Contents

Articles
Alan Bollard – Reflections from 2002-2012
Interviewed by Bernard Hodgetts 3

The economic impact of the Canterbury earthquakes
Miles Parker and Daan Steenkamp 13

Asset returns and the investment choices of New Zealanders
Elizabeth Watson 26

Foreign currency reserves: why we hold them influences how we fund them
Anella Munro and Michael Reddell 35

Speeches
Dealing with debt 46
Speech to the Auckland Employers and Manufacturers Association, 6 August 2012
Alan Bollard and Michael Reddell

Learnings from the Global Financial Crisis 57
Sir Leslie Melville Lecture, Australian National University, Canberra, 9 August 2012
Alan Bollard and Tim Ng

For the record
Analytical notes 67
Discussion papers 68
News releases 69
Publications 78
Articles in recent issues of the Reserve Bank of New Zealand Bulletin 79

Editorial Committee
Michael Reddell (chair), Bernard Hodgetts, Jeremy Richardson.

This document is also available at www.rbnz.govt.nz

Copyright © 2012 Reserve Bank of New Zealand

ISSN 1174-7943 (print)
ISSN 1177-8644 (online)
The Reserve Bank Museum celebrates and records New Zealand’s economic and banking heritage.

- See the MONIAC hydraulic computer.
- Understand how the economy fits together.
- Explore part of the Reserve Bank’s unique currency collection.
- Visit our interactive displays online at www.rbnzmuseum.govt.nz – then complement your experience by exploring other exhibits in the real thing.

_Free entry. Open 9.30am–4.00pm weekdays. Closed weekends, public holidays and for special events._

Reserve Bank Museum
2 The Terrace
Wellington
New Zealand
ph 04-471-3682
e-mail: museum@rbnz.govt.nz
www.rbnzmuseum.govt.nz

Photography by Stephen A’Court.
ARTICLES

Alan Bollard – Reflections from 2002-2012

Interviewed by Bernard Hodgetts

On 25 September 2012, Alan Bollard completed his second five-year term as Governor and Chief Executive of the Reserve Bank. Dr Bollard was appointed to the role in 2002 following four years as Secretary to the Treasury. Prior to that, he was Chairman of the New Zealand Commerce Commission from 1994 and Director of the New Zealand Institute of Economic Research for seven years. By any standards his tenure has been eventful, covering the latter half of one of the largest booms in New Zealand’s post-war history, and subsequently the Global Financial Crisis and its aftermath, here and abroad. In this interview, undertaken in early August, Alan reflects on his time with the Reserve Bank, especially the policy challenges, relationships, and changes in the regulatory framework.

So as a newcomer to central banking, what were your first impressions of the Reserve Bank and your new role upon becoming Governor?

Well, it all rather depends on where you have come from and for me I’d been around the Wellington system for a while. I’d been the Secretary to the Treasury for five years. Actually, somewhat ironically, I had spent time at the Reserve Bank many years earlier as a student as I received a Reserve Bank scholarship to write up my PhD, which was on completely different issues – development economics. Beyond that, I didn’t know much about the Reserve Bank and how the role would actually work. Initially it is all a little bit scary coming into a new institution, especially one like this where you are in the spotlight with the markets, the public and politicians. So I realised I had a lot to learn. I did go through quite a structured orientation process, although in the end it’s learning on the job and going through the various processes that teaches you things.

OK, so tell me, how does a new Governor go about learning to do monetary policy and make Official Cash Rate decisions?

Setting the Official Cash Rate is an unusual form of public policy. Of course, I had already seen plenty of areas of economic policy of government. But this is an unusual one where there is a lot of information that you are looking at and then you’re doing a lot of analysis and transformation of that information in structured ways to give you – you hope – a detailed picture of the future. But you know that much of the picture will prove to be wrong, the future will be different. Knowing that, you have to make a trilateral decision. Rates can go up, down or not change. That is pretty unusual. Monetary policy is really the one area of discretionary or short-term economic policy. In addition, we have the Reserve Bank Act under which the Governor is the single decision maker. That is not one of the innovations that has been picked up and copied from the New Zealand model overseas, and it is quite unusual now. It puts a lot of stress on an individual’s
decisions. So I obviously had to learn from people around me.

In Treasury, I’d been involved with the Svensson Report¹ and I had learnt quite a bit from that process. I had seen a lot of policy advice from Treasury as well as the Reserve Bank on the whole area, but in the end you learn by doing. There were certainly some confusions and uncertainties around those earlier decisions. From memory, we used to put a lot of weight not just on the Reserve Bank model projections, but on other metrics like the Taylor rule. The first Taylor rule calculation I was presented with advised me to increase interest rates by something like 200 basis points! As a new Governor and newcomer to monetary policy, it’s quite hard to know what a stable or reliable calibration is and how much you should rely on it. You take advice, but your early interest rate decisions are quite difficult.

During your first term (2002-2007), you had to contend with a very strong economic cycle as well as some nasty shocks along the way – SARs, droughts and electricity shortages come to mind. Tell me about some of the policy challenges and uncertainties the Bank faced.

There were uncertainties, although in hindsight, in the context of the global financial crisis, they don’t look that bad. Indeed many of them were threats that really didn’t eventuate. We had the biohazards – SARS, Swine Flu, Avian Flu. The language used by the World Health Organisation and others about those risks was pretty strong. As it turned out, they didn’t really have major effects – the predictions were quite wrong. But we had to take them seriously and we did react to them along with a fairly unusual double year drought which led to the threat of electricity shortages at one stage. We took precautionary action [with monetary policy] which was probably unnecessary from hindsight and potentially damaging in a minor sort of way.

I do remember approaching these events wondering whether our interest rate calibrations were right, why New Zealand policy rates had to be so high compared to other OECD countries and why that was. What would happen if we reduced rates? However, we needed to be very careful because international asset prices were rising sharply and we had a strong New Zealand housing market.

I do think I had a more formalised decision making structure than under the previous Governor. Previously, there had been more reliance on judgement by the Governor. The Governor of course had also been the chair of the Board but this changed shortly after I came in. We formalised and revised the Official Cash Rate Advisory Group (OCRAG). We already had external people on it, but I required written advice from the members to be in the form of a “one pager” [with advice required under structured headings] that would then go to the Board. When I cut rates in early 2003, I recall the views among the OCRAG group were quite divided. That’s the one decision from hindsight that probably wasn’t right. But at the time it was insurance.

So how did the exchange rate and the housing sector figure in all of this? What lessons did you learn about dealing with asset prices?

From about 2004 onwards, we had pressure on the exchange rate from the carry trade. Looking back, it is pretty clear to me what was happening, but at the time it really wasn’t, odd as that may sound. It’s very hard to take a long term view when you are right in the middle of something. We were in the midst of a strong housing and asset price cycle, consumption and inflation pressures were strong, and there were growing imbalances, especially in the household sector but also externally. The internal demand for debt was connected with some of the funding issues like the carry trade that we had to deal with.

Of course, we did take action [raising the Official Cash Rate] at various times through to 2005 and thought that would be sufficient, and paused. But there was a second wind and the housing market started surging again. At that stage we went in and talked to the banks about their growing exposures to housing and the agricultural sector. They responded quite noticeably to that informal warning, and it certainly helped. We should probably have done that earlier. That is definitely something we have learned.

The exchange rate issue hasn’t really gone away – the exchange rate has remained uncomfortably high in recent times and is challenging for parts of the tradables sector. What are your parting thoughts on what can be done to manage this?

This is a real problem and not an easy one to solve. When you look at the progress of applied economics since World War II there have been some big developments. They come from Bretton Woods onwards and they relate to our understanding about economic behaviours, about the role of governments and the management of fiscal policy. We also understand more about inflation control and monetary processes and influences. But our understanding of exchange rates is still lacking. The exchange rate is essentially the price of one country compared to another country. Ideally it should reflect a country’s long term, sustainable competitiveness. When it doesn’t, it is problematic, particularly for a country like New Zealand which is very open and a price taker internationally.

There are two classes of things we can do. The first is to address any internal distortions. Tax distortions in the housing property sector probably exacerbated our housing cycle and the carry trade. Some of those have been removed now which helps, but there are still arguably some distortions. The second is to address international distortions, but this is much harder to achieve. These distortions arise from capital controls and fixed or managed exchange rate systems through a large part of the world.

While a number of emerging markets have been liberalising their capital accounts – which we think is generally a good thing – we have had the global financial crisis. One of its side effects has been quantitative easing by some of the major economies. We have the Federal Reserve, Bank of England, arguably the European Central Bank and for a long time the Bank of Japan undertaking major interventions of an unorthodox sort which in my view have had some significant implications for exchange rates, capital flows and competitiveness. So it’s not just countries like China with managed exchange rates that can create significant distortions for small open economies.

Mis-priced exchange rates can be very damaging, for our tradable sector, primarily, but also to the confidence we place in our policy settings generally. In the long run we need to see more countries running good open exchange rate regimes leading to deeper markets. But that’s a very long term view. We have been through the
Global Financial Crisis without seeing the widespread trade protection that grew out of the 1930s, but we may now be seeing a form of monetary protection, which could also have distortionary effects. That would be very disappointing, but it’s still a bit too soon to judge.

You’ve written your own account of the Global Financial Crisis and its implications for New Zealand and you are currently updating your book to take account of developments since 2010. But in a nutshell, how have these events changed the New Zealand financial system and the Reserve Bank? What have we learned?

The changes have been huge and I think we have learned a lot. For me the GFC has dominated my second term here. My first term saw five years of economic boom and my second term has seen five years of financial crisis and an economic contraction. Some of the lessons are quite obvious and others are more subtle. I personally don’t know how much of what we see is an enduring new world and how much is simply a transition or rebalancing.

Globally, we have a completely different price set from five years ago. We are seeing very low inflation in some countries and we have a lower or sometimes negative interest rates. We have a higher price on risk. And we have a higher price on Australasian competitiveness in the form of higher exchange rates in this part of the world. This makes it difficult to make policy decisions and for private agents to make sensible investment and consumption decisions. In addition, we have seen markets where there have been discontinuities or freezes, and we’ve seen markets that simply don’t look like they are equilibrating. The worst problems are in countries such as in the euro zone. We’ve seen the emerging markets taking on quite a different role as an engine of global growth and in the commodity markets.

In terms of monetary policy, the world’s policymakers are learning what happens when you get towards the zero lower bound [for policy interest rates] and how unorthodox monetary policy such as quantitative easing might work. I have to say there are still a lot of unknowns about unorthodox monetary policy – we haven’t really seen anyone complete a cycle successfully with that yet. In New Zealand we have felt more comfortable as we remain in the orthodox zone and interest rates could go up or down from here and we would still be in that zone.

Could the Reserve Bank ever be in a situation where we cut interest rates towards zero only to find that households and businesses are not interested in borrowing? The international experience says that’s always a possibility and it’s sobering. On fiscal policy, I think the lesson really is that you’ve just got to be whiter than white when it comes to running good fiscal policies at the moment, especially in a small open economy like New Zealand. In the banking supervision space, I’ve learnt that banks can be very dangerous institutions and can be very complicated and it can be very hard to model the risks. Tail end risks are something you can talk about, but are very hard to deal with. Contagion can be much more virulent than I thought, both between institutions and between countries. The whole area of strengthening banks to reduce the probability of default and finding ways of resolving bank distresses in a way that can reduce losses and panic is a really complicated area, but we have learnt a lot. Still, there will be more crises. Policymakers have tried to strengthen banks by requiring them to hold more capital, but that doesn’t guarantee that they won’t encounter future problems. And of course we are still in the middle of this crisis with European banks and sovereigns.

When it comes to the local business sector I do worry that some of them may be caught in a loop of uncertainty choosing to sit and do nothing but try and stay safe. That will have its costs for the country in the medium term and for the companies themselves which might otherwise be out there innovating and growing.

You’ve often said that being a full service central bank helped immensely during the financial crisis. How did it help?

It helped us with information flows. It helped us collect and coordinate views from the wide range of policy and functional areas of the Bank and it helped us with implementing policies. So we learned about aspects of the crisis through our economic forecasters, through our
financial stability analysts, our bank supervisors, our payment and settlement systems and our team managing the distribution of cash to the banks. Those were all important in giving us a window on the economy. We could triangulate these sources and understand from there. We didn’t have the same problems of sharing information between different institutions that the FSA and the Bank of England faced, for example, because most of it existed internally. In addition we were pretty close to the Treasury and other relevant institutions, and the banks.

When it came to putting crisis polices in place, we were able to do all of that in-house with emergency liquidity facilities through to broader macro-financial policies and traditional monetary policy, and put it all together. We had different committees working on the details but were able to coordinate it all. Being a small economy and a small organisation helped as well.

The Reserve Bank’s role and reach in the regulation of financial institutions expanded significantly in your time as Governor. How challenging has it been to meet these new responsibilities?

It has been quite a challenge. First of all, we have altered our approach to banking sector regulation. It is no longer as light handed as it was, although it is still light handed by most international standards. That transition hasn’t always been easy. But we have learnt more about when you should be light handed and when you shouldn’t be so light handed. And how you nudge, how you influence, and how you insist in order to get outcomes.

Our banking supervision people have to deal with some quite complex, large foreign institutions while simultaneously developing and understanding policy in quite challenging circumstances. But I am really pleased with the progress. We have achieved good outcomes in areas like outsourcing policy [related to critical functions and processes], better governance and stronger balance sheets and these have stood the test of some very difficult financial conditions in recent years. The banks themselves have become better at balance sheet and risk management, as have other corporates. When one compares levels of non-performing loans [during the recent economic downturn] with those of the early 1990s, they have been a lot lower.

Several years ago we were given the task of regulator of the non-bank deposit takers – that’s a really hard area. It’s difficult because you have some very different institutions operating in it. Some are large, some are very small. Some are tried and true operators in areas like household and consumer financing and plant and equipment financing. And then there have been some real cowboys providing finance in areas like land and property development. We have seen a whole range of business models and governance integrity and management practices from very good to very bad and have had a number of failures there. These were not large in terms of the financial system but big enough to cast a shadow over the reputation of New Zealand’s own domestic financial institutions. And it hurt the confidence of some of the older investors in New Zealand. In the short term, the failures have left a gap when it comes to mezzanine financing and other forms of funding – particularly in land and property development. At times I do wonder if we now have quite a good regulatory framework for non-banks but nothing much left to regulate!

More recently we have been given the insurance sector to supervise and regulate. The cultures are different, the risks and issues are different and we have had to learn a lot about that. This new responsibility has involved a lot of new staff, new operations, and licensing on a scale we haven’t faced before. It has gone well, but we have had the Christchurch earthquakes which have had major implications for the insurance sector.

With some of our new responsibilities comes the need for enforcement [of policies and regulatory requirements]. To date, we have done a lot of oversight but very little enforcement. Enforcement, particularly where it involves the courts, is difficult and costly, and in time I envisage will pose challenges for the Reserve Bank. That is not something it has had to face as yet.

The global financial outlook still looks very precarious given the sovereign debt problems in Europe that we are currently seeing. How optimistic are you about the resolution path? And about New Zealand’s economic
prospects through it all?

I am optimistic that we will not see a cataclysmic event in the euro zone, but I expect to see a lot of smaller events or mini crises of one sort or another, some requiring urgent policy responses. I think the euro zone’s low growth will continue for a few years and that the pressures are going to continue. We may see some successful recovery stories – like Portugal and Ireland. We are going to see some real problems with countries like Greece. And we are going to see some major attempts to stop contagion to Spain and Italy. Europe will inevitably continue to be quite inward looking for quite a long period as a result of recent events. It has already cast a shadow on world trade which has been significant, but not devastating. The presence of European financial institutions has been contracting in some regions and that’s been significant but isn’t proving a major problem for regions like East Asia.

A longer-term issue is what happens in other countries with very large levels of government debt like the United Kingdom, United States and Japan. At face value their indebtedness is worse than in the PIIGS economies, although we know they have better governance, more market confidence and some other favourable features.

There will need to be a significant re-balancing in those countries at some point and I don’t know how they will be able to achieve that and continue growing.

At some stage, global financial markets will start to pay more attention to the role of demographics, which create limitations for productivity growth, and the effects of an ageing population on the government accounts. Public and private sector liabilities have not been properly costed in relation to superannuation, pensions or the welfare needs of older populations. Those costs could be huge and it’s hard to know how and when the markets will react to them. It could create some major challenges for financial systems.

What are your thoughts on the potential role of macro-prudential tools like countercyclical capital buffers and loan-to-value ratios restrictions?

Broadly, macro-prudential policy is an area where, instead of trying to change the price of capital as in orthodox monetary policy, you are trying to help stabilise the financial system by influencing bank balance sheet requirements. Some instruments are new but some are
really just the traditional micro-prudential tools used in new ways. There are risks around this area of policy, in that some of these tools are being viewed as great new silver bullets when they are not. I'm not yet convinced on how effective they might be. Some tools have been tried in various ways in the past and discarded, but the area does offer interesting possibilities for the future.

Macro-prudential tools could offer some useful assistance for New Zealand if we were to get back into the conditions we saw over 2005-2007 of rapidly growing asset prices, particularly housing prices. They could help to protect the financial stability of the country in those conditions. Would they be helpful on the downturn as well? I think that is a real open question and it will be interesting to see the international evidence. I think a country like New Zealand and its central bank ought to be able to discover what can work in this space.

**What particular challenges did the Canterbury earthquakes pose for the Reserve Bank as a regulator and in its monetary policy role?**

The Canterbury earthquakes have been really damaging economic events and unusual by international standards. Certainly a lot bigger than we might have expected from readings on the Richter scale. The nature of the location, timing, liquefaction and pattern of aftershocks have all increased the economic costs and have slowed down the rebuild process. Damage from the Chilean earthquake shortly before has now probably been two thirds rebuilt or something like that and there has already been some significant rebuilding following the Japanese earthquake around the same time. But Christchurch has been in a somewhat different position.

In terms of our response to the Christchurch earthquake, the immediate question on the day was whether there was enough cash available and could it be dispensed? That always has to be our first question in these sorts of crises. In the event, the cash and transit companies, warehousing arrangements and the banks worked well together. Next, we had to understand how the banks would be affected and and whether they could continue to function well. As it turned out, their provisioning [for losses associated with the earthquake] was significant but manageable and many of them were quite proactive in terms of lending and assisting the early rebuild.

The earthquakes put a lot of stress on the insurance sector and the Government later stepped in to support one insurance company, AMI. That situation was very disappointing and has certainly fed into our views about the appropriate degrees of regional concentration and book concentration for insurance companies for the future. Most of the larger insurance companies there have had to re-capitalise through their owners and generally that's happened relatively smoothly. We have watched the industry's interactions with the reinsurance sector which have gone reasonably well but have been complicated, especially given the aftershocks which led to repricing of reinsurance. Then you have all the complications surrounding insurance assessments because of ongoing quakes, multiple companies and the private insurance versus EQC interface. You have negotiations of large numbers of claims and like other arms of the public sector we are looking for ways to try and speed the process up so we can actually get the rebuild occurring.

As time has gone on, we have learnt that the earthquake caused more damage than we first thought. We have increased our estimate from the very first earthquake from $5 billion up to nearly $25 billion. The insurance industry has increased its estimates from $25 billion to over $30 billion. That is a very big shock given New Zealand's relative size. So there is one challenge yet to come for the Reserve Bank and that will be forming their views on the inflationary pressures and what is acceptable or not as the rebuild occurs over the next couple of years.

**Part of the role of the Governor is to manage the Reserve Bank’s relationships with politicians and with other government agencies like the Treasury. And then we have other central banks, the IMF, BIS and EMEAP. Tell me about your approach to managing these relationships.**

There are many relationships. My first objective was to stem any concerns about politicisation of the role of the Reserve Bank. That was difficult because the previous Governor had left abruptly to go into politics, so there were
some accusations made about the role of the Reserve Bank. I wanted to be very clear about our role and hone it down to monetary policy, financial stability and related issues, and not go beyond that. I wanted also to ensure we had a proper integrated relationship with the other relevant parts of government, especially the Treasury, while maintaining Reserve Bank independence. I should say I have not come under any pressure at all on independence on monetary policy decision making, partly because I think various Ministers have thought independence is a good idea because they don’t get blamed for bad decisions. It’s part of the fabric of the system now, so I don’t see that being seriously re-litigated.

We are a small country in a big world and we have to do the best for New Zealand incorporated. We have good relationships with other arms of the New Zealand government like the Treasury, whilst preserving our independent areas of operation. I think we do this as well or better than other similar countries and it is important to keep doing that.

In terms of their international relationships, central banks are a bit unusual. Central banks for various historical reasons and some cultural ones form clubs all over the place. There’s a Trans-Tasman one, there’s the East Asian Pacific one, the BIS and various others. They can be either useful or time wasting so we have tried to concentrate on the ones that really work for us. The good ones are where you get support, advice, and ideas to calibrate policy, and that has been really useful when things go bad.

For me, an important time was when we chaired the EMEAP Governors’ meeting in Terrace Downs [on the edge of the Rakaia Gorge at the base of Mount Hutt] in May 2006. We deliberately selected a remote site and said for the first time “don’t bring your cellphones, they won’t work, don’t bring your security guards, there is no danger and we have Stu the local constable briefed for any problems, and don’t bring any translators, your English is good enough”. And that was the first time that had happened. We had a dinner at the beginning of the meeting with 11 Central Bank Governors representing about two thirds of the world’s reserves sitting in the room. We brought food in and there were no other people there except for us. I think we probably had the most candid and useful meeting of that sort that you would have seen up until then.

So what works is if you get a candid real connection at the top. We have had it at EMEAP. We also get it around the table at the Global Economy Meeting at the BIS. We have created our own little informal groups of small open economies in the BIS to discuss particular issues and that too has been really valuable. But we also end up travelling long distances to all of these meetings and it is important we are clear what our objectives are. We have to be sure we are doing it for New Zealand aims rather than just to fill a seat at a roundtable somewhere.

As a former Chairman of the Commerce Commission, you have taken a close interest in the efficiency and structure of the New Zealand financial system. How well do you think our financial system meets the needs and interests of New Zealand’s households and businesses?

Pretty well. We are talking about a very big system and four banks dominate it, in contrast to many OECD countries. The four largest banks in New Zealand are Australian owned but ironically are more important to our economy than they are to the Australian economy, and that highlights a couple of issues. First, what about the non banks? They now perform a disappointingly small role in the New Zealand economy, one that needs to grow and to improve in quality and professionalism. That will take a long time. We will see new developments in the sector but I’m not exactly sure how they will occur. Second, we have been prepared to host foreign owned banks and that’s been a wise decision for New Zealand. I think we are in a much better position now than ten years ago in that there is now quite a track record on how to regulate from a host country point of view. We are seeing quite a number of other good economies with foreign owned banking systems. I’m thinking of the Scandinavians, Baltics, some

---

2 International Monetary Fund
3 Bank for International Settlements
4 Executive Meeting of East Asia Pacific Central Banks, which includes the central banks of Australia, China, Hong Kong, Indonesia, Japan, Malaysia, New Zealand, Philippines, Singapore, South Korea and Thailand.
Eastern Europeans, some Latins. So we are no longer alone.

I think the banks have been efficient from a productive point of view and from a dynamic point of view I think they have been quite innovative. From an allocative efficiency point of view it is worth asking why the banks can continue to earn returns through the cycle which are large by most standards. Banks are learning to live with lower returns although they are still higher than in most other banking systems. However, banking is an industry that you want to be sound so you might well be prepared to live with a degree of allocative inefficiency – part of which may arise from an implicit subsidy of the system by the Government – provided what you are getting in return is soundness and guarantees of soundness, which I think we are getting.

On the other hand, there are some barriers to entry to the banking industry. It is not that hard to get a banking licence in New Zealand, it’s not that hard to get into payment and settlements systems, so I am not really talking about the obvious sorts of barriers. The real barriers are probably related to the need for economies of scope or scale to access foreign funding. It will be interesting to see how institutions like Kiwibank attempt to overcome these barriers, but I’m not sure there is a strong case for regulatory intervention.

What was it like to be the guy who signs New Zealand’s bank notes?

It is good, especially if you have practised your signature enough so it looks alright! You just have to remember with that sort of show comes quite a lot of responsibility so if something goes wrong with the bank notes it’s pretty clear whose responsibility it is given that you have personally signed every one. And if something goes wrong with the stabilisation of inflation it’s also clear where the responsibility rests.

Were there any things you would like to have seen or achieved as Governor but didn’t – perhaps because the financial crisis got in the way?

I would have liked to have seen more rebalancing of the New Zealand economy, especially in the household sector and in the external sector. And greater financial literacy, which in my view would have led to slightly different choices around the allocation and aggregation of household assets between housing and other financial assets and the balance between consumption and savings.

In New Zealand, we have historically thought of savings as something deciles 9 and 10 [of the income distribution] do. Savings should be something that most deciles do and that most New Zealanders get an opportunity to do at some stage during their economic and financial lives. We are starting to head in that direction but we have a long way to go. The financial crisis has both helped and hampered that. It helped by giving people more incentive to rethink those issues. It hampered it because asset values fell and assets are now earning lower returns.

The other dimension to rebalancing is New Zealand’s external imbalance where we have continued to run a large current account deficit and a big negative international investment position. I would be more comfortable if these external imbalances had reduced and if a greater proportion of domestic investment in productive activities had turned out to be good investments from hindsight. A more favourable exchange rate might have helped on that score.

Finally, your best and worst moments as Governor?

My best moment was when I got that phone call from Bill Wilson [Chair of the Reserve Bank non-executive Directors’ Committee at the time] saying that the non-executive board had decided to recommend me for appointment. That was back in August 2002.

My worst moment was probably Sunday 12 October 2008. [The Government announced the introduction of the New Zealand retail deposit guarantee scheme that afternoon following a similar announcement in Australia.] That was the day when a lot of our fears about contagion from the Global Financial Crisis and the need
for governments to offer guarantees to banks to preserve financial stability came home to roost. We realised that we were at the end of this long international chain of beggar-thy-neighbour policies and the options were closing in around us. Maybe there was a better option than that, but I don’t know what it would have been at the time. That said, the pricing of the guarantee [to participating deposit-takers] looked quite distorting and there were obviously a lot of issues following on from that.

There must have been some other best moments, surely?

Well, actually, the very next day was good. I came into work at 7am and then straight on to Morning Report on the radio. I knew I had to go across to Parliament and brief the Opposition but I took a moment to go into the Bolton Room [a meeting room within the Reserve Bank] where we had hastily set up a call centre. I listened to staff answering calls from the public about the retail guarantee and could hear them helping to stabilise New Zealanders’ confidence in the financial system. I thought that was pretty good.
The economic impact of the Canterbury earthquakes

Miles Parker and Daan Steenkamp

In late 2010 and in 2011, Canterbury endured a series of major earthquakes. Overall, the Canterbury economy has been reasonably resilient to the impact of the earthquakes, and the spillover to other regions in New Zealand has been limited. Goods exports and manufacturing activity appear to have held up well. Conversely, some sectors, notably retail, accommodation and hospitality, have been hard hit. International visitor numbers are sharply down, and there appears to have been some population loss from Christchurch. Repair and rebuild activity is under way and expected to accelerate from here, peaking in the next few years, but will take at least a decade to complete.

Introduction

In late 2010 and in 2011, Canterbury endured a series of major earthquakes. These earthquakes have caused deaths and considerable destruction in Christchurch and the surrounding area.

Identifying the economic impact is difficult. It is hard to disentangle the effects of the earthquakes from other emerging developments, and timely and reliable data can be hard to obtain, or interpret.

Nonetheless, by piecing together disparate sources of data, it is possible to develop an idea of the developments in the Canterbury economy since the earthquakes. In what follows, we document some of the indicators of the impact the earthquakes have had on households and businesses in the region.

1 Comparison with other major earthquakes

Table 1, overleaf, compares the magnitude and impact of the Canterbury earthquakes to four other major earthquakes. Damage estimates are still preliminary, but are likely to be around 10 percent of GDP (compared with around 3 to 4 percent of GDP in the case of the recent Japanese earthquake and tsunami, for example).

Natural disasters have both immediate and longer-term economic effects. In the recent Japanese disaster, for example, while the total damage was relatively modest relative to the size of Japan’s economy, disruption to nuclear electricity generation meant severe short-term disruption to industrial production and economic activity across Japan.

The Canterbury economy has been quite resilient, and the wider New Zealand economy appears to have been little affected. Despite affecting a much larger proportion of the New Zealand economy, the immediate impact on output appears to be much more muted than following disasters such as Kobe in 1995, or Tōhoku in 2011. Disruption to industrial production, goods exports and activity was relatively short lived as the region’s manufacturing hub escaped significant damage. But Christchurch is the tourist gateway of the South Island; accommodation capacity has been greatly reduced and tourist numbers have fallen considerably.

There have been more than 3500 aftershocks of magnitude greater than 3.0 over the past two years, with more than 50 above 5.0 (figure 1). These are among the many factors that have slowed repair and rebuilding activities.

Figure 1
Canterbury earthquakes since 3 September 2010
Table 1
A comparison to other large earthquakes

<table>
<thead>
<tr>
<th></th>
<th>Canterbury</th>
<th>Tōhoku (Japan)</th>
<th>Central South Chile</th>
<th>Kobe (Japan)</th>
<th>Northridge (United States)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Population affected</strong></td>
<td>460,000 in Christchurch city, Selwyn and Waimakiriri</td>
<td>About 400,000 most directly affected.</td>
<td>Over 2.5 million people directly affected in BioBio, Maule and O'Higgins.</td>
<td>500,000 in Kobe worst affected, within larger metropolitan area of 4 million people.</td>
<td>About 30,000 worst affected in Northridge, wider Los Angeles city had a population of about 3.5 million.</td>
</tr>
<tr>
<td><strong>Fraction of economy</strong></td>
<td>Damage concentrated in Christchurch city, which accounts for around 8% of GDP.</td>
<td>Affected prefectures accounted for 4 to 6% of GDP.</td>
<td>Worst affected regions: BioBio (10% of national GDP), Maule (4%) and O'Higgins (4%).</td>
<td>Hyogo prefecture worst affected (4% of national GDP).</td>
<td>Very small share of national output.</td>
</tr>
<tr>
<td><strong>Damage estimates</strong></td>
<td>185 deaths, over 150,000 homes damaged, 30,000 seriously.</td>
<td>Over 15,000 deaths, 300,000 buildings partially or totally destroyed, 600,000 buildings damaged.</td>
<td>Over 500 deaths. About 450,000 houses destroyed or damaged. Extensive damage to infrastructure.</td>
<td>Over 6000 people died, 100,000 buildings destroyed, another 300,000 damaged.</td>
<td>About 60 people died. Over 100,000 commercial and residential buildings were damaged or destroyed.</td>
</tr>
<tr>
<td><strong>Industrial structure affected</strong></td>
<td>Tourism hub, accounting for roughly 20% of total tourist arrivals in New Zealand. Manufacturing centre although most manufacturers outside worst affected area. Agricultural sector largely unaffected.</td>
<td>Damage to electricity generation capacity, radiation fallout from the meltdown at Fukushima Daiichi Nuclear Plant, several ports severely damaged, damage to automotive and electronic goods factories, agricultural and fishing sectors.</td>
<td>Damage concentrated to areas accounting for 40% of national agricultural output and 20% of manufactured production. Tsunami destroyed port facilities and devastated the fishing industry.</td>
<td>Japan's major port; manufacturing accounted for over 25% of prefecture GDP but also supplied parts for manufacturing in other prefectures in Japan.</td>
<td>Mostly light manufacturing and service sectors (about 60% of the city of Los Angeles' output was derived from services and about 20% from industry). Significant indirect costs from shutdown of the Santa Monica freeway.</td>
</tr>
<tr>
<td><strong>Losses</strong></td>
<td>Rebuild costs of around NZ$20 billion (US$15 billion) excluding disruption costs, or 10% of GDP. Insured losses of around NZ$30 billion (US$25 billion).</td>
<td>Overall losses of over US$200 billion (over 3 to 4% of GDP), US$35 to US$40 billion represented insured losses.</td>
<td>Losses of around US$30 billion (20% of GDP), insured losses of around US$8 billion.</td>
<td>Losses estimated at over US$100 billion (around 2% of GDP), insured losses of about US$3 billion.</td>
<td>Over US$40 billion (less than 1% of GDP). Insured losses of US$15 billion.</td>
</tr>
<tr>
<td><strong>Initial conditions</strong></td>
<td>Modest recovery from recession, positive medium-term outlook, some spare capacity, high agricultural and commodity prices. National earthquake insurance for a significant portion of damage.</td>
<td>Interest rates at zero. High government debt. Government responsible for liabilities beyond a certain total insurance cost borne by insurers.</td>
<td>Economy had begun to recover from recession at the time of the earthquake. Relatively strong fiscal position.</td>
<td>National and regional economy weak before the earthquake. Large stocks of saving helped residents.</td>
<td>San Fernando Valley had been in recession before the earthquake. A depressed local housing market. Relatively high vacancy rates pre-earthquake reduced the need for temporary housing.</td>
</tr>
</tbody>
</table>
2 Domestic impact

2.1 Initial impact

The 4 September 2010 earthquake happened at night, and caused no loss of life. Following that earthquake, a rough estimate of repair and rebuilding costs was around $5 billion. The 22 February 2011 earthquake, while lower in magnitude, involved much more intense shaking and caused significantly more damage, together with the loss of 185 lives. The central city suffered widespread damage, particularly close to the Avon River and in the eastern suburbs, while land damage has posed additional challenges to the rebuild process.

Financial markets largely shrugged off the September earthquake. The New Zealand dollar dropped sharply immediately after the February earthquake, although share prices were little changed (figure 2). Financial markets immediately priced in a fall in interest rates, with the entire short end of the yield curve moving down. To counter the risk of significant deterioration in national economic activity and to shore up confidence, the Reserve Bank cut the Official Cash Rate by 50 basis points to 2.50 percent in early March.

2.2 Damage and costs

Estimates of the total economic cost of the earthquakes vary and are subject to considerable uncertainty. There are differences between the market value of assets destroyed, the cost of replacing those assets over time, and the additional value of rebuilding to a higher standard or other discretionary improvements (such as building a roof on the new stadium). In addition, disruption to businesses and to the lives of individuals following a natural disaster can be substantial, but is difficult, if not impossible, to measure accurately. These factors mean that it is important to define one’s terms carefully when referring to the cost of the earthquake.

For macroeconomic purposes, the Reserve Bank has focused on estimates of the cost of rebuilding and repair. We estimate that around $20 billion (in 2011 prices) will be spent on repairing or replacing damaged assets, equal to some 10 percent of annual domestic output. We estimate that the cost of repairing or replacing residential property damage is $13 billion, while reinstatement of commercial damage is estimated to be $4 billion and infrastructure damage repair and replacement is expected to cost $3 billion. Construction cost inflation and the factors mentioned above mean that the final nominal cost of the rebuild is likely to be higher than the $20 billion figure. Indeed, the Canterbury Earthquake Recovery Authority’s (CERA) figures suggest that the rebuild, improvements included, could total $30 billion (Brownlee 2012).

The insured cost of the earthquake could be higher still, with insurance figures suggesting a nominal cost of over $30 billion. This figure includes damage to buildings and contents, as well as disruption to business activities. This figure does not, however, include under- or uninsured losses. Section 2.7 provides some discussion of additional insurance-related issues.

Current estimates suggest that over 150,000 homes (around three quarters of Christchurch’s housing stock) sustained some damage from the earthquakes, and of these around a fifth exceed $100,000 in damage. Some areas of Christchurch have been declared not fit for building, affecting over 7500 residential buildings. About 30,000 of the homes that have been declared safe to be repaired or rebuilt will require significant structural and land remediation work. Overall, the total number of individual building, land or contents claims received exceeds 600,000 (Earthquake Commission (EQC) 2011).

Claims made to the government EQC net of reinsurance cover exceed $7 billion, and have exhausted its funds. The additional liability of the EQC is to be met by
the Crown. On top of these costs, the Government is also expecting to spend over $5.5 billion on earthquake related costs, including over $1.5 billion for local infrastructure, $1 billion for land purchase and remediation, and $230 million for welfare support.

2.3 Population

Population changes post disaster have important implications for the extent of post-disaster rebuilding and economic recovery in Canterbury itself. However, reliable data are not easy to obtain. Given the disruption, particularly to residential addresses, survey results should be interpreted with caution. Similarly, other data sources such as postal relocations will be affected by changes in behaviour following the earthquakes.

There appears to have been little change in Christchurch’s population in the immediate aftermath of the September 2010 earthquake. However, following the February 2011 quake, there appears to have been a considerable net outflow of residents from Christchurch to overseas destinations (figure 3). Some of this international outflow may be understated in official statistics since residents may have temporarily migrated to other New Zealand cities before departing permanently abroad. According to migration statistics, Australia has been the main destination.

Figure 3
Quarterly net permanent and long-term international migration (seasonally adjusted, share of relevant population as at 30 June 2010)

In recent months there has been a reversal in international migration flows, with international migration data now showing a net positive inflow to Christchurch. This could reflect foreign workers arriving to take part in the rebuild, as well as a reduced outflow of residents, now that activity has picked up.

In addition to the international migration, there has also been noticeable internal migration as Christchurch residents have settled elsewhere in New Zealand. Some will have moved to other parts of Canterbury: while school enrolment figures are lower in Christchurch city, they have increased somewhat in neighbouring districts such as Waimakariri and Selwyn. Voluntary change-of-address notifications to Inland Revenue Department suggest that this internal migration is of the same order as the international outflow.

Subnational population estimates from Statistics New Zealand point to a decline of 8900 people in Christchurch in the year to June 2011. More recent data from the Household Labour Force Survey (HLFS), which surveys households who are normally resident, suggest that Canterbury’s working age population shrunk by around 28,000 in net terms in 2011 (figure 4). However, the uncertainties surrounding the accuracy of these data mean that it is not possible to confirm how much of a loss of population there has been. It seems likely that the population has fallen by at least 2 percent (a significant portion of the loss being the reduction in international student numbers), but some indicators suggest that the drop could have been as large as 6 percent.

Figure 4
Working age population (Index: 2010 Q2 = 100)
Electricity consumption in Christchurch city fell 21 percent in March 2011 relative to the previous March. It has since recovered somewhat, and was 11 percent down in March 2012 relative to March 2010. Petrol consumption was also down over the same period, whereas consumption of diesel increased by 8 percent, probably related to the clearance and demolition work. Overall energy usage declined by 3 percent between March 2010 and March 2012, with residential usage still showing a more marked decline (figure 6).

**Figure 6**
Christchurch city total energy usage
(seasonally adjusted, three-month moving average, index: August 2010 = 100)

Retail activity in Christchurch has been subdued. In the initial aftermath of the February 22 earthquake, about four trading days were almost completely lost. Furthermore, disruptions to the power and telecommunications networks resulted in payment systems being unavailable for many outlets. Paymark transactions, for example, suggest that electronic spending dropped by 40 percent in the days immediately following the February 2011 earthquake (figure 7).

**Figure 7**
Electronic card transactions
(index: 7-21 February 2011 average = 100)
In the immediate aftermath of the earthquakes, there was a large increase in the demand for banknotes as consumers focused on acquiring essentials such as food, water and petrol, and as electronic payment systems were temporarily off-line. The Reserve Bank worked closely with banks and local authorities to ensure the availability of financial services and cash. About $150 million in additional cash was distributed in the week following the February earthquake, representing around $350 per resident.

The initial disruption lasted for a number of weeks. However, transactions in Canterbury relative to nationwide transactions had recovered to around 10 percent below where they had previously been by around the start of May 2011. They are currently down around 6 percent in relative terms. This fall is reflected in retail sales, which have not increased by as much as the rest of the country. Retail trade has increased by around 7.7 percent in nominal terms nationwide since September 2010, but only by 1.3 percent in Christchurch (figure 8). While this will be largely a symptom of the fall in the local population, it may also reflect the loss of retail premises, particularly in the city centre.

Figure 8
Retail sales
(seasonally adjusted, index: 2010 Q2 = 100)

Tourism is another sector that has suffered significantly from the earthquakes. The central city had been the hub of tourist activity. But many of the attractions and many hotels have been demolished, and others remain either closed or still behind the central city cordon. The number of available hotel rooms and beds in backpackers has fallen by over two thirds since the February 2011 quake (figure 10).

Figure 9
Christchurch bus passenger numbers
(seasonally adjusted, index: August 2010 = 100)

There also appears to have been a drop-off in public transport volumes. Bus passenger numbers, for example, are down around 30 percent in Christchurch compared to pre-quake levels (Figure 9). In part, this reflects the continued dispersion of economic activity away from the central city and the cancellation of some services.

We are grateful to Opus Central Laboratories for sharing their preliminary research with us.

Footnote 1
International visitor numbers to Canterbury have also fallen since February 2011. International guest nights dropped by 6 percent immediately following the September 2010 earthquake, and then by a further third following the February quake and have yet to recover (figure 11). Domestic guest nights did not undergo such a marked fall, but remain around 8 percent down on the pre-quake level, even allowing for demand from temporarily displaced residents and those from out of town working on repairs or insurance assessments, for example.

Figure 11
Total guest nights
(seasonally adjusted, index: 2010 Q2 = 100)

![Graph showing total guest nights](source: Statistics New Zealand, RBNZ estimates)

Similarly, Christchurch has suffered a marked reduction in the number of international students, with student visas down by 40 percent since February 2011, around 3300 people (figure 12). Ministry of Education statistics suggest that international student numbers in Canterbury have fallen by almost 50 percent since 2010.

While tourism sector activity has been hard hit, exports of goods have held up. Despite damage to its wharves, Lyttelton Port (the port of Christchurch) has maintained, and indeed managed to increase, the volume of exports. Core services at the port were restored within four days of the February 22 earthquake and volumes reached their previous peak midway through 2011 (figure 13).

Agricultural activity in Canterbury, as elsewhere in New Zealand, has been boosted by favourable climatic conditions. The manufacturing sector also appears to have held up reasonably well: the gap between Canterbury and nationwide performance (figure 14) has not changed noticeably from where it was in mid-2010.
Most manufacturing activity was located outside the hardest hit areas.

Damage and destruction of capital have resulted in increased investment intentions in Canterbury. Canterbury respondents to the QSBO now expect to do more investment in buildings and plant and machinery than respondents in the rest of the country (figure 15). Indeed, the value of non-residential building consents in Canterbury increased by 78 percent in the 12 months to July 2012 relative to the preceding 12 months. This compares with a decline in the rest of the country.

Figure 15
Investment intentions (seasonally adjusted, difference from mean since 2000)

Source: NZIER, RBNZ estimates.
Note: Solid lines represent net percentage of firms expecting to increase investment in buildings over the next 12 months compared with the previous 12 months. Dashed lines represent the same for investment in plant and machinery.

Figure 16
Employment (seasonally adjusted)

Source: Statistics New Zealand.

Figure 17
Online skilled job vacancies by region (seasonally adjusted, index: August 2010 = 100)

Source: Ministry of Business, Innovation and Employment.

2.5 Labour market

According to the HLFS, total employment declined by 9 percent between the June 2010 and June 2012 quarters, although recent outturns have been particularly volatile. Conversely, the Quarterly Employment Survey (QES), which surveys businesses, points to a 4.5 percent decline in filled jobs (figure 16). The QES will pick up employees staying in temporary accommodation that the HLFS does not cover. However, it does not cover small companies and self-employment, so if they have suffered a greater rate of attrition than larger companies, the QES will under-report the decline in employment.

The decline in employment has been most marked in the retail trade, accommodation and food services sectors. Employment in these sectors in Canterbury is estimated to have declined from 54,100 in June 2010 to 41,600 in June 2012. The vast majority of these job losses were for female workers, explaining the sharp pick-up in female unemployment in the region. Conversely, employment in the construction industry is estimated to have increased, from 25,900 in June 2010 to 32,800 in June 2012.

Despite the fall in aggregate employment, there are signs of difficulties recruiting labour. Online advertisements to fill skilled jobs in Canterbury have almost doubled since the start of 2011. The rest of the South Island has also witnessed a pick-up over that period, in marked contrast to Wellington and Auckland, where online job advertisements have remained reasonably constant (figure 17).
At least over the short to medium term, it may be more difficult to match workers with vacancies, particularly if those who have lost jobs in the accommodation and tourism sectors cannot readily secure jobs in the construction sector as the rebuild gathers pace. This increased difficulty in finding labour is also apparent in the QSBO survey, and has been mentioned by businesses in the region visited by the Bank as part of its quarterly liaison round.

Average hourly earnings have increased at a slightly higher rate in Canterbury than elsewhere in New Zealand (figure 18). However, this could just be a reflection of a change in the composition of employment, with the loss of lower-paid jobs in retail and hospitality.

Figure 18
QES average total hourly earnings (ordinary & overtime)
(seasonally adjusted, index: 2010 Q2 = 100)

2.6 Housing market

The earthquakes have had a marked impact on the regional housing market. Both major earthquakes initially caused a drop in housing market activity in Canterbury (figure 19). Uncertainty over the earthquake damage and difficulties in securing insurance, even for existing customers, will have contributed to some of this initial weakness in activity. However, housing market activity has subsequently picked up in the wider Canterbury region: the fall in the housing stock appearing to more than offset the impact of the drop in the population. As a consequence, the time taken to sell a house has fallen. After spiking to over 50 days in March 2011, days to sell have declined to 30 in Canterbury/Westland, around five days quicker than the current national average.

Property prices suggest that the loss of dwellings has outstripped the loss of population, generating some excess demand for housing. There may also have been some price and rent spillovers to other regions, although it is not clear how much outward migration has contributed to extra demand for housing in the rest of New Zealand, particularly in Auckland (figure 20). At present, the divergence between house price inflation in Canterbury and that in the rest of the country is not out of line with the divergence among regions seen historically.

Figure 19
House sales
(seasonally adjusted, index: August 2010=100)

Source: REINZ, RBNZ estimates.

Figure 20
Housing price index
(seasonally adjusted, rebased: August 2010 = 100)

Source: REINZ, RBNZ estimates.

Rents for new rental contracts have increased by 18 percent in Christchurch since the end of 2010, compared with the 7 percent increase nationwide. Rental increases for existing contracts, as measured in the CPI, have
increased by less. But there is clear differentiation between suburbs, with the south western suburbs seeing larger increases than those in the east or close to the Avon River, where damage was more heavily concentrated (figure 21, left below). The pick-up has become more marked since the start of 2012.

Figure 21
Rents for new residential property leases
(index: August 2010 = 100)

EQC levies have been trebled to meet the higher costs of reinsurance and replenish funds. Private insurance costs have markedly increased for households and for businesses throughout New Zealand (figure 22), with terms and conditions, such as excesses and capped replacement values, also tightening. For households and businesses, restricted availability of insurance to cover construction of new buildings has hampered investment and the rebuild process. However, there are some recent signs of improvement in insurance availability.

Figure 22
CPI insurance components inflation
(annual)

2.7 Financial institutions

New Zealand’s financial system has stood up well financially, as well as operationally, to the earthquakes. Extensive insurance helped limit banking sector losses. The EQC provides cover up to a maximum of $100,000 (plus GST) on insured properties, with losses beyond that covered by private insurance.

That said, several factors have led to delays in claim processing, including the large number of aftershocks, land issues, access restrictions for safety reasons and the need for apportionment between EQC and private insurance in respect of each earthquake event. The Government also provided a financial support package to a large insurer of residential property, and several insurers have been supported by capital injections from their parents. A few insurers are in the process of exiting the New Zealand market or limiting their exposures here.

Extensive offshore reinsurance will fund a substantial share of the rebuild costs and thus has helped reduce the financial impact on New Zealand. Claims on foreign reinsurers count as overseas assets and have led to an improvement in New Zealand’s net international investment position, although it is expected to unwind as the proceeds of this insurance are used to pay for the repairs and rebuilding (figure 23). Furthermore, reinsurance premiums have increased and will weigh on the current account balance over time.
2.8 Construction sector

The construction sector faces a substantial increase in demand following the earthquakes. The scale of the rebuild will drive construction sector activity in the region for the coming decade. It will also affect national construction activity through demand for materials and labour. Initially, the focus was on repairing infrastructure such as roading, and on demolition and clearance work. Some 1600 buildings have needed to be partly or completely demolished, with around 80 percent of that work now completed (Brownlee 2012).

Residential repairs are beginning to gather speed, with spending on repairs in August 2012 carried out on behalf of the EQC up 85 percent on the previous August. Total EQC repairs to date are around $750 million (figure 24). Over 45,000 emergency repairs and 20,000 full-scope repairs (typically at the less severe end of the spectrum) have been completed (Fletcher EQR 2012).

Residential consent issuance in Canterbury fell more sharply immediately following the two major earthquakes than was the case nationally. However, since the start of 2012, consent issuance has increased markedly. Overall Canterbury residential consent issuance is now around 40 percent higher than pre-earthquake levels (figure 25).

Much of the increase witnessed in Christchurch city since the start of 2012 has been consents issued for alterations, with consents for new dwellings still around the lows reached immediately following the February 2011 earthquake. Many of the earthquake-related repairs will not require consents, but nonetheless represent additional construction activity. Conversely, the pick-up in consents elsewhere in Canterbury is primarily for new construction, notably in districts adjacent to Christchurch such as Waimakariri and Selwyn (figure 26).
The production of ready-mix concrete fell in Christchurch immediately following the February 2011 earthquake, but has since accelerated as repair work gathered pace, and is now around 50 percent higher than mid-2010 (figure 27).

3 Conclusion

In aggregate, the Canterbury economy has been resilient in the aftermath of the earthquakes. In spite of considerable damage to residential and commercial property and public infrastructure, and a large amount of relocation, business activity in total rebounded rapidly after the initial disruption. Regional goods export volumes have remained strong, buoyed by the rapid recovery of port and airport capacity, but international tourism and education have been hard hit, and population losses have not yet been recovered.

Though delayed by extensive land damage and ongoing aftershocks, the repair and rebuild process is under way and likely to accelerate from now. Comparisons with other major natural disasters suggest that the widespread coverage of insurance, particularly accompanied by reinsurance overseas, has helped to mitigate the longer-term adverse economic effects of the earthquakes.

The process of repair and rebuilding will take a long time to complete, but will be at its most intense in the next few years. The Reserve Bank will continue to monitor regional activity and inflation developments and the consequent flow-through to the national economy.

References


Fletcher EQR (2012), www.eqr.co.nz/

EM-DAT: The OFDA/CRED International Disaster Database, Université catholique de Louvain, Brussels,
New Zealand Treasury (2012), Budget Economic and Fiscal Update 2012.
Asset returns and the investment choices of New Zealanders

Elizabeth Watson

This article introduces a new set of estimates of gross nominal returns since 1989 for a broad range of asset classes relevant to New Zealand investors. Risk and return characteristics of the assets are presented, and aggregate trends are discussed. However, many other factors may be relevant to the investment choices of New Zealanders. Investors are interested in realised rather than gross returns, directly determined by a range of factors including tax treatment and the impact of leverage. Attitudes to risk are a key determinant of investor behaviour, given that future returns are highly uncertain – providing grounds for portfolio diversification. Personal circumstances are also important and vary considerably between individuals.

1 Introduction

The Reserve Bank is interested in understanding the behaviour of a broad range of assets from a macroeconomic perspective. In this article, a new set of estimated gross returns is used to contrast the returns seen across a wide range of asset classes over the eventful years since 1989, and to compare New Zealand’s experience with Australia.

The gross asset returns presented here have a stylised economy-wide lens – in contrast to the perspective of an individual investor who would probably be interested in the realised risk and return they could actually achieve, which would be determined by a range of additional factors including taxes. Nonetheless, aggregate economic trends provide a useful starting point. The article considers some of the many factors that are likely to influence individual investment decisions – including portfolio replicability, tax treatment, the impact of leverage, uncertainty about future returns, and additional considerations, such as personal circumstances.

2 Measuring gross asset returns

This article uses a new set of estimated gross asset returns compiled from a variety of sources (summarised in table 1) for the period from 1989 to 2011. Data and further methodological information can be found in Watson (2012). This particular time period was chosen due to data availability and to be comparable with a similar analysis for Australia found in Goldman Sachs (2010).2 This is a much shorter time period than would typically be used for investment research, which is mostly focused on equities, bonds and cash, but allows us to analyse trends across a wider range of assets. Investment research typically finds that equities generate the highest returns over long periods, but that equity returns are very volatile.

Financial and property assets are considered. However, this is not an exhaustive list of household assets. There are other forms of investment that yield returns for New Zealand investors, but for which data are unavailable or analysis is beyond the scope of this paper – for example, human capital investment is not captured and some of New Zealand’s largest businesses are unlisted.

As indicated in table 1, in some places we have had to splice series together or use approximations in the early part of the period. The sources used were chosen to be as comparable as possible to those in the Australian analysis. Of course, the results are highly sensitive to the indices

---

1 No aspect of this article should be construed as financial advice. The author would like to thank her team, Phil Briggs, Hamish Pepper, Ian Nield, Jason Wong and Michael Reddell for their assistance. The author would also like to thank Goldman Sachs for allowing their data to be used in this analysis, and Enrique Gonzalez-Macuer from Beef and Lamb NZ for his help in providing farm rental yield calculations.

2 In some instances Australian asset returns data from Goldman Sachs (2010) have been used to construct proxies where earlier data for New Zealand are unavailable.
Table 1
Construction of estimates

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Sources</th>
<th>Time period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash/Deposits</td>
<td>NZ 12-month bank bill returns</td>
<td>1996-2011</td>
</tr>
<tr>
<td></td>
<td>Proxied by NZ 12-month government bond yield</td>
<td>1990-1995</td>
</tr>
<tr>
<td>New Zealand Bonds</td>
<td>NZ generic government bond index (total returns)</td>
<td>1995-2011</td>
</tr>
<tr>
<td></td>
<td>Proxied by Australian fixed interest returns (from Goldman Sachs),</td>
<td>1990-1994</td>
</tr>
<tr>
<td></td>
<td>assuming the purchase of a forward contract to eliminate currency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>risk</td>
<td></td>
</tr>
<tr>
<td>Australian Bonds</td>
<td>AU generic government bond index (total returns), calculated</td>
<td>2002-2011</td>
</tr>
<tr>
<td></td>
<td>including currency effects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australian fixed interest returns (from Goldman Sachs), calculated</td>
<td>1990-2001</td>
</tr>
<tr>
<td></td>
<td>including currency effects</td>
<td></td>
</tr>
<tr>
<td>New Zealand Shares</td>
<td>NZX all share price index including dividends</td>
<td>1990-2011</td>
</tr>
<tr>
<td>New Zealand Listed</td>
<td>NZX property index including dividends</td>
<td>1998-2011</td>
</tr>
<tr>
<td>Property</td>
<td>Proxied by Australian listed property returns (from Goldman Sachs),</td>
<td>1990-1997</td>
</tr>
<tr>
<td></td>
<td>assuming the purchase of a forward contract to eliminate currency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>risk</td>
<td></td>
</tr>
<tr>
<td>Australian Shares</td>
<td>ASX200 share price index including dividends, calculated including</td>
<td>2001-2011</td>
</tr>
<tr>
<td>Unhedged</td>
<td>currency effects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australian share returns (from Goldman Sachs), calculated including</td>
<td>1990-2000</td>
</tr>
<tr>
<td></td>
<td>currency effects</td>
<td></td>
</tr>
<tr>
<td>Australian Shares</td>
<td>ASX200 share price index including dividends, assuming the</td>
<td>2002-2011</td>
</tr>
<tr>
<td>Hedged</td>
<td>purchase of a forward contract to eliminate currency risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Australian share returns (from Goldman Sachs), assuming the</td>
<td>1990-2001</td>
</tr>
<tr>
<td></td>
<td>purchase of a forward contract to eliminate currency risk</td>
<td></td>
</tr>
<tr>
<td>International</td>
<td>MSCI world equity index including dividends, calculated including</td>
<td>1990-2011</td>
</tr>
<tr>
<td>Shares Unhedged</td>
<td>currency effects</td>
<td></td>
</tr>
<tr>
<td>International</td>
<td>MSCI world equity index including dividends, assuming the purchase</td>
<td>1990-2011</td>
</tr>
<tr>
<td>Shares Hedged</td>
<td>of a forward contract to eliminate currency risk</td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>Capital gains calculated using QV quarterly house price index. Rental</td>
<td>1990-2011</td>
</tr>
<tr>
<td>Property</td>
<td>yields are given by the median rent for a three bedroom house from</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the Ministry of Housing (backcast using Statistics New Zealand data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>prior to 1992) as a percentage of the REINZ median house price,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>assuming costs equal to 2 percent of the house price per annum</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>IPD all property total returns index</td>
<td>1993-2011</td>
</tr>
<tr>
<td>Property</td>
<td>IPD office property total returns index</td>
<td>1990-1992</td>
</tr>
<tr>
<td>Farms</td>
<td>Capital gains calculated using REINZ farm price index, with rental</td>
<td>2011</td>
</tr>
<tr>
<td></td>
<td>yields assumed to be 2.4 percent per annum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capital gains calculated using QV rural property price index, with</td>
<td>1990-2010</td>
</tr>
<tr>
<td></td>
<td>rental yields assumed to be 2.4 percent per annum</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Bloomberg, Reuters, Goldman Sachs, Quotable Value Ltd., REINZ, IPD, Statistics New Zealand, Ministry of Housing, RBNZ, author’s calculations.
chosen – for example, a corporate bond index would have suggested higher returns than the government bond index used here. Indicative estimates have also been used in some cases for inputs such as rental returns and costs. We think our assumptions are reasonable, but other analysts who have attempted this sort of comparison have used different assumptions or left rental returns out altogether, which can obviously lead to different conclusions. We hope to periodically update this database, and in further work we may find better historical series for some of the asset classes covered here.

Asset performance is measured in terms of risk and return, with each asset assumed to be held from the end of 1989. Annual returns – comprising income and capital gains – are calculated at year end and expressed in terms of compound annual growth rates (CAGR).\(^3\) The risk associated with an asset refers to the volatility of its returns from year to year, measured as the standard deviation of annual returns.

When investing in overseas assets such as international shares, currency movements can be an important determinant of overall returns. To capture these effects, returns have been calculated with and without hedging of currency risk. If an investor does not hedge currency risk, it is assumed that they purchase the asset at the year-end spot exchange rate – NZD/USD for international assets and NZD/AUD for Australian assets – and then revalue the asset at the prevailing spot rate 12 months later. On the other hand, if an investor hedges currency risk, it is assumed that they purchase the asset at the spot exchange rate and, at the same time, also purchase a 12-month forward exchange rate contract. When they revalue the asset 12 months later, the gain or loss on the forward contract can offset any gain or loss associated with movement in the spot exchange rate.

When calculating property returns, estimates of rental returns and associated costs have been used. Residential property returns are calculated as the returns from investing in rental property, rather than the purchase of owner-occupier housing. This is because purchasing property can have the purpose of both consumption and investment. Purchasing one’s own home can be thought of as the purchase of a stream of future housing consumption.

For residential property, costs are assumed to be 2 percent of the property price per annum. This includes direct costs such as insurance and rates, along with depreciation and landlords’ time. Landlords’ time is assumed to have a monetary value equivalent to the cost of property management fees, which are typically about 8 percent of gross rental payments. This equates to approximately 0.5 percent of the rental property’s value on average per annum.

Returns from owning a farm can be overstated by measures of farm profits if the owner also works on the farm (without taking a market-based salary). For this analysis we focus on the return from simply owning the land. To account for this, it is assumed that farm investors purchase farmland and then let it out to others. The rental return of letting out farmland is included in total returns. For farmland, rental returns net of costs are assumed to have been 2.4 percent per annum over the entire sample period on average.\(^4\)

### 3 Performance of New Zealand assets since 1989

According to these estimates, investment in farms was the highest yielding asset class between 1989 and 2011, followed by residential property (figure 1). Farmland and residential property performed particularly strongly from the early 2000s onwards, with high returns mostly taking the form of strong capital gains. The property boom of the 2000s – boosted by buoyant economic conditions, positive net migration, housing supply constraints, lower real interest rates, and relatively easy credit – resulted in an unprecedented rise in real house prices. Since the property market peak in 2007, returns have been much more subdued. Excess returns from farmland, relative to residential property, are likely to have been partly as

---

\(^3\) This measure of average returns takes total nominal returns and imputes the constant yearly returns required to achieve them.

\(^4\) This should be treated as approximate only. Calculations are based on data helpfully provided by Beef and Lamb NZ and Dairy NZ. In constructing this estimate, rental returns for all non-dairy farms are assumed to be equivalent to the rental returns calculated for sheep and beef farms.
a result of favourable prices for New Zealand’s primary export products being capitalised into farm prices. However, when the property cycle turned, farm prices fell quite significantly.

The past two decades were a turbulent time for financial assets like equities and listed property, with markets suffering significant losses in the early 2000s following the bursting of the dotcom bubble and then plummeting in 2008 at the onset of the Global Financial Crisis. On this measure shares exhibited the greatest volatility of annual returns over the sample period (figure 2).

Figure 2
Risk and return of each asset class between 1989 and 2011

International shares stood out as particularly low-return, high-risk assets. Unhedged international shares had the lowest nominal returns of any of the asset classes we looked at over this particular period (less than cash) and, with the only negative Sharpe ratio, received the lowest risk-adjusted returns. However, hedging back into New Zealand dollars improved the performance of international shares significantly.6

New Zealand bonds were an attractive low-risk investment, yielding greater risk-adjusted returns than

\[ \text{Sharpe ratio}_{\text{Asset }, t} = \frac{\text{CAGR}_{\text{Asset }, t} - \text{CAGR}_{\text{Cash}}}{\text{SD}_{\text{Asset }, t}} \]

5 The CAGR differential of 4 percent between unhedged and hedged international shares was largely driven by returns from holding forward contracts. The pricing of forward contracts is determined by interest rate differentials between New Zealand and other countries, so high average New Zealand interest rates provided higher returns to hedged holders of international assets than to those holding unhedged assets.
listed property or any type of shares. Since the financial crisis, bonds have performed very well relative to other investments (most of which suffered significant losses at the height of the crisis). Falling interest rates have generated significant capital gains on holdings of bonds.

Trends in gross asset returns for New Zealand were similar to those seen in Australia over the period from 1989 to 2009, as reported by Goldman Sachs (2010). Australian residential property was the highest yielding Australian asset between 1989 and 2010 (figure 4).

Table 2
Performance of New Zealand and Australian assets between 1989 and 2009

<table>
<thead>
<tr>
<th>Asset class</th>
<th>Return (CAGR)</th>
<th>Risk (Standard deviation)</th>
<th>Sharpe ratio (cash as risk-free benchmark)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Zealand investor</td>
<td>Australian investor</td>
<td>New Zealand investor</td>
</tr>
<tr>
<td>Cash/Deposits</td>
<td>7.1</td>
<td>6.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Domestic Bonds</td>
<td>8.7</td>
<td>8.9</td>
<td>6.9</td>
</tr>
<tr>
<td>Australian Bonds (Unhedged)</td>
<td>8.4</td>
<td>-</td>
<td>9.3</td>
</tr>
<tr>
<td>International Bonds (Hedged)</td>
<td>-</td>
<td>7.3</td>
<td>-</td>
</tr>
<tr>
<td>Domestic Shares</td>
<td>7.2</td>
<td>10.0</td>
<td>20.8</td>
</tr>
<tr>
<td>Australian Shares (Unhedged)</td>
<td>9.6</td>
<td>-</td>
<td>20.7</td>
</tr>
<tr>
<td>Australian Shares (Hedged)</td>
<td>10.7</td>
<td>-</td>
<td>20.2</td>
</tr>
<tr>
<td>International Shares (Unhedged)</td>
<td>4.9</td>
<td>5.3</td>
<td>19.5</td>
</tr>
<tr>
<td>International Shares (Hedged)</td>
<td>8.9</td>
<td>3.7</td>
<td>20.5</td>
</tr>
<tr>
<td>Residential Property</td>
<td>10.2</td>
<td>11.2</td>
<td>7.6</td>
</tr>
<tr>
<td>Commercial/Direct Property</td>
<td>6.7</td>
<td>7.7</td>
<td>10.0</td>
</tr>
<tr>
<td>Listed property</td>
<td>9.5</td>
<td>7.7</td>
<td>12.3</td>
</tr>
<tr>
<td>Alternative assets</td>
<td>-</td>
<td>11.4</td>
<td>-</td>
</tr>
<tr>
<td>Farms</td>
<td>11.9</td>
<td>-</td>
<td>11.5</td>
</tr>
</tbody>
</table>

7 The Goldman Sachs analysis includes actual data over the period from 1989 to 2009 and provisional data for 2010 due to the time of publishing.
Shares performed poorly in comparison, while domestic fixed income was an attractive low-risk investment.

Australian aggregate residential property returns only marginally exceeded those from investing in hedge funds ("alternative assets") – an investment option not widely available in New Zealand. In terms of Sharpe ratio, an index basket of Australian residential property was the best performing of all Australian and New Zealand assets (table 2). Owning farmland in New Zealand yielded the greatest nominal returns overall.

4 Towards thinking about investment choices

Knowing gross annual returns across various classes of assets is useful in enriching the Reserve Bank’s understanding of economic trends, given that headline returns probably influence the expectations and behaviour of individuals. The relative returns identified here were coincident with the substantial increase in private debt seen over the past 20 years, much of it secured on residential property and farms. High asset prices may also have encouraged owners of assets to increase their consumption on the back of unexpected windfall gains.

Knowing gross historical annual returns for recent periods may also be useful for individual investors thinking about how to allocate their own portfolios, but a range of additional factors are likely to be important. The remainder of the article considers some of the key factors that are likely to influence the investment choices of individuals.

4.1 Portfolio replicability

Not all of the gross asset returns reported here are equally achievable by investors. For an average New Zealander to access some of these products, an investment vehicle is necessary – such as a mutual fund – and these are subject to additional fees. Such funds can replicate aggregate equity or government bond indices at relatively low cost. On the other hand, there is no cost-effective mechanism by which investors can gain exposure to the residential property or farmland markets as a whole.

For assets with returns that are difficult to replicate, gaining exposure typically entails greater costs, reducing realised returns to the investor. To invest in residential property, investors must buy and sell individual properties, with most investors only able to achieve limited diversification. And acquiring a portfolio of property assets tends to be quite expensive. For example, an investor looking to hold 15 percent of a $500,000 portfolio in property would have trouble finding an appropriate house to purchase. Rebalancing of the portfolio, by selling the house and buying another one, would involve significant transactions costs, including agency fees, search costs and time. It is particularly difficult for the average New Zealander to gain exposure to farmland, given the high value of the average farm and the limited number of investment vehicles.

Because the farmland and residential property indices are non-replicable, the risk associated with actually investing in these types of assets is also materially understated in the charts presented earlier. Risk-adjusted returns from aggregate property price indices do not take into account idiosyncratic risk – that is, the risk associated with owning an individual property – or the risk of owning properties within one specific region.

The standard deviation for total residential property returns nationwide over the period studied here was 7.6 percent. But if we suppose that an investor can only hold a representative portfolio of, say, Wellington property, then Quotable Value indices imply that regional property returns had a standard deviation of 9.4 percent on average over the sample period. But even regional indices underestimate the risk associated with a typical investor’s exposure to property. Our estimates suggest that the risk associated with holding an individual property might be as much as 12.6 percent. Thus, while on an economy-wide basis property might appear to have been a low-risk investment option over the past two decades, for real-world individual investors it has exhibited much higher volatility than headline figures might have suggested. If an investor owned only one property, on average, residential property

---

**This assumes that rental returns are distributed identically across regions, though presumably if there was significant variation in rental returns between regions, the regional volatility could be greater.**
would have yielded lower risk-adjusted returns for them than either New Zealand or Australian bonds.

4.2 Tax treatment

Tax is a significant factor influencing realised returns. Because tax treatment has been excluded from the numbers reported here, this probably biases the results in favour of assets that mainly earn interest, which is taxed quite comprehensively. In contrast, investors earn some returns from property and equity investments that are untaxed.

However, it is also important to note that some asset returns considered here have already been taxed at the company level (e.g. shares and listed property investment). For New Zealand and Australian shares, imputation credits are available when dividends are paid to residents from either country, and can offset tax on earnings since tax has already been paid at the company tax rate. Australasian share returns presented here have been taxed; in all other cases, tax treatment is ignored. Consequently, share returns are somewhat understated relative to other assets.

In its submission to the Housing Affordability Inquiry, the Reserve Bank suggested that tax treatment of property may have amplified or extended the housing boom of the 2000s (Reserve Bank of New Zealand, 2011). In 2005 and 2010, rules were tightened for claiming property depreciation as a tax deductible expense – which may serve to dissuade investors from residential rental and commercial property investment at the margin. In Australia, a reduction in the effective capital gains tax rate in 1999 is thought to have contributed to the housing boom experienced there over the same period (Bloxham, Kent, & Robson, 2010).

For those leveraged investors whose debt servicing and other costs exceeded rental earnings, ring-fencing of rental property losses for the decade prior to 1991 limited the extent to which losses were tax deductible. Currently, rental property losses, like other unincorporated business losses, can be offset against other taxable income. For purchasers expecting tax-free capital gains, this ability to offset operating losses against other taxable income can make leveraged property investment look attractive.

In 2007, the portfolio investment entity scheme was introduced, allowing many holders of managed investments to be taxed below the investor’s general marginal tax rate, potentially encouraging investors to diversify into managed investments, such as equities or fixed interest. New Zealand and most Australian equities are exempt from capital gains tax if invested via a portfolio investment entity. Such tax changes, which have been initiated since the property boom, will have reduced the relative attractiveness of property relative to other assets to some extent.

Tax treatment of overseas portfolio investment opportunities is complicated and has undergone significant changes since 1989. Likewise, the mean marginal tax rate has varied – falls in managed tax rates improve the favourability of investments that are more comprehensively taxed at the margin, and vice versa. Overall, tax treatment is likely to have had a significant, and changing, impact on investment returns over the sample period.

4.3 Leverage

The gross returns data presented here do not directly take into account the possibility of leverage. Leveraged investors are those who borrow to fund their investment, allowing greater exposure to the asset they are investing in. This increases potential returns, but also the risk involved. To illustrate, suppose one residential property investor is unleveraged, while another has an 80 percent mortgage. If house prices rise 20 percent, the unleveraged investor experiences a 20 percent return, while the leveraged investor doubles their money. If house prices fall 20 percent, the unleveraged investor experiences a 20 percent loss, but the leveraged investor loses all of their equity.

Certain investments (e.g. property) can be geared to a greater extent than others, which may be attractive for some investors. However, some of the financial asset returns reported here already have embedded leverage: most firms in an equity index and listed property trusts will have debt. According to our estimates, listed property trusts show higher returns than direct commercial property
returns and also exhibit greater variance. This is likely to reflect the fact that one is a leveraged investment and the other is not.

4.4 Uncertainty

Over the past two decades, investing one’s entire portfolio in farmland would have yielded the greatest nominal return, equivalent to compound annual growth of 10.9 percent per annum. However, this portfolio would have suffered considerable losses in some years. And while a diversified portfolio of farmland would clearly have been the best choice of investment over that period in retrospect, actual investors must allocate their portfolios without any great certainty as to what future returns on different classes of assets will be.

Investors looking to maximise risk-adjusted returns would generally want to hold more than one type of asset. Holding assets with different risk and return profiles can increase the likelihood that an investor will do reasonably well overall, even if one particular asset does poorly. For example, if an investor thought that investing in farmland would be profitable but they wished to achieve reliable returns, then they might also choose to invest in an asset that tends to do well when farmland does poorly.

Diversification can improve risk-adjusted returns, but will not eliminate risk entirely. Hence, how an investor allocates their portfolio under uncertainty depends on their expectations of returns and tolerance for risk, which will vary considerably between individuals.

Investors are likely to at least partly base their expectations of asset returns on historical experience. However, making forward-looking assumptions based on past returns can be dangerous. Once asset booms in individual markets get under way they sometimes appear to develop their own momentum for a time. But rather than suggesting that an asset’s returns are reliably strong, high historical returns can sometimes indicate excessive valuation, with low or negative returns following as a consequence. It is not safe to assume that assets’ risk and return characteristics in a particular relatively short period will be replicated in the future.

4.5 Additional considerations

Modern finance recognises that prudent investors will typically consider other factors – in addition to expected returns and the variability of those returns – when choosing their portfolios. Investors are likely to seek investments that pay off in states of the world where they will most appreciate the money, and this will depend crucially on their personal circumstances. For example, a worker employed by the largest company in a town will likely face financial hardship (via unemployment) if that company fails. At the same time, they might find it difficult to sell residential property they owned in the town, and any shares they held in the company would be worthless. While some of this concentration of risk may be unavoidable (and possibly compensated for by a wage premium), it should be a relevant consideration in such an investor’s portfolio allocation decision. They might, for example, avoid owning company shares or investment properties in the town, since other investments probably provide much better ‘insurance’ against the risks arising from the failure of the worker’s employer.

In general, Cochrane (1999, 2011) suggests that, when financial planners help investors choose appropriate portfolios, they should do more to help them consider additional sources of risk applying to their personal situations. In addition to risks associated with a person’s employment, these additional factors could include regional- or country-specific risks. For example, an investor may wish to hold foreign currency assets as a hedge against an economic shock affecting their own country.

An investor is also likely to want the option to liquidate their investment in times of stress. Property tends to have asymmetric liquidity: it is easy to sell in boom times, but can be very difficult to move during downturns (in the recent downturn this was particularly evident for rural land). As such, investors are wise to give some consideration to the market liquidity of assets, particularly if they are risk-averse or highly leveraged. Such additional considerations might dissuade individuals from investing in markets or regions in which they are already heavily exposed, or in markets that tend to become illiquid in times of stress.

\(^9\) Portfolio allocation is investigated further in Watson (2012) using mean-variance optimisation techniques.
5 Conclusion

The Reserve Bank is interested in asset returns from an economy-wide perspective. On our estimates, property investment in aggregate generated particularly high returns over the relatively short period from 1989 to 2011. Financial assets, on the other hand, performed less well. An individual investor is less likely to be interested in economy-wide headline risk and return metrics. Actual property investments, for example, appear to be considerably more risky than headline risk metrics would suggest – in part, because it is difficult to obtain a diversified portfolio of property. Individual investors are likely to be concerned about the risk and return they can achieve, as determined by a range of additional factors that vary from person to person, such as tax and leverage. Past returns are not a reliable predictor of future returns and this uncertainty provides grounds for portfolio diversification. Additional considerations such as personal circumstances are also likely to be important and vary considerably among individuals.

References

Reserve Bank of New Zealand (2011) ‘Submission to the Productivity Commission inquiry on housing affordability’.
Foreign currency reserves: why we hold them influences how we fund them

Anella Munro and Michael Reddell

This article reviews New Zealand’s approach to funding foreign currency reserves: a mix of holding foreign currency assets funded by outright purchases of foreign exchange, borrowing foreign currency long term to fund foreign currency assets, and swapping local currency assets for foreign currency assets for a long term. The use of borrowed and hedged reserves is unusual, but not unique, among floating exchange rate countries with liberalised financial markets. We consider the reasons for holding reserves, and the connection between these reasons and the costs and benefits of each of the funding options that New Zealand has chosen.

Introduction

Almost all countries hold foreign currency reserves. Doing so provides options – a self-insurance of sorts - that would not exist so readily in the absence of reserves. What options a country wishes to provide for will in turn depend on a number of other choices.

For a country with a fixed exchange rate and free cross-border capital flows, a large stock of reserves may be required to maintain the desired exchange rate. In that case, reserves help limit foreign exchange rate risk as well as ensuring the availability of foreign currency to facilitate cross-border transactions.

For an advanced country with a floating exchange rate, a much smaller stock of reserves is typically required. Intervention in the exchange markets is infrequent in these economies, and the primary reasons for holding reserves may relate to the risk that extreme market disorder could compromise the functioning of the foreign exchange markets in ways that create difficulties for the real economy of the financial system. Not all advanced floating exchange rate economies have a modest level of reserves, but most do. New Zealand is one of those countries.

The intended uses of foreign currency reserves, in turn, have influenced the approach New Zealand has taken to funding those resources. Different funding approaches have different characteristics, particularly in terms of rollover risk, influence on the foreign exchange market, and cost.

This article outlines the statutory framework for holding reserves in New Zealand, and how that has translated into the relatively unusual approach taken in New Zealand to financing the foreign reserves held as foreign exchange intervention capacity.

1 Foreign currency reserves: insurance against what?

The monetary policy framework and exchange rate regime: a brief history

The so-called monetary policy “trilemma” (figure 1, overleaf) is one lens through which we can understand the role of foreign currency reserves. The monetary policy trilemma states that it is impossible to have all three of the following at the same time:

• a fixed nominal exchange rate;
• an independent monetary policy; and
• free capital movement.

For decades prior to 1985, New Zealand’s economy was quite highly regulated and the New Zealand dollar exchange rate was fixed (but adjustable from time to time). Foreign reserves were held by the Reserve Bank and the Treasury, and were used routinely to maintain and manage the fixed exchange rate. For most of the period,
and until just three months prior to the float, private capital flows were tightly restricted, and short-term private capital inflows were largely prohibited.

In principle, this combination of capital controls and a fixed nominal exchange rate implied a good degree of control over both inflation and the exchange rate. In practice, that control was exercised in a way that meant that inflation was high throughout the 1970s and early 1980s, and even during the fixed exchange rate period, the real exchange rate tended to be quite variable (Figure 2) as a result of devaluations, occasional revaluations and differences between domestic and foreign inflation.

New Zealand's current approach to foreign reserves was formed in the late 1980s, in the context of far-reaching public sector management and financial reforms, including the 1985 move to a freely floating exchange rate. The move to a floating exchange rate was an integral part of securing domestic monetary control and ending New Zealand's protracted period of high inflation. By the late 1980s, the choices New Zealand had made in terms of the trilemma were fairly clear: the nominal exchange rate had been freed to float; capital flows had been liberalised; the 1989 Reserve Bank of New Zealand Act established domestic price stability as the objective of monetary policy (figure 1).

The primary role for reserves: extreme disorder in foreign exchange markets

Among New Zealand policymakers in the late 1980s, there was a strong predisposition to be sceptical of the ability of the authorities to reach a better judgement than the market about appropriate financial market prices (interest rates or the exchange rate), and a sense that most swings in the real exchange rate reflected changing real economic factors, so played a valuable buffering role. Accordingly, little weight was put on the possibility of intervening in the foreign exchange market to influence the level of the exchange rate.

Against that background, the possibility of foreign exchange intervention was envisaged only in cases of “extreme disorder”, when effective liquidity in the New Zealand dollar foreign exchange market had (all but) disappeared. Such a situation might arise because of a severe imbalance between supply and demand for New Zealand dollars (a common hypothetical scenario was an announcement of foot and mouth disease), or a market shutdown due to technical factors or severe counterparty credit risk. The focus of intervention for extreme disorder, if it had been required, was always envisaged as assisting to restore trading in the market, and ensuring that essential transactions could be conducted. The aim was not envisaged as being to defend a particular rate, nor to slow an orderly decline in the value of the currency.

Foreign exchange business in the New Zealand dollar markets reflects a wide variety of factors. Foreign trade...
transactions have to be paid for, generating business on both sides of the spot and forward markets. Capital flows dominate foreign exchange trading volumes and can take a variety of forms. There are many shorter-term speculative positions, affecting both the spot and foreign exchange swap markets (the largest chunk of turnover is through the short term foreign exchange swap market). And there are significant longer-term balance sheet positions to be funded and/or hedged.

In respect of balance sheets, the main parties with natural long-term positions wanting to swap foreign currency into New Zealand dollars are resident banks. The banks raise foreign currency funding (totalling about 40 percent of GDP) that is then swapped into New Zealand dollars to on-lend to households and firms in New Zealand dollars.

On the other side of the swap market, the main sources of New Zealand dollar funding are (i) non-resident entities who issue New Zealand dollar denominated bonds (often referred to as Eurokiwi, Kauri and Uridashi bonds) when it is cheap relative to funding from other currencies (net of the cost of swapping the proceeds into foreign currency to meet their end-uses); (ii) the managed funds industry that holds foreign assets, but hedges some of the associated currency risk to match their New Zealand dollar liabilities; (iii) and the Reserve Bank which obtains foreign currency liquidity by swapping New Zealand dollars for US dollars to obtain foreign currency liquidity (discussed in the next section). Each of those parties relies, to a greater or lesser extent, on the continued functioning of those markets.

The health of the institutions that make markets in foreign exchange products also matters to the resilience of the market. Heightened perceptions of risk, or large realised losses, can lead market makers to reduce their risk limits, and the ability of the markets to function in an orderly way. The New Zealand dollar markets benefit from a diverse set of market makers in terms of time zones, jurisdictions and ownership, although diversity probably also exposes the New Zealand dollar foreign exchange markets to a wider set of shocks.

All else equal, a more “liquid” market might be expected to be more robust in the face of shocks than a less liquid market. Turnover in the New Zealand dollar market is high relative to the (small) size of our economy. The New Zealand dollar was the 10th most traded currency in the 2010 BIS Triennial Survey, despite New Zealand’s small size. Average daily New Zealand dollar turnover in global foreign exchange markets in April 2010 was almost 45 percent of New Zealand’s annual 2010 GDP (figure 4).

Figure 4
Average daily domestic currency turnover (% of annual GDP)

The absolute size of the New Zealand dollar market is, however, small relative to major currencies; New Zealand dollar short term volatility is typically relatively high; and a large share of the turnover arises from non-resident participants with no natural reasons to be holding New Zealand dollar positions. Turnover and effective liquidity can fall sharply during crises, and markets that had previously appeared robust became stressed during the Global Financial Crisis.

Through some testing periods over almost three decades, there has been no intervention to counter
extreme disorder in foreign exchange markets in the post-
float period. The foreign currency market has continued
to function adequately despite periods of very high
short-term volatility, sometimes thin markets, big cyclical
swings in the exchange rate, New Zealand’s high external
financing requirement, and external crises during the late
1990s and late 2000s.

The 2008 (global) US dollar shortage provides a useful
effect of severe one-sided pressures on
the New Zealand dollar market (see Fender and Von Peter
2009). After the Lehman bankruptcy, there was a general
rise in uncertainty and fall in risk appetite, a flight to quality
(USD assets in particular), and rising concern about the
creditworthiness of many global banks. New Zealand
dollar turnover in the domestic market declined by about
25 percent from its pre-crisis level. Over the fourth quarter
of 2008, the value of the New Zealand dollar fell by 25 per
cent against the USD and 22 percent on a trade-weighted
basis. The well-hedged nature of New Zealand’s financial
liabilities meant there were no material adverse economic
or financial effects from that large depreciation.

Hedging markets also continued to function effectively
during the crisis. Like many borrowers, New Zealand
banks found it relatively more difficult and costly to raise
foreign currency funding, but initially relatively cheap to
swap (into New Zealand dollars) the USD funding that they
did raise. In addition, the sharp depreciation of the New
Zealand dollar reduced banks’ refinancing requirements
in USD terms (New Zealand bank loan books are almost
entirely in New Zealand dollar terms). For parties on the
other side of the market it quickly became very expensive
to swap into US dollars. The Reserve Bank established a
precautionary swap facility with the US Federal Reserve,
but this was not activated during the crisis period.

The historical robustness of the foreign exchange
markets may suggest little need for reserves, but each
crisis is different and, at times, even markets that were
assumed always to be robust have become dysfunctional.

A secondary role: exchange rate overshooting

From the floating of the exchange rate in March
1985 to March 2004, the Reserve Bank’s intervention
mandate was limited to restoring functioning in foreign
exchange markets. Faced with the experience of large
real exchange rate fluctuations - probably larger than most
had expected when the exchange rate was floated – there
has been some shift in views over the floating exchange
rate period regarding the role of foreign exchange market
intervention.

In 2004, the Reserve Bank’s foreign exchange
intervention mandate was broadened to include the
potential to lean against (on a modest scale) extreme
cyclical peaks and troughs in the exchange rate that
are judged inconsistent with underlying economic
fundamentals (see Eckhold and Hunt 2005). The 2004
policy recognises that, even when markets are liquid,
market dynamics can result in deviations between the
exchange rate and medium-term fundamentals.

In some instances when the exchange rate is both
exceptional and not well explained by macroeconomic
fundamentals, there may be scope for intervention within
bounds agreed with the Minister of Finance. All else equal,
limiting intervention to periods when the exchange rate
appears to be well away from long-run average levels and
not well explained by fundamentals, probably increases
the chances of subsequent adjustment back towards a
longer-term average.

The Reserve Bank first intervened in the foreign
exchange market on the basis of the 2004 policy, in 2007.

Figure 5 shows the monthly net New Zealand dollars
purchased or sold by the Reserve Bank. The foreign
currency purchases in 2007-8 occurred at a time when
the New Zealand dollar was unusually strong and there

Funding pressures were also eased by sovereign retail
and wholesale funding guarantees and by local currency
liquidity provision by the Reserve Bank.

See http://www.rbnz.govt.nz/finmarkets/foreignreserves/
intervention/0147012.html.

Interventions are typically not announced at the time [an
exception was made for the first time in 2007], although
monthly data on the Bank’s foreign currency position are
published at the end of the month following the intervention.
was concern about speculative exuberance despite signs of a slowing economy and growing uncertainty in financial markets.

Figure 5
Net foreign currency sales

Foreign currency purchases over the 2007-8 period also served a second objective. It had been decided that the Reserve Bank would shift some of its foreign currency reserves to an open (unhedged) position (more on this in section 4). So the foreign currency purchases contributed to that shift in composition. Although subsequent repurchases of New Zealand dollars in 2009-2010 occurred at an opportune time in terms of pricing, they were not intended to influence the market.

2 Official reserves and foreign currency liquidity

The potential need to counter extreme disorder in foreign exchange markets, probably with quite short-term intervention positions, remains the dominant factor in the Reserve Bank’s demand for foreign reserves. The capacity for intervention under the 2004 policy is modest, especially by comparison with the level of turnover in the market. Only intervention to address a shortage of foreign currency in the market requires us first to have secured foreign currency liquidity. Interventions to provide domestic currency to the market (purchasing foreign currency) can be done by a central bank at will.

New Zealand’s total official reserves, as reported (for example) on the Reserve Bank’s website, are typically much larger than the effective amount of intervention capacity the Bank has. Following the crises of the 1990s, the IMF revised its data collection on foreign currency resources to make a distinction between official reserves and “foreign currency liquidity”. “Official reserve assets” is a gross balance sheet concept, that does not necessarily account for all foreign currency resources that may be available, and does not account for predetermined and contingent drains on reserve assets. Since 2005, the reporting under the IMF template on international reserves and foreign currency liquidity accounts for those factors. Our own focus internally, and in discussions with the Minister of Finance, has been primarily on a target level of effective intervention capability, not on gross reserves per se.

Figure 6, overleaf, shows official reserve assets (ex gold) plus the predetermined 12-month net forward position for several countries.

In New Zealand’s case, the difference between total reserves and intervention capacity (and hence New Zealand’s relatively large net short forward position) reflects two factors. One is the use of short-term foreign currency swaps in Reserve Bank domestic short-term liquidity management operations. During the late 1990s and early 2000s, the New Zealand government ran surpluses that reduced gross sovereign issued debt to about 15 percent of GDP. In response to the scarcity of government paper available for normal domestic liquidity operations, the Reserve Bank began accepting foreign currency collateral on which it could achieve better pricing. As a result, foreign currency assets on the Reserve Bank’s balance sheet rose. This increased “official reserve assets” but those foreign currency assets are not thought of nor reported as intervention capacity – the swaps were typically quite short-term in nature, and the foreign exchange collateral had to be able to be returned at maturity to the institution that had borrowed New Zealand dollars from the Reserve Bank. The predetermined drain associated with the foreign exchange swap liquidity operations is reflected in the IMF template as a net short position. The foreign exchange swaps, driven solely by day-to-day domestic liquidity management considerations, account for the bulk of New Zealand’s net short forward position, including most of the variation.

The second factor that contributes to a net short
Figure 6
Foreign currency reserves and net forward positions
(billions of US dollars)

Source: IMF International Reserves and Foreign Currency Liquidity.
1/ Official reserves excluding gold. 2/ Twelve-month long position in forwards, futures and swaps vis-à-vis the domestic currency minus short positions. 3/ Includes HM Treasury and the Bank of England.
forward position is the way that some of the Reserve Bank’s intervention capacity (foreign currency liquidity) is funded.

3 Funding foreign currency liquidity

The objectives of intervention policy and institutional responsibilities have materially influenced thinking about the structure and financing of reserves holdings. A key aspect of the institutional reforms of the 1980s, of which the 1989 Reserve Bank of New Zealand Act was an integral part, was to decentralise responsibility to public sector agencies and their chief executives, and then to hold those agencies to account for their performance (financial or otherwise).

In terms of foreign exchange management, foreign exchange intervention reserves were centralised on the balance sheet of the Reserve Bank,8 and the Bank was held responsible for its own financial results, including foreign exchange risk associated with its holding of foreign currency reserves.9 As part of that shift, a decision was made to hedge the foreign exchange risk on the Bank’s balance sheet. Doing so removed the largest source of variance in the central bank’s own financial results. At the time, the Treasury itself was moving towards immunising all foreign exchange risk on the central government balance sheet.

Borrowed reserves

The foreign exchange risk on the Bank’s reserves portfolio was initially shed by, in effect, assigning some of the Government’s then medium- and long-term foreign currency loans (typically 5 to 15 years) to the Reserve Bank. The Treasury lent to the Reserve Bank on much the same terms as it had raised the funds. The Reserve Bank then held the funds in liquid assets across a range of currencies. This approach eliminated foreign exchange risk from the Bank’s balance sheet. We refer to this approach as “borrowed reserves”.

Borrowing to fund foreign currency liquidity reduced currency risk, but it generated refinancing risk because the foreign currency borrowing needs to be refinanced as it matures. In the event that such reserves are used, the foreign currency needs to be repurchased to repay the foreign currency debt as it comes due. In the framework of the IMF template, for example, the debt repayment becomes a predetermined drain on foreign currency liquidity when it has a residual maturity of less than a year.

How serious this refinancing risk is depends largely on the maturity of the borrowings and on the likely term of intervention positions. If all the borrowing matured within three months, the foreign currency assets would provide very little effective intervention capability – the authorities would have to be constantly conscious of the need to reverse any interventions very quickly. In contrast, if reserves were funded by issuing 100 year debt, the predetermined drain would be insignificant. In New Zealand’s case, the refinancing risk was managed by the Reserve Bank by requiring that no more than 20 percent of the value of the loans would mature in any 12 month period. The portion of the reserves equivalent to the funding due to mature within a year was not counted as effective intervention capability.

Borrowing reserves requires a higher level of gross reserves to achieve the same desired degree of foreign currency liquidity, but there are some offsetting advantages. The reported variance in the value of the Reserve Bank’s balance sheet is much reduced (since foreign exchange risk is typically a large source of variance), reducing the amount of capital the government needs to set aside for Bank operations. In addition, the expected cost of holding reserves tends to be quite modest and relatively stable: the holding costs (or “carry costs”) of borrowed reserves is the (typically small) margin between the government’s foreign currency borrowing cost relative to the return on foreign currency paper held. The fact that intervention to counter extreme disorder in market functioning were envisaged as being quite short-term in nature also increased the alignment of the funding strategy with the reasons for holding reserves.

---

8 The Treasury maintained some foreign currency assets, but these were principally for its own liquidity management purposes.

9 While the Reserve Bank bears the financial risk associated with the foreign reserves on its balance sheet, the broad level of foreign reserves held by the Bank is set by the Minister of Finance and reviewed from time to time. In practice the range is fairly wide.
**Hedged reserves**

The development of the New Zealand dollar cross-currency basis swap market in the 1990s enabled an alternative means of funding foreign currency liquidity. Instead of borrowing in foreign currency (through the government), local currency resources could be swapped into, say, USD (through the cross-currency swap market), and US dollar proceeds held in liquid assets. We refer to this form of funding foreign currency liquidity as “hedged reserves”.

By the mid 1990s, the New Zealand government had achieved a net zero foreign currency debt position, and had ceased borrowing in foreign currency for its own purposes. Any use of international borrowing markets by the Treasury was to finance the Reserve Bank’s holdings of foreign reserves. For a time Treasury generated funding for the Bank’s reserves by issuing more domestic debt and undertaking cross currency swaps itself. However, successive governments used gross public debt targets as a key part of their fiscal management and accountability framework. The target framework meant that taking on additional gross debt to finance reserves became a point of tension, especially when the target level of foreign reserves was raised.

However, the Reserve Bank had large holdings of government bonds on its balance sheet; traditionally the counterpart to the physical currency issue and the Bank’s equity capital. The return on five- to ten-year New Zealand government bonds fell through the early 2000s about 100 basis points below swap in the domestic market. The return on five- to ten-year New Zealand government bonds fell through the early 2000s about 100 basis points below swap in the domestic market.

Hedged reserves funded directly from our own balance sheet have been the predominant approach to refinancing foreign currency liquidity since 2007. The insurance properties of “hedged reserves” are similar to those of “borrowed reserves” in terms of the pre-determined drain on foreign currency liquidity. The Reserve Bank has to return the foreign currency (and receive back New Zealand dollars) as the swaps mature. Again, this risk has been managed by ensuring that typically no more than 20 per cent of the gross position reverts to New Zealand dollars in a given year. This approach also involves modest (collateralised) counterparty credit risk associated with the cross-currency swap. The balance of supply and demand in the cross-currency swap market during a crisis is an important consideration when considering refinancing hedged reserves. Refinancing could be problematic if there were excess demand to swap out of New Zealand dollars, in which case refinancing hedged reserves could further stress the cross-currency swap market, compromising the smooth operation of that market. Although that was not the case in 2008/9 (the basis swap was remarkably stable relative to other countries (see Figure 8), it is important that foreign currency liquidity is available from other sources such as the open position or the option to tap foreign currency markets directly through government borrowing.

Figure 7

Five-year cross currency basis swaps

---

10 Under a cross currency swap, foreign currency funding is exchanged for New Zealand dollar funding for the duration of the swap. At swap maturity, the New Zealand borrower (typically a bank) returns the NZD funding to the swap counterparty and receives its original foreign currency funding with which it repays the underlying foreign currency debt. For explanations of why borrowers engage in such “synthetic” local currency funding, see Munro and Woolridge (2009).

11 Some long-term debt could not economically be bought back early, and was hedged with a “defeasance portfolio” of foreign currency assets held by The Treasury.

13 From 2009, the pressures in the cross-currency swap market reversed. Issuance of NZD denominated bonds by non-residents declined sharply. As outstanding bonds have matured, the value of non-resident issued NZD bonds outstanding has declined from a peak of about NZ$57 billion in 2007 to NZ$2 billion in December 2011. This decline in supply of NZD into swap markets drove up the cost to New Zealand banks of swapping foreign currency into New Zealand dollars (the basis swap), in turn driving up bank funding margins (relative to the official cash rate). In that case refinancing of Reserve Bank hedged reserves serves to ease pressures in the market.
Indicative costs of hedged reserves are shown in Figure 9. There are three relevant spreads: the spread between New Zealand government bond and the interest rate swap, the spread between say a US government bond and the interest rate swap, and the cost of exchanging the New Zealand dollar funding for US dollar funding, the so-called “basis swap” over the same period.\footnote{\textsuperscript{14}}

**Figure 8**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Net cost a/</td>
<td>-150</td>
<td>-100</td>
<td>-50</td>
<td>50</td>
<td>100</td>
<td>150</td>
<td>200</td>
<td>200</td>
</tr>
</tbody>
</table>

During the 2008-9 crisis, the cost of refinancing hedged reserves rose sharply as the cost of swapping into USD rose, but have since returned to about 50 basis points below swap as the balance of supply and demand in the cross-currency market has shifted in the other direction.

Over this period, using our domestic assets to finance foreign currency liquidity has generated a positive return. That need not generally be the case, and we would typically expect that liquidity would have a modest expected cost - akin to an insurance premium. Over time, that cost will depend on the supply of both New Zealand and US government bonds and the evolution of various risk premia. In principle, when the costs of insurance is negative, the cost-benefit trade-off might seem to imply increasing reserves at least until the marginal cost is zero – but that would often be an inappropriate response, leading us to take on more insurance when it might be least needed, and reducing insurance when market pricing suggested it might be most needed. In practice, the target level of intervention capacity is periodically set in consultation with the Minister of Finance, who also determines (as required by statute) ranges for the total level of the Bank’s foreign reserves.

### Open position

The Reserve Bank, with the concurrence of the Minister of Finance, decided to move a part of its reserves to an open foreign exchange position following the change to the intervention approach in the mid 2000s.

Holding foreign currency reserves outright (an open foreign currency position) is the standard international approach to obtaining foreign currency liquidity. That partly reflects the fact that most countries historically, with fixed exchange rates, had more of a focus on intervention as a means of influencing the exchange rate. One cannot expect to influence the exchange rate through intervention without changing the net foreign exchange position of the government.

The insurance characteristics of an open position are very good: in times of stress, the value of foreign currency reserves tend to rise in local currency terms as “reserve currencies” appreciate with a flight to quality/liquidity. If the reserves are used (sold), they are sold at a high price and there is no time constraint within which the position needs to be rebuilt, and so there is no refinancing risk. In contrast, selling assets from a borrowed/hedged position can carry some greater risk around refinancing. Buying foreign currency assets or building up a hedged position during a crisis can be expensive, so positions need to be established and carried in normal times to be available in the event of rare, but extreme stress events.

However, the costs of an open position can be relatively high and volatile. From January 1990 to December 2011, New Zealand dollar 3-month Treasury bill yields averaged 3.15 per cent per annum above US Treasury bills of the same maturity. Over the same period, the New Zealand dollar appreciated from about 60 US cents to 77 US cents, giving an annual excess return on New Zealand dollar securities of about 4.5 percent per year. In addition,
exchange rate fluctuations can lead to large unrealised valuation effects on the central bank balance sheet (figure 11 shows quarterly excess New Zealand dollar returns). For example, twenty percent annual fluctuations in the currency have not been uncommon. Even on a $2 billion position, that could lead to unrealised fluctuations in Reserve Bank profits of perhaps $400 million per year.

Figure 9
Cost of open reserves position

New Zealand’s funding of foreign currency reserves is summarised in figure 7. The Reserve Bank’s intervention capacity is made up of an open foreign currency position (red area), and of borrowed and hedged reserves (dark blue area) under medium- and long-term contracts that have a residual maturity of more than a year.

The open position currently accounts for about a quarter of New Zealand’s foreign currency liquidity (figure 7). The excess open position of just over US$2 billion equivalent, built up over 2007-8, was unwound through multiple foreign exchange sales from 2009 (Figure 5) to a more normal open position of about US$1.5 billion equivalent (about 1 percent of GDP).

From 1985 to 2006, all of the Bank’s reserves were funded by the government (largely by foreign currency borrowing, and latterly using cross-currency swaps) and on-lent to the Reserve Bank. The government has not lent to the Bank since December 2006 and reserves funded by borrowings from Treasury accounted for just under a quarter of the Bank’s intervention capacity by June 2012.

Hedged reserves have accounted for a growing share of foreign currency liquidity as borrowed reserves mature. By end-June 2012 hedged reserves accounted for just over half of the dark blue area in figure 11. The borrowed and hedged approaches to funding foreign currency liquidity are unusual internationally, but not unique, and align well with the principal focus of intervention policy of countering extreme disorder in foreign exchange markets. The grey area in figure 11 corresponds to the net short position in figure 6 (but here it is denominated in New Zealand dollars). This is mainly related to FX swaps used in routine liquidity operations, and also includes a small and stable component of the borrowed and hedged reserves with less than a year to maturity (about US $1.3 billion).

Figure 10
Official reserve assets and intervention capacity

Note: The Treasury maintains foreign currency reserves principally for its own liquidity management.

Emergency facilities

The focus of this article has been on how the Reserve Bank has funded the foreign currency liquid assets held on its own balance sheet. These on-balance-sheet resources are not the only options open to the authorities. At times, our balance sheet resources have been supplemented by explicit commercial credit lines, but over time we concluded that they were too unreliable to count on in a climate of severe stress.

Official agencies can also provide additional access to foreign currency funding during crises. An example during the recent crisis was the Federal Reserve swap line that was available in 2008-9 and provided US dollar liquidity to foreign central banks at an overnight to 3-month maturity.

---

15 See for example, De Leon (2001) and HM Treasury (2012).
For more severe or sustained balance of payment pressures, member governments have the option of seeking to borrow from the International Monetary Fund. New Zealand has not done so for several decades.

4 Conclusions

The quite limited role of foreign currency reserves in New Zealand, as in many advanced economies with freely floating exchange rates, is consistent with the monetary policy framework and open financial account. With free movement of capital across borders and a floating exchange rate, the main role of the Bank’s foreign currency reserves is to ensure continued functioning of the foreign currency markets, in quite rare crisis circumstances. To be prepared for such crisis episodes, we ensure ready access to a pool of foreign currency liquidity. That mandate also guides both the funding and our investment management approaches for reserves, with a heavy emphasis on ensuring that the Bank has ready access to foreign currency liquidity.

A variety of approaches is available to obtaining foreign currency liquidity including an open foreign currency position and “hedged reserves”, an additional approach used in New Zealand. Each can generate the necessary foreign currency liquidity but each has different costs and risks. A combination of approaches may be desirable to provide the desired insurance for different types of market dysfunction at minimum cost and risk. New Zealand’s choice to hedge the foreign exchange risk on most of its reserves is unusual, but is consistent with the predominant approach to thinking about the potential role for intervention, and to the rare, temporary and probably quite short-term nature of such interventions.

References


Dealing with debt

Speech to the Auckland Employers and Manufacturers Association, 6 August 2012

Alan Bollard and Michael Reddell

Introduction

Households, firms, and governments across much of the advanced world have taken on very large amounts of debt in the last couple of decades. In New Zealand, for example, the private sector owes three times what it did in 1998. People and governments are now living with the aftermath; dealing with the debt. Many individual lives will have been irreversibly changed. Even at an aggregate economy level, it looks as though we could be dealing with the aftermath for quite some time yet.

This speech offers some perspectives on what the accumulation of debt means for people, and for our economies. Inevitably some of the material will have quite a provisional flavour: how things will play out remains uncertain, and is being intensely debated by academic researchers and policymakers alike. It matters to us all.

Some context

Debt is not new. In his recent book, Debt: The First 5000 Years, the American sociologist David Graeber demonstrates the central role that credit has played in economic and social life stretching back millennia. But some things are newer: for example, the scale and pervasiveness of the public and private debt, the scale of cross-border gross and net debt, and the central role that highly leveraged financial institutions and wholesale financial markets play in making that debt possible. And what is particularly striking in the last few decades has been the rate at which debt has increased (relative to income).

If debt is not new, neither is it a bad thing. Debt gives borrowers and savers alike additional options. The ability to lend and borrow is an important part of what enables us to enjoy the sort of life we do. To see the point, one has only to try to imagine a world without debt – a world in which entrepreneurs could not borrow to develop fast-growing firms, and where home ownership was restricted to the rich and the over-50s (who had saved the full price of a house).

At a national level, the ability of one country’s citizens to borrow from those of another country means that regions that need a lot of new capital to develop (think of the United States or New Zealand in the late 19th century) can borrow from those with a lot of savings (think of the late 19th century United Kingdom). That has huge benefits. Public debt can serve important purposes too. Historically, many of the biggest increases in public debt occurred during wars; debt allowed the huge fiscal costs to be spread across time. Other big increases in public debt were used to fund the expansion of public infrastructure. More mundanely, the ability to borrow enables governments to buffer some of the macroeconomic effects of downturns.

High debt and big swings in public and private debt have featured prominently in New Zealand’s modern economic history:

- Central government debt was over 100 percent of GDP for 70 years from the 1870s (and in excess of 200 per cent of GDP at peak). In 1972 net government debt was as low as 6 percent of GDP, but was back to 50 per cent by 1992 (Figure 1).
- Private debt data are not as readily available, but total mortgage debt – houses and farms – is estimated to have been around 140 percent of GDP at the end of the 1920s. It is a little lower than that now, but as recently as 1990 the stock of mortgages was equal to only around 35 percent of GDP (figure 2).
- Our net international investment position (the net amount of debt and equity raised from foreign lenders and investors) has gone through similarly wide fluctuations. We were very heavily dependent on international capital prior to World War II, but the net amount outstanding abroad dropped to perhaps as low as 5 percent of GDP in the early 1970s. Over the 1970s and 1980s, the net reliance on foreign savings increased substantially, settling at levels that are high...
by international standards and seem uncomfortable (figure 3).

Over the last couple of decades the main New Zealand story has been about the substantial increase in private debt; taken on by farmers, non-farm businesses, and households alike. For most of the period, government debt was falling and our (net) reliance on international savings has not changed very much.

Rapid growth in debt can foreshadow problems

The phrase “all things in moderation” might well have been invented for debt.

For individuals, circumstances differ hugely. Young people starting out in the housing market probably always will borrow a large proportion of the price of their first house, and a large amount relative to their current income. Such loans are risky for the individual borrower if something goes badly wrong. But for a well-managed bank (and for the economy as a whole) higher risk loans like those will typically be balanced with other loans which have gradually been being repaid for 20 or 30 years.

For whole economies, “too much” debt can cause problems. But researchers are not really sure quite what is “too much” (among other things, measurement and institutional differences complicate things). Historically, a much better indicator to watch out for has been large increases in debt (relative to incomes) for several years in succession.

As Reinhart and Rogoff have documented, financial crises are often followed by tough economic times. But even without a financial crisis, periods of rapid increases in debt tend to be followed by periods of economic stress – recessions that last longer and prove more troublesome than a “plain vanilla” recession, in which any lost output is recovered very quickly (New Zealand’s mild 1998 recession might have been an example of that sort of recession).

There are good reasons why a large and rapid increase in debt (to GDP) seems to matter. Debt is not taken on in a vacuum. People are readier to take on debt when they are relatively more optimistic than usual about the future. Banks are keener than usual to lend when times feel good. And people make choices, re-organise their balance sheets and their spending patterns on the basis of that heightened optimism.

Any number of factors, often at least a couple in combination, can result in a credit boom getting started. Countries’ experiences differ on that score, even in the most recent boom. But, typically, something causes spirits to lift, and with them spending and business activity.
People become more willing to take the risk of buying a house or farm, of consuming more of their incomes than previously, or of expanding a business. Once credit is growing rapidly, the process tends, for a time at least, to be self-reinforcing. Easy credit tends to lift asset prices (strengthening expectations of further price increases), and people feel wealthier as a result. Experience tends to confirm people's initial heightened sense of optimism. Expectations of future incomes are revised up and people make plans accordingly. In time, almost inevitably, people tend to be lulled into complacency about downside risks, and become over-optimistic about how long the good times will last. Towards the end, it is often the most optimistic borrowers and most optimistic lenders who are still readiest to borrow and lend.

New Zealand's credit boom was triggered by a number of factors among them the huge unexpected surge in immigration in 2002/03. Potential household borrowers found that jobs were easy to get, wages were rising quite rapidly, and business profits were good. Consumers felt more confident too, and were willing to spend. Population pressure and supply constraints meant that despite a high level of construction activity, house prices doubled. The boom in rural land (and growth in lending to farmers) was even bigger (Figure 4). When credit is growing rapidly, asset prices are rising, and turnover is high, businesses servicing the domestic economy find themselves doing well. They, in turn, invest to take advantage of what look then like sustainably better opportunities. Sustained booms also generate surprising amounts of tax revenue. In New Zealand's case, as the boom went on, fiscal policy shifted to a substantially looser stance. That shift put more cash into the pockets of many, including families who might otherwise have found buying a house becoming just too expensive.

But as booms go on, pressures build up on scarce resources, and policy interest rates tend to be raised to keep inflation in check. Optimistic borrowers shrug off rate rises for a while, but the burden of servicing the debt gradually, but inexorably, begins to mount. Marginal projects become harder to sell and prudent lenders get a little uneasy. Modern credit booms have also often tended to skew the economy, diverting resources away from the tradables sector towards the more domestically-oriented parts of the economy (construction, consumption and government spending). Productivity growth - the basis of sustained future income growth - tends to erode when that happens.

Figure 4
Credit growth: the boom by sector
(Dec 2001 = 100)

The more leveraged a borrower is, the smaller the adverse change in circumstances that is needed for the loan to become a problem. Perhaps a firm's sales growth slows or asset prices do not rise quite as much as had been expected, the risk of losing one's job rises, it takes a little longer to fill vacancies in rental properties, or the servicing burden becomes just too heavy. By the peak of New Zealand's boom, for example, many highly-leveraged owners of investment properties faced weekly outgoings (interest and other expenses) well in excess of rental income.

Of course, the quality of the debt, and the purpose for which it is taken on, matter. New Zealand was probably fortunate that the small amount of very high risk lending was mostly undertaken by finance companies and other lenders who were outside our core banking system. But the nature of credit booms is that some of what initially looked to be good sound borrowing - whether to finance personal consumption or to undertake productive business investment - turns out not to be. That debt can then hang heavily: on the borrowers or (if borrowers fail to pay) the lenders.

During credit and asset price booms, not everyone borrows. For every buyer of a higher-priced asset, there was a seller. And both probably felt good about the
deal done in good times. Older people who managed to downsize and sell the family home or farm secured a larger retirement nest-egg. As a result, they can consume more for the rest of their lives. A downturn in house or farm prices does not directly affect them. But the people who optimistically paid a very high price for assets, and who borrowed to finance the purchase (or who perhaps drew down some of the apparent increase in equity in their existing home) are now stuck with the higher debt. Time cannot simply be turned backwards. Having belatedly realised that we had become over-optimistic, we cannot just go back to 2001. For better or worse, people have to live with, and work through, the consequences of past choices.

That means many people have to reassess their plans, which typically means less spending and less investment. An atmosphere of caution takes hold, and affects everyone’s behaviour to some extent. For some it might just mean eating out less often, or cancelling an overseas holiday. Employers become more cautious about hiring, so those who lose their jobs face longer spells out of work. For some it might mean postponing retirement; for others delaying having (or cutting back the number of) children.

On the other side, potential house buyers can now bide their time - no longer worrying about being priced out of the market if they wait a few more months or bid a little less aggressively. Lenders, quite rationally, become more cautious too: collateral values are not rising any longer, and many business borrowers find their cash-flows lagging behind what the banks had counted on. On the fiscal side, when times get tougher governments also have to revise their plans, reassessing the level of tax revenue they can count on, no longer putting substantially more new money into the economy each year. The flow of new programmes tails off; existing provisions are wound back and the private sector has to adjust to that change too.

**Adjusting after a credit boom**

During the last three years of the boom, private sector credit in New Zealand rose by around 14 percent each year (figure 5), when (nominal) GDP was rising at about 6 per cent. As we noted in our review of monetary policy, published recently in the *Bulletin*, we probably put less weight on this gap at the time than we should have, or than we would do today. And that last phase came after a decade or more when private debt as a share of GDP had already steadily and substantially increased: private sector credit was about 70 percent of GDP in 1990 and was 160 percent at peak in 2009. The end of the credit boom came rapidly: annual credit growth fell from 15 per cent to 2 percent in only 18 months.
countries to avoid such booms were Japan and Germany. Japan, of course, was still adjusting to its own earlier private debt boom and bust.

If we had been asked a decade ago about how New Zealand might have coped in the aftermath of a rapid build-up in debt and asset prices, we might have been relatively sanguine, especially if we had been told that the boom would end without a systemic banking crisis in either New Zealand or Australia.

If asked, we would have talked in terms of a few years of relatively low actual growth, as the pressures on resources that had built up during the credit boom years dissipated. We would have looked towards a fall in the exchange rate, which would have raised both the cost of consumption and the returns to production. That, in turn, would have prompted productive resources to shift back towards the tradables sector. Consumer spending would no doubt have been expected to weaken but we would have expected materially stronger exports. That sort of view underpinned, and is reflected in, the economic projections we published in the years just before the global recession.

In this, entirely conventional, textbook resource-switching story the economy would have emerged better-balanced. We would not have expected any material or sustained interruption in the incomes the economy could sustainably generate over time. If anything, the rate of potential GDP growth might have been expected to accelerate.

In many ways, in fact, it was New Zealand’s story in the early 1990s, when we had had corporate and government debt excesses, and a financial crisis of our own, to work through. Then, markedly lower real interest rates and a lower exchange rate facilitated a step-up in economic growth, exports, and productivity.

Over the longer term, the prosperity of a country and its people depends largely on the quality of the country’s institutions, and the product and market innovations which firms operating here can generate or draw on. The terms of trade – the value of what the world will pay for what we sell – also matters. Neither the quality of our institutions, nor the scope for generating or adopting innovative products and practices, should be materially adversely affected by an overhang of debt and somewhat overvalued house and farm prices.

As just one stark example, the economic historian Alexander Field’s new book A Great Leap Forward demonstrates that, despite the grim American experience of the Great Depression, underlying total factor productivity growth remained strong through the 1930s, laying the foundations for renewed American prosperity in the post-war era.

Sweden’s experience in the 1980s and 1990s is also widely cited. Household and corporate debt rose markedly in the boom years following liberalisation (though by less so than New Zealand and other countries experienced in the last decade). That culminated in a severe recession and banking crisis in the early 1990s. But a sharp fall in exchange rate in 1992, and a strong recovery in the rest of the world, underpinned a substantial rise in Swedish business investment and export incomes. A few years further on, the level of per capita GDP was right back at the trend level one might have expected to have seen if the crisis had never happened (Figure 7). In another example, South Korea experienced a very large credit boom in the 1990s and then a severe financial and economic crisis in 1997/98. But per capita incomes were quite quickly back on the previous rapid growth path once the crisis passed (Figure 8).

Figure 7
Sweden: per capita real GDP

Experience suggests that the aftermath of a debt and asset price boom need not materially hold back a country’s economic performance for long. But this time it looks as if the accumulated debt is, in fact, acting as quite
a sustained drag, in New Zealand and other advanced economies.

Looking at per capita GDP growth across countries since 2007, New Zealand’s growth appears to be around the middle of the pack: some advanced countries have done quite a lot better, and some considerably worse. Our experience on that count is not much different from that of the United States (and while we have done a little better on employment they have done better on productivity). In many countries, we have to deduce or infer an important role for debt, but in the United States, where much more detailed data are available, it is clear that the recent economic performance of states and counties where people took on relatively more debt has been worse than the economic performance in the rest of the country.

There are, however, important differences. A crucial difference from, say, the American (or Spanish and Irish) experiences so far is that New Zealand house prices have not come down very much, or for very long. The Federal Reserve recently released data suggesting that median household wealth in the United States fell 40 percent in the three years to 2010 - and was back to 1992 levels. Most of the drop in wealth resulted from a fall in house prices – and house prices in the United States had not risen as much as those in New Zealand. Sharp falls in nominal house prices tend to be much more disruptive, especially to the financial system, than the same fall in real house prices that occurs gradually through a prolonged period of house price inflation running a little lower than general inflation.

Another important difference is that the government’s debt as a share of GDP is still materially lower in New Zealand than in many advanced countries. Public debt here, and in most advanced countries, has increased substantially since 2008, but our starting point was so much lower than most. New Zealand avoided the sort of systemic financial crisis, and associated bank bailout costs, that has resulted in significant additional public debt being taken on in a growing number of countries. It is, however, widely accepted, here and abroad, that ongoing fiscal deficits are now mostly structural in nature. Authorities cannot just wait for time and normal economic recovery: only concrete policy choices will close the deficits, although of course there is lively debate as to just how rapidly that should be done.
Factors that help explain the tepid recovery

Why, then, are so many countries, even ones like New Zealand that avoided both a systemic financial crisis and the difficulties of a common currency area, still experiencing such a tepid recovery?

We cannot be definitive but, in addition to the current idiosyncratic pressures in Europe, three factors seem to be at least part of the story:

• First, the very widespread nature of the 2000s credit boom and the resulting overhang. Consider, by contrast, the experience after Japan’s credit and property boom in the 1980s. Many talk of Japan’s “lost decade” - but per capita GDP in Japan fell only slightly and briefly in the early 1990s, and its per capita growth and productivity (GDP per hour worked, or per person of working age) performance since the end of the boom far outstrips anything New Zealand or the United States (let alone the United Kingdom) have seen in the last few years (figure 10). When Japan had to adjust, it was able to do so partly by exporting more. The world economy was performing strongly, and lots of borrowers in other countries were very ready to increase their own debts. When a single country experiences weak domestic demand, resources can switch relatively readily into sectors more reliant on external demand. But it is hard for that to happen in a large chunk of the advanced world all at the same time, especially when many of those countries cannot cut official interest rates further, given the effective near-zero bound on nominal interest rates.

• Second, the sharp rise in New Zealand’s terms of trade in recent years appears to have complicated our adjustment. Such a lift in the terms of trade, if expected to last, would typically trigger an investment boom as firms in the tradable sector sought to take full advantage of the much-improved product prices and higher expected profits. The Australian investment boom of the last few years is an example. Nothing similar has happened here since the global recession. Whether that is because of the overhang of existing rural debt (and the illiquidity of the rural property market) or because the high terms of trade are not expected to last, or some other reason altogether, is not clear. But, for now, high export prices have tended to hold up the exchange rate, but private business investment, even in sectors benefiting directly from the high terms of trade, has remained subdued.

• Third, there is the economic position of the advanced world as a whole relative to the emerging world as a whole. Once, fast-growing emerging countries ran balance of payments current account deficits and slower-growing advanced countries ran surpluses. That was as true of 19th century New Zealand and the United States as it was of 20th century Singapore and Korea. For the decade or more, the pattern has been the other way round. Many emerging economies, some globally significant, have been running large surpluses or even balanced current accounts, when one might reasonably have expected that they would be running deficits, and thus supporting demand in the rest of the world. That might have been tenable, and consistent with strong widespread global growth, while the West was in a position to run up public and private debt rapidly. But advanced economy debt already appears too high, especially against a backdrop of rapidly ageing populations. A more balanced pattern of global growth would be likely to provide medium-term benefits to all regions of the world.

Figure 10
GDP per hour worked following credit booms*
(1989 = 100 for Japan; 2007 = 100 for New Zealand and the United States)

* Horizontal axis shows years before and after 1989 for Japan, and 2007 for New Zealand and the United States. In each case, GDP per hour worked is set equal to 100 in the base year.

Source: Conference Board Total Economy Database, Statistics New Zealand
Prospects for lower debt ratios

Some of the big historical swings in domestic and external debt ratios New Zealand has experienced were highlighted earlier. There is nothing self-evidently permanent about the sorts of debt ratios we and other countries have seen in recent years. Indeed, there is good reason to think that over time debt to income ratios will fall back somewhat. But no one has a good sense of when or how much. History and theory offer no more than tentative pointers.

For now, it is sobering that across whole economies, including New Zealand, debt to income ratios have still been edging up. In many countries, including New Zealand, private (business and household) debt to income ratios having fallen back a little - and that is typically what people have in mind when they talk about deleveraging. But the rising public debt has typically been at least offsetting any reduction in private debt ratios, and in New Zealand private debt itself is now growing at around the same rate that nominal GDP is increasing.

(Of course, private and public debt are connected, although not tightly or mechanically. The private sector tends to respond to big government deficits by saving a little more than otherwise. In the same way, big government surpluses in the boom years probably led the private sector to save a bit less (and take on more debt) than it otherwise would have.)

Debt to income ratios can fall, broadly, in three ways: bad debt write-offs; income growth; and by borrowers, in aggregate, making net repayments of their loans.

In the United States, some of the (not insignificant) reduction in household debt to date has been in the form of bad debt write-offs. Those losses on housing lending have had obvious consequences for the financial sector. In New Zealand, there have been few significant losses on lending to households and, outside the finance company sector, total loan write-offs have been relatively modest. Banks’ non-performing loans rose materially, but peaked at not much more than 2 percent of total loans outstanding - well below the very substantial losses after 1987, in turn no doubt partly reflecting the much better quality of lending this time round. Most private lending is secured on property, so large loan losses tend to occur when there is both a substantial fall in property values and a high unemployment rate. In most areas, New Zealand property prices did not fall very much or for long. And painful as it is for those directly affected, New Zealand’s unemployment rate in the last few years has risen to only around the average for the last 25 years.

Income growth is the most attractive path to lowering debt to income ratios. It has often been an important part of successful adjustments. But, so far, incomes are still well below previous expectations. Across the economy, most borrowers in the middle years of the last decade probably expected that incomes would keep rising reasonably fast - not to find that average real incomes have not grown at all since 2005. Faster sustained growth remains very attractive, if only we were able to achieve it. For New Zealand, it is difficult to envisage the sort of resource-switching that seems likely to be required occurring without a sustained fall in the (real) exchange rate. That, in turn, probably involves structural change in the real economy and some improvement in the international situation: it is certainly not something New Zealand monetary policy can bring about.

What about prospects for net repayments of debt? Business credit rose rapidly during the boom, although in a more disciplined way than during the property and equity boom of the mid-late 1980s. The stock of this debt fell for a time after 2008, partly because during the recession a number of highly-indebted firms had no choice but to raise additional equity or sell assets to get their debt back to levels acceptable to their bankers. Looking ahead, if business savings (retained earnings) increased further, those savings might be devoted partly to repaying debt. But sustained growth is likely to require increased investment and that is more likely to require some additional external finance. As it is, non-property-related business lending once again appears to be rising at a reasonably healthy pace.

A return to sustained fiscal surpluses will, over time, mean a fall in the level of net public debt. But as governments do not generate much of their own income, returning to surpluses, from the current position
of significant structural deficits, involves some mix of discretionary spending cuts, or increased taxes. In the transition, either route will tend to reduce income in the hands of firms and households.

And what about households? There is no simple single story. The very low level of activity in the housing market in recent years (figure 11) has tended to dampen household debt slightly artificially. That happens because existing borrowers go on repaying their mortgages, but not much new debt is being taken on. But such low levels of turnover (and despite the recent rise, turnover is still very low by historical standards) and low house-building activity are not expected to continue. Sharply higher house prices were a significant channel through which household debt rose: young buyers had to take on a lot more debt to buy out older sellers who had taken on their debt when house prices were much lower. If house prices are not changing much now, the typical young new buyer will still be taking on more debt than the typical older sellers will have been repaying. But if real house prices were to fall over time, perhaps as the evident supply constraints were eased, that would be likely to lead to materially lower aggregate household debt to income ratios.

Figure 11
House sales to population ratio
(quarterly sales per thousand of population)

Source: Real Estate Institute of New Zealand, Statistics New Zealand

Higher household savings rates raise household wealth, but whether they alter gross household debt very much depends on who is doing the increased saving. For example, if people with large debts are now feeling overburdened then any increase in their savings will typically reduce the aggregate level of household debt. Many of the most indebted households are already quite cash-constrained. On the other hand, most households have little or no debt and if it is predominantly those people who are saving more, whether because the economic climate encourages greater caution or perhaps because lower interest rates (and lower expected asset returns more generally) makes building up adequate retirement savings a bigger challenge, household financial assets may rise, but with little observed change in household debt.

Whatever the precise pattern, it seems likely that the experience of recent years will change the nature of conversations in New Zealand families. For decades, it has seemed attractive for households to borrow - first as a hedge against a couple of decades of high inflation, and more recently as real house prices rose more dramatically than at any time in our history. High inflation is a thing of the past. And a repeat of the house price boom not only seems unlikely but would be very damaging and risky if it were to occur.

Few of us have the luxury of simply observing or waiting for history. Businesses and households face real spending and savings decisions each day and New Zealand’s economic performance in the next few years will depend in part on the way in which firms and household respond to the changing circumstances and risks, in a climate of considerable uncertainty.

Implications for the Reserve Bank

What does all this mean for us specifically as New Zealand’s central bank, charged with running monetary policy to maintain price stability and conducting prudential supervision to promote the soundness and efficiency of the financial system?

When recessions happen, central banks typically cut policy interest rates quite a lot. In 2008/09 we cut the Official Cash Rate (OCR) by nearly six percentage points, more than almost any other central bank cut. But like most other central banks we have been surprised at the way policy rates have needed to, and been able to, remain so low for so long.
We expected that most of the OCR cuts would be relatively short-lived, while the economy regained its footing. Financial market prices suggest that the private sector typically shared that sort of view. Two years ago, for example, we thought the OCR would be around 5.75 percent by now (Figure 12). It is still 2.5 percent, and financial markets have recently been toying with the idea that the OCR might yet need to go lower (albeit mainly because of global risks). Even our counterparts across the Tasman, dealing with Australia’s record terms of trade, have been cutting their policy rate back towards 2009 lows.

It begins to look as though something is going on now that we have not seen before. It is still too early to know quite what the nature and scale of the change is, and how enduring it might be. Among the challenges policymakers face is getting a better understanding of why, given how weak GDP has been in many countries, there is not more excess capacity evident in our economies. Fortunately, few monetary policy decisions are set in stone: we get to review the OCR, in light of all the emerging data, murky as they often are, every six weeks or so.

Figure 12
90-day interest rate projections

![Graph of 90-day interest rate projections](source)

Wearing our other (financial stability) hat, we are conscious of the risks financial institutions (the lenders) face. On the one hand, our banks (and their Australian parents) are still heavily reliant on foreign wholesale funding (and, of course, more than half of New Zealand government bonds are also held by foreign lenders). Over the course of New Zealand’s history, dependence on foreign funding has repeatedly proved an Achilles heel.

The position is less risky than it was in 2008, but the risks certainly have not disappeared. If anything, the climate for cross-border lending, and for wholesale funding of banking systems, is probably less favourable than it has been for decades.

New Zealand banks are well-capitalised and credit risk is measured conservatively. The quality of New Zealand bank assets looks reasonably good, even in the face of some fairly demanding stress tests. But we will need to keep watching that situation closely, especially if incomes continue to lag behind what was expected when much of the debt was taken on. Our sense is that real house prices are still somewhat overvalued: they are certainly well above historical levels (figure 13), and look expensive by international standards (relative to incomes or rents). If house prices were to fall, debt to asset ratios (the traditional measure of leverage) would worsen (as they have done in the United States), even if debt to income measures were still gradually falling.

Figure 13
House price to rent ratio
(1970=100)

![Graph of House price to rent ratio](source)

Farm debt grew very rapidly during the boom. Dairy farmers, for example, have taken on almost $20 billion of net new debt since 2003, and (real) farm prices are well above where they were. Banks have taken some significant losses on loans to the dairy sector over recent years: for some borrowers things did not turn out anywhere near as well as expected. In aggregate, the debt stock will probably be sustainable if commodity prices stay strong. But whatever the medium-term prospects, we know that commodity prices go through very big cycles. When
product prices are very volatile, high leverage can be a recipe for a nerve-wracking ride for borrowers, lenders, and bank regulators alike. We have taken steps to require banks to hold more capital against rural loans than they were doing previously.

Concluding comments

Standing back from the details, five years on from the beginnings of the global crisis, the picture is still far from clear. Some things about dealing with debt have unfolded as expected: what cannot go on forever does not do so, and effortless adjustments after several years of rapid credit growth are rare. But other things have been less expected, not just here, but across the advanced economies. In particular, the persistently tepid recoveries remain a surprise. At present, none of the various hypotheses to explain what is going on seem fully adequate.

The accumulation of debt within New Zealand itself, and the disappointed expectations of borrowers who paid very high prices for assets, is clearly playing some role in our low rates of growth of productivity and GDP. Quite how large that contribution is may be something economic historians still debate decades hence. But the global nature of the adjustment is clearly also an important part of the New Zealand story. Whatever the precise channels, as yet not much of the expected rebalancing of the New Zealand economy (particularly towards exports) seems to have happened. Perhaps this should not be too surprising in view of the persistently high real exchange rate, itself partly influenced by the adverse international climate.

Looking ahead, we suspect that sustainable long-term ratios of household and farm debt, in particular, are likely to be below current levels. We also suspect that our net international investment position as a share of GDP (our net reliance on foreign debt and equity finance) will, in time, settle at a level lower than it has been for much of the last two decades (although a sustained improvement in our productivity prospects could, at least temporarily, mean a further increase in our use of foreign savings, to finance the investment needed to take advantage of the improved prospects).

But it is also fair to note that we have suspected for a long time that New Zealand’s private and external debts were, in some sense, too high to be sustained. Towards the end of his term, the previous Governor Don Brash gave a thoughtful speech on debt issues in early 2002, in which he noted that New Zealand then looked as if it was dealing with the aftermath of a long accumulation of private and external debt and adjusting accordingly. The exchange rate, for example, had been quite low for a couple of years. But that period turned out to be just a pause before the latest and largest wave of borrowing and asset price growth. Some things make this time look different – in particular the wide range of countries undergoing similar experiences – but it pays to be cautious about drawing strong conclusions. Looking ahead, we will need to be open to revising our hypotheses as events unfold.

History is littered with booms and busts, some of which seem to have gone on for a very long time. But these things pass. When New Zealanders today look at Australia’s prosperity, who remembers the searing financial and economic crisis Australia itself endured in the 1890s and early 1900s? Even severe overshoots in credit and asset prices, which can be costly and disruptive at the time, and which may permanently change the lives of some borrowers, are likely to throw our overall economic performance off course only temporarily. Our history, and the experience of other countries, attests to that.
Learnings from the Global Financial Crisis

Sir Leslie Melville Lecture, Australian National University, Canberra, 9 August 2012
Alan Bollard and Tim Ng

1 Introduction

The global financial system went through major convulsions in 2008, putting great pressure on an already weakening global economy. A massive global economic recession followed, contributing to the emergence of a sovereign debt crisis in the euro area. European sovereign debt problems remain a dark cloud overhanging the world economy.

These extreme events have provoked us to re-think what is known and where economic research should focus, in some cases fundamentally. We had long known that banks that appear individually sound can be vulnerable to problems affecting the whole banking system, and that such problems can amplify economic shocks. But the crisis sharply accelerated the study of financial fragility, contagion and instability nonetheless.

The crisis has also challenged us as financial regulators and monetary and fiscal policymakers. We are all working to understand, contain and repair the damage to financial systems, to economies and to governments’ financial capacity. The policy choices in many areas involve difficult and uncertain tradeoffs.

This paper discusses some lessons from the crisis experience to date, and some analytical and policy challenges. Australia and New Zealand escaped the worst of the financial crisis, but not without extraordinary policy actions of our own at various times, and not without a certain legacy of issues to deal with in our own neighbourhood.

We find it useful to structure the discussion in three parts: the episode of near-seizure in many advanced-country financial systems in 2007-08; the global recession of 2008-09; and the current situation of extreme fiscal weakness in many parts of Europe. (Of course, real events have not been as simple and linear as that structure might suggest – expectations and feedback loops have played a substantial role.) We conclude with some reflections about research and policy strategy in this new world.

2 Financial System Disruption, 2007-08

Global financial markets sharply became unsettled in July and August 2007, when a number of large US and European financial institutions suspended redemptions in investment vehicles linked to US mortgage debt and their derivatives. Through the following year, concerns mounted about the extent and complexity of global bank exposures and vulnerabilities to growing economic weakness. These concerns soon embraced a very wide sweep of financial products in the US and elsewhere. Bear Stearns was effectively bailed out by the US taxpayer on the basis that it was too interconnected to be allowed to fail. But the shock bankruptcy of Lehman Brothers in September 2008 saw investors panic, as perceptions about the safety of financial institutions in general took a sudden turn for the worse. Each of these events saw funding spreads in interbank markets worldwide spike (Figure 1).

Figure 1

LIBOR-OIS spreads

Source: Bloomberg.

Firms, investors and regulators generally failed to anticipate quite how financial system fragilities could interact. Prior to the crisis, they had viewed hedging markets and financial engineering as powerful means of detaching credit and liquidity risk from a wide range and large volume of circulating private-sector securities. The rapid growth and use of apparently low risk private-sector securities in funding markets was itself due to a number of factors.
of interacting factors. These included a strong global demand for low-risk assets (mis-sold or mis-used on the basis of inaccurately high credit ratings), loose monetary policy, and credit-fuelled housing booms in a number of advanced economies, which encouraged financial innovation to meet the demand for low-risk assets.

In many large advanced countries, an overall result leading up to the crisis was increased leverage and funding fragility in both the financial system and the “real” economy. Many could see that these growing imbalances were unsustainable and would need to correct, and that the correction might be very disruptive. But to anticipate fully the magnitude of the subsequent event would have required connecting many apparently disparate pressures and signals. Among the most important of these were two factors: first, the funding fragilities created by the shadow banking system; and second, the catastrophic collapse of liquidity caused by investors’ sudden doubts about the credit risk and marketability of previously “safe” assets, and about the standing of counterparties.

The dumping of risky financial assets and indiscriminate cutting of funding caused asset return correlations to jump. The shock rapidly spread between global banks, partly reflecting high-frequency marking-to-market. The cost of credit default insurance for the large financials shot up (figure 2). Bottlenecks in market or institutional hubs impeded or prevented risk shedding. The fire sales and chain reactions proved very difficult to halt.

Figure 2
CDS spreads, selected global banks

Source: Bloomberg.

Faced with disappearing private-sector funding markets, central banks stepped in to supply funds in large quantity to solvent banks. To limit their own (and hence their governments’) financial exposure, the idea was to take good collateral at interest rates and haircuts high enough to recognise the lending risks. However, lending terms could not be so punitive as to discourage use of the facilities, which would defeat their purpose. This was easier said than done given the shrinking supply of good collateral.

Banks that became insolvent despite central bank funding assistance presented their governments with tough choices about rescue. Financial support in the form of direct injections of equity or debt blew out government balance sheets in many cases (Figure 3), and guarantees of bank debt added sizeable contingent liabilities.

Figure 3.
Gross government outlays to support financial sector since crisis

In New Zealand and Australia, problems in the core banking system during the crisis were comparatively mild, reflecting our more vanilla-flavoured banking sector and relatively sound bank capital structures. There was little exposure to complex instruments and opaque interconnections in our markets. Nevertheless, during the period of extreme market nerves, like other authorities we had to act rapidly to support system liquidity and banks’ ability to fund themselves, including by issuing government guarantees of bank liabilities.

Regulatory responses

Regulators worldwide have responded to the financial crisis experience with a large and ongoing programme of reforms. Among the most important include strengthening requirements on banks’ capital and liquidity structures,
and bolstering domestic and international financial supervision.

Basel III is a key international process to facilitate the parts of these reforms focused on bank balance sheets. We do note, however, that not all the proposed reforms relate to problems in the Australasian banking system. Neither is it clear that all countries that experienced banking system problems will adopt all the reforms.

In our simpler banking systems it is generally easier to recalibrate regulatory standards. Capital levels have not been heavily eroded by the crisis, so capital and liquidity standards can be strengthened quickly compared to those advanced economies struggling with weak or complex financial systems. In some economies there is a risk that banks will meet higher capital or liquidity ratio requirements by contracting lending, rather than by increasing capital. This has slowed the strengthening of bank balance sheets and crimped the availability of credit to firms for investment. With the current risk that global funding conditions could turn adverse very suddenly and our banking system’s dependence on offshore wholesale funding, in New Zealand we have placed priority on strengthening liquidity standards even before increasing capital ratios.

3 Global recession, 2009-10

The rapid deterioration in financial and economic conditions in late 2008 and early 2009 quickly caused a collapse in business and consumer confidence, exacerbating the interruption of economic activity across the world. Cross-border spillovers through regional supply chain structures and global customer markets were accelerated by short-term funding disruptions, such as in trade finance. Now economies without large direct financial exposures to “toxic” assets, such as Asian export-oriented economies, were sucked into the downdraft. The abrupt marking-down of the outlook for Western growth and consumption of high-value goods saw inventories pile up, especially in those countries positioned as manufacturing hubs or producers of capital goods. In six months or less, industrial production in Japan, Singapore and Korea, for example, fell 30, 25 and 19 percent respectively.

The damage to bank balance sheets from suspect loans and marked-down asset valuations, as well as the sudden exit from the scene of many financial intermediaries, showed up in restricted lending capacity and greatly expanded funding spreads. Accordingly, those non-financial firms and households that still wanted or needed credit either had to pay elevated rates or to deleverage, further depressing activity.

When central banks recognised the magnitude of the recessionary forces in train, they cut policy interest rates very quickly (figure 4). In some Northern Hemisphere markets, the dysfunction in the financial system had loosened the link between official policy rates and lending rates to firms and households. As well as cutting official interest rates, the US Federal Reserve and the Bank of England stepped in directly to key credit markets to lower interest rates in those markets.

Figure 4
Policy interest rates

The relatively high level of interest rates before the recession meant that deep cuts were possible. The New Zealand and Australian Reserve Banks, for example, cut policy rates by 575 and 425 basis points respectively between July 2008 and April 2009.

Crisis then brought opportunities. Monetary policy researchers had always wondered what might happen if price inflation and interest rates approached zero in several major countries, or even went negative. Now we would find out. The case of Japan no longer seemed so unique. As monetary policy interest rates approached zero in a number of advanced countries, some central banks began to try to influence general financial conditions through “unconventional” tools, meaning tools other than
the official short term interest rate (the “cash rate” in this part of the world).

One such tool is purchases of long-maturity financial securities in large volume on the open market, called “quantitative easing” or QE. These purchases have been most prominently carried out by the US Fed and the Bank of England, causing roughly a tripling and quadrupling, respectively, of their balance sheet sizes to date (figure 5). One channel by which QE is believed to work is by increasing demand for the targeted securities, raising their prices and hence reducing interest rates on them, which should then flow through to longer-term interest rates in general. Other possible channels include exchange rate impacts and signalling of a central bank’s expectations to keep policy rates low.

**Figure 5**
Central bank asset holdings

Unconventional policies can have unconventional side effects. We are currently observing spillovers from large economy QE impacting capital flows and exchange rate pressures in small open economies. Continuing exchange rate pressure is problematic for a country like New Zealand.

In the face of plummeting demand, many countries hurriedly enlisted discretionary fiscal policy also. With a fiscal and credit stimulus package of 4 trillion yuan (about 600 billion US dollars, or 14 percent of Chinese GDP), China carried out the biggest fiscal stimulus in post-war history. Fiscal stimulus packages were typically worth several percent of GDP, with the cumulative expansionary shift of the fiscal stance over the three years from 2007 to 2009 amounting to four percent of GDP in both advanced and emerging economies. These expansions are now being wound back (figure 6).

In many advanced countries, the recession-induced reductions of tax revenue and increased social spending were compounded by governments taking on debt to support the banking sector. These actions brought forward sovereign debt sustainability problems in some countries, particularly in Europe. By the second quarter of 2010, sharply rising concerns about the fiscal position of first Greece, and then other non-competitive indebted euro area countries, were quickly reflected in the interest rates they had to pay in sovereign funding markets. Markets made and continue to make sharply differentiated judgements about sovereign creditworthiness across the euro-area countries, placing considerable strain on euro-area political and economic institutions.

The crisis also refocused public and market attention on the fiscal cost of ageing populations. The projected sharply increasing cost of state-funded health care and income support for retirees, at the same time as a reducing working population, had been recognised for some time. But now, the problem has come forward in time, with the potential national incomes available to support future fiscal expenditure looking much lower. Some severe implications for wealth and transfers between generations are starkly apparent, and these will be politically and socially difficult to manage.

While market fiscal sustainability concerns are especially focused on the euro area currently, governments elsewhere are also drawing lessons for the re-alignment...
of fiscal settings with reduced growth prospects. In some ways these are difficult lessons to accept, as well as to debate publicly. Where countries are under strain, fiscal austerity measures may be needed to signal the political commitment to achieving consolidation, even though this can also reduce growth, at least in the short term. The cost and availability of funding for many euro area countries remains very sensitive to fiscal sustainability projections, probably exacerbated by the inability of these countries to issue the currency of their debt.

Governments needing to finance deficits have had to pay considerable attention to market conditions and perceptions. In general, where discretionary fiscal measures were quickly implemented, and were seen to be extraordinary, targeted and sunsetted, markets have been more forgiving. To date, the US, Germany, Japan and the UK have retained the confidence of investors and their status as safe havens – despite government debt ratios that are high even by the standards of the troubled euro area countries. Australia and New Zealand have continued to benefit from relatively low public debt ratios (Figure 7).

Figure 7
Government debt ratios and bond rates

Sources: Haver Analytics, IMF. AU=Australia, AT=Austria, BE=Belgium, CA=Canada, CH=Switzerland, DE=Germany, ES=Spain, FI=Finland, FR=France, GB=United Kingdom, IE=Ireland, IT=Italy, JP=Japan, KR=South Korea, NL=Netherlands, NZ=New Zealand, PT=Portugal, US=United States.

5 A new world

Five years after the first tremors in 2007, the world looks rather different. Interest rates are much lower. Risk pricing is much more sharply differentiated. The threat of deflation is now real for several countries, and inflation is very low for others. In most advanced countries since the crisis, real per capita GDP growth has been insipid at best.

Although weak banks appear to be much less of a problem in Australasia, impaired bank balance sheets in the Northern Hemisphere are casting a long economic shadow. Some banking systems remain weighed down by non-performing loans, while markets for securitised loans are still largely moribund. Financial institutions and their funders appear to have recognised the importance of robust funding, loss-absorption capacity and clarity about bank balance sheet exposures.

The risk aversion in global credit markets is still reaching our shores via bank funding markets, in the form of elevated funding spreads and a heightened demand for local deposits. Although these developments at least partly reflect a transition to “new normal” balance sheet structures, it is also possibly a sign that the pre-crisis model of highly leveraged and interconnected banking may no longer attract investors. That of course could be a helpful thing for macro-financial stability and for the rebalancing of non-bank balance sheets – provided it persists when good times return.

The new environment creates some structural and strategic challenges for the global financial industry. Much-reduced financial engineering and weaker financial institutions are likely to see some retrenchment of certain banking activities. Also, with very low yields, financial institutions subject to obligations or strong expectations to pay fixed returns (such as pension funds) face pressure to increase holdings of risky assets, so they can support these returns. A renewed search for yield for these reasons raises the risk of excessive investment or bubbles in such lower quality assets.

Global spending and investment appear very cautious, and seem likely to remain so for some time, given the overhang of debt from before the crisis. In advanced economies, deleveraging in the private sector appears to have started, but will take a long time – perhaps a generation. Very cautious households are a large part of the story of a slow and fragile recovery. They have been hit hard by sustained labour market weakness, and in the US and some other advanced economies this has been compounded by loss of housing wealth and balance sheet
The apparently lower appetite for debt among New Zealand and Australian households is an interesting departure from the recent past, or perhaps a return to the more restrained standards of post-war years. In New Zealand, this continues, despite an emerging pickup in housing market activity (albeit off a very low base). For example, New Zealand household credit growth has traditionally tracked the value of house sales, but this relationship has loosened since the crisis.

Household caution is understandable given the restrained growth outlook, and the continued need for external rebalancing. But it is also consistent with cyclically weak labour and housing markets. We have yet to see whether deleveraging will continue as the gradual recovery proceeds, or if households instead revert to pre-crisis behaviours.

Currently, business sector balance sheets after the crisis are generally in better shape than following previous recessions. The labour market weakness probably means some shift in the share of national income in favour of capital. Furthermore, a reluctance to invest in the current environment of uncertainty (the Australian mining sector being a notable exception) means that many firms are actually quite cash-rich.

Asia-Pacific impacts

Increased saving and reduced investment in advanced economies, and the beginnings of a shift towards domestic expenditure and away from exports in emerging economies, are starting to reduce the global imbalances that had grown markedly pre-crisis. However, in the meantime, the reduced investment is also holding back global productivity and potential growth. This probably adds to the pressure for re-balancing of external and domestic growth drivers in emerging economies.

While world growth has fallen overall, the share accounted for by emerging markets, particularly in Asia, has continued to grow. This shift, combined with the strong rebalancing forces, has produced an unusual constellation of economic conditions in Australia and New Zealand.

The high exposure of Australia and New Zealand to emerging Asian demand for industrial raw materials and protein has sent the relative prices of those products, and hence our real exchange rates, to high levels. While that shift has encouraged labour and capital to move to those sectors, high real exchange rates are also promoting expenditure switching towards foreign goods and away from domestic ones. Non-resources sectors and regions are squeezed as a result.

At the same time, in New Zealand we have our own post-crisis debt, resulting from pre-crisis debt-fuelled household expenditure, which is now proving to be a restraint on demand. And although our fiscal positions are favourable relative to many other advanced economies, the debt overhangs, dependence on offshore funding and its sensitivity to sustainability concerns suggest that the current tilt of fiscal policy towards consolidation may persist for a while.

Moreover, the pressure of the high nominal exchange rate is not the only relevant “headwind” for our economies. Sectors other than those directly exposed to resources are seeing their relative productivity and cost-competitiveness decline. This reflects the ongoing and rapid industrialisation of Asia, and perhaps globalisation more generally. In New Zealand, the most obvious relative decline is in import-substituting sectors.

Research and analysis

The crisis has re-oriented the economic research agenda. Beliefs that self-stabilising processes in the economy and financial system generally dominate destabilising herd behaviour have been shaken up. The potential and proper roles of financial, fiscal and monetary policy, have also been seriously challenged by experience.

The management of tail risks is the supposed province of regulators, financial experts and insurance contracts. Yet the industry’s extensive risk-management apparatus failed to anticipate and struggled to cope with the financial crisis. Some markets that locked up involved recent financial instruments such as complex mortgage derivatives, whose behaviour under stress had never really been tested.

When markets struggle to clear at any price, and
when cross-border exposures grossly multiply the number of relevant variables, formal modelling to support risk management becomes difficult. By definition, tail risk analysis is about extrapolation of observed behaviour to speculate about scenarios never before seen. We should be humble about our frameworks’ ability to capture these scenarios.

Economists have yet to get fully to grips with the complex roles of the financial system, financial frictions, asset prices and credit flows in international macroeconomic dynamics. The research and policy communities are now busy introducing richer financial behaviour in models. Some promising avenues include study of how financial margin behaviour can propel economic booms, financial incapacity can exacerbate busts, and diffusion of bad news can generate panics. Experimental economics is using lab settings to study human reactions to imperfect information and discontinuous events.

But uncovering enduring and reliable inferences about behaviour from discontinuous and perhaps unique real-life observations is daunting. Non-linearities, contagion and large-scale failures are a far cry from familiar linear models with diversified exposures and rational expectations. The jury is still out on whether extreme behaviour is forecastable in a useful way at all, even if it can be modelled in the abstract. A good example is the sudden change of perceptions about current monetary and fiscal arrangements for the euro area. From barely perceptible differences between euro area government bond rates since the euro began trading in 1999 until 2008, we now face divergences many times greater than those seen even during the convergence period before the euro’s creation (Figure 8).

Policymakers’ models are usually built around a well-defined economic equilibrium. In the current environment, knowing exactly where equilibrium is and whether it is unique seem like especially big asks. More than usual, the financial industry and policymakers alike appear to be groping to understand how things will look in the next decade.

Modelling approaches based on chaotic dynamics and multiple equilibria are not new to the profession. But their utility has been limited due to their extreme sensitivity to assumptions, and the difficulty of extracting a simple story on which to base decisions. Yet at least they remind us of the limits to predictability and certainty.

**Policy strategy**

What does all this mean for macroeconomic and financial policy strategy in the years ahead? As a first goal, and one that is unchanged by the crisis, macroeconomic and financial policy should seek to provide a stable backdrop for economic activity. The familiar guideposts of price and financial stability remain relevant. As a second goal, policy might try to buffer and insulate the economy to some extent from disturbances. Third, while buffering to the degree possible given limited knowledge, policy should allow resource allocation signals to come through as undistorted as possible.

Within this high-level policy framework, the stresses on fiscal and monetary policy in many economies have led to new policy challenges. Policy interest rates are very low and fiscal deficits very large in many countries. In New Zealand and Australia, policymakers must manage ongoing exposures to offshore financial disruptions as well as generalised deleveraging pressures at home and abroad. Finally, exchange rates and relative prices and wages are shifting due to commodity market developments.

**Financial regulation and supervision**

The crisis confirmed that the financial system’s central economic role, and sudden escalation of systemic
problems, make it politically very difficult to ensure that a bank’s shareholders and creditors bear the full costs of the bank’s failure when the entire system is under threat. Weak banks, effectively holding the economy to ransom, readily pass their liabilities and risks on to governments. Authorities’ priority in the midst of a financial crisis tends to be focused on ensuring that the liquidity crunch conditions sparked by bad banks do not drag good banks under.

All the various forms of official support involve unpalatable market distortions and incentives for further bad behaviour (moral hazard). While equity stakes capture some upside from the rescue for the government, they also involve difficult governance problems. Junior debt leaves the government with credit risk but no influence over risk-taking. Senior bank debt limits the government’s credit risk, but can make the bank’s fragility worse by scaring off private investors. Government guarantees of deposits and other liabilities might limit the upfront cashflow implications of financial support, but cast the shadow of moral hazard very broadly.

Moral hazard can probably never be eliminated, only reduced, especially after the widespread bailouts and government guarantees seen in the crisis. Some level of regulation and supervision to constrain the extremes of risk-taking behaviour will therefore always be necessary.

With reduced credit demand, costly funding and stricter regulations, the banking sector is going to have to get used to more restrained returns. The financial system’s basic function is to make credit judgements across uncertain investment propositions, to monitor borrowers’ performance and creditworthiness, and to price credit accordingly. Restoring that function is the ultimate goal of financial reform. In doing so, we need to ensure that regulation does not overly increase the costs of banking, especially in more vanilla systems such as Australia’s and New Zealand’s. Our systems are already focused on utility banking, rather than on the riskier types of investment banking.

The sobering experience of the crisis underlines the difficulty of getting the right balance of light-handed versus heavy-handed supervision. Supervisors, financial institutions, credit rating agencies and everyone else inevitably see financial and economic developments imperfectly, both ex ante and ex post. It is therefore unrealistic to expect to be able to reduce the probability of a systemic crisis to zero. Part of the strengthening of the financial system overall must therefore include practical preparation for further crises. This includes regulation and supervision with an eye to ensuring that a crisis can be dealt with effectively, should it eventuate.

In our integrated Australasian banking system we have learned the value of strong home-host cooperation in regulating trans-Tasman entities. We have also learned the value of having the capacity in each jurisdiction to deal with failed institutions expeditiously, whatever their size or parentage. In New Zealand, we have emphasised having mechanisms to allocate losses appropriately to creditors and shareholders and to release residual claims on the bank quickly, in the event of trouble at the banks.

**Macro-financial policy**

We learned in the crisis that a “micro-prudential” focus on the soundness of individual institutions does not ensure that the whole system will continue functioning under adverse conditions. Part of the international response is macro-financial policy, a new focus of policy development concerned with the stability of the financial system as a whole, and on financial behaviour and its interactions with the economy.

Macro-financial policy acts on the structure of financial institution balance sheets and behaviours across the whole system. Such controls add to micro-prudential controls to ensure the soundness of individual institutions considered in isolation. Macro-financial policy settings are intended to deliver automatic stabilisation akin to that of fiscal (tax and benefit) systems, as well as larger buffers against system-wide shocks and some degree of leaning against strong credit upswings. The settings would be reviewed from time to time to suit changing financial and economic circumstances. Macro-financial settings would be expected to change much less frequently than monetary policy.

Like most policy interventions, macro-financial measures (such as capital and liquidity buffers or
restraints on certain kinds of risky lending) involve costs in
the form of potential distortions to financial activity. Such
interventions are likely to complement monetary policy, but
this cannot be guaranteed. Indeed, we have very limited
practical experience of macro-financial policy.

These concerns suggest that macro-financial policy
should not seek to be too activist. Distortions will be
most likely to occur where a policy intervention creates
an opportunity for regulatory arbitrage between the
regulated and unregulated sectors, or between regulated
and unregulated activities. And the incentives for arbitrage
will be greater under strong credit demand conditions,
suggesting the likelihood that any restraining effect of
macro-financial tightenings on business cycle upswings is
likely to be small.

Under such conditions, the appropriate response to a
future credit-fuelled upswing could well be a combination of
measures. Macro-financial tightening would counter banks
relaxing credit standards and undermining the stability of
the overall system, while monetary policy tightening would
address rising inflationary pressures associated with the
strong credit demand. But in comparison with other policy
areas, macro-financial policy knowledge is still immature,
and we have a lot to learn.

Fiscal policy

The experience of sovereigns in less favourable fiscal
positions demonstrates how quickly and catastrophically
a sovereign can lose credibility for ongoing prudent fiscal
and economic management, especially if the exchange
rate is not available as an adjustment mechanism and
internal cost structures are not flexible. That credibility is
a vital resource.

Although we have our own versions of the ageing
population problem, we went into the crisis from a fairly
healthy government financial position. Australia’s position
now appears still to be relatively favourable, while New
Zealand is more in the middle of the pack of advanced
countries.

Yet, other features of our national balance sheets
give some cause for concern should another global
funding pressure event occur. It will take a long time for
the structural causes of financial fragility in Europe to
be addressed, and for the process of public and private
balance sheet repair to run its course. In the meantime,
crises may reoccur and cause either funding disruption
to Australia and New Zealand, or even worse, a renewed
global economic downturn.

Local issues include the relatively heavy dependence
of our economies on bank lending, the relatively heavy
dependence of the banks on foreign funding, and the
high degree of concentration of the banking sectors.
We therefore seem to face a similar priority to other
advanced economies in reducing the risk that investors
will progressively tighten constraints on the room for fiscal
action. Countries with high debt/GDP positions remain
exposed to the longer-term economic outlook, putting
a premium on structural reform measures to promote
growth. Of course, implementing such reforms is easier
said than done, especially when their short-term effect on
demand is usually adverse.

The fiscal balancing act over the next few years
is to restore headroom through consolidation where
possible, while taking into account any adverse short-term
impacts on activity. This should help reduce the chances
of getting backed into the very difficult and constrained
space in which a number of advanced economies now
find themselves. However, this is of course yet another
policy challenge in the category of things easier said than
done. Moreover, the link to monetary policy is particularly
important in the current environment, because of the zero
lower bound on interest rates. Fiscal austerity is probably
not as contentious when monetary policy loosening can
offset its short-term effects on economic activity.

Monetary policy

The events of the past five years have led monetary
policy into unfamiliar territory. After responding largely
successfully to the priority of reducing and stabilising
inflation following the 1970s experience, monetary policy
now faces a number of new concerns.

First, financial cycles are evidently able to destabilise
the economy without necessarily implying large inflation
fluctuations. Second, the financial system is far from
neutral “plumbing” for the real economy. Instead, it substantially modulates economic shocks and can generate shocks itself. It can also materially affect monetary policy’s effectiveness in stabilising economic activity. We can probably expect that, for some time, risk premia on private and public debt will remain much more variable and differentiated, and a source of noise in the policy formulation process.

How monetary policy strategy should account for these complications is not at all settled. It does not help that monetary policy settings and interventions themselves have been highly unusual in many countries. Many researchers are studying the possible adverse effects of very low interest rates on investor risk-taking, and the effects on global financial conditions of large-scale QE activities by major central banks.

There are other questions, such as how to set interest rates in a deleveraging environment. Increased saving promotes the longer-term stability objectives of stronger balance sheets, but its impact on demand needs to be accounted for. In addition, the exchange rate effects of monetary policy are no doubt important, but distinguishing these impacts from other influences is far from straightforward. Currently it appears that a large part of the Australasian currencies’ strength can be attributed to emerging market demand underpinning global markets for New Zealand and Australian commodity exports, at least on a medium-term view. Shorter-term volatility seems to have increased with foreign exchange markets swinging between willingness to back economic outperformance of the region (so called “risk on”), and aversion to anything that looks “peripheral” (so called “risk off”).

The growth of resource-hungry Asia (China especially) will gradually shift domestic labour and capital allocation. This shift is certainly not easy, and maybe beyond the realm of stabilisation policy to manage. Instead, the key factor in smoothing the transition is flexible capital and goods markets, and clear relative price signals. The challenge for all is to look through aggregate and shorter-term cyclical effects and read the longer-run signals from real exchange rate and relative price developments.

In the current volatile environment, the zero lower bound on nominal interest rates is not very far away. Policy rates fell a lot further during the acute phase of the crisis. Conventional monetary policy is safer known ground, but central banks, including in our region, are realising they may be pushed by events into unsafe territory.

Fortunately there is now experience at home and abroad with market-supporting liquidity interventions that can be activated at short notice, as well as some tentative lessons from the QE experience in the major advanced economies. Nevertheless, QE remains new ground for central banks in many ways. The early evidence suggests that it does work to some degree to stimulate the economy, although the precise mechanisms involved are still a matter of some debate. The large expansion of the central bank’s balance sheet under QE markedly increases the central bank’s financial risk, and its dominance in the targeted markets distorts market pricing (indeed, the distortions are one means by which QE is believed to work). These factors place limits on how much QE can be relied upon as an additional tool.

In a globalised world, big players lowering their domestic interest rates, whether by QE or any other tool, will (all else equal) tend to promote capital flows to other countries and appreciation of their exchange rates. As a small open economy, New Zealand has often seen the effects of carry trades on the exchange rate. This can be distortionary and problematic, because an economy relies on its exchange rate as a signalling price.

6 Conclusion

The combination of G7 weakness and rapid growth of the resource-hungry and populous emerging world is unique in post-war economic history. Over the next few years, Australian and New Zealand firms will need to make strategic decisions about how to make the most of these opportunities. Their success or otherwise will depend on how well they can extract resource allocation signals from volatile data.

We are living in a new economic world, albeit one that may be best enjoyed from hindsight. Until then we will keep on learning.
ANALYTICAL NOTES

AN 2012/04
In search of greener pastures – improving the REINZ farm price index
Ashley Dunstan and Chris McDonald
July 2012

A good farm price measure captures the price that a “representative” farm would sell for each period. In reality, though, there is no representative farm and, even if there was, it would not sell every period anyway. Farms are not like bottles of milk. They are not identical and their prices are not easily comparable. Moreover, farm price measures must rely on a small, and changing, sample of farm sales from which they must disentangle like-for-like price changes. Keeping in mind that the quality of any farm price measure will be limited by the low number of farm sales, particularly during periods of stress, this paper sets out to improve on currently available measures of farm prices by controlling for the different characteristic of farms sold.

AN 2012/05
A model for interest rates near the zero lower bound: An overview and discussion
Leo Krippner
September 2012

Operating monetary policy when interest rates are already at or near zero comes with many challenges, as many countries have discovered in recent years. One aspect is that, if effective easing beyond a zero policy rate is desired, the policy rate constrained at zero will no longer conveniently summarise the stance of monetary policy and its typical transmission into the yield curve (longer-maturity interest rates) and the economy. In this note, I show how a framework for representing yield curve data in a zero lower bound (ZLB) environment can still allow monetary policy to be conveniently summarised in terms of an effective policy rate.
DISCUSSION PAPERS

DP2012/04
Measuring the stance of monetary policy in zero lower bound environments
Leo Krippner

I propose a simple framework that quantifies the stance of monetary policy as a “shadow short rate” when interest rates are near the zero lower bound. The framework is shown to be a close approximation to the Black (1995) framework for modelling the term structure subject to a zero-lower-bound constraint. I demonstrate my framework with a one-factor model applied to Japanese data, including an intuitive economic interpretation of the results, and also discuss the extension to multiple factors.

DP2012/05
The macroeconomic effects of a stable funding requirement
Chris Bloor, Rebecca Craigie and Anella Munro

This paper examines the macroeconomic effects of a bank stable funding requirement of the type proposed under Basel III and introduced in New Zealand in 2010. The paper sets out a small open economy model incorporating a banking sector funded by retail deposits and short- and long-term wholesale borrowing, with a tractable setup for multi-period debt that allows hedging of benchmark interest rate risk. A stable funding requirement increases rollover in long-term funding markets, despite lower aggregate rollover. Greater exposure to long-term funding markets attenuates credit expansion if funding costs rise more steeply with volumes in less-liquid long-term markets. However, it amplifies the pro-cyclical effects of fluctuations in funding spreads because variations in long-term spreads are larger and are carried for the duration of the funding (cannot be hedged). Such amplification increases in the level of the requirement and the level of net debt. We explore approaches to moderating adverse macroeconomic outcomes.

DP2012/06
Matching efficiency and business cycle fluctuations
Francesco Furlanetto and Nicolas Grosshenny

A large decline in the efficiency of the US labour market in matching unemployed workers and vacant jobs has been documented during the Great Recession. We use a simple New Keynesian model with search and matching frictions in the labour market to study the macroeconomic implications of matching efficiency shocks. We show that the propagation of these disturbances and their importance for business cycle fluctuations depend crucially on the form of hiring costs and on the presence of nominal rigidities.
NEWS RELEASES

Inflation targeting a robust framework
19 June 2012

For more than 20 years, including during vastly different economic conditions, monetary policy in New Zealand has been doing what it was supposed to do - keeping inflation low, said Reserve Bank Assistant Governor John McDermott today.

Speaking at a Bank for International Settlements’ research workshop held in Hong Kong, Dr McDermott said: “The Bank’s analysis on the recent business cycle underscores that the inflation targeting framework is an effective way to conduct monetary policy under a range of testing circumstances.”

Low inflation and the credibility of inflation targeting had meant less volatility in price levels, he said.

“This is helpful for resource allocation, affecting longer term performance and for macroeconomic stability over the medium term,” Dr McDermott said.

Inflation targeting remained a useful tool for the future, but its success did not mean the framework could not be improved, he said.

“Over the course of the past 20 years or so the framework has evolved to reflect lessons learned and is likely to evolve further in response to new developments,” Dr McDermott said.

In particular, the Reserve Bank had increased its monitoring of monetary and credit information in the wake of the Global Financial Crisis.

“The Reserve Bank has also been looking into the effectiveness of some macroprudential instruments that may limit build-ups of problems in future periods of rapid credit growth,” he said.

Media statement from the Reserve Bank Chairman
26 June 2012

Reserve Bank Chairman Arthur Grimes today congratulated Graeme Wheeler on his appointment as Reserve Bank of New Zealand Governor.

Dr Grimes said: “The Reserve Bank Board looks forward to working with Mr Wheeler when he begins his new role at the Bank in late September.

Minister of Finance announces Graeme Wheeler to be appointed RBNZ Governor
26 June 2012

News release issued by the Minister of Finance

Finance Minister Bill English today announced his intention to appoint Graeme Wheeler governor and chief executive of the Reserve Bank of New Zealand, after Alan Bollard’s second five-year term expires on 25 September 2012.

Mr Wheeler will be governor-designate until a new policy targets agreement is finalised in the next few months. This is required before a new governor is appointed.

“Mr Wheeler’s extensive experience makes him a highly respected figure in world financial markets and within New Zealand,” Mr English says. “We were fortunate to have someone of his calibre available for this important role.”

From 1997 to 2010, Mr Wheeler was employed by the World Bank. His most recent roles there included managing director operations (2006-2010), and vice-president and treasurer (2001-2006). Previously, he was at the New Zealand Treasury as deputy secretary and treasurer of the Debt Management Office.

Mr Wheeler, a New Zealander, currently lives in the United States and runs his own advisory business.

As required under the Reserve Bank Act 1989, the Reserve Bank board of directors recommended Mr Wheeler’s appointment to Mr English, after an extensive recruitment process domestically and internationally.

“Given his experience and standing, combined with his technical and leadership qualities, the board considered that he has all the qualities required to become governor and chief executive of the Reserve Bank,” Mr English says.

He does not envisage any major changes to the policy targets agreement.

“I consider that the current PTA has served New Zealand well and there are benefits in maintaining consistency in the PTA.

“However, the global financial crisis has focused some attention on monetary policy frameworks, and I want to
ensure that the PTA continues to reflect best international practice."

Mr English also paid tribute to Dr Bollard for his leadership at the Reserve Bank over the past 10 years.

“He helped steer the New Zealand financial system through the biggest global crisis in several generations. At the same time, he ensured that this country continued to enjoy one of the most stable inflation environments in the world.”

Note: Mr Wheeler will not be commenting on his nomination until after he has taken up his role in September.

**Reserve Bank committed to stability in shifting times**

27 June 2012

The Reserve Bank’s commitment to monetary and financial stability in a complex and shifting global environment is underlined in the Bank’s Statement of Intent (SOI) for 2012-2015.

“New Zealand’s economic prospects will be heavily affected by developments in global funding markets; the demand for our exports; and the pace of rebuild in Christchurch,” Reserve Bank Governor Alan Bollard said.

“Price stability will remain the Bank’s primary goal in navigating through this new environment. However, we are aware that familiar economic structural landmarks may have moved”.

These landmarks include the country’s growth potential, ‘neutral’ real interest rates, the sustainable exchange rate level, long-run unemployment levels, and private sector debt ratios.

“One of the Bank’s business priorities is to explore this changing territory and ensure that monetary and macro-prudential policies are calibrated accordingly”.

The Bank is also looking to further enhance the resilience of banks, implementing new Basel III capital requirements; and policy options to resolve any bank failures, however unlikely these are.

As a central bank, the Bank also manages a wide range of risks in its own operations, and will put in place a new risk management and assurance operating model.

The SOI shows the Bank’s budget for 2012–13 with a net operating expenditure of $50 million. This budget allows for continuation of the banknote upgrade scheduled for introduction from 2014.

A new Governor is due to be appointed for a five-year term from 26 September 2012.

**Reserve Bank Bulletin released**

28 June 2012

The Reserve Bank today released the June 2012 edition of the Reserve Bank Bulletin.

The Bulletin’s first article focuses on New Zealand’s monetary policy between 1998 and 2011. It concludes that the flexible inflation targeting approach served New Zealand relatively well through some very testing times.

The Bulletin’s second article looks at changes in the composition and pricing of bank funding.

It says a “step up” in banking funding costs, relative to the Bank’s Official Cash Rate, that occurred post-Global Financial Crisis, has now stabilised at higher levels. The Reserve Bank’s focus is on the interest rates firms and households face and so the OCR has been set lower than otherwise because of these increased funding margins.

The final article in the June Bulletin provides an update on the Bank’s roles and responsibilities under the Anti-Money Laundering and Countering Financing of Terrorism Act. It also provides more detail on the Bank’s proposed supervisory approach.

**RBNZ welcomes new NZFMA role**

12 July 2012

The Reserve Bank has welcomed today’s announcement by the New Zealand Financial Markets Association (NZFMA) that it has taken on the role of managing New Zealand’s standardised over-the-counter derivatives documentation. This role was previously undertaken by the New Zealand Bankers’ Association.

Deputy Governor Grant Spencer said: “Standardised documentation is an important component of managing legal risks in financial market transactions. Having the NZFMA’s broader membership base involved with the development and use of this documentation is a positive step.”
Government appoints new Reserve Bank director
19 July 2012

News release issued by the Minister of Finance

Finance Minister Bill English has appointed Rod Carr to the board of the Reserve Bank of New Zealand.

“Dr Carr has extensive experience, both in the banking industry and as a director,” Mr English says. “I’m confident he will make a strong contribution to the board of the Reserve Bank.”

Dr Carr is the Vice-Chancellor of the University of Canterbury and holds a number of governance positions including the chairmanship of the National Infrastructure Advisory Board.

He was previously the managing director of Jade Software Corporation Ltd, following roles as Deputy Governor of the Reserve Bank and senior positions with the National Australia Bank.

Mr English also appointed Craig Ansley to the Government Superannuation Fund Authority and reappointed director Toni Kerr for a further term.

OCR unchanged at 2.5 percent
26 July 2012

The Reserve Bank today left the Official Cash Rate (OCR) unchanged at 2.5 percent.

Reserve Bank Governor Alan Bollard said: “New Zealand’s economic outlook remains consistent with that described in the June Monetary Policy Statement.

“New Zealand’s trading partner outlook remains poor, with several euro-area economies in recession. There remains a limited risk that conditions in the euro area deteriorate very significantly. The Bank continues to monitor the situation carefully given the potential for rapid change.

“Domestically, the Bank continues to expect economic activity to grow modestly over the next few years. Housing market activity continues to increase as forecast, and repairs and reconstruction in Canterbury are expected to further boost the construction sector. Offsetting this, fiscal consolidation and the exchange rate are constraining demand growth.

“Underlying annual inflation, which recently moved below 2 percent, is expected to settle near the mid-point of the target range over the medium term.

“It remains appropriate for the OCR to be held at 2.5 percent.”

Debt deleveraging underway, but still a long way to go
6 August 2012

New Zealand may be dealing with the aftermath of the large increase in private debt for quite some time, Reserve Bank Governor Alan Bollard said today.

In a speech to the Employers and Manufacturers Association in Auckland, Dr Bollard said governments, firms, farmers and households across many parts of the advanced world took on large amounts of debt in the last couple of decades. He noted that rapid increases in indebtedness have often foreshadowed a difficult period for the economy.

Fortunately, New Zealand avoided the sort of costly systemic financial crisis that a growing number of other countries faced, and while government debt had increased substantially it remained low by international standards.

“But it is fair to note that we have suspected for a long time that New Zealand’s private and external debts were too high to be sustained,” Dr Bollard said.

The accumulation of debt owed by individual firms and households, and borrowers disappointed that incomes and asset prices have not gone on rising as they expected are “clearly playing some role in the low rates of growth New Zealand has seen in productivity and GDP,” Dr Bollard said.

Private sector deleveraging is underway, but Dr Bollard said it is a slow, gradual process.

“In a single country facing weak domestic demand, resources can switch relatively readily into sectors more reliant on external demand. But it is hard for that to happen in a large chunk of the advanced world all at the same time,” Dr Bollard said.

“As yet, not much of the expected rebalancing of the economy, particularly towards exports, seems to have happened – perhaps this should not be too surprising...
in view of the persistently high real exchange rate, itself partly influenced by the adverse international climate."

“Even at an aggregate economy level it looks as though we could be dealing with the aftermath for quite some time yet.”

Lessons from the Global Financial Crisis
9 August 2012

New Zealand and Australia continue to learn valuable lessons from the global financial crisis, despite escaping the turmoil relatively lightly, Reserve Bank Governor Alan Bollard said today.

Delivering the Sir Leslie Melville Lecture at the Australian National University in Canberra, Dr Bollard said the crisis challenged many countries on a number of fronts. The experience of major financial system convulsions, followed by global recession and the emergence of the euro area sovereign debt crisis, provoked economic researchers and forecasters to reassess what is known and where research should focus.

One lesson from the crisis was the interconnectedness of financial institutions - both domestically and globally.

Lessons were also learnt about how quickly systemic financial stress in major countries could spread and create strong recessionary conditions around the world.

Dr Bollard said the crisis also challenged financial regulators and monetary and fiscal policy makers, who are still working to “understand, contain and repair the damage to financial systems, to economies and to governments’ financial capacity.”

Fortunately, New Zealand and Australia escaped the worst of the financial crisis. However, extraordinary policy action by central banks and governments was needed at various times, he said.

Legacy issues remain to be dealt with, such as still-elevated levels of household debt. Small open economies are also experiencing spillovers into capital flows and exchange rate pressures from unconventional monetary policy actions by major central banks, and this is problematic for New Zealand.

Dr Bollard said it is unrealistic to try to reduce the risk of a systemic crisis to zero.

“Part of the strengthening of the financial system overall must therefore include practical preparation for further crises, as well as regulation and supervision with an eye to ensuring that a crisis can be dealt with effectively should it eventuate.”

RBNZ MPS/OCR and FSR dates for 2013-2014
22 August 2012

Following is the Reserve Bank’s schedule for the release of its quarterly Monetary Policy Statements, the intervening Official Cash Rate (OCR) reviews, and the six-monthly Financial Stability Reports. The schedule covers 2013 and, provisionally, the first half of 2014.

Each Monetary Policy Statement includes an OCR announcement. The schedule includes dates for the first six months of 2014, to assist financial markets’ planning, but these dates are provisional, subject to confirmation in August 2013. Each announcement will be made at 9.00 am on the day concerned.

Monetary Policy Statement/OCR
2013
31 January OCR announcement
14 March Monetary Policy Statement
24 April OCR announcement
13 June Monetary Policy Statement
25 July OCR announcement
12 September Monetary Policy Statement
31 October OCR announcement
12 December Monetary Policy Statement

2014
30 January OCR announcement
13 March Monetary Policy Statement
24 April OCR announcement
12 June Monetary Policy Statement

Financial Stability Report
2013: 8 May 13 November
2014: 14 May

The Bank reserves the right to change this schedule, if required, due to unexpected developments. In such an event, markets and the media will be given as much warning as possible.
Rangitoto College wins Monetary Policy Challenge
24 August 2012

The Reserve Bank has announced today that Rangitoto College from Auckland is the national winner of the Reserve Bank 2012 Monetary Policy Challenge (MPC). Burnside High School from Christchurch was placed second and Waikato Diocesan School for Girls from Hamilton came third.

The MPC is designed to expand senior secondary school economics students’ understanding of monetary policy, and it links to NCEA achievement standards.

The national final took place at the Reserve Bank in Wellington yesterday and was hotly contested. The judges were Assistant Governor John McDermott and two Bank economists, Tony Wolken and Gillian Lawrence.

The judges said that all finalists performed to a very high standard, and selecting the winning school was an especially difficult task this year. They were particularly impressed with the depth of economic understanding shown by the Rangitoto College team.

“They answered a number of difficult questions with great composure and teamwork. They clearly demonstrated a comprehensive understanding of economic relationships,” the judges said.

Rangitoto College won $2,500 in prize money for their school and will visit the Reserve Bank on 13 September to watch the announcement of the next Monetary Policy Statement by Governor Alan Bollard.

Burnside High School won $1,500 and Waikato Diocesan School for Girls won $750 in prize money for their respective schools. The other competitors in the national final were Macleans College (Auckland), Scots College (Wellington) and John McGlashan College (Dunedin).

Just like economists working in the Reserve Bank, each team analyses the economic conditions facing New Zealand and the outlook for inflation. On the basis of that analysis, they decide on an appropriate setting for the Official Cash Rate (the Reserve Bank’s interest rate). Each team provides the reasons for their decision in a written submission and, if selected as a regional or national finalista, an oral presentation.

“Rather than just expecting students to learn established facts, this competition confronts them with the challenges, ambiguity and uncertainty of actual decision-making,” Dr McDermott said.

The MPC is open to all New Zealand secondary school economics students and runs annually from May to August.

RBNZ appoints Head of Financial Markets
30 August 2012

The Reserve Bank has appointed Mark Perry as Head of Financial Markets, effective 10 September 2012.

The Financial Markets Department is responsible for the Bank’s domestic and foreign exchange markets activity, and for research and analysis on macro-financial stability.

Reserve Bank Deputy Governor Grant Spencer said Mr Perry has a strong background in financial markets, having spent more than 20 years in senior roles in New Zealand, Australia and the UK. This includes a 15-year career with the BNZ, including five years as its Head of Financial Markets.

“Mark’s skills and experience will contribute greatly to the work of the Reserve Bank,” Mr Spencer said.

Upside, downside: A guide to risk for savers and investors
3 September 2012

The Reserve Bank today released a new edition of its popular guide to managing the risks involved in saving and investing.

*Upside, downside: A guide to risk for savers and investors* has been commissioned by the Reserve Bank and written by investment commentator and bestselling author, Mary Holm.

The 64-page publication is a revised version of Mary Holm’s 2004 booklet *Snakes and Ladders*. It includes updated information and explains how investment risks apply to KiwiSaver.

More than 70,000 copies of the first edition have been
distributed to the public, financial planners, accountants, budgeting services and organisations since it was published eight years ago.

Reserve Bank Governor Alan Bollard said he expects the updated edition to be as valuable and sought after as the first.

“The book’s basic messages are timeless – namely that risk and return go hand in hand; that a full understanding of risks is critical, and that risk is not necessarily bad when properly understood. The Global Financial Crisis has demonstrated how important this is,” Dr Bollard said.

Mary Holm said the messages in *Upside, Downside* are based on research and observations over many decades.

“When I was updating this book, I noticed that the 2004 version included warnings about borrowing heavily to invest, and about investing in higher-risk fixed interest such as finance company deposits - issues that weren’t worrying many people back then. But those who heeded the warnings will be glad they did!” she said.

Free copies of *Upside, downside: A guide to risk for savers and investors* can be obtained from The Knowledge Centre, the Reserve Bank of New Zealand, PO Box 2498, Wellington, 6140, by phoning 04 471 3660 or by emailing rbnz-info@rbnz.govt.nz

**RBNZ launches video to explain compound interest**

*4 September 2012*

The Reserve Bank has today released a video explaining compound interest and how it affects savings.

The three-minute multimedia presentation is part of the Reserve Bank’s ongoing efforts to promote financial literacy, and is a contribution to Money Week.

Reserve Bank Assistant Governor and Head of Operations, Don Abel, said the video is a user-friendly way to explain a powerful financial concept.

“Financial literacy and the ability to make informed judgements and decisions about money management are important for individuals, the financial system and the wider economy. This video is a useful tool to help people broaden their financial understanding,” he said.

The video can be viewed via the Reserve Bank’s Money Week page: http://www.rbnz.govt.nz/education/4921034.html

Community groups, schools, media outlets and organisations promoting financial literacy are encouraged to post a link to the video on their own websites or Facebook pages.

Albert Einstein is widely reported to have once described compound interest as the eighth wonder of the world: “He who understands it, earns it ... he who doesn’t ... pays it.”

**New designated settlement system**

*7 September 2012*

The Reserve Bank of New Zealand and the Financial Markets Authority (FMA) today announced that the NZClear Settlement System has been declared a designated settlement system under Part 5C of the Reserve Bank of New Zealand Act.

The designation will take effect from 4 October 2012.

The Reserve Bank and FMA are joint regulators of designated settlement systems. The NZClear Settlement System is operated by the Financial Services Group of the Reserve Bank of New Zealand.

Reserve Bank Head of Prudential Supervision Toby Fiennes, and FMA Head of Compliance Monitoring Elaine Campbell said the designation gives statutory backing to the finality of settlement and netting of transactions through the system so that in the event of failure by a participant, transactions cannot be unwound.

Designated settlement systems are subject to ongoing oversight by FMA and the Reserve Bank. However, it is not compulsory for settlement systems operating in New Zealand to be designated.

New Zealand has three existing designated settlement systems: the Reserve Bank’s Exchange Settlement Account System, the Continuous Linked Settlement System operated by CLS Bank International and the NZCDC Settlement System which is operated by New Zealand Clearing and Depository Corporation, a wholly-owned subsidiary of NZX Limited. The first two are pure payment systems and so are regulated solely by the
Reserve Bank whereas the last is a settlement system and therefore regulated by both the Reserve Bank and FMA.

A settlement system will only be recommended for designation after a thorough assessment by the regulators, who will assess, amongst other things, the clarity and legal certainty of the rules of a system, its financial soundness and risk management policies, and the capability and capacity of the operator.

Questions and answers on designated settlement systems are available on the Reserve Bank website http://www.rbnz.govt.nz/finstab/payment/3816027.html

**Risk management still critical to delivering value**

*10 September 2012*

The global financial crisis has shown that risk management is critical both to the success of institutions and to their value to society, Don Abel, Reserve Bank Assistant Governor and Head of Operations, told the Oceania Computer Audit, Control and Security Conference today.

“The global financial crisis exposed the weaknesses of risk management to the world, and especially the inadequacies of institutions that allowed their risk management practices to be subverted by the drive for short-term profitability,” Dr Abel told the conference in Wellington.

While better regulation and policy interventions might help to stabilise markets, by aiming to reduce excessively risky decisions, ultimately it was the people involved in the key roles of institutions, their skills and values, that largely determined the future of the enterprises.

“In the current highly volatile and uncertain operating environment, risk professionals have to be able to translate developments into tangible business responses.

“They also have the important job of influencing and guiding others to make the right decisions. By doing so they can deliver value to their institutions and society in these challenging times.”

**RBNZ consults on Basel III capital adequacy standards**

*11 September 2012*

The Reserve Bank today confirmed that it will be implementing the core elements of new capital adequacy requirements for banks, in a further step towards implementing new rules under the Basel III regime. It released a consultation paper on the details of the proposed changes, which include increased capital requirements for banks.

The requirements will strengthen the ability of locally incorporated New Zealand banks to absorb losses and are part of the global Basel III reforms aimed at strengthening the international banking system.

The Reserve Bank has also released its response to submissions on earlier consultations which form the basis of the current detailed proposals. A cost-benefit analysis of the Basel III policy is also included.

Reserve Bank Deputy Governor Grant Spencer said New Zealand banks are well placed to meet the new requirements.

“Banks’ overall capital levels are strong and generally already exceed the new requirements. While some technical features of bank capital instruments will be fairly new to the capital markets, they are likely to become a feature of bank capital internationally,” he said.

Mr Spencer said the changes set out in the draft capital adequacy standard are in line with the Australian Prudential Regulation Authority’s (APRA) current plans in this area.

“However, there are some minor differences to APRA’s plans, in areas where New Zealand circumstances warrant a different approach,” he said.

The new capital adequacy standards under the Basel III framework will go live on 1 January 2013, although a number of transitional measures will apply.
New Policy Targets Agreement signed today

20 September 2012

Finance Minister Bill English and incoming Reserve Bank Governor Graeme Wheeler today signed a new Policy Targets Agreement, which sets out specific targets for maintaining price stability.

The new Policy Targets Agreement takes effect on 26 September, when Mr Wheeler starts his five-year term as Governor.

The agreement continues to require the Reserve Bank to keep CPI inflation between 1 per cent and 3 per cent on average over the medium term.

Within this target, the new agreement now requires the Bank to focus on keeping future average inflation near 2 per cent.

The PTA also includes a stronger focus on financial stability, by including asset prices in the range of indicators the Bank monitors, and requiring the Bank to have regard to the soundness and efficiency of the financial system in setting monetary policy.

“I believe that the existing policy targets agreement has served New Zealand well and there are benefits in maintaining consistency in the agreement,” Mr English says. “Therefore, I did not feel that any major changes were required.

“However, the Global Financial Crisis has focused some attention on monetary policy frameworks, and I want to ensure the PTA continues to reflect best international practice.

“Consequently, some additional wording has been agreed with the new Governor to reflect lessons from New Zealand’s last economic cycle and the Global Financial Crisis.

“As we’ve said before, the Government is also working with the Reserve Bank and Treasury to assess whether further macro-prudential tools could help moderate credit cycles, by building additional resilience when it is likely to be needed. That work will continue.”

Mr Wheeler says the new PTA remains focused on maintaining price stability, as well as avoiding unnecessary instability in economic output, interest rates and the exchange rate.

“The focus on the 2 per cent midpoint will help better anchor inflation expectations,” he says.

“In addition, the PTA’s stronger focus on financial stability makes it clearer that it may be appropriate to use monetary policy to lean against the build-up of financial imbalances, if the Reserve Bank believes this could prevent a sharper economic cycle in the future.”

Mr Wheeler also emphasised that the macro-prudential policy tools currently being developed by the Bank should be separate from, but complementary to monetary policy.

“The primary purpose of such tools will remain to promote stability of the financial system.”

Mr Wheeler will send a letter to the Finance Minister setting out how he plans to manage his relationship with the Minister, recognising the Bank’s operational independence.

It will ensure the Government and the Reserve Bank keep each other fully informed about fiscal and monetary policy issues,” he says.

View the Policy Targets Agreement here: http://www.rbnz.govt.nz/monpol/pta/

Financial resilience strengthened

24 September 2012

The Reserve Bank’s latest Annual Report demonstrates progress on several fronts to enhance New Zealand’s resilience against global financial and economic uncertainty.

“With the aftershocks of international and domestic crises persisting longer than expected, it is important that New Zealand’s ability to withstand shocks continues to be strengthened,” departing Reserve Bank Governor Alan Bollard said today, when releasing the Bank’s 2011-2012 Annual Report.

Dr Bollard said the Bank had initiated in the last year several business priorities to promote resilience for the economy, the financial system, and the Bank.

The Bank has developed regular monitoring and measurement of financial imbalances in the economy.

Four macro-prudential tools have been identified that the
Bank could consider using if future credit conditions were to warrant it, though with current subdued credit growth there is no need to deploy such tools at present.

The Bank intends to finalise the Basel III prudential capital requirements for banks in 2012, and banks will have to comply with the core capital requirements from the beginning of 2013. As already announced, a further rise in the minimum core funding ratio to 75 percent will occur from 1 January 2013.

The Bank granted over 100 provisional or full insurance licences by the deadline of March 2012, and is now working on the path to full licences by September 2013. A new statute establishing a licensing regime for the non-bank deposit taking sector is progressing through Parliament.

Among other developments, the Bank progressed research for the new banknotes scheduled to be introduced in 2014, introduced systems to reduce risks in New Zealand’s multi-billion-dollar payments system, and made preparations for the introduction of anti-money laundering measures.

The Bank spent a net $47.0 million on activities covered by its Funding Agreement in the June 2012 year, and a dividend of $160 million was paid to the Crown.

Dr Bollard said he had had a turbulent but hugely rewarding decade as Governor and Chief Executive. Mr Graeme Wheeler will take over as Governor and Chief Executive, effective from 26 September.
PUBLICATIONS

Regular publications

Annual Report Published in October each year.
Monetary Policy Statement Published quarterly. A statement from the Reserve Bank on the conduct of monetary policy.

Reserve Bank of New Zealand Statement of Intent, 2012-2015

Recent Reserve Bank Discussion Papers

2012
DP2012/01 The financial accelerator and monetary policy rules Güneş Kamber and Christoph Thoenissen
DP2012/02 Modifying Gaussian term structure models when interest rates are near the zero lower bound Leo Krippner
DP 2012/03 The information content of central bank interest rate projections: evidence from New Zealand Gunda-Alexandra Detmers and Dieter Nautz
DP2012/04 Measuring the stance of monetary policy in zero lower bound environments Leo Krippner
DP2012/05 The macroeconomic effects of a stable funding requirement Chris Bloor, Rebecca Craige and Anella Munro
DP2012/06 Matching efficiency and business cycle fluctuations Francesco Furlanetto and Nicolas Groshenny

A full list of Discussion Papers is available from Administration, Economics Department.

Analytical Notes

2012
AN 2012/01 House price expectations of households: a preliminary analysis of new survey data Graham Howard and Özer Karagedikli
AN 2012/02 Kiwi drivers - the New Zealand dollar experience Chris McDonald
AN 2012/03 Currency intervention – the profitability of some recent international experiences Enzo Cassino and Michelle Lewis
AN 2012/04 In search of greener pastures – improving the REINZ farm price index Ashley Dunstan and Chris McDonald
AN 2012/05 A model for interest rates near the zero lower bound: An overview and discussion Leo Krippner

Pamphlets

Explaining Currency
Explaining Monetary Policy
The Reserve Bank and New Zealand’s Economic History
This is the Reserve Bank
Your Bank’s Disclosure Statement – what’s in it for you?
Upside, downside – a guide to risk for savers and investors, by Mary Holm

For further information, go to www.rbnz.govt.nz, or contact:
Knowledge Centre
Knowledge Services Group
Reserve Bank of New Zealand
2 The Terrace, P O Box 2498
WELLINGTON
Phone (04) 472–2029
Articles in recent issues of the Reserve Bank of New Zealand Bulletin

Vol. 74, No. 3, September 2011
A primer on Open Bank Resolution
Conference summary: New Zealand’s macroeconomic imbalances – causes and remedies
Recent trends and developments in currency
Submission to the Productivity Commission inquiry on housing affordability
Workshop on national accounts and financial statistics

Vol. 74, No. 4, December 2011
Towards understanding what and when households spent
Sudden stops, external debt and the exchange rate
Insurer solvency standards - reducing risk in a risk business

Vol. 75, No. 1, March 2012
The evolution of prudential supervision in New Zealand
Business cycle review, 1998-2011
A brief history of monetary policy objectives and independence in New Zealand
The New Zealand Debt Conversion Act 1933: a case study in coercive domestic public debt restructuring

Vol. 75, No. 2, June 2012
Monetary policy in the last business cycle: some perspectives
Bank funding - the change in composition and pricing
Anti-money laundering and countering the financing of terrorism - the Reserve Bank’s supervisory approach