



Systemic Risk and Systemic Importance

An Insurers Perspective

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Further the views do not necessarily represent that of the domestic insurance industry, views in this latter regard are still in a state of infancy.

Basic Regulatory Risk Management adage – “Don’t be mis-regulated by default”

Abbreviations

| | |
|--------------|---|
| BIS | Bank for International Settlements |
| D-SII | Domestically, Systemically Important Insurer |
| FSAP | Financial Sector Assessment Program |
| FSB | Financial Stability Board |
| G20 | Group of 20 Finance Ministers and Central Bank Governors representing 19 major economies and the European Union |
| G-SII | Globally, Systemically Important Insurer |
| IAIG | Internationally Active Insurance Group |
| IAIS | International Association of Insurance Supervisors |
| ICPs | Insurance Core Principles |
| IMF | International Monetary Fund |
| MPS | Macroprudential Policy and Surveillance |
| MPSSC | Macroprudential Policy and Surveillance Subcommittee (previously Macroprudential Policy and Surveillance Working Group) |

Agenda

- **Systemic Risk – Definitional issues**
- **The Specificity of Insurance – is it Systemic?**
- **Path Towards G-SII's – The work of the IAIS and the Geneva Association**
- **Some Perspectives**

Systemic Risk – Definitional Issues

Systemic risk refers to the risk or probability of breakdown of the entire financial system, as distinct from breakdowns in its components.

It is the risk that financial difficulties at one institution or more spill over to a large number of other institutions or to the financial system as a whole.

A widely accepted definition is still missing. All classes of financial intermediaries, markets and infrastructures can be systemically important.

In 2010, FSB defines *systemically important financial institutions* (SIFIs) as those whose disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity.

Systemic Risk - Definitional Issues

Three key criteria that identify the systemic importance of markets and institutions are:

- **Size** (the volume of financial services provided by the individual component of the financial system);
- **Substitutability** (the extent to which other components of the system can provide the same services in the event of a failure); and
- **Interconnectedness** (linkages with other components of the system).

Any risk can grow into systemic proportions when its negative impact extends beyond an individual institution, affecting or threatening by contagion other institutions often creating a disruption in the monetary system and ultimately the economic system.

Systemic risks do not typically occur in isolation.

Systemic Risk – Definitional Issues

Systemic risk depends on externalities, complex linkages between intermediaries and markets and deep asymmetries of information.

Systemic stability cannot be obtained through market discipline: it enhances the importance of financial regulation and supervision.

What creates a systemic crisis is less the trigger event but the transmission mechanisms, domestically and internationally.

If the linkages are strong, the potential for systemic instability increases. If the connections are weak, there is less of a threat of systemic risk.

No chain is stronger than its weakest link. Kindleberger – drawing on Minsky – ‘Manias, Panics and Crashes – A History of Financial Crises’).

Systemic Risk – Definitional Issues

The main risk transmission channels

(1) inter-bank, inter-institution, inter-instrument;

(2) payment systems;

(3) the information channel

(4) the psychological channel. The Minsky moment. The loss of confidence in an institution or market (whether informed or uninformed, rational or irrational) will undermine the functioning of that institution or market.

Frank Knight (1921) Knight argued that risk represents a quantity susceptible of measurement, while uncertainty is immeasurable.

Are regulators and supervisors today facing systemic risk or rather incalculable, systemic *uncertainty*? And what are the implications for risk measurement and macroprudential regulation?

Insurance – Is it Systemic?

- **Insurers are in the business of dealing in uncertainty.** They face imperfect information problems - moral and adverse selection.
- **Insurers have a distinct business model.**

Mr. Julian Adams, Deputy Head of the Prudential Regulation Authority and Executive Director of Insurance, the insurance sector's *“inverted production cycle”* characterized by *“the upfront accumulation of premiums and the deferred nature of payment of liabilities”* could mean that insurers face different challenges compared to banks.

- Involves underwriting of risks, contract limitations and exclusions, prefunding, method of claims settlement, risk management and risk transfers. Provides for the proper assessment of risk, and restricts insurance market activity among speculators.

Insurance – is it Systemic?

- Insurer obligations are triggered by the insurable event or prescribed by insurance contracts.
- Insurance obligations are prefunded by premiums, charges and fees with risk transfer mechanisms, such as reinsurance, to control their risk exposures.
- Non Life insured loss events are usually uncorrelated with crisis or economic cycles.
- Low interest by policyholders in risk speculation.
- Insurance failures do not occur suddenly – the nature of the business ameliorates the events that ultimately lead to economic loss over a much longer time span.

Insurance - Is it Systemic?

- If the definition of “systemic event” FSB 2010 were to be considered, even the default of the largest global insurance groups would not create transmission effects and a direct contagion of other financial institutions.
- However as Clico demonstrates, a default of this nature could impact a significant share of regional policyholders as well as other stakeholders and the wider population– such an event is systemic.
- **The publication of the G-SII’s beckons insurers to recognize a fundamental shift in society's expectations post 2008. Post 2009 domestically and regionally, such a shift must similarly be recognized by all financial markets actors, in particularly financial conglomerates.**

Path towards “G-SIIs” – IAIS & the Geneva Association

- Establishing a globally binding framework for the identification of **systemically important insurance companies** (G-SIIs)
- **2009**: FSC of the **IAIS starts first consultations** with the insurance industry towards in response to Financial Stability Board (FSB)
- **2010-11: Geneva Association (2010/2011) criticizes the “banking-oriented” indicator approach** (size/connectedness/substitutability/timing) but affirms the role of the IAIS to coordinate macro-prudential surveillance and proposes two-phase approach:
 - Clarifying relationship between macro and micro regulation and identify potentially systemically risky activities
 - **2011**: “Insurance and Financial Stability” – IAIS **shifts focus to identified systemically important activities** (speculative trading, financial guarantees and liquidity management)

Path towards “G-SIIs” – IAIS & the Geneva Association

- Also: ‘ComFrame’ for supervision of internationally active insurance groups (IAIGs) sets a size/scale threshold
- **2012**: IAIS FSC **methodology to “G-SIIs”** (31 May) for two-month consultation and start of macroprudential framework by IAIS
- **July 2012** IAIS paper on Financial Stability and Reinsurance . Concludes that traditional reinsurance is unlikely to cause or amplify systemic risk. The draft methodology, however, includes reinsurance as one of the indicators for the purposes of identifying systemic institutions.
- **October 2012**, IAIS - consultation paper on policy measures to apply to global systemically important insurers. Proposed measures focus on enhanced supervision, higher loss absorbency capacity and recovery and resolution planning.
- The FSB examines extending the framework on G-SIFIs to consider the treatment of domestic systemically important banks (D-SIBs)

Path towards “G-SIIs” – IAIS & the Geneva Association

- **October 2012** - BCBS publishes framework for dealing with D-SIBs stating that ***“National authorities should establish a methodology for assessing the degree to which banks are systemically important in a domestic context”***
- The principles align with those developed for G-SIBs but also allow for ***“appropriate national discretion to accommodate structural characteristics of the domestic financial system”***
- **At present, a framework for dealing with domestic systemically important insurers has not been outlined; given the narrative around the lower systemic risk posed by global insurers, it is uncertain whether such a framework will actually emerge.**
- **July 2013**, the FSB published a list of G-SIIs and the IAIS published their methodology and policy measures for G-SIIs.

Path towards “G-SIIs” – IAIS & the Geneva Association

- July 2013 - FSB stated that designation of systemic reinsurers would be postponed to July 2014. While the G-SII methodology focuses on non-traditional or non-insurance (NTNI) activities, for reinsurers the issues relating to substitutability and interconnectedness are more complex than for insurers.

The results arising from IAIS’s methodology may be summarized by the following:

- **Neither long experience of insurance markets nor information arising from the global financial crisis provides any evidence of traditional insurance either generating or amplifying systemic risk within the financial system or in the real economy.**
- **The potential for systemic importance is only considered to arise in any non-traditional or non-insurance activities.**

- **G-SIIs are different from Global Systemically Important Banks (G-SIBs): The designation of banks tends to be driven by the sheer size and nature of their core activities, while size alone is less important for traditional insurers.**

HOWEVER – IAIS also notes that:



“As recent crisis history suggests, insurance groups tend to suffer distress as a result of an increased exposure to non-insurance activities. These activities, which at times were only lightly regulated or not regulated at all; appear to be an important source of risk that may become systemic.”

Path towards “G-SIIs” – IAIS & the Geneva Association

- According to the IAIS, the two most important factors for assessing the systemic importance of insurers are: Non Traditional and Non Insurance (NTNI) activities and the degree of interconnectedness
- Main NTNI activities in recent years :
 - Expansion of bancassurance
 - Expansion of insurers derivative portfolios (namely CDS)
 - Deeper connection between insurers and banks via funding channels in capital markets

Path towards “G-SIIs” – IAIS & the Geneva Association

Table 1: Illustrative allocation of activities conducted by insurance-focused groups

| | | Traditional  | Semi-traditional |  Non-traditional |
|----------------------|---|---|--|--|
| Insurance | Underwriting | <ul style="list-style-type: none"> • Most life and non-life re)insurance business lines | <ul style="list-style-type: none"> • Life Insurance and variable annuities with additional guarantees • Mortgage guarantee insurance • Trade credit insurance | <ul style="list-style-type: none"> • Alternative risk transfer (ART), incl. insurance-linked securities (ILS) • Financial guarantee insurance • Finite reinsurance |
| | Investments and funding | <ul style="list-style-type: none"> • Proprietary investment function (asset/liability matching (ALM)) • Hedging for ALM purposes • Funding through equity and debt issues; also securities lending | <ul style="list-style-type: none"> • Proprietary and derivatives trading (non-ALM) • Property management (related to investment portfolio) | <ul style="list-style-type: none"> • Purely synthetic investment portfolios • Cascades of repos and securities lending • Scope and scale of activities beyond insurance remit |
| Non-insurance | <ul style="list-style-type: none"> • CDS/CDO underwriting • Capital market business • Banking, incl. investment banking and hedge fund activities • Third-party asset management • Industrial activities | | | |

IAIS, 2012, “Global Systemically Important Insurers: Proposed Assessment Methodology,” Public Consultation Document (31 May).

IAIS Assessment Framework for Global Insurers

| Category | Description | Indicator | Weight |
|--|--|---|--------|
| Non-traditional insurance and noninsurance activities (45%) | Systemic risk posed by businesses outside of traditional insurance business | Non-policy holder liabilities and non-insurance revenue | 6.4% |
| | | Derivatives trading | 6.4% |
| | | Short-term funding | 6.4% |
| | | Financial guarantees | 6.4% |
| | | Minimum guarantee on variable insurance products | 6.4% |
| | | Intra-group commitments | 6.4% |
| | | Liability liquidity | 6.4% |
| Interconnectedness (40%) | Direct and indirect links to financial sector | Intra-financial assets | 5.7% |
| | | Intra-financial liabilities | 5.7% |
| | | Reinsurance | 5.7% |
| | | Derivatives | 5.7% |
| | | Large exposures (e.g. largest counterparties, sovereign holdings) | 5.7% |
| | | Turnover | 5.7% |
| | | Level 3 assets | 5.7% |
| Size (5%) | Share of financial services provided/ insurance market covered | Total assets | 2.5% |
| | | Total revenues | 2.5% |
| Substitutability (5%) | Ease of replacement of a failed party as either market provider or participant | Premiums for specific business lines | 5% |
| Global activity (5%) | Significance of cross-border operations | Revenues outside home country | 2.5% |
| | | Number of countries | 2.5% |
| Total | | | |

Perspectives – On a Framework for Local Insurers

| Category | Description | Rationale |
|---|---|---|
| Size | <ul style="list-style-type: none"> The size of the insurer /FHC relative to the financial system and economy of Trinidad & Tobago | <ul style="list-style-type: none"> The distress of failure is more likely to damage the local economy or financial markets if it represents a large share of the system itself |
| Inter-connectedness | <ul style="list-style-type: none"> The extent to which the entity is linked to other financial institutions within Trinidad & Tobago through contractual obligations | <ul style="list-style-type: none"> An institution's systemic importance is likely to be positively related to its interconnectedness with other financial institutions since links could result in an institution's financial distress increasing the likelihood of distress at other institutions |
| Substitutability / financial system infrastructure | <ul style="list-style-type: none"> The degree to which the entity's role within the financial system could be replaced if it were to fail | <ul style="list-style-type: none"> The systemic impact of a financial institution's distress will be larger in cases where other institutions cannot easily provide the same or similar services |
| Complexity | <ul style="list-style-type: none"> The complexity of the entity's balance sheet and business practices | <ul style="list-style-type: none"> The systemic impact of failure is related to overall complexity - will require greater costs and time to resolve the institution |

Failure Probability

The likelihood of failure is the probability of insolvency of the relevant financial activity of a company, which for existing product lines can be measured historically.

This historical failure measurement by activity could then be adjusted based on predetermined formulas depending on whether the following factors are above or below specific benchmarks for the activity:

- Capital reserves;
- Risk profile;
- Enterprise risk management and Transparency
- Liquidity

Perspectives – On An Assessment of Failure Probability

| | Indicator Name | Measure |
|---------------------|--|---|
| Capital | Insurance solvency ratio | Available / Required Capital (CAPAD Ratio) |
| Risk Profile | Top 20 exposures | Sum of top 20 single name exposures as a % of Total institution assets |
| | Domestic sovereign exposure | Sum of domestic sovereign exposure as a % of Total institution assets |
| | Regional sovereign exposure | Sum of total regional sovereign exposure as a % of Total institution assets |
| | Other sovereign exposure | Sum of other sovereign exposure as a % of Total institution assets |
| | Regional assets | Total Caribbean foreign currency assets as a % of Total Financial System Assets |
| | Other international assets | Total other foreign currency assets as a % of Total Financial System Assets |
| | Regional liabilities | Total Caribbean foreign currency liabilities as a % of Total Financial System Liabilities |
| | Other international liabilities | Total other foreign currency liabilities as a % of Total Financial System Liabilities |
| | Non-domestic revenues | Total Non-Domestic Revenue as a % of Total institution revenues |
| | Currency risk sensitivity | Sensitivity of capital and earnings to changes in exchange rates and asset prices (by currency) |
| | Risk profile & correlations | Qualitative commentary |
| Management | Governance | Qualitative commentary |
| | Risk appetite, measurement & reporting | Qualitative commentary |
| Liquidity | Liquidity risk | Qualitative commentary |

Perspectives – On Risk Measurement

Bisias et al – Over 31 ways to measure systemic risk

Tail Measures

Measurement of co-dependence in the tails of equity returns. Adrian & Brunnermeier (2008) Bronlees and Eagles (2011). See V. Arycharya (2010)

Contingent Claims Analysis (CCA)

Gray & Jobst (2011)

Network Models

Focus on Interconnectedness . CBTT currently considering responses to Letter of August 8 regarding the development of a Regional Financial Interconnectedness map–

See IMF Working Paper – Ogawa, Park, Singh, Thacker (July 2013)

Stochastic Models

Mets & Wouters (2007), Gertler & Kyotaki((2010)

What is the Objective ?

- Should we be seeking to quantify systemic uncertainty (Haldane et al)?
- Should we defer to Regulators to “know it when it sees it” Is this what happened with Clico?
- **Internationally current state is the establishment of regulatory framework that helps mitigate risk from systemic linkages.**

The issue of risk identification - causes vs. symptoms, subjects vs. objects

What about Risk Measurement approaches – Data ? Distortions in data collection can limit aggregation models even where data exists.

Risk of underestimating practical problems of trying to apply systemic risk management approaches to a real-life situation (*IMF – Global Financial Stability Report, Oct. 2009*)

- **Risks losing transparency** and conclusions **highly dependent on assumptions** used and the availability of high-quality, real-time data
- Potential for distortion in order to disguise the current problematic nature of specific policies
- A model is simply a model – a general representation of reality in a steady-state
- Rare and non-recurring events not caught - increases tail risk

Network models of interconnectedness opens a Pandora's box of policy questions – however at issue is the policy response – for which a necessary input is the velocity with which the network structure evolves if the firm fails.

Nexus between Microprudential and Macroprudential policy

One issue with micro- prudential policy is that actions that are appropriate for individual firms may collectively cause or aggravate system-wide problems – may be even more critical during crises.

As Owners of Financial Assets, Insurers are deeply connected to financial markets – particularly GOTT and State Enterprise Bonds and domestic equities. Little choice – 80/20 Rule. One of the principal economic roles of insurers is to invest premiums until they may be needed to pay claims.

Insurers face complex array of restrictions - risk-based capital rules, which link the required and recommended levels of capital that an insurer must hold to various company-specific risks, including the riskiness of insurers' assets. These will be accompanied by hard-limits on the types of investments that insurers can hold.

Perspectives – Micro and Macro

A side-effect of these regulations is the potential to cause insurers to act in a highly coordinated fashion, particularly as regards the management of investment portfolio.

The herding effect - insurer coordination of investment strategies induced by regulatory rules can have potentially damaging consequences from a systemic risk perspective.

Regulatory rules interacting with market developments can suddenly cause insurers as a group to have strong regulatory reasons to sell specific assets or types of assets. **Trinidad & Tobago May 2005**

Journal of Financial Economics - Ellul, Jotikasthira, & Christian T. Lundblad, *Regulatory Pressure and Fire Sales in the Corporate Bond Market* – Study of insurer behavior between 2001 and 2005.

Perspectives – Micro and Macro

Found evidence that insurers that faced comparatively large regulatory constraints, because they were already operating close to regulatory restrictions regarding their investment portfolios, were more likely than other insurers to immediately sell bonds that were downgraded from investment-grade status.

This finding strongly suggests that regulation plays a key role in causing insurers to sell downgraded assets. Additionally, there was strong evidence that this process of forced-selling by regulatory-constrained firms magnified price effects during periods in which insurance companies as a group were relatively more distressed and when other potential buyers' capital is relatively scarce.

Perspectives - Micro and Macro

What is the current state of microprudential policy - data uncertainty, immaturity and other infrastructural deficiencies.

CAPAD Rules for Insurers, let alone the wider context of strengthening and encouraging growth of domestic capital markets is still under review

Who owns macroprudential Policy ?

Could create regulatory/business uncertainty and additional burden at a time when system is distressed and capital is expensive – and at base a potential for divergent positions.

Nier (2011) - macroprudential policy maker either has to have direct power (control) over specific regulatory instruments of macroprudential regulation or the power to direct other policy makers, such as the microprudential supervisory authority.

Perspectives

- The failure of CL Financial Group demonstrated the extent of regional interconnectedness through large NBFIs and the need to **strengthen supervision of these institutions.**
- Comprehensive and Mutually supportive supervision of all risks of an insurer on a group-wide basis is fundamental.
- Assure that risk-based capital requirements do not become pro-cyclical, particularly with regard to financial risks, with inadequate capital requirements in the upswing of an economic cycle facilitating an over expansion of insurers' balance sheets.
- Cooperation and exchange of information between supervisory authorities, and the establishment of MOUs for cross-border resolution frameworks should be prioritized.

Perspectives

- The risk management framework should include key concepts of a “control cycle” approach to the measurement and management of risk for assets and liabilities, including incorporating allowance for extreme event outliers.
- Specific financial condition reporting (beyond just accounting and stress testing) independent sign-off on liability for regulatory purposes by professionals and subject matter experts.
- Improved risk governance processes being adopted by all financial market participants to more consistently measure, apply, stress test and transparently report risk indicators. Consider the adoption of Own Risk and Solvency requirements.

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