangements
    - Dynamic Provisioning
    - Formula Based
  - Regulator appointed to manage systemic risk
  - Wider use of comprehensive risk management in banks and non-regulated
    - Probability of sufficiency reporting
    - Sign off by professional
  - Improved use of ERM and Governance

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Proposed Solutions

Industry

- Geneva Association
  - Top
    - Implement comprehensive, integrated and principle-based supervision of insurance groups
    - Strengthen liquidity risk management
  - Consider
    - Enhance regulation of financial guarantee insurance
    - Establish macro-prudential monitoring with adequate insurance representation
    - Strengthen risk management practices

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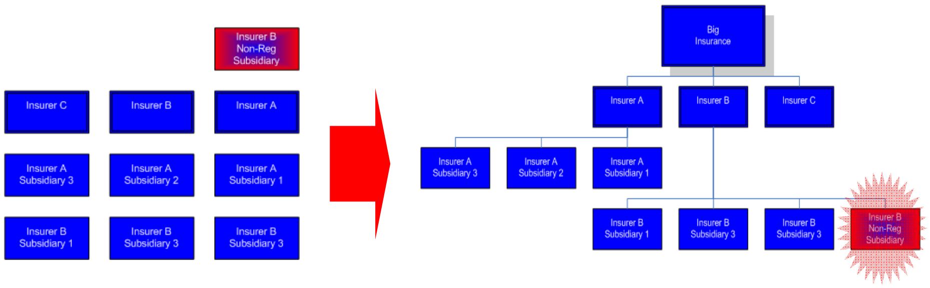
Proposed Solutions

Government / Supervisors

- European Commission
  - ESRB
  - Bank Levy
  - Solvency II
    - Dampeners: e.g. Pillar 1 Liquidity Premium, Pillar 1 Equity Cycle, Pillar 2 Dampener
    - Governance, Group Supervision
- IAIS
  - IAIS Global Regulation System
  - Include consideration of non-regulated entities
  - ComFrame
    - Regulatory framework for internationally active insurance groups
  - Interdependencies may increase in the future.
    - Promotion of cross-sectoral macro-prudential monitoring
    - Example: Global reinsurance market report

Evolving Regulation

Entity-Centric to Group-Centric



Current Insurance Regime

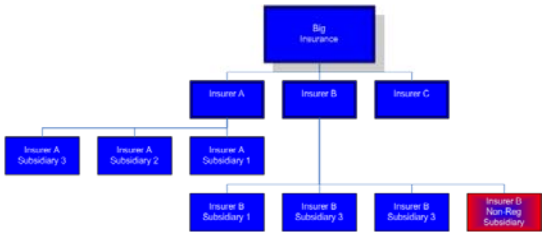
Mostly Entity Level Regulation
Insurance Entities Regulated

Group Solvency Structure

Group & Entity Level Regulation
In order to capture inter-connections.
Solvency II

Evolving Regulation

From Group Supervision to Sector-Macro Supervision



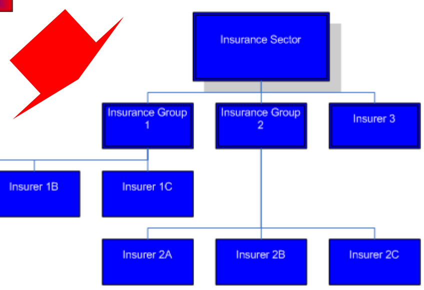
Sector Solvency

Group Solvency recognises the connections within Insurance Groups. The next step is to look at the sector connections.

Group Supervision

Designed to inter-connections in the company.

e.g. Identification of the 'toxic' subsidiary that will bring down the group.



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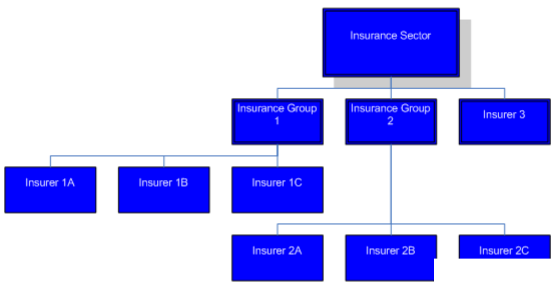
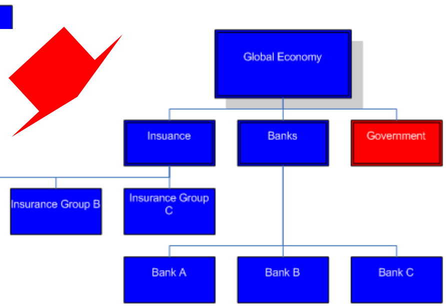
Evolving Regulation

From Sector-Macro Supervision to Global-Macro Supervision



Global Economy Solvency

After sector inter-connections the next step is to consider inter-sector connections.



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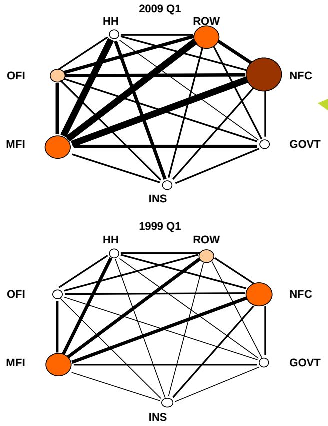
ECB Research on Sector Inter-Connectivity
Static Analysis, Castrén & Kavonius, 2009



ECB Research shows that over the last 10 years the *static* inter-connectivity of different sectors has increased markedly.

Even so from a *static* viewpoint the inter-connectivity of the insurance and pension sector (INS) still seems small relative to banks (MFI), non-financial industry (NFC) and households (HH).

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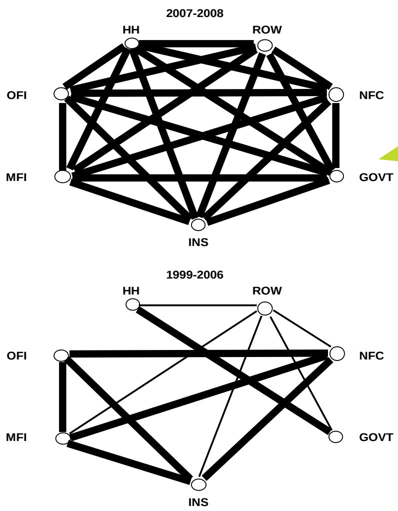
ECB Research on Sector Inter-Connectivity
Dynamic Analysis Castrén & Kavonius, 2009



When the researchers extended their analysis to include contingent claim analysis they found strong correlations between the distance-to-default of insurers (INS) and banks (MFI) in good times.

These correlations became strong between all sectors post crisis.

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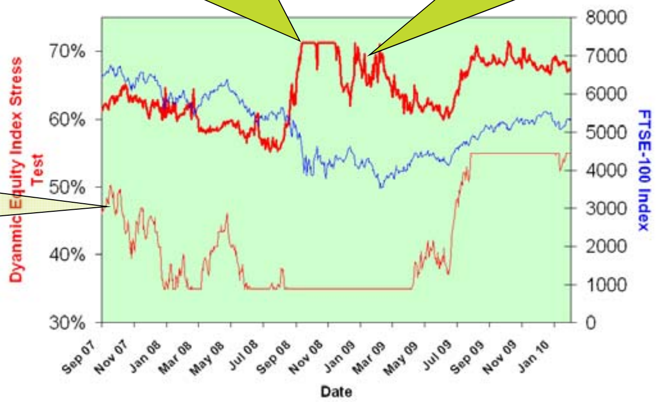
Solvency II – Anti-cyclical Stress Test

What ICA style equity index stress test equals the S2 Pillar I dampener?

Calculate the **equivalent equity index stress test (EEIST)** for a 10Y ATM Put Option.

The stress test now appears **pro-cyclical**. The correlation between the **EEIST** and the index return is **-50%**.

Dynamic Equity Stress Test (DEST)



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Summary

- The banking industry
  - Credit crisis: major impact on public purse, major economic disruption
  - Many suggested policy responses, many likely to be enacted
- The insurance industry
  - Some insurer activities can be pro-cyclical. But do they create the same sorts of systemic risks as banks?
  - Central bankers and governments appear to view insurance as having a primary systemic role, while insurance industry disagrees
    - Central bankers continuing to undertake research into sector-connectivity
  - There are several possible mitigating actions to counteract systemic risk, to the extent that it is believed relevant
  - Governments are developing policy responses – not least Solvency II

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Important Information