



International Organization of Securities Commissions
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Time for a paradigm shift in thinking

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Good afternoon.

I'm delighted to be back once again among IOSCO friends and colleagues, and privileged to give the keynote address for this distinguished line-up of panellists.

Today I plan to discuss with you the paradigm shift in thinking which the Global Financial Crisis has required us to undergo. I am referring to the new conceptual underpinning of our understanding of systemic risk and in particular systemic risk in markets.

I will then offer you my thoughts on the way in which we can develop this thinking and discuss a model drawn from the science of networks to outline some tools which regulators might use to address systemic risk in markets.



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Historically systemic risk has been conceptualised as focusing on financial institutions such as banks and has been seen as the remit of prudential regulators. The growth of disintermediation where businesses can access capital market funding from outside of the traditional banking framework has broadened the focus to now include systemic risks in markets.

This is a fundamental shift in thinking and it underpins the important development IOSCO has achieved this week.

Yesterday at the Presidents' Committee IOSCO approved eight new principles of securities markets regulation. These principles cover several important areas highlighted by the recent Global Financial Crisis, including hedge funds, credit rating agencies and auditor independence and oversight. Two of these principles address systemic risks in markets. One requires regulators to have or contribute to a process to monitor, mitigate and manage systemic risk and the other requires regulators to review the perimeter of regulation regularly. These two principles recognise that markets matter in the management of systemic risk and place securities markets regulators in an important role in the management and mitigation of systemic risk. These principles in no way derogate from the responsibilities of prudential regulators to focus their energies on the appropriate management of systemic risk in institutions.

Rather, these new principles recognise the reality of the virtuous twins of financial stability namely effective prudential regulation and effective market regulation. Both are equally important to achieve proper management of systemic risks.

The Global Financial Crisis which swept through financial markets in 2007/09 led to enormous losses of wealth, depreciation in asset values, collapses in financial institutions, bail outs of banks and other institutions, large increases in sovereign debt and significant pain for people in many parts of the world.

This crisis shocked investors, policy makers and regulators and has occasioned the necessity to completely rethink the way in which we understand markets, economic policy and securities regulatory policy.

The crisis does not allow us to continue in the same paradigm of thinking which clearly let us down in the decade before the crisis. It is clear, as Alan Greenspan has agreed, that his faith that market disciplines were sufficient to regulate markets was mistaken. It is clear that there need to be some curbs on market behaviour in order, as John Bogle has pointed out, "that self interest doesn't get out of hand".

It also requires to my mind that the traditional orthodoxy of economic theory of financial stability be overhauled. The concept of systemic risk needs to be transformed so that recognition is given that financial stability is as much the concern of securities markets regulators as it is of prudential supervisors.



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We need to consider how to clearly articulate the concept of systemic risk in markets, how to think about it and address it in a meaningful, tangible way. This analysis is still a nascent science.

A number of writers in the financial area have indicated that language and in particular, metaphor tend to shape not only our thoughts but may shape the actions that follow on from thought and in this respect some metaphors can be distinctly more useful than others in enhancing our understanding.

In a recent book ‘Animal Spirits’, George Akerlof and Robert Shiller emphasised the role of stories in shaping people’s perceptions and actions

As Richard B. has said, “Financial system metaphors tend to remain grounded in 17th Century physics and 19th Century biology. They rarely incorporate the integral visions of 20th century quantum physics or ecology, and more recently the internet. The result is “machines” rather than ecosystems¹. As he points out, mechanistic metaphors do not accurately reflect 21st century money. Ecological interrelationships are absent. This article was written in 2003 – well before the Global Financial Crisis but I believe that it is very relevant for the conceptual way in which we approach systemic risk in markets.

The 20th century was the century of structural or mechanistic solutions. By the end of it some of the post World War II constructs were appearing outdated.

The 21st century is likely to be one of network solutions. If we look at the transformation that networks have made to life in the 1st decade of the 21st century, we can think of social networking through Facebook and other such internet sites. Reflect for just one moment on that extraordinary phenomenon of Second Life, an internet alternative world, where people live through Avatars and assets are bought and sold with real money, creating a real economy in a virtual world. Such extraordinary developments are undoubtedly just the beginning.

An interesting challenge for future regulators may be to look across the perimeter of regulation into this virtual world. We regulators have plenty of challenges without taking this one on just yet!

Within our own sphere of financial regulation here in the real world, one of the major lessons of the Global Financial Crisis is the highly interconnected nature of securities markets and the potential for disruption in one market to have major implications in others. Before the crisis, few investors and market participants in Europe or the UK would have imagined that the mis-selling of a mortgage product to an unemployed person in the suburbs of Chicago would impact on their economic futures and that of those around them.

¹ *Financial Metaphors: Mechanic, Organic Or....?* Richard B. Wagner published in Financial Advisor, March 2003 available at <http://www.financialadvisormagazine.com/component/content/article/686.html?issue=31&magazineid=1&itemid=27id%3d1%26itemid%3d27/>



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Markets are indisputably global and technology has made them so. Capital now moves at the click of a mouse.

I would like to refer to an important piece of work done by Alex Erskine, ASIC Chief Economist, which I understand benefitted from the insights and comments of other IOSCO securities market regulator economists. He notes that with the benefit of hindsight it is clear that the established ways of thinking about economic policy, prudential policy and securities regulatory policy did in part cause the crisis and need to be rethought. “To now rebuild without rethinking would expose the financial system in the future to a repeat of the crisis just passed”. As he points out, before the crisis, economic policy making and prudential supervision were widely seen to be more important for economic and financial outcomes than was securities market regulation.

Alex Erskine suggests the main challenges we face is that the narrative – the big picture, confidence building paradigm that had sustained trust in financial markets in the pre crisis period – has been severely battered by the crisis. The market did not deliver on its promise of sustained economic growth and welfare. The ‘Great Moderation’ is now seen as an illusion. In the securities space many previously unthinkable or unimagined developments occurred. Major markets failed, central bankers became market makers of last resort and many regulators intervened to at least temporarily ban short selling of many equities. Clearly a new paradigm is needed on which to build a convincing new overarching narrative. In his paper he suggests that regulators should consider using the insights of agency theory and behavioural theories in thinking about the new conceptual framework.

All of these developments require us to rethink our mental model of regulation and the metaphors we might use in trying to understand them.

The new narrative we need to create needs to encapsulate new metaphors to assist our understanding. The virtual world of the internet and the sciences of human behaviour need to be accessed, as possible metaphors and analytical tools, to understand the interconnected nature of international financial transactions and relationships.

In a fascinating article by Bank of England Executive Director of Financial Stability, Andrew Haldane, titled *Rethinking the Financial Network*² he draws analogies between the complex adapted network, “a cat’s cradle of interconnections” of financial markets and other complex network systems. He points out that seizures in the electricity grid, degradation of ecosystems, spread of epidemics and the disintegration of the financial system – each is essentially a different branch of the same network family tree.

The recent Global Financial Crisis is similar to many before it. The same culprits – overextension of credit, over inflation of asset prices and over exuberance of participants, “from the south sea bubble to the subprime crisis, this roll call of excesses is familiar.” Yet,

² *Rethinking the Financial Network*, speech delivered by Andrew G. Haldane, Executive Director, Financial Stability, Bank of England, April 2009, available at <http://www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf>.



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in some more fundamental aspects this crisis feels different – larger probably, more discontinuous, complex and interconnected certainly. He suggests that the financial network has over time become progressively more complex and less diverse.

Diversification came care of two complimentary business strategies. The first was the originate and distribute model. Risk became a commodity, credit became structured, securitisation was one vehicle for achieving this. Derivates such as Credit Default Swaps were another. The second strategy was diversification of business lines. Firms migrated to activities where returns looked largest, leveraged loans, CDO's and proprietary trading. From an individual firm perspective these strategies looked like sensible attempts to purge risk through diversification and more eggs were being place in the basket. Viewed across the system as a whole it is clear now the strategies created the opposite result.

The greater number of eggs, the greater the fragility of the basket – the greater probability of bad eggs!

What emerges during this century was a financial system exhibiting both financial complexity and less diversity. In just about every non financial discipline from ecologists to engineers from geneticists to geologists, this evolution would have set alarm bells ringing based on their experience. Complexity plus homogeneity did not spell stability – it spelt fragility.

Using network analysis and examples from epidemiology he argues that the incentive to generate and propagate risks may have been strongest amongst those posing the greatest systemic threat. He asks can the network structure of international finance be altered to improve network robustness. Answering that question is a mighty task for the current generation of policy makers and suggests that using network resilience as a metric for success might be useful.

He points out that banks entered the crisis with a large portfolio of risky assets. Behavioural responses aggravated stresses in the financial system. As risks materialised, banks rationally sought to protect themselves from infection from other banks by hoarding liquidity rather than on-lending. Banks' mutual interdependence in interbank networks meant that individually rationed actions generated a collectively worse funding position for all. These behavioural dynamics have been defining features of this crisis.

A separate but related behavioural response of fear of infection is felt in the pricing of financial instruments. Networks generated chains of claims at times of stress and these chains amplified uncertainties about true counterparty exposure. Who is really at the end of the chain - Warren Buffet or Bernie Madoff?

He points out that network techniques have already been applied extensively to the dynamics of payment systems and interbank networks. But the financial crisis of the last two years provides a greater body of evidence and a stronger incentive to apply the lessons from other network disciplines to the pressing problems facing financial policy makers today.



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I believe that considering the global financial system as a network provides a very timely and useful metaphor as well as an analytical tool to look for ways of understanding systemic risk in markets and to consider regulatory tools which may be useful in identifying, assessing and managing these risks.

What are these tools that we as market regulators could use to assist us in regulating? Haldane suggests that improved data collection is a vital tool in mapping the network. At present risk management in financial systems is atomistic. This approach gives little sense of risk to the overall system. Risks leaving policy makers navigating a dense fog when assessing the dynamics of the financial system, particularly following failure.

He suggests part of the answer lies in improved data, partly in improved analysis of that data and partly in improved communication of the results. Sampling of links has historically been little deployed when analysing the financial system. Some data exists on the degree of linkage between financial firms but this data is typically only partial and not very timely.

Network boundaries need to be uncovered by following the money flow rather than by using institutional labels or national regulatory boundaries. Stress testing of networks of money flow rather than simply of institutions may be a way to assess resilience. Crucially there needs to be analysis and communication of the results.

Some of these recommendations will resonate with IOSCO members and the initiatives we have taken this week. Most importantly the IOSCO decision to create a research network supported by the Secretary General which will include a group of experienced economists and researchers within the IOSCO membership, a small consultative group of academic economists, key market practitioners and independent researchers led by a sponsor and a selected group of third party suppliers especially from academic institutions who can undertake specific projects.

IOSCO has decided that this new research function will focus on risk assessment and project management support and in particular produce risk outlooks, exploratory analysis, impact assessments and data analysis.

This new function will assist us to develop more refined tools to enable IOSCO members to focus on these two important new principles relating to systemic risk.

Conclusion

The time has come for a step change in the approach to regulation of markets. Recognition of the interconnectedness of global markets requires us to rethink our approach to systemic risks in markets and in doing so to seek new narratives, new metaphors and new approaches to the actual regulatory craft. It may be time to rethink our institution by institution approach and to consider taking our understanding of capital flows into a completely new approach to regulation. Network analysis may assist us to understand the directions this might take,



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IOSCO's new research function will undoubtedly provide some interesting analysis of the global markets which will assist us in the important rethinking process. IOSCO as an international organisation with its global reach and inclusive membership is the ideal forum for these new ideas, new tools and new regulatory approaches to emerge.

Never has IOSCO's role been more pivotal to the new ways of thinking the 21st Century global capital markets will demand.