Alan Bollard: Economic surveillance after the crisis – reflections from a small full service central bank

Speech by Dr Alan Bollard, Governor of the Reserve Bank of New Zealand, and Mr Enzo Cassino, Acting Manager, Financial Markets Research, to the Sim Kee Boon Institute Conference on Financial Economics, Singapore, 5 May 2011.

The speech was delivered by Dr John McDermott, Assistant Governor of the Reserve Bank of New Zealand.

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Introduction

Nearly four years after it began, the Global Financial Crisis continues to impact the changing behaviour and practices of the world's central banks. In particular, it has affected the way central banks monitor and analyse economic conditions to formulate monetary and financial stability policies. We can describe this monitoring and analysis process as "economic surveillance".

Economic surveillance refers to all the various channels we use to obtain information about the financial system and the economy to support our decision-making. This monitoring covers both the global and domestic economies. It also covers a wide spectrum of sources and methods, including statistics, financial market data, the functioning of the payments and liquidity infrastructure, external commentaries, and intelligence gathered from contacts in the financial and business sectors. Collecting, analysing and interpreting this range of data requires a wide range of skills and expertise in central banks, including macroeconomics, financial modelling and market liaison. The financial crisis has led to some changes in the way we do economic surveillance and presents new challenges and opportunities for central banks. Our perspective on this task at the Reserve Bank of New Zealand comes from being a small "full service" central bank responsible for both monetary policy setting and supervising the financial system. Our view is also impacted by New Zealand being a small open economy. This makes us a price taker in the markets for many tradeable goods and also exposes us to the impact of economic and financial shocks in larger economies. It also makes it more difficult for us to set standards of regulatory compliance for our financial sector in isolation and independently of regulatory developments in larger economies.

Surveillance before the crisis

To better understand the impact of the crisis on central banks' behaviour, it is useful to start by describing how monetary authorities behaved before the crisis. In the pre-crisis world, monetary policy setters were often able to inform their decisions using a number of reasonably reliable empirical correlations between real or financial variables that had been historically quite stable. While structural change and the breakdown of empirical relationships still commonly occurred at times, many empirical regularities appeared to be robust enough to be useful for forecasting and policy making. One example in the New Zealand context, and in many other countries, was the very tight relationship observed between changes in house prices and household consumption spending through the early-mid 2000s, which was of considerable benefit in forecasting domestic demand. There was also a relatively close correlation between house price growth and growth in credit provided to the household sector during this period.

Another key feature of policy-making before the crisis was the clear separation between monetary policy formulation and financial stability policy in full service central banks. In addition, independence between monetary and fiscal policy decision making was a basic aspect of central banks' institutional structure in many countries since the 1980s. As part of

this separation, there was usually separate monitoring, with different data sources and analysis for monetary policy and financial stability policy formulation.

Following the crisis, there have been several significant changes to this structure. First, some of the historically stable empirical relationships appear to have become weaker during the crisis compared to the mid 2000s. For example, in New Zealand, house prices fell more sharply than consumption during the crisis. Likewise, while house prices declined, household credit continued to grow during 2008–9, albeit at a slower pace.[1] It is too early to confirm econometrically whether these divergences represent permanent structural breaks, or whether the historical correlations will be quickly re-established. However, these divergences have at times made it more difficult to interpret household behaviour and to forecast the economic outlook.

Figure 1
New Zealand Private Consumption Growth and House Price Growth
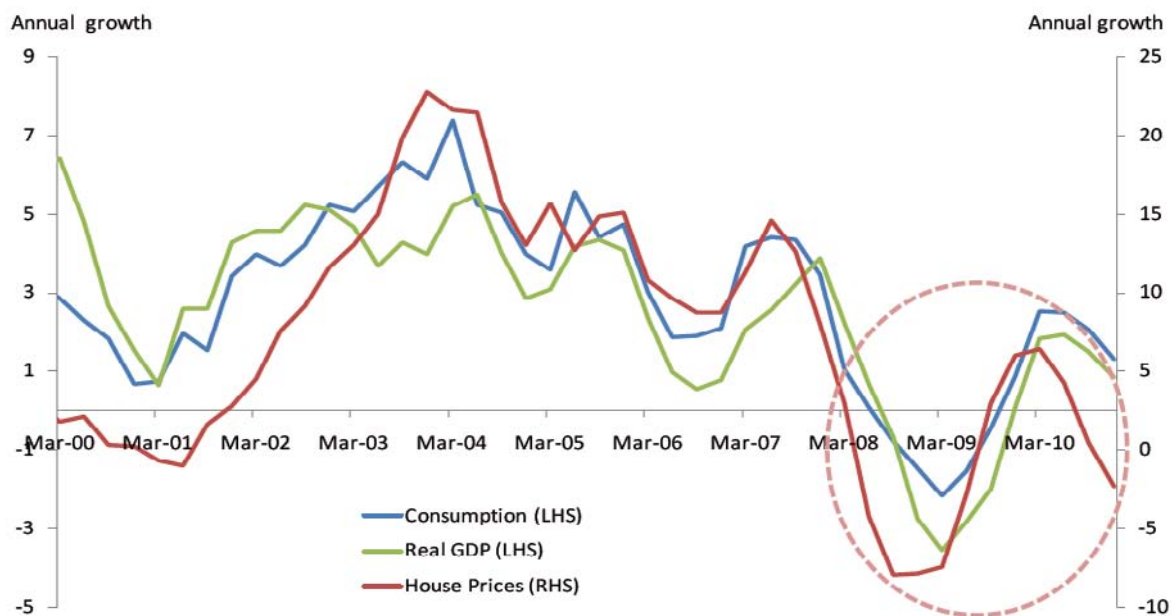
Note: Real private consumption growth and REINZ stratified median house price
Sources: REINZ, Statistics New Zealand, RBNZ

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[1] While household credit has continued to grow, credit to the business sector has fallen at a historically unprecedented rate in New Zealand since the crisis. This has contributed to a sharp slowdown in business investment.

Figure 2
New Zealand House Price Growth and Household Credit growth

Annual Growth
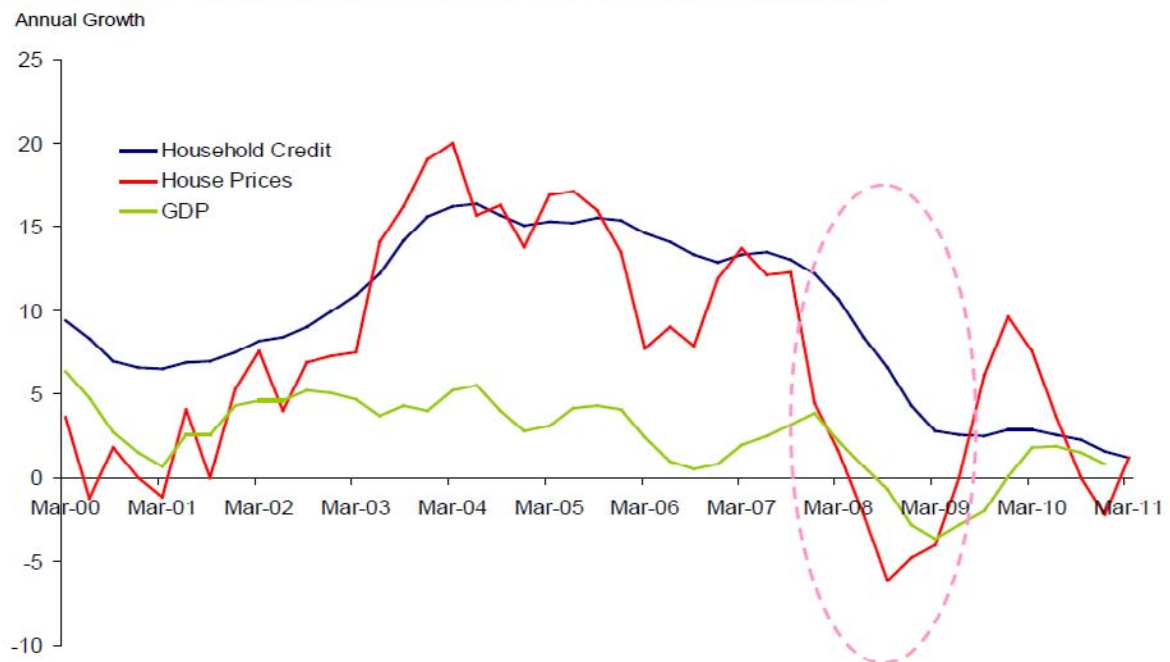
Note: REINZ stratified median house price and household credit
Sources: REINZ, Statistics New Zealand, RBNZ

Secondly, the separation of monitoring for monetary and financial stability policies highlighted a lack of coordination between these various roles for the identification of issues and risks. For example, in 2006 most financial stability reports still identified national financial systems as healthy.[2] In addition, IMF commentaries identified current account imbalances in many countries, but did not link them to systemic risks in financial systems.[3] The instability in the global financial crisis and its flow-on effect on the real economy has required much greater co-ordination and interaction between monetary and financial stability policy setting by central banks. As a result, the distinction between information flows gathered for monetary policy and financial stability purposes is now far less distinct. There is now a greater focus on financial system information and financial market data in monetary policy formulation, triggered by the breakdown in the forecasting performance of structural and statistical models. Likewise, more attention is paid to real economy imbalances and sectoral financial positions, by looking at household and business sector balance sheets, when assessing financial sector risks. As a result, there is a very active research agenda aiming to incorporate housing and financial sectors into the dynamic stochastic general equilibrium models used in many central banks.[4] This broader outlook and greater overlap between monetary and financial stability policy is reflected in the RBNZ's "Cobweb" diagram, which is

[2]   H. Davies and D. Green (2010) *Banking on the Future: The Fall and Rise of Central Banking.*

[3]   Independent Evaluation Office of the International Monetary Fund (2011) *IMF Performance in the run-up to the Financial and Economic Crisis: IMF Surveillance in 2004–7.*

[4]   See W. White (2010) "Some Alternative Perspectives on Macroeconomic Theory and Some Policy Implications", *Globalisation and Monetary Policy Institute Working Paper 54*, Federal Reserve Bank of Dallas.

used to indicate financial stability risks across several different dimensions.[5] In this framework, financial stability risks could be reflected in the global and domestic economies, and in financial market conditions. All of these areas are also routinely monitored for monetary policy formulation.

Figure 3
Reserve Bank of New Zealand's Financial Stability Cobweb
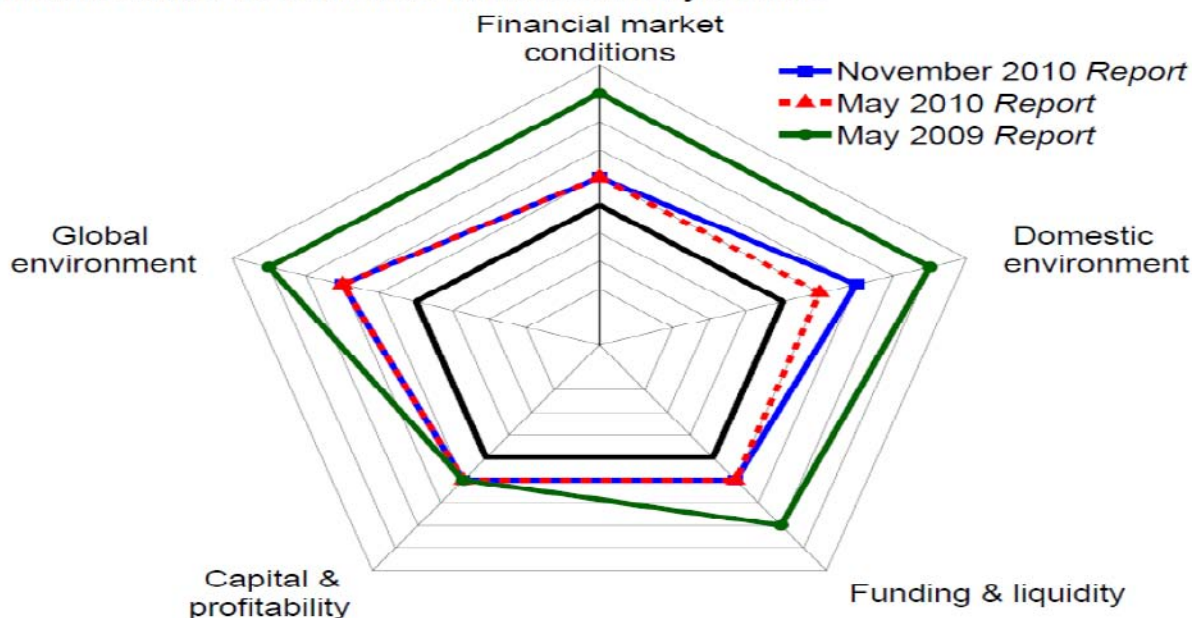
Note: The black band represents a normal level of risk. Movements away from the centre of the diagram represent an increase in financial stability risks.

Following the crisis, concerns about the sustainability of sovereign debt have risen in many countries, most notably in the peripheral euro zone economies. Consequently, central bankers have also needed to co-ordinate their policies more closely with fiscal policy decisions. As a result of these changes, policymakers now need a much wider spectrum of information to set policy, and central banks are now required to have broader concept of "economic surveillance" in mind to inform their decisions. The Global Financial Crisis showed economic surveillance is more important than ever and how we go about that has been permanently changed. During the rest of the discussion, we will consider how different aspects of surveillance have been altered.

International financial surveillance

This crisis was initially about financial institutions and markets and we have learned that it is necessary for central banks and regulators to know more about financial market flows, about non-traditional financial institutions and instruments, and about the inter-connectedness of institutions, especially in the presence of instruments that can go viral. Before the crisis, it

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5   A number of other institutions, including the IMF, have introduced similar frameworks or indices in recent years to measure financial stability. See P. Bedford and C. Bloor (2009) "A Cobweb Model of Financial Stability in New Zealand", *Discussion Paper DP 2009/11*, Reserve Bank of New Zealand.

was assumed that financial markets were efficient in transmitting changes in policy interest rates through conventional financial instruments via the traditional banking system and ultimately into the wider economy. Factors such as securitisation through leveraged derivatives, often carried out by "shadow" banking institutions, generally attracted little attention in policy discussions. In addition, financial spreads had been historically stable enough to accurately reflect the degree of risk on investments.

Yet in the crisis environment of September 2008, financial prices failed to convey the collapse in confidence and paralysis across the international financial system, as policymakers and private financial institutions alike grappled to understand the extent of contagion of exposure to toxic assets through shadow banks and opaque derivative products. Therefore, central banks had to rely increasingly on alternative sources of information to guide policy in restabilising the system.

At the Reserve Bank of New Zealand, international financial surveillance has always been important, with a particular focus on Australia, given the strong links between our four systemically important banks and their Australian parent institutions. However, despite an active surveillance programme and the advantage of some distance from northern hemisphere financial centres, like other institutions, we were wracked by surprises when the crisis began. Being a full service central bank helped. In September 2008 we were seeing the lead up and likely consequences of the Lehman's crisis through our bank regulator reports, our traders' views of funding markets and our domestic markets analysis of overnight bank trading. But information also came from some less typical sources, including our Payment and Settlement Systems monitoring of the size of and timing bank payments, which provided a useful perspective on the degree of nervousness in financial institutions. Our currency manager was also able to relay to us banks' requests for special deliveries of high denomination bank notes, which warned us about a growing nervousness among some members of the public during the heat of the crisis.

Using these new sources has expanded our surveillance toolkit in ways that may be useful in the future. However, many aspects of international financial surveillance remain unresolved. Some key issues include:

- What will be the future of high risk instruments similar to sub-prime and how will they be monitored?

- What will be the relationship between the traditional and shadow banking sectors and will there be accurate data transparently available?

- What will Basel III compliance require in terms of new surveillance and what new information will it offer?

In this regard, the shift towards exchange-based trading of derivative products and away from "over-the-counter" markets may be a welcome move towards increased transparency, centralised data collection and better monitoring. Electronic trading and data will mean greater availability of a wide range of financial market data. These data will provide information about market pricing, volumes, liquidity and investors' appetite for risk. However, just as important as information gathering is filtering, analysis, and transmission in forms suitable for economic interpretation and forecasting. Much more work will need to be done on developing suitable analytical methods to achieve this.

International economic surveillance

What had been thought to be a financial crisis turned into an economic one in late 2008 when fast-growing economies including Asian economies like Singapore (which had been the subject of a debate on international economic decoupling), were suddenly hit with a vicious reduction in trade flows, industrial production and growth. Before the crisis, models of the international transmission of economic shocks were based mainly on trade linkages. The

crisis reminded us that financial market channels can cause contagion in ways that may not always be obvious.

Figure 4
VIX Index and Exports from Asian Economies
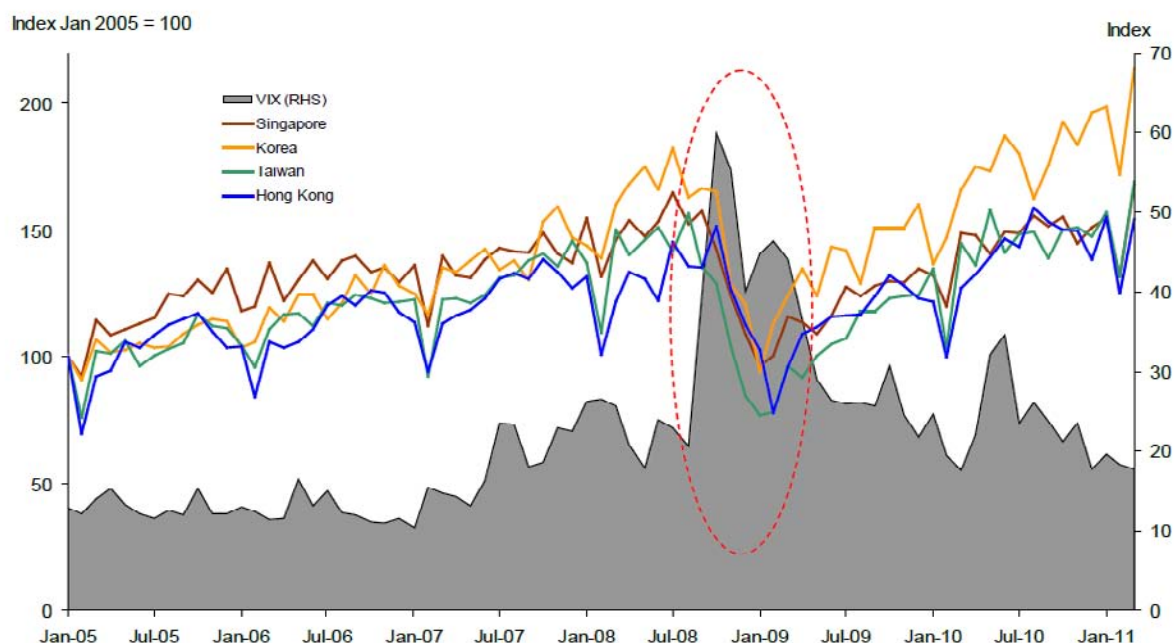
Sources: Bloomberg, RBNZ

Although the possibility of contagion through financial channels has long been recognised, macroeconomic models and analysis have typically relied more heavily on trade linkages as the key transmission channel of shocks across countries. However, during the crisis, the explosion in risk premiums and a changed pattern of capital flows transmitted the shock much more quickly to many economies. As a result, there has been greater focus on financial market conditions and linkages to understand the impact of international shocks on real economies.

More recently, the rapid development of commodities as an asset class has meant policy easing by major central banks can be transmitted through higher commodity prices to the rest of the world. As easier monetary conditions make funding cheaper and reduce returns on fixed income investments like government bonds, investors may look for higher returns on riskier assets, such as commodities. This could potentially cause a (temporary) divergence between commodity prices and market fundamentals, and has prompted concern about rising inflationary pressures in many countries during recent months. This has provided new challenges for understanding transmission channels between economies and for forecasting inflation.[6] At the same time, however, the stronger relationship between commodity markets and investment flows could potentially allow us to use commodity prices as new indicators of financial conditions in global markets, although determining the precise nature of the

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[6] For a discussion of the increasing difficulty in modelling and forecasting inflation, see "Issues in Inflation", *Global Macro Issues*, Deutsche Bank, March 2011.

relationship is still very difficult, given our current level of understanding of the market linkages.

Looking ahead we need to realise that macroeconomics will remain inextricably linked to financial market conditions. Consequently our economic surveillance will need to focus on the macro-financial and macroeconomic interactions to a much greater extent than in the past. As the crisis demonstrated, sometimes these interactions can be quite complex.

Domestic economic surveillance

In the domestic macroeconomic arena we have learnt other lessons from the crisis. The crisis challenged traditional economic forecasting, especially model-based forecasts. For example, the lack of factors such as balance sheet positions, financing or credit constraints in many simple models of consumption based on a single representative agent has proved unsatisfactory in the post-crisis environment. As a result, we have had to learn about householders' new attitudes to consumption and saving as they focus on "deleveraging" and rebuilding savings. In this new environment there has been much greater attention to modelling the behaviour of different types of consumers, with differing asset holdings, access to finance and risk attitudes. This has led to the development of new types of models which allow for this heterogeneity. An example of this has been the recent focus in the economics literature on "agent-based" computational modelling.[7] It has also led to greater reliance on alternative data sources such as household balance sheets and more up-to-date indicators of spending such as that provided by electronic measures of payments. There has also been greater attention to micro-level survey datasets to obtain information about individuals' consumption and saving behaviour. Of course, these more detailed data present new challenges in terms of identifying signals from noisier data. As a result, a range of new technical tools will be needed to filter and synthesise the data from these new sources.[8]

A further lesson for future economic surveillance, is the increased prominence that credit flows and asset prices may play in policy analysis. In contrast to the pre-crisis consensus view that it is difficult to identify an incipient asset bubble, let alone prick it, most central banks today are putting a lot of effort into monitoring the housing sector, household balance sheets and other assets in an attempt to do just that. Before the crisis, monetary policy setting was often characterised as being represented by some form of "Taylor rule" (or some inflation-targeting rule), under which policy rates changed only in response to deviations of inflation from target and to the output gap, with no direct reaction to asset price movements. As *The Economist* recently described it, "*monetary policy took on... the trappings of a quasi-scientific discipline: the judicious adjustment of the short-term interest rate could keep inflation low and thus iron out the bumps of the business cycle*".[9]

Financial markets also expressed a high level of confidence in central banks' skills, with indicators of inflation expectations generally well anchored at central banks' inflation objectives in most developed economies. This vote of confidence from markets was despite warnings from central banks that the era of the "Great Moderation" with steady growth, and low stable inflation may not last indefinitely. For example, Bank of England Governor Mervyn King, who frequently referred to the Great Moderation as the NICE era (Non-Inflationary Consistently Expansionary), warned in 2004 "*...the combination of low and stable inflation*

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[7] For a discussion, see J.D. Farmer and D. Foley (2009) "The Economy needs Agent-Based Modelling", *Nature*, 460, 6 August, pp.685–686.

[8] As an example of a recent model to filter information from volatile data, the RBNZ recently started using a regime-switching model to analyse exchange rate movements. See E. Cassino and Z. Wallis (2010) "The New Zealand Dollar through the Global Financial Crisis", *Bulletin*, Vol 73 No.3, Reserve Bank of New Zealand.

[9] "A More Complicated Game", *The Economist*, February 19 2011.

and continuously falling unemployment must come to an end at some point, and may already have done so."[10] But since the crisis, there has been vigorous academic debate about the ability of central banks to identify asset price bubbles and their ability to "lean against the wind" in response.[11] However, this requires a great deal of judgement, and better information from a wide range of sources. Identifying the equilibrium value of asset prices will be the new challenge for central banks, in the same way that identifying potential output or the NAIRU was the challenge in earlier decades. Identifying bubbles will require new empirical tools, such as the regression-based methods being developed by Peter Phillips,[12] but as with assessing disequilibrium in the goods or labour markets, we will still probably need to rely on information from a wide range of qualitative and quantitative sources to help identify the presence of a bubble and understand the nature of it. How successful we will be remains an open question.

The crisis has prompted a revival of interest in money and credit, which in recent decades central bankers, including ourselves at the RBNZ, have tended to put less weight on in the monetary policy formulation process. Several factors have contributed to this revival. First, the impairment of the flow of credit as a result of the financial crisis has led to fears of a creditless recovery, or at least a recovery held back by less plentiful credit. Second, there has been a significant change in money flows during the crisis (with depositors favouring the banks over the non-banks).

Overall, there has also been a recognition that credit growth over the past decade was excessive and a potential risk to financial stability given the build-up in leverage and rising asset prices that accompanied it. We are continuing to build our understanding of money and credit at the RBNZ, and its inter-relationship with both sectoral financial decision making and potential risks for the banking sector. However, much still needs to be learned about the relationships, especially the nature of causality and how policy makers can utilise the relationships to achieve their goals.

Inside regulatory institutions

Within the area of prudential supervision, there has been more focus on the funding markets and balance sheets of the main banks, including their debt maturity and risk management policies. This follows the closure of international funding markets in late 2008 and the increased fragility of markets generally.

At the RBNZ, our focus is particularly on the four systemically important banks in New Zealand, which are all subsidiaries of Australian owned parent banks. During the Global Financial Crisis we learned that much of the mandated disclosure of public information from the banks was available with too long a lag and was too general to be much use in predicting stress vulnerability. Consequently we have reduced the information we require to be made public but are requiring more real time private information about funding, bad debt, deposits, loans etc. These receive very close attention from the regulator.

The need for timely information has required much greater use of financial market data, and detailed, up-to-the-minute institutional data in assessing the condition of financial institutions. As a result, there has been greater co-ordination between financial market monitoring and

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[10] Speech at the Eden Project, Cornwall, 12 October 2004.

[11] For coverage of this debate, see S. Wadhwani (2008) "Should Monetary Policy Respond to Asset Price Bubbles? Revisiting the Debate", National Institute Economic Review no. 206, NIESR and W. White (2009) "Should Monetary Policy "Lean or Clean"?", *Globalisation and Monetary Policy Institute Working Paper 34*, Federal Reserve Bank of Dallas.

[12] See, for example, P. Phillips, Y. Wu and J. Yu (2011) "Explosive Behaviour in the 1990s NASDAQ: When did Exuberance Escalate Asset Values?", *International Economic Review*, Vo. 52, No. 1.

bank supervisors. This co-operation between supervisors and financial market monitoring is much easier in a full service central bank without institutional or legal impediments to information flows.

The Financial Crisis has also inspired a large international push through the Basel Committee on Bank Supervision and the Financial Stability Board, including Basel III, new accounting standards and other forms of bank regulation. The broad aim of these changes has been to lead to a more resilient banking sector. However the new environment also requires more oversight of banks and more early warning systems. As a result, there has been a resurgence in interest in early warning indicators of financial sector crises, which first emerged in response to the Asian Financial Crisis in the late 1990s.[13] More recent early warning techniques, such as Contingent Capital Analysis (CCA),[14] which combine information from institutional balance sheets and financial market data, are being actively investigated by central banks, bank supervisors and other financial regulators. While the aim here is a worthy one, we do need to keep our expectations realistic about our ability to develop robust and reliable early warning indicators.

More generally, within central banks and regulators the crisis means that more attention is being paid to the financial markets intelligence function. Information is now being swapped much more readily between central banks and regulators. There is much discussion about the relative interplay of microfinancial policies, macrofinancial policies and monetary policy. Relations with Treasuries and Ministers of Finance have also become closer as government funding has been required for deposit guarantee schemes and as central banks take into account the more fragile state of sovereign funding markets. At the RBNZ we have also strengthened our links with regulators in other countries. Well before the crisis we had strong formal links with our Australian counterparts at the Reserve Bank of Australia and the Australian Prudential Regulation Authority (APRA). These links have continued to develop in recent years, with good two-way information flows ensuring that both sides are more alert to emerging prudential issues. We are also building better ties with our Asian central bank partners in EMEAP (Executives' Meeting of East Asia Pacific Central Banks).

Conclusion

In a recent article,[15] Professor Robert Shiller argued that "*the Depression of the 1930s was blamed on a lack of knowledge...one result was an improvement in our measurement systems*". Shiller notes that the development of national accounts data began as a reaction to the "*information black spots*" of the Depression. In the same way, the Global Financial Crisis has changed the nature of economic monitoring and surveillance required by central banks. Central banks now require information from a wider range of sources and much greater interaction between monitoring for monetary and financial stability. But economic surveillance is not just about capturing developments – it is about reading the risks and threats to the economy, and the mood of the markets, public and business sector, or, in other words, gauging the "atmospherics". However, despite these innovations, central bankers will need to be realistic about their goals. Good surveillance usually will not stop nasty surprises, but it may buy some lead time and help policymakers to make better sense of surprises when they happen. As ECB President Trichet noted in a recent interview "*central banks need formidable analytical capacities and skills. You need both state-of-the-art analytical work, as deep and robust as possible, and you need judgement, based on experience and solid*

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[13] See R. Caballero and P. Kurlat (2009) "The "Surprising" Origin and Nature of Financial Crises: A Macroeconomic Policy Proposal", *Financial Stability and Macroeconomic Policy*, Jackson Hole Economic Symposium.

[14] D. Gray and S. Malone (2008) *Macrofinancial Risk Analysis.*

[15] R. Shiller (2011) "Needed: A Clearer Crystal Ball", *New York Times*, April 30.

capacity to synthesise all pertinent analyses. This is true in absolutely all circumstances, and particularly in times of crisis".[16]

Ultimately, the aim of central bank policy and its main contribution to increasing social well-being remains, as before the crisis, to maintain macroeconomic stability. However, since the crisis it has been increasingly acknowledged that consumer price stability is not, on its own, a sufficient condition for overall macroeconomic stability, as was probably assumed during the Great Moderation. Traditional policy tools need to be augmented with macro-prudential instruments targeting financial stability goals. Going forward, the aim is to set monetary and financial policy instruments to take account of the inter-relationship between the financial sector and the real economy, which will require a broader framework for economic surveillance.

But this new environment will present new challenges for central bankers and academics. New empirical tools will need to be developed to identify the signal from the noise in a vastly expanded range of data sources, to make the maximum contribution to policy decisions. The quality of the new data, from both official and un-official sources will vary widely, making it difficult for policy makers to interpret.[17] In addition, understanding the relationship between traditional monetary policy tools and new macro-prudential tools is a key priority for the research agenda in order to co-ordinate them effectively. As Professor Shiller argues, "*We should respond just as we did to the Depression, by starting the long process of redefining our measurements so we can better understand the risk of another financial shock. The past suggests that this project will take many years to complete. But it will be worth the effort*".

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[16] Jean-Claude Trichet: Interview with Helsingin Sanomat and Kauppalehti, April 2011, http://www.ecb.europa.eu/press/key/date/2011/html/sp110426.en.html.

[17] The crisis has demonstrated that official data are not always entirely reliable, as illustrated by the significant revisions to the fiscal deficit in Greece. Initially the Greek government projected a deficit below 3% of GDP for 2009. This was eventually revised by Eurostat to 15.4% of GDP.