

Jane Diplock AO
Chairman, Securities Commission New Zealand
and Executive Committee, IOSCO

Australian Centre for Financial Studies
Melbourne, 1 March 2011

Metaphor Matters:
New Thinking behind the Financial System

Good afternoon. I'm glad to be here in Melbourne again, and to be able to address this symposium about the new thinking behind the financial system.

There may still be financial-system participants who would challenge my topic. Many people remain to be convinced that the financial economics that they learned in business school have ideas that are misplaced and have failed. They remain with the same mental models and metaphors in their minds which led us into the global financial crisis.

What we think about how the global financial system works, determines our mental models and metaphors, and can severely limit our thinking. For better or worse, thought reflects us and our times, and crucially shapes our actions. Metaphors matter.

Even the most pragmatic market participant operates according to an underlying concept of how the financial system works and what their role in it is. A concept that arguably becomes all the more powerful in its effects for being unexamined and taken for granted.

The old thinking

For better or worse, the old paradigm of the financial world was an internally consistent one that not only justified single-minded pursuit of short-term results, but as good as demanded it.

Many market participants believed that, when it came to market behaviour, self-interest was an effective – and perhaps the only effective – regulator. They believed that if each market participant dedicatedly pursued their own ends, the financial system would look after itself. This view is outmoded and clearly failed prior to the global financial crisis.

Lessons of the global financial crisis

The cascade of events that were the global financial crisis was a vivid demonstration of the failure of the old thinking. The crisis swept through financial markets, leading 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.

To claim that it taught us lessons we need to learn is not to deny the devastation it wreaked on individuals, businesses, markets and economies. We *must* learn these lessons if we are not to invite recurring crises.

1. Markets matter

Before the crisis many believed that, so long as we regulated institutions such as banks, markets would regulate themselves by means of self-interest alone. Our understanding of systemic risk focused on purely financial institutions, which was seen as the remit of prudential regulators.

This view took too little, if any, account of the growth of disintermediation whereby businesses access capital-market funding from outside the traditional banking framework. The growth of the shadow banking system and the unregulated markets were largely ignored by regulators and policy makers.

We now understand that securities market regulation *and* prudential management of institutions are the virtuous twins of financial stability and healthy economies. Both must be in place if markets are not to collapse in disarray.

2. Global markets are vitally interconnected

The crisis was a dramatic illustration of a 21st-century fact of life – that national borders no longer stand in the way of capital flows. Money moves around the world at the click of a mouse. Disruption in one market can, and often does, cause instant, major disruptions in other, apparently remote, markets.

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.

Today's markets are indisputably global; technology has made them so.

3. Governance and sustainability matter

It was individuals acting rationally in their own short-term self-interest that brought global markets to their knees. Their practices – although usually driven by a sense of duty to shareholders – were unsustainable in the longer term. They threatened the entire system, and that, of course, included the very shareholders such practices were intended to benefit.

The third lesson of the crisis, then, is that good corporate governance is essential to a

stable securities market. This is why John Bogle,¹ one of my colleagues on the Financial Crisis Advisory Group, characterised it as a "crisis of ethic proportions".

A contemporary understanding of ethics must also, I firmly believe, incorporate the principle of sustainability and include it in the formulation and practice of good corporate governance. Governance must cover every aspect of how a company behaves.

The implications of these three lessons go deep and wide. Around the world, they have prompted a radical overhaul of our mental model of the financial system.

Above all, they point to the centrality of the need to be aware of and address systemic risk.

The centrality of systemic risk

Writing as early as 2003, Richard B Wagener² pointed out that financial system metaphors rarely incorporated the integral visions of 20th-century quantum physics or ecology, or the internet. The result, he said, was a perception of "machines" rather than ecosystems, and mechanistic metaphors that failed to reflect accurately the 21st-century behaviour of money.

The 20th century was one of structural and mechanistic solutions. By the end of it, many post-World War II constructs were looking outdated. The 21st century will need new thinking.

In an important piece of work, ASIC Chief Economist Alex Erskine noted in 2009 that, with the benefit of hindsight, it was clear that established ways of thinking about economic policy, prudential policy and securities regulatory policy contributed to the crisis and needed to be rethought.

"To now rebuild without rethinking," he writes, "would expose the financial system in the future to a repeat of the crisis just passed". He suggests that our biggest challenge is that the predominant narrative - the big-picture, confidence-building paradigm that sustained trust in financial markets in the pre-crisis period - has been severely battered.

The market did not deliver on its promise of sustained economic growth and welfare. The "Great Moderation" was an illusion.

In the securities space, many previously unthinkable, 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.

¹ John C Bogle, "A Crisis of Ethic Proportions", *The Wall Street Journal*, 21 April 2009, available at <http://online.wsj.com/article/SB124027114694536997.html>

² "Financial Metaphors: Mechanic, Organic or ...?", *Financial Advisor*, March 2003, available at www.financialadvisormagazine.com/component/content/article/686.html?issue=31&magazineid=1&itemid=27id%3d1%26itemid%3d27/

Bank of England Executive Director of Financial Stability Andrew Haldane³ is also at the forefront of some new thinking. The global financial crisis was similar to many before it, he says. The same culprits - over-extension of credit, over-inflation of asset prices and over-exuberance of participants: "[F]rom the south sea bubble to the sub-prime crisis, this roll call of excesses is familiar."

Yet, in some more fundamental aspects, he says, this crisis felt different - probably larger and more discontinuous; certainly complex and interconnected. Credit had become structured through securitisation and derivatives, such as credit default swaps.

Business lines had diversified. Firms migrated to activities where returns looked largest, going for leveraged loans, CDOs and proprietary trading. From an individual firm's perspective, such strategies looked like sensible attempts to purge risk but in many cases only succeeded in concentrating it.

Haldane suggests that the financial network became over time progressively more complex and less diverse. Diversification came care of two complimentary business strategies.

The first was the originate-and-distribute model. 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.

This fear of infection was also expressed in the pricing of financial instruments. Opaque networks generated chains of claims at stressful times, and these opaque chains amplified uncertainties about true counterparty exposure.

Who was really at the end of the chain – Warren Buffet or Bernie Madoff?

Haldane says that what emerged during the early years of this century was a financial system exhibiting both financial complexity and less diversity. In just about every non-financial discipline from ecology to engineering, genetics to geology, this would have set alarm bells ringing – complexity plus homogeneity does not spell stability, spells fragility.

On the basis of network analysis and examples from epidemiology, Haldane argues that the incentive to generate and propagate risks may have been strongest amongst those posing the greatest systemic threat.

He also suggests regulators consider using the insights of agency theory and behavioural theories in thinking about the new conceptual framework.

³ "Rethinking the Financial Network", speech delivered April 2009, available at www.bankofengland.co.uk/publications/speeches/2009/speech386.pdf

The new network thinking

Haldane draws analogies between the complex adapted network of financial markets – “a cat’s cradle of interconnections” – and other complex network systems.

He points out that degradation of ecosystems, the spread of epidemics and the disintegration of the financial system are each branches of the same network family tree.

He asks whether the network structure of international finance can be altered to improve network robustness. Answering that question is a mighty task for the current generation of policy makers and it suggests that it might be useful to take network resilience as a metric of success. There are a number of tools being developed and I will touch on some later.

The global financial crisis provides a greater body of evidence and a stronger incentive to apply the lessons from other network disciplines to the pressing problems facing today’s financial market policymakers.

Other thinkers confirm this view.

Applying the network model to finance refocuses our attention from static institutions to constantly interacting market dynamics; to the links between commodities markets, energy markets, carbon markets and the broader financial markets.

It highlights the basic fact that good systemic health is vital to us all, and that it cannot be allowed to take second place to the individual and their short-term desires.

Narrow, individual profit-seeking can no longer be allowed to threaten the system itself. This is not mere virtue; it is necessity. Without the system that supports them, individuals cannot survive.

It suggests that anything and everything related to markets and their governance, regulation, financial reporting, accounting and auditing must be globally oriented.

It also shows there must be curbs on market behaviour so that, as John Bogle puts it, "self interest doesn't get out of hand".

Clearly we need a new paradigm on which to build a convincing, overarching narrative or metaphor.

I believe that conceptualising the global financial system as a network provides us with an excellent opportunity for understanding systemic risk in markets and for developing regulatory tools for identifying, assessing and managing these risks.

I will discuss IOSCO’s work in this field a little later in this discussion.

The imperatives are, firstly, to answer the urgent need for data collection about the system; secondly, to develop ways of interpreting that data so we can predict tipping points; and, thirdly, to develop regulatory tools for protecting the system.

Collecting and interpreting data

Improved data collection is a vital tool in mapping the network. Currently, financial system risk management is atomistic, and gives little sense of risks to the overall system. Unseen risks leave policymakers navigating a dense fog when trying to assess the dynamics of the financial system, particularly following failure, never mind in trying to predict it.

Network boundaries need to be uncovered by following money flow rather than by relying on traditional institutional labels or national regulatory boundaries. Stress-testing of network money flow may be one way to assess system resilience.

Sampling of links has only rarely been deployed when analysing the financial system. Some data exists on the degree of linkage between financial firms but it is typically only partial and out-of-date.

The point of data collection is that it should enable us to monitor the health of the financial system and may be able to give us early warning of system threats. Once upon a time, this would have sounded like wishful thinking. Earthquakes can wreak more havoc than financial collapses, and yet – as recent events in Christchurch have shown – we remain quite unable to predict them.

When it comes to the financial system, though, we may well be further advanced. Recent progress in the field of artificial intelligence promises a great deal.

Getting to grips with complex systems that involve vast numbers of interacting, moving parts, we are beginning to see how they work, and, importantly, how they signal the stress that can presage a meltdown.

Probabilistic programming has already developed to the point where it can predict the likelihood of a premature baby having health problems – a notoriously difficult task.⁴ It takes into account the many variables, and delivers a useful result for medical staff and families to work with. This algorithmic probability prediction tool may be useful in financial markets data assessment.

The production of probabilities is essential in fields where “answers” are seldom, if ever, black and white, right or wrong. Rather than picking the highest-ranked result, it ascribes a probability to the results.

A recent *Financial Times* article⁵ suggested that this technology was very well-suited to the financial arena, because of its ability to process large amounts of information and give lightning-fast assessments of probabilities.

Early customers for such a facility are almost bound to be financial institutions, says the writer. That’s because of the high demands they place on risk-management systems and trading-support tools, and their need for speed.

This new science of prediction, particularly its potential to detect tipping points may

⁴ “I, Algorithm”, Anil Ananthaswasmy, *New Scientist*, 29 January 2011.

⁵ “Mind Games”, Richard Walter, *Financial Times*, 17 February 2011.

have particular relevance to the reviewing of thinking about system risk. These have application to the fields of climate change, ecosystem crisis and market crashes, where stability can be a fragile, transitory state, threatening at any point to tip into chaos.

The traditional view is that such tipping points are unpredictable. The new reality is that they are probably not – not once technology is advanced enough to analyse the vast amounts of data that can produce this as a probability.

This is a brave new science using similar algorithmic approaches to those which now dominate much of the global trading platforms, but in this case to predict market bubbles and other anomalies such as the flash crash and attempt to avoid the market being systemically affected.

With the right high-precision data to hand and appropriate tools to understand and assess it, we may before too long, be able to recognise the tipping points in system risks and avert impending disaster in financial markets.

Corporate governance and integrated reporting

Sound corporate governance is the financial system's way to think globally and act locally. It is an important tool for nurturing the ecosystem which is the financial world.

The evidence is that it's also good for business. It builds financially, environmentally and socially sustainable companies, and research shows that, increasingly, these are the businesses investors want to invest in.

One aspect of ESG being addressed world-wide, for instance, is that of gender balance on boards. Studies have shown that companies with more women on their boards perform substantially better, and smart companies are aware that it makes sense to appoint more women.

New Zealand is level-pegging with Canada and the US on this metric, with the proportion of women on top boards at just over 11%.⁶ Australia is lagging a little at 9.9% and Japan stands at less than 1%.

Just a couple of days ago the British Government welcomed Lord Davies' report '*Women on Boards*' exhorting British companies to disclose the number of women on boards, requiring headhunting firms to draw up a code of practice and requesting companies and investors to set targets to increase female board participation to 25% by 2015.

What is just as vital as the practice of ESG, though, is the need to let investors see it is being practiced. This relies on good reporting.

⁶ *Women on Boards: A Statistical Review by Country, Region, Sector and Market Index*, GovernanceMetrics International®, 2 March, 2009, available at [http://www.gmiratings.com/\(bnnl3555sqbsvh551v2jfs55\)/hp/Women_on_Boards_-_A_Statistical_Review_from_GMI_-_3_2_09.pdf](http://www.gmiratings.com/(bnnl3555sqbsvh551v2jfs55)/hp/Women_on_Boards_-_A_Statistical_Review_from_GMI_-_3_2_09.pdf)

A one-off snapshot of a business's financial situation will no longer fit the bill. What's needed is a panorama that takes a wider and a longer-term view. The essence of integrated reporting, or One Report, as it's becoming known, is that it combines environmental, social, governance and financial elements in one report to show how each impacts on the other.

Integrated reporting ensures companies consider much more than the traditional, financial bottom line when making decisions. It ties governance into basis business processes, and mainstreams non-financial goals. It demonstrates company commitment to ESG issues, but is also a tool for achieving related goals. It ensures action.

I have the privilege of sitting on the International Integrated Reporting Committee set up by, among others, HRH The Prince of Wales. The committee is looking at ways of providing long-term investors with the information they need.

This work has met with widespread corporate, public and commentator approval, and I am delighted to be part of such a forward-looking programme. Whether or not integrated reporting will eventually be mandatory remains to be seen.

Meanwhile, the signs are that the practice is growing.

IOSCO work

The International Organisation of Securities Commissions is at the cutting edge of the new thinking and its application to regulating securities markets.

The organisation covers more than 95% of the world's capital markets, and includes the major capital markets of Europe, the Americas and Asia. Australia and New Zealand are both members, and I have the privilege of chairing its Executive Committee.

Over the last decade, IOSCO has transformed itself from a network of securities regulators setting aspirational standards, to a lynchpin in the global financial architecture. It is recognised as the global securities-markets standards-setter by the G20, the IMF and the World Bank, along with the Basel Committee on Banking and the International Association of Insurance Supervisors. It has two seats on the G20's Financial Stability Board.

It is embarked on a massive programme of overhauling securities markets standards. The G20 has mandated implementation of all of these standards in G20 countries, and, in the wake of the global financial crisis, required their global auditing.

Its ambitious work plan addresses a wide set of issues, including:

- fleshing out the concept of systemic risk as it applies to markets;
- developing concrete measures for monitoring systemic risk;
- looking over the border of the current regulatory landscape into territory previously unregulated or under-regulated and setting standards for these areas, which include credit-rating agencies, hedge funds, dark pools, high-frequency trading and complex products;
- looking at the interface between conduct and prudential regulators;

- and enhancing cross-border supervision.

Recognising the need for data, IOSCO has created a research network that includes a group of experienced economists and researchers within the IOSCO membership.

This new research arm will focus on risk assessment and project management support. It will produce risk outlooks, exploratory analysis, impact assessments and data analysis.

In Montreal last year, IOSCO approved eight new principles of securities markets regulation. They cover areas highlighted by the global financial crisis, including hedge funds, credit rating agencies and auditor independence and oversight.

Two of them address systemic risks in markets. One requires regulators to have or contribute to a process to monitor, mitigate and manage systemic risk. The other requires regulators to regularly review the perimeter of regulation.

In no way do these two new principles derogate from the responsibilities of prudential regulators to focus their energies on the appropriate management of systemic risk in institutions. Rather, they recognise the reality that the virtuous twins of financial stability are effective prudential regulation *and* effective market regulation.

Last year, IOSCO set up its Working Group on Systemic Risk to examine the role of securities regulators in monitoring and managing this risk.

Securities regulators have traditionally focused on transparency and disclosure. This makes them well-placed to encourage appropriate flows of information to market participants, investors and regulators.

In an important discussion paper released just last week,⁷ IOSCO clearly states its belief that promoting financial stability is a responsibility to be shared throughout the regulatory community.

The paper, titled, *Mitigating Systemic Risk: A Role for Securities Regulators*, aims to promote discussion among regulators on the ways systemic risk comes under their mandates, and to give them insights into how they can identify, monitor, mitigate and manage systemic risk.

It begins a process of developing a methodology for identifying, analysing, monitoring and mitigating systemic risk, and promoting financial system stability.

Monitoring and managing systemic risk will mean securities regulators working towards:

- expanding their supervisory role in terms of greater markets transparency and disclosure;
- better understanding of financial innovation – one that appreciates its potential

⁷ The Technical Committee of IOSCO, *Mitigating Systemic Risk: A Role for Securities Regulators*, Discussion Paper ORO1-11, February 2011, available at <http://www.iosco.org/library/pubdocs/pdf/IOSCOPD347.pdf>

- risks and finds the right balance between unrestrained innovation and overregulation;
- increased internal resources devoted to monitoring market developments and identifying emerging risks; and
 - engaging with other national and international regulators and supervisors, such as prudential regulators, central banks and self-regulatory organisations, to produce a more robust, coordinated framework for promoting financial system stability.

Each IOSCO member will determine its response to these imperatives – a response based on its own mandate and domestic regulatory structure, as well as the size and characteristics of its securities market.

The tools securities regulators could consider using include:

- measures to increase transparency;
- business-conduct rules;
- organisational, prudential and governance requirements;
- emergency powers.

The paper concludes that disclosure and transparency are critical to identifying emerging systemic risk and arming regulators to address it. It says robust regulatory supervision of business conduct is essential to managing conflicts of interest and the build-up of undesirable incentive structures within the financial system.

It urges securities regulators to focus on financial innovation and its implications for financial stability, and says it's important for regulators to develop key risk measures.

Finally, it highlights the need for regulators to cooperate in understanding market vulnerabilities and the interconnections between the financial sector and the real economy.

Trans-Tasman cooperation

I'd like now to tell you a little about one expression of this kind of cooperation – the working relationship between the Australian and the New Zealand securities commissions. This has already reaped substantial benefits, and promises more.

Mutual recognition of security offerings (MRSO) between New Zealand and Australia has been in effect since June 2008. It allows issuers offering a product in their home jurisdiction to offer it into the other – the host jurisdiction – without having to comply with many of the host jurisdiction's securities and fundraising laws.

An Australian issuer can offer shares, debentures or interests in managed investment schemes in New Zealand on the basis of an Australian prospectus or product disclosure statement. Similarly, a New Zealand issuer can offer securities in Australia using a New Zealand prospectus.

The regime has proved beneficial on both sides of the Tasman. Issuers face a lighter regulatory burden and reduced duplication, resulting in cost savings. It gives investors access to a bigger choice of investments but with the same level of protection.

By 30 June 2010, 13 New Zealand companies had used the regime 15 times, and 91 Australian funds and companies 343 times. Research by the two countries' securities commissions showed that issuers' costs had been cut by between 55 and 95%, and that it took them 25% less time to get to market than before.

The success of the MRSO suggests we may be able to work towards other milestones, such as mutual recognition of financial advisers. Mutual recognitions are one of the best ways of streamlining the conduct of business across the Tasman, and to bring our countries closer to the ideal of mutual recognition in all regulatory areas.

Agreed protocols between our regulators also allow us to share information on a range of matters, including whether issuers are complying with their home jurisdiction's requirements and whether there are regulatory concerns about their host jurisdiction operations.

Our two securities commissions are determined that the establishment of New Zealand's new Financial Markets Authority (FMA) will only strengthen this relationship.

The Financial Markets Authority

The global financial crisis, and the preceding collapse of a large number of New Zealand finance companies, hastened the establishment of this new body. It is designed to promote the new regulatory culture I have been describing, with powers appropriate to today's complex markets. It is expected to be up and running by May.

The FMA will be the single market conduct regulator for New Zealand's financial markets, consolidating functions previously fragmented across the Securities Commission, the Ministry of Economic Development, the Government Actuary and the New Zealand stock exchange.

It will regulate all key financial market participants, including registered exchanges, financial advisers, trustees and auditors. It will publicly enforce the duties of issuers, directors, auditors, trustees, and others involved in financial markets when it's in the public interest to do so – a power the current Securities Commission does not have.

Individual investors have sometimes not pursued civil cases of misconduct because of the costs and risks of doing so, or because they have limited legal standing. The FMA will be able to exercise an individual's right to bring a civil action against a financial markets participant.

It will also have more powers to require that warnings about financial products and providers be included in offer documents and be published by the issuers.

The FMA will regulate issuers throughout the lifespan of the securities they are offering. Again, this is something the Securities Commission has been unable to do, having had power only to focus on the issuer's point-of-sale disclosure.

The goal of this radical re-organisation is building and enhancing investor confidence

to encourage investors back into the market. In New Zealand, as elsewhere, this will give businesses access to capital and grow the economy.

The establishment of the FMA is an important step in New Zealand's securities market regulation – in line with the new thinking and another expression of thinking globally and acting locally.

Conclusion

Blinkered self-interest can be as dangerous in the financial field as it is in the environmental field. A global view combined with sound corporate governance that includes environmental and social aspects of company performance is essential in the 21st century.

Regulation will never be the whole answer. Forward-looking companies and stock exchanges don't do the minimum then sit back and wait for regulations to compel them to do more.

They avidly pursue good governance including board diversity and encourage innovation and new ideas of market structures and products and understand their role in the global financial network.

This is the essence of the new thinking. If we can find the courage to act on it, it promises a great deal.

It requires courage, insight and sensitivity from all market participants, including regulators.

I would like to briefly return to the matter of metaphor. In order to be able to identify trends which may pose systemic risks in markets, we need to look through the right lens. We need to use the right metaphor to not only reflect but shape our thinking. The network model enables us to do this. Armed with this conceptual framework and learnings from the modern scientific world, and using mathematical techniques used elsewhere in modern markets, and concepts from behavioural economics, policy makers and regulators have a far greater chance of seeing trends emerge which may lead to systemic risk and to intervene before the tipping point into chaos is reached. This requires deciding new ways of thinking about how markets work and function.

Thank you.