Contents

Articles
Monetary policy in the last business cycle: some perspectives
Willy Chetwin and Michael Reddell 3

Bank funding - the change in composition and pricing
Jason Wong 15

Anti-money laundering and countering the financing of terrorism
- the Reserve Bank’s supervisory approach
Hamish Armstrong 25

For the record
Analytical notes 31
Discussion papers 32
News releases 33
Publications 37
Articles in recent issues of the Reserve Bank of New Zealand Bulletin 38

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ARTICLES

Monetary policy in the last business cycle: some perspectives

Willy Chetwin and Michael Reddell

Monetary policy has an important, but limited, role to play in providing a reasonably stable backdrop for real economic activity. Against that standard, the flexible inflation targeting approach that has guided New Zealand’s monetary policy for over 20 years served the country relatively well through some very testing times. The strength and length of the boom – and the associated increase in private debt and asset prices - surprised us, and most other economists. And just how tepid the recovery over the past three years has been is perhaps even more of a surprise.

Constant awareness of the top of the inflation target range meant that inflation was kept broadly in check during the boom and, once credit demand abated and resource pressures eased, official interest rates were able to be cut sharply, and kept very low for several years without jeopardising credibility. Monetary policy was able to adapt quite quickly to changing circumstances once those changes were recognised. But understanding quite what is going on is a particular challenge for forecasters and policymakers when things are happening that have not been seen before – that is so whatever the approach taken to monetary policy.

In a world of huge uncertainty, hindsight typically allows one to see where things might have been done differently. For example, during the expansion from 2001 onwards, interest rates should probably have been kept higher and raised sooner. What is less clear is how much different the cycle might have been if we had done that (and the Reserve Bank might have faced quite harsh criticism had it adopted such an approach).

Excesses and imbalances built up during the boom have probably contributed to the very weak recovery from the 2008/09 recession. But plausible alternative monetary policy stances during the boom years might have dampened the accumulation of debt only a little, and a tougher monetary stance earlier might have increased the already uncomfortable degree of pressure on the real exchange rate. The details of every country’s experience differ, but the disappointing nature of the recoveries in numerous other advanced economies probably cautions against attributing too much to specific New Zealand monetary policy choices. And whether, for example, macro-prudential instruments can do much to dampen future large credit-financed booms remains an open question.

1 Introduction

The economic cycle from 1998 to 2011 was described in an article in the March 2012 Bulletin (Chetwin, 2012). This article looks at monetary policy and the challenges the Reserve Bank faced. Setting out some of the issues and challenges about this period should help to better understand the role monetary policy played and the impact of the choices that were made. We do not attempt to distill general lessons, but the way the past is understood inevitably influences the way contemporary challenges are approached.

2 Some important features of the period

Consumer price inflation was kept in check

Monetary policy did the most important thing that was asked of it: CPI inflation, and expectations of future CPI inflation, were kept relatively low. The average rate of headline CPI inflation was 2.5 percent.

Headline inflation fluctuated quite a lot. In 1999, for example, the headline inflation rate was negative for several quarters, and during the review period there were four separate occasions when headline inflation rose above 3 percent (figures 1 and 2).

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1 The authors are grateful to a number of colleagues for helpful comments and conversations, especially Tim Ng, Bernard Hodgetts and Yuong Ha.
The inflation targeting approach to monetary policy has always been constructed to expect, and to expect to accommodate, significant fluctuations in headline inflation. There are lots of shocks, and relative price changes, that monetary policy should not try to offset. For example, the GST increase in 2010 lifted prices across the board.

Figure 1 shows that fluctuations in prices of tradable goods and services were the source of most of the variation in headline inflation, including three of the four episodes in which CPI inflation rose above 3 percent. In turn, two factors accounted for most of the swings in tradables inflation: oil prices and the exchange rate. World oil prices are, of course, beyond New Zealand’s control – and rose very (and unexpectedly) rapidly during the last decade. The exchange rate tends to rise (fall) when New Zealand’s economic conditions improve (worsen) relative to those abroad. All else equal, the relatively low exchange rate in the first few years of the period held up tradables inflation, while in more recent years the exchange rate has tended to dampen tradables prices.

The inflation rate for non-tradable goods and services was much more persistent. Indicators of the core or persistent component of inflation (figure 1) averaged in the upper half of the target range and, if anything, trended gradually upwards during the boom. Core inflation was higher than we would have liked during the later boom years. As discussed later in this article, that was largely because we (and other forecasters) were slow to recognise just how much pressure on resources had built up, and were too ready to assume (and forecast) that prevailing interest rates would see those pressures abate. With different forecasts, it is likely that policy would have been set differently, and CPI inflation would have averaged a little lower.

Survey measures of inflation expectations – even the more medium-term 2 year ahead measure – typically rose a bit when headline inflation spiked, but they quickly fell again as the inflation spikes passed. The Reserve Bank typically set policy on the assumption that the spikes in headline inflation would not materially alter underlying wage and price-setting behaviour, but had to constantly check that this judgment remained appropriate. Over the period to about 2006, expectations of future inflation trended upwards, consistent with the increase in the target range in 2002, and the higher average inflation outcomes.

Financial conditions matter

The Reserve Bank sets the Official Cash Rate (OCR), the overnight rate we pay to financial institutions holding accounts with us. Financial institutions and markets stand between the Reserve Bank’s actions and the behaviour of firms and households.

For example, when markets expect that the OCR will fall over the coming few years, as they typically do when monetary policy is tight, longer-term interest rates will be lower than the (overnight) OCR. In that sort of environment, mortgage borrowers tend to gravitate towards fixed rate mortgages with lower headline interest rates. Changing...
the OCR still changes borrowing costs for people taking on a new two year fixed mortgage, but only to the extent that the change in the OCR affects expectations about where the OCR will go over the next couple of years.

The state of competition in the banking industry also matters. When times are good and credit and asset prices are growing strongly, margins between lending and deposit rates tend to narrow (and lending standards might ease). In that climate, any given level of the OCR will exert less disinflationary pressure (lending rates will be lower) than might be the case in more normal times.

Borrowers and lenders both approached things differently late in the boom than they had been doing at, say, the end of the 1990s. Credit growth began to pick up in the early 2000s. As the credit boom reached its peak – at different times for different sectors (see figure 3) – lending margins were narrowing, offshore investors were keen to take advantage of New Zealand’s high interest rates, markets were pricing in future policy easing, and lending standards were easing to some extent. Lenders were eager to increase their loan books, and each wanted to at least maintain its market share. And rising asset values themselves affected both lenders’ and borrowers’ behaviour. From the lenders’ perspective, rising asset values made them more comfortable about the value of their collateral. From the borrowers’ side, rapidly rising property prices seemed to fuel expectations of continued strong asset price growth. To the extent that was so, any particular interest rate seemed less burdensome than it might have done when asset prices were more stable. All else equal, the OCR had to be pushed up more than otherwise to get the necessary traction.

New Zealand banks had long had ready access to offshore funding and hedging markets. But at the height of our boom in particular, when global yields were quite low, there was a high appetite for assets appearing to offer higher yields, such as New Zealand dollar assets. That demand tended to lower medium-term interest rates in New Zealand a little (the expected future path of the OCR remained the main influence) and to push up the exchange rate.

Since the crisis and recession, things have worked differently. For example, as another article in this issue highlights, bank funding costs have risen very substantially relative to the OCR. A combination of market and regulatory pressure meant banks needed to rely more heavily on long-term wholesale funding and retail funding. The OCR is no longer a reasonable proxy for a bank’s cost of funds, and in setting the OCR we have had to take the new (and variable) wedge between the two into account. Because of the increased funding margins, for example, the cuts in the OCR had to be particularly deep – 5.75 percentage points in 10 months from July 2008 (a greater cut than in other advanced economies) – to secure the desired reduction in retail interest rates (figure 4). Even then, at the height of the crisis additional measures (liquidity support and government guarantees) were targeted directly at ensuring that banks were confident in their access to funding.
Easy access to offshore wholesale funds is no longer something that can simply be taken for granted, in a way that it was in the decades prior to the crisis. Ebbs and flows in market access are now something the Reserve Bank needs to pay considerable attention to in setting the OCR. And in recent years, expectations of future asset price increases have dimmed considerably, reinforcing the downturn in credit demand.

Fiscal policy matters

Until about 2005, fiscal policy was playing a mildly contractionary role. The government accounts were moving into increasing structural surpluses, slightly easing pressure on monetary conditions. Then discretionary fiscal policy shifted and became strongly stimulatory for several years. Of course, by 2005-2008 the real exchange rate was already high, and there had already been several years of considerable pressure on resources (the output gap over that period is now estimated to have been around 3 percentage points of potential GDP).

Higher spending and tax cuts were reasonably well foreshadowed, so the Reserve Bank could take them into account in setting monetary policy. But that still meant the OCR had to be set higher than otherwise, to make room for the expansionary fiscal policy if a further increase in the rate of inflation was to be avoided. That, in turn, tended to push the exchange rate even higher.

The shift in fiscal policy meant that the structural surpluses started quickly shrinking and then turned into quite deep structural deficits (especially once allowance is made for the contribution of the unusually high terms of trade to government revenue). The progressive shift from surplus to deficit probably supported demand during the recession in 2008 and 2009 – at a time when interest rates were being cut deeply and the exchange rate was falling sharply. All else equal, however, large fiscal deficits have more recently probably been holding the exchange rate higher than it otherwise would have been. The planned shift back to surplus over the next few years should ease the pressure on the exchange rate a little.

In deciding fiscal policy, governments will always have a range of competing priorities. But adjustments to fiscal policy need to take full account of the likely monetary policy implications, and the implications for economic imbalances. The government recently announced its intention to amend the Public Finance Act to include adding a reference formally requiring governments to consider the effects of their fiscal strategy on the broader economy. That recognises the importance, wherever possible, of consistency in macro-economic policy settings.

3 Flexible inflation targeting: managing risks to the policy objectives

Over the 20 or so years prior to the recent global recession, economic outcomes in many advanced countries had been surprisingly stable, more so than in earlier decades. The reasons for this so-called “great moderation” are not well understood, and the recent severe global recession has forced some rethinking. But whatever the full story, better and more transparent monetary policy regimes, focused on delivering a stable medium term rate of inflation, probably contributed.

Monetary policy has an important, but limited, role to play in providing a reasonably stable and predictable backdrop against which the real activity of the economy can take place. The best monetary policy in the world will not remove the underlying variability in the real economy (arising from things like technology changes, relative prices change, swings in migration that change population growth rates, changing attitudes to risk etc).

Uncertainty as a source of risk: forecasting activity and inflation pressure

Monetary policy takes considerable time to affect the economy (typically perhaps 12-24 months to have the bulk of the effect). In setting monetary policy we take a view on where the economy is right now (without full data) and what pressures on inflation are already in train. But we also try to take a view on how the economy and inflation pressures will develop over the next couple of years.
The Reserve Bank’s record as a macroeconomic forecaster has been as good as any and better than most, including during the peak boom years of the most recent cycle.1 But forecasters have simply not done that well. Forecasting is particularly difficult when unusual things are happening. That affects monetary policy, whether under an inflation targeting framework or some other framework.

The so-called output gap plays a key role in how central banks think about monetary policy. The output gap attempts to summarise the degree of excess demand (or supply) in the economy, but it is not a directly observable measure. The more excess demand there is, the higher the risk of an increase in the inflation rate. Figure 5 shows our forecasts and estimated outcomes for the output gap. It shows two main things.

First, throughout the peak years of the boom, however much pressure we thought there was on resources at the time a forecast was done, we expected that degree of pressure to abate quite quickly. And second, as the boom became increasingly prolonged, we increasingly (and materially) underestimated how much excess demand and pressure on resources there was even at the time the forecast was done. For example, in mid 2007 we estimated that the output gap was less than 1 percent, whereas it now appears that it was more than 2 percent (rising to a peak around 3.5 percent).

What did we miss? Part of the story is that, with the benefit of hindsight, the sustainable potential growth rate during the boom years was lower than we had implicitly assumed. Internationally, many agencies have had to reassess their view of how much of the growth during those years was really sustainable.

But that was not the whole story. The rise in real house prices last decade was the largest in modern New Zealand history. It surprised forecasters in both its size and durability. The boom was initially triggered by the unexpected very large net inflows of migrants. Those inflows soon abated but the house price inflation did not. As the house price boom proceeded, our approach, and that of most forecasters, was to recognise the price increases that had already occurred, but to assume (and forecast) that real house prices would soon level off and perhaps begin to fall.

We also probably put less weight on the rate of credit growth than we should have done, or than we would do today. At a time when nominal GDP was rising at an average rate of around 6 percent per annum, growth in core private sector credit (to residents, excluding repos) progressively accelerated. Credit grew at 14 percent per annum in each of the last three years of the boom.

The green line shows the estimate from June 2012 Monetary Policy Statement (i.e. how we now see historical resource pressures). Each coloured line shows the forecast over a three-year horizon from the June Statement of the given year. (Those forecasts follow on from pale-grey lines showing the contemporary estimate of the historical output gap.)

Source: Statistics New Zealand, RBNZ estimates.

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1 Reserve Bank of New Zealand (2007a) notes that the Reserve Bank’s forecasting performance was generally better than the average of other forecasters, including consistently projecting stronger GDP and inflation, and tighter monetary conditions, than the average of market analysts from 2003-2007.
We were uncertain then, and remain uncertain now, quite what the steady state ratio of credit to GDP is, but such persistently strong credit growth should probably have been given more weight when thinking about how persistent the pressures on resources were likely to be.

The sharp rise in international dairy prices from late 2006 took the industry and forecasters by surprise. The higher terms of trade boosted incomes and spending power and came just at a point in the cycle when we might otherwise have got on top of the growth in demand and checked the accumulation of inflation pressures. Throughout the decade surging oil prices also repeatedly surprised international analysts. With hindsight, that mattered mainly for headline inflation, but we were constantly conscious of the risk that much higher oil prices would act as a material drag on growth, as they had done in earlier decades.

Further, although we look back now on a recovery that ran from 1998 until the end of 2007, there were several periods of surprisingly low growth. In late 2005 and into 2006, for example, the incoming data suggested that monetary policy might have got the traction it needed. GDP growth slowed markedly and with signs that momentum was slowing, markets themselves became convinced that the boom was over and that the OCR would soon be on the way down again. As a result the exchange rate fell steeply for a period in early 2006. As it turned out, the drop in growth turned out to be just a pause. Growth and inflation pressure soon picked up once again.

What did it all mean for policy? The Reserve Bank publishes forward tracks of interest rates based on our macroeconomic forecasts that would, in our judgment, keep future inflation outcomes inside the target range. We did not think we would have to raise the policy rate by as much as was ultimately required (figure 7). The OCR was raised gradually from the start of 2004 because the boom was typically expected to end quite soon. There were several periods, notably in late 2004, and from the end of 2005 when we slowed the pace of rate rises and paused to watch whether further increases might be needed.

Making sense of what was going on in the economy was not just an issue for the boom years. Since the current recovery got under way we (and forecasters and markets) have tended to overestimate both GDP growth and where the OCR would need to be set. Forward tracks of the policy rate have been revised substantially downward in the face of a surprisingly tepid recovery. Across a range of developed countries, the recovery is proving to be much weaker than anything seen in the modern historical data, despite record low interest rates. The reasons are not yet fully clear, but probably have something to do with the overhang of public and private debt built up in many countries over the last decade.

Why New Zealand’s real interest rates have typically been materially higher than those in other advanced economies remains puzzling. Whatever the actual reason, there has often been a hope and perhaps an expectation that the gap would close over time. Some hoped that having got through the first low-inflation cycle (and the associated strong credit growth and house price inflation) New Zealand might have been making that transition by around 2000. Credit growth and asset prices were quite subdued at the start of the decade.

In the way we think about monetary policy, one of the key variables is the “neutral” rate of interest – the rate of interest consistent with keeping core inflation on target when the economy is operating at potential. The neutral rate will not necessarily be constant over time. The Reserve Bank substantially lowered its estimate of neutral real interest rates (by 75 basis points) in 2002 and 2003, reflecting a period when it seemed that less interest rate pressure was needed than previously to keep inflation in

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**Figure 7**

90-day bank bill rates and Reserve Bank forecasts*

*Forecasts come from June Monetary Policy Statements of the given year.

Source: RBNZ
check. The lower one’s estimate of the neutral rate, the less stimulatory any actual interest rate will appear to be.

This change in thinking was probably partly responsible for us underestimating resource pressures during the boom. Uncertainty around the neutral rate of interest continues, compounded somewhat by the greater wedge that has developed since the crisis between short-term wholesale rates and the borrowing and lending rates facing firms and households. Our estimate of the neutral mortgage rate has been revised down since the crisis, but whether the adjustment was about right, or has been too large or small, will only become apparent with time.

One way of looking at New Zealand’s monetary policy over the period is through the lens of a “Taylor rule”. The Taylor rule is a very simple framework for thinking about where the policy interest rate should be set. A key input is an estimate of the neutral real interest rate. The policy rate should be above (below) the neutral rate if inflation is above (below) target and the output gap is positive (negative). No central bank ever sets monetary policy using just this little information, but Taylor rules have provided an informative way of thinking about how monetary policy has been set. It can be useful to think about why central banks have on occasion set policy rates very differently than a simple Taylor rule might have suggested.

**Figure 8**
90 day rates and real-time Taylor rule recommendations *

The Taylor rule is calculated using the “classic” coefficients on the output gap and inflation suggested by Taylor (1993). The output gap for each quarter’s Monetary Policy Statement is the estimate for that same quarter. The estimate of the neutral real interest rate is consistent with that used by the Reserve Bank in its forecasts. The “Core” line takes its inflation rate estimate from the Reserve Bank’s sectoral factor model of core inflation; the “Expected” line takes its inflation rate from the 2-year ahead expectations measure in the Reserve Bank’s Survey of expectations.

Source: Statistics New Zealand, RBNZ estimates

The results are striking. In particular they suggest that the OCR was set well away from the recommendations of the Taylor rule from around 2001 until around 2005. For the last few years of the boom, our monetary policy decisions were more consistent with what these Taylor rules would have recommended, at least using our contemporaneous output gap estimates. However, as already discussed there was considerably more pressure on domestic resources over 2005 to 2008 than we realised at the time. Slotting our current estimates of the output gap for that period into a Taylor rule (which is unable to see the future, and the global recession of 2008) would have called for a somewhat higher OCR still.

**Challenges for monetary policy: interest rates and the exchange rate in a small, open economy**

Monetary policy tends to be a little less controversial and generate fewer distributional concerns when New Zealand is in the same phase of the economic cycle, with similar pressure on resources, as other advanced economies. The wider world economy matters a lot for the New Zealand economy but the economic cycles are not always synchronised. In our period, New Zealand avoided the recession that the US experienced in 2001 and so when domestic demand began growing strongly it was from a base of already quite limited spare capacity.

Figure 9, overleaf, illustrates the point in a stylised way. Comparing the New Zealand output gap with an output gap estimate for other advanced economies suggests significantly greater pressure on resources in New Zealand. As a result, our interest rates needed to be raised more than in many other countries. Whereas policy rates in New Zealand had (briefly) been equal to those in the US in 2000, in more recent years (during the boom,
the bust, and the tepid recovery) that gap has been above 2 percentage points.

For any given set of forecasts for activity and inflation, there are also choices about how strongly monetary policy should react. From 1999, the Policy Targets Agreement (PTA) formalised a sense that, while focusing primarily on low inflation, we should seek to avoid unnecessary instability in output, interest rates and the exchange rate. Achieving and maintaining low inflation typically entails some necessary movements in other variables (interest rate adjustments, for example, are the prime tool for adjusting conditions to ensure that inflation remains on target).

The exchange rate dimension of this clause was a factor that stayed our hand at times during the boom. If cyclical pressures had been better aligned across

In September 2002, the inflation target was changed to ‘future CPI inflation outcomes between 1 and 3 percent on average over the medium term’.

Quite what impact some of these changes had on the actual conduct of monetary policy is less clear. It is likely that the higher inflation target led to slightly higher average inflation outcomes over time. Coming at a time when a property market boom was just getting under way, the higher inflation target may have inadvertently slightly exaggerated the boom.

The impact of the other changes is also hard to quantify. That is partly because the shocks the Reserve Bank faced in the last decade or so were different to those in the previous decade, and partly because some wording changes simply capture the way in which the Reserve Bank had already been operating. However, it is likely that the changes created room for, and an expectation of, a little more flexibility than might have been exercised previously.

Simple statistics on average inflation and the variability of other indicators cannot shed much light on the question, because of the changing mix of influences on inflation before and after the PTA change. A more robust modeling exercise is beyond the scope of this article.

### Box A

**Developments in the Policy Targets Agreement**

Under the Act, the Reserve Bank’s primary function is to conduct monetary policy to achieve and maintain price stability. The Policy Targets Agreement (PTA) between the Minister of Finance and Governor specifies operational targets and outlines some shared principles for how to pursue that target. Significant changes were made to the PTA in 1999 and 2002.

When the review period began, the inflation target was 0 to 3 percent annual inflation in the CPI excluding credit services. That target was to be pursued ‘in a sustainable, consistent and transparent manner’, and in the face of any large, temporary events affecting inflation the Reserve Bank was to focus on general inflationary pressures.

In the December 1999 PTA a clause was added saying that in pursuing price stability, the Reserve Bank ‘shall seek to avoid unnecessary instability in output, interest rates and the exchange rate’. The numerical inflation target remained 0 to 3 percent, though the target index was now the headline CPI because interest rates had been removed from the CPI credit services group.

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**Figure 9**

**Output gaps**

![Output gaps graph](image-url)

Source: Haver Analytics, Statistics New Zealand, RBNZ calculations

The exchange rate dimension of this clause was a factor that stayed our hand at times during the boom. If cyclical pressures had been better aligned across
countries, it would probably have been easier to have raised the OCR by more, earlier, since more of the adjustment burden would then have fallen on domestic sectors (the principal source of demand pressures for much of the decade) and less on the exposed tradables sector.

The pressures on the tradables sector prompted the Reserve Bank and Treasury to look at whether other tools – referred to as supplementary stabilisation instruments – could help to ease demand pressures without the same undesired effects on the exchange rate. At the time none was judged feasible, suitable and likely to be effective and efficient (Reserve Bank of New Zealand, 2007b). More recent work at the Reserve Bank and internationally has been considering whether macro-prudential tools – whose primary focus is financial stability – might have anything to offer in dampening future large credit-fuelled expansions.³

During the tightening cycle it was typically assumed that the exchange rate pressures would be relatively short-lived, and hence best avoided if at all possible. In fact the real exchange rate has remained high (on average) since 2004. The unforeseen strength in New Zealand commodity prices has clearly played a large role. More generally, the exchange rate has gone through some large swings, but our research (McDonald, 2012) suggests that most of the swings can at least be explained in terms of swings in the economic fundamentals (for example, commodity prices, and the degree of pressure on resources in New Zealand relative to other countries). Explaining the fluctuations does not make them any more comfortable.

How to balance risks: dealing with the uncertain effects of extreme events

Economic events typically unfold quite gradually, and monetary policy can react as new data confirm or refute the forecast story. But during our period there were several events that prompted OCR cuts before we had any clear sense of how the economy might react – they were, in a sense, precautionary or insurance cuts.

The terrorist attacks in the United States on 11 September 2001 were the spur for two 50 basis point cuts. In a climate of extreme uncertainty the Reserve Bank – like other central banks that reacted similarly – was concerned to limit the potentially large adverse effects on confidence and economic activity.

In a similar vein the Reserve Bank lowered the OCR by 50 bps to 2.5 percent in March last year. This was described as pre-emptive action to minimise the risk of a sustained shock to wider business and consumer confidence after the 22 February Canterbury earthquake.

In both cases business and consumer confidence measures fell – as expected – and then quickly rebounded. It is impossible to know what role the precautionary OCR adjustments themselves played because we do not know what would have happened without them. With the benefit of hindsight, both sets of moves look reasonable, but a case could be made that the 2001 cuts were reversed too slowly. In 2011, the July OCR review explicitly talked of reversing the insurance cut, but subsequently the deteriorating global situation led the Reserve Bank to conclude that an OCR of 2.5 percent was now warranted on substantive grounds, not just precautionary ones.

There has been more debate around the 75 bps of OCR cuts in 2003. Those cuts were prompted by a collection of potentially severe threats.⁴ The domestic background was mixed. The housing market was buoyant and credit was growing strongly (house price inflation was to be at its most rapid in late 2003), but this boom was not expected to continue. The exchange rate was rising, and overall pressure on resources was expected to ease (as figure 7 shows, the output gap was forecast to narrow and is still regarded as having narrowed).

The rationale for the OCR cuts was pretty clear. The more important question, perhaps, is about the speed with which those cuts were reversed once it became apparent that the domestic economy still had considerable momentum. These are difficult balancing acts: markets and the wider community do not welcome frequent changes in interest rates in opposite directions, but equally monetary policy needs to be responsive to changes in the data.

³ See, for example, Bollard, Hodgetts and Hannah (2011).

⁴ Measures of domestic confidence were weak, which was expected to mean the outlook would be sensitive to concerns about SARS, which the World Health Organisation had warned could have extremely serious global effects, to concerns about the impact of the invasion of Iraq, and to the prospect of a second year of drought and electricity shortages in New Zealand.
Flexibility: the trade-off over different horizons

Flexibility is an important dimension of modern monetary policy. But flexibility can work in both directions. The desire to avoid near-term unnecessary instability in output and the exchange rate influenced the ‘insurance’ cuts, and the pace of tightening through the peak years of the boom. As a result, the OCR was lower on average through the expansion than hindsight suggests might have been appropriate.

There might also have been an issue of how best to avoid unnecessary variability over the longer-term. What if, for example, monetary policy were to exacerbate the development of economic imbalances that are hard to address later, and that could unwind in economically costly ways. Bollard, Hodgetts and Hannah (2011) observe,

...we know that easy monetary policy, in the form of low interest rates, can interact with financial decisions by encouraging greater leverage. Whether monetary policy can moderate imbalances or lean against the dynamics of credit booms is a more complex question.

Applying this idea to the last expansion, the argument would be that a higher average policy rate could have limited the build-up of private sector leverage, property market activity, and exchange rate pressure and so sectoral imbalances. Once momentum and expectations of property price inflation built, it was harder for monetary policy to slow excessive growth in prices and demand, including in asset markets.

The relatively low interest rates over the first half of the decade probably exacerbated the credit and asset price boom, and the associated widening in the current account deficit. Less clear is how large a difference those policy choices might have made, given the population pressures, real income gains, and easy access to credit over the same period. Similarly, it is hard to determine how much any consequent additional growth in credit or asset prices will have contributed to the weak recovery in the last few years. A conventional argument prior to the global recession would have been that any domestic debt excesses would, once the boom was exhausted, be met by lower interest rates, a lower exchange rate, and a reorientation of activity to the tradables sector. That had been the experience of other countries, and indeed of New Zealand in the 1990s, in the aftermath of the 1980s corporate credit boom. But, of course, an analysis of that sort does not deal with the case in which a large proportion of the world’s advanced economies were all going through domestic credit booms at much the same time.

The same questions about the role of monetary policy in the credit and housing boom are arising in the United States without, as yet, any clear resolution. Given the degree of unease around the exchange rate pressures in the middle of the decade, it is likely that a materially tighter stance of monetary policy would have triggered quite intense criticism of the Reserve Bank. As it was, a parliamentary inquiry into monetary policy was established in 2007.

5 Towards some conclusions

Overall, New Zealand’s ‘flexible’ approach to inflation targeting, similar to that now adopted in most other advanced countries, appears to have served us relatively well through a very turbulent and difficult-to-interpret period. The Reserve Bank was able to keep core inflation relatively low and stable. Inflation drifted uncomfortably close to, or beyond, the top of the target range on several occasions. But the target range served as a valuable bottom-line check on the other judgments and assumptions the Reserve Bank makes. Headline or core inflation outcomes persistently near or above the top of the range posed unavoidable questions, and helped ensure that, even with the inevitable misjudgments about various components of our models and forecasts, interest rates were raised enough to keep inflation in check. In a sense, that was one of the big differences between our experience of the last decade, and the international experience when inflation rose persistently to unacceptable levels in the 1970s.

We – and other forecasters – have struggled to fully make sense of what was going on, both during the
Box B
The Reserve Bank Board’s oversight of monetary policy

Under the Reserve Bank of New Zealand Act 1989 (the Act), the Board of Directors reviews the Reserve Bank’s performance on behalf of the Minister of Finance. The assessment is based in part on having access to the papers and advice that inform the Reserve Bank’s decisions. Since 2001, the Board’s annual report on its assessment has been published. The Board’s comments provide a useful perspective on the challenges that the Reserve Bank has faced in targeting inflation and on how successful the Reserve Bank has been in meeting its objectives.5

Among the matters for review are the Reserve Bank’s performance in formulating and implementing monetary policy to maintain price stability, and the Governor’s performance against the Policy Targets Agreement (PTA).

In its 2011 report (Reserve Bank of New Zealand Board of Directors, 2011) the Board looked back at a 20-year span of experience. The report said that,

*Overall, the Board is satisfied that monetary policy has been implemented both in the past year and over the past two decades in a manner consistent with the requirements of successive PTAs and the Act.*

The Board’s commentary through our review period has found that the Reserve Bank operated in line with the PTA and that outcomes were consistent with those required by the Act and the PTA. In interpreting the PTA, the Board concurred with the Reserve Bank’s treatment of the numerical inflation target, including the definition of ‘medium term’. In 2005 the Board commented that a useful working definition of ‘medium term’ was a three-year horizon, and in 2007, the Board was comfortable with the Reserve Bank treating the target as requiring inflation to be comfortably within the 1 to 3 percent range over the second half of a three year forecasting horizon.

In periods when inflation was outside the numerical range specified by the PTA, the Board noted that the drivers included transitory events as well as surprisingly strong domestic pressure. In these cases, the Board suggested that the Reserve Bank’s approach was appropriate in focusing on the persistent, not the transitory, element of inflation, and in not attempting to rapidly bring inflation to below 3 percent. A stronger and more-rapid response would have worsened variability in other economic and financial variables.

That was particularly the case through the mid-2000s and into 2008. Strong pressure on productive capacity and strong international prices for commodities were at times visible, but there was a growing risk to the variability of activity from domestic imbalances and the threat of an international slowdown. In that context, the Board noted on several occasions that inflation expectations – an important determinant of the persistence of inflation – remained well anchored.

The Board also addressed questions of whether the Reserve Bank could have better foreseen coming events and responded further in advance. The 2006 and 2007 reports noted Reserve Bank research showing that the Reserve Bank’s forecasts had generally been good. The forecasts had been more accurate than private sector consensus; and forecasters generally had missed predicting the sharp rise in oil prices from 2006 that drove the spike in headline inflation.

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5 Since 2003 the Act has required that the Chairperson of the Board be a Non-executive Director. For the reports published in 2001, 2002 and 2003, responsibility for the reports was delegated by the Board to the Non-executive Directors’ committee.
boom years and subsequently during the surprisingly tepid recovery. In particular, we probably materially underestimated what level of interest rates was consistent with New Zealand macroeconomic stability in the good times, and as a result appear to have set the OCR too low for several years from 2001. Setting the OCR is our responsibility, but few, if any, observers were consistently championing the case for higher interest rates during that period.

The big swings in the exchange rate and the high average exchange rate that has now prevailed for several years have caused considerable discomfort, shifting the balance between consumers and producers in ways that have not always seemed consistent with underlying competitiveness and sustainable growth in New Zealand’s income. But commodity prices have also been relatively high, and quite volatile in recent years, and the relative strength of domestic demand pressures probably also contributed to the strength of the exchange rate.

Not many of the global or domestic imbalances that built up over recent years have yet fully unwound, and many stresses and risks remain. Against that backdrop it is still difficult to fully assess economic developments or the contribution of domestic monetary policy to them. This article is just one contribution. Internally, our own research agenda is partly focused on questions around how economic behaviour might have changed in recent years, and what, if anything, monetary policy needs to do differently. Other central banks and independent researchers are posing very similar questions, and we will also be closely monitoring their work.

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Bank funding – the change in composition and pricing

Jason Wong

Historically the Official Cash Rate (OCR) has been a good proxy for the cost of funding for banks. However, the global financial crisis of 2007-2009 and regulatory changes have had a significant impact on this relationship. The move towards banks seeking more stable sources of funding like retail deposits and long-term wholesale debt has changed the composition of funding. The price of these more stable sources of funding has also increased, driven by competition for funds and deterioration in funding market conditions. Thus, the cost of funding for banks has increased significantly relative to the OCR. We illustrate this by calculating a notional marginal funding cost indicator. These higher funding costs have been directly passed on to higher mortgage rates.

1 Introduction

Many households take great interest in mortgage interest rates, with debt servicing costs often a key component of weekly outgoings. An important determinant of mortgage rates, or indeed any lending rate for households or businesses, is a bank’s cost of funding. While other variables, such as the cost of equity, profit margins and the risks associated with lending will also have a bearing on the interest rates customers are charged, the cost of funds will be major factor.

The Reserve Bank’s key monetary policy instrument is the Official Cash Rate (OCR), but ultimately the Bank is interested in lending rates faced by households and businesses. It is these rates (along with those paid to depositors) that influence economic activity and inflation. While the OCR has an influence on the cost of funds lenders face, changes in the relationship between the OCR and lending rates have occurred in recent years which have had implications for monetary policy. Since the global financial crisis began to bite in 2008, there have been significant shifts in the way banks fund themselves, while the relative costs of accessing funds both domestically and from offshore have also changed dramatically.

This article focuses on the changing composition of bank funding, the costs of funding and their impact on lending rates. Section 2 highlights the changed relationship between mortgage rates and short-term wholesale rates. Section 3 looks at the composition of bank funding and how it has evolved since the global financial crisis. Section 4 looks at the cost of funding from various sources. In section 5 we introduce a notional marginal funding cost indicator that captures a weighted average of funding costs. Our conclusions are highlighted in section 6.

2. The changed relationship between mortgage rates and short-term wholesale rates

Figure 1 shows the relationship between mortgage rates and short-term wholesale rates since 2000. Prior to 2008, there was a steady relationship between the floating mortgage rate faced by new borrowers and the 90-day bank bill rate, with the difference fluctuating in a tight range. The same can be said for the difference between the 2-year fixed rate mortgage rate faced by new borrowers and the 2-year swap rate. Prior to the global financial crisis, which intensified during 2008, these domestic wholesale rates were a good indicator of a typical bank’s cost of funds.
From about 2008, the difference between mortgage rates and short-term wholesale rates steadily increased, and over the last couple of years the difference has settled at a higher level.

A casual observer might conclude that mortgage rates have increased relative to wholesale rates and that the banks’ profit margins have also increased. However, the reality is that the composition and cost of bank funding has changed. It is no longer appropriate to proxy bank funding costs by a simple observation of the 90-day bank bill rate (for a floating mortgage) or the 2-year swap rate (for a 2-year fixed rate mortgage).

As figure 1 shows, the period of adjustment to this relationship was 2008-2009, a time of significant financial market turmoil. This provides a clue as to why the relationship has changed and whether or not it is reasonable to view it as temporary or permanent. A closer look at how banks fund themselves and the change in the regulatory environment over recent years provides some answers.

### Bank funding composition

In practice, banks have a diverse funding base but it can be broken down into some key components – capital, deposits, short-term wholesale debt (defined as debt maturing within one year) and long-term wholesale debt (defined as debt maturing beyond one year). The composition of bank funding over time is illustrated in figure 2, with the data sourced from the Reserve Bank’s monthly Standard Statistical Return.

Banks must meet regulatory capital ratios. While equity or capital represents a source of funding, capital ratios tend to be fairly stable over time and make up a small proportion of total funding. The cost of capital may have an impact on lending rates. However, in this paper we are interested in the more variable sources of funding and in the rest of the paper we ignore the capital component.

Before the global financial crisis, short-term wholesale debt was the largest source of bank funding, making up about half of total funding in the five years leading up to the financial crisis. Historically, the majority of short-term wholesale funding (around two-thirds) had a residual maturity of between two and 90 days. Most of this short term debt was issued offshore, primarily in the US commercial paper (CP) market.

The ratio of short-term wholesale debt funding to total funding has been declining steadily over recent years. At the beginning of 2009, short-term wholesale debt funding made up around 49 percent of the total and by the end of April 2012 the ratio had declined to 34 percent. Short-term wholesale debt funding has been replaced with retail deposits and long-term wholesale debt funding. Retail deposits and long-term wholesale debt funding are both considered “stickier” and more stable sources of funding. There are a few reasons for this shift towards more stable sources.

Firstly, the global financial crisis highlighted the vulnerability banks face when relying heavily on short-term wholesale markets as a source of funds. Under normal
market conditions, banks had been able to easily roll over short term debt in the highly liquid US CP market. But during the global financial crisis, market conditions became extremely illiquid. This saw funding markets become essentially frozen with the cost of rolling over short-term debt, even for very short periods, becoming prohibitive – a situation that had not been experienced before in recent history. This turn of events led banks globally to reassess the funding risks posed by considerable heavy reliance on short-term debt markets and the inherent rollover requirements.

Secondly, market pressures were another source of motivation for banks to consider more stable sources of funding. Investors, rating agencies, and banks quickly became attuned to the merits of a more stable funding base. Banks needed to find more stable sources of funding to earn the confidence and support of investors.

Thirdly, regulatory pressures also compelled banks to adopt more stable sources of funding. Following consultations with the banks during 2008, in June 2009, the Reserve Bank announced the introduction of a minimum core funding ratio of 65 percent in April 2010, with an eventual target of 75 percent. The core funding ratio (set out in the Reserve Bank’s liquidity policy document BS13), is defined as the ratio of the banks’ core funding to their loans and advances. Core funding includes tier one capital, the majority of retail deposits, all wholesale funding with a residual maturity of more than one year and half of wholesale debt funding with a residual maturity of between six months and one year (for bank debt issued with an original maturity of at least two years).

All of these three factors have encouraged banks to seek more stable sources of funding, and this has seen a rising ratio of retail deposits and long-term wholesale debt within the funding mix since 2008.

The current largest source of funding is through retail deposits, with this component making up 47 percent of total funding as at the end of April 2012. Retail deposits include on-call cheque, transactions, savings and term deposit accounts. Of the $171 billion of retail funding for New Zealand banks as at the end of April 2012, about 43 percent were on-call funds. Approximately 52 percent of deposits had residual maturities of between two days and one year, while only 5 percent of bank retail deposits were for residual maturities exceeding one year. In other words, almost all retail deposits have short terms, with 95 percent maturing within a year. Despite the short contractual maturity structure, in practice bank customers tend to retain a high proportion of funds with the bank when they ‘mature’, a feature that contributes to their ‘stickiness’.

Within retail deposits, since 2007 there has been a slight increase in the ratio of term deposits, at the expense of on-call funding. And since 2008, within the retail term deposit mix there has been a slight increase towards terms of more than one year. This is likely to reflect the positive shape of New Zealand’s yield curve since the global financial crisis, which has encouraged investors to achieve the term premium on offer.

Long-term wholesale funding can be split into domestic debt issues and foreign currency debt issues, as illustrated in figure 3.

Domestic long-term wholesale debt issues have historically been a small and relatively stable component of total funding, with a ratio of 3.5 percent as at the end of April 2012. Foreign currency long term wholesale debt issues became a much larger component of total funding after the global financial crisis, with a ratio of 9 percent as at the end of April.

**Figure 3**

Long term wholesale funding (ratio to total funding)

Increased foreign currency debt does not expose banks to extra risks like currency volatility because the debt is always fully hedged. The cost of issuing foreign
currency debt and hedging the exposure is greater than issuing domestic debt, as we highlight in the next section, but cost is a secondary issue for banks.

There is a limited pool of savings in New Zealand and therefore a limited appetite for local investors to consider investing in long-term wholesale bank debt. Banks that seek longer term debt issues are effectively forced to attract overseas investors and this usually means issuing in foreign currency. A widening of the investor pool by seeking overseas funding enables the banks to diversify funding risk.

The introduction of covered bonds has helped banks attract overseas investors. Covered bonds are debt securities backed by the cash flows from a specific pool of mortgages or other loans. They differ from standard bonds in that investors have specific recourse to the assets that secure (“cover”) the bonds in the event of default, as well as retaining a claim on the residual assets of the issuer. Investors in covered bonds are more risk averse than investors who hold unsecured debt. Therefore, the issuance of covered bonds has helped banks attract a wide pool of investors that would not have otherwise considered investing in New Zealand bank debt.\(^2\)

The other benefit of covered bonds is that banks can typically issue longer term maturities, say between five to 10 years. This helps extend the term funding for banks. Unsecured debt issues are more typically for a three to five year maturity. The shift towards foreign currency long term debt funding has not only helped banks to secure more stable sources of funds but has also helped them extend the term of funding and, at the same time, diversify their investor base.

4 Cost of funding

The cost of funding is a key driver of lending rates. In this section we ignore any changes to the cost of equity, which might have affected lending rates. Capital makes up a small proportion of total funding and our focus in this paper is the cost of funding driven by deposit rates and wholesale funding rates.

The behaviour of deposit rates and wholesale funding rates has changed over recent years. The onset of the global financial crisis drove a significant deterioration in liquidity, resulting in higher and more volatile interest rates in wholesale debt markets. Deposit rates were less affected during that time. As the sense of crisis dissipated, volatility reduced but the cost of more stable sources of funding remained elevated. The previous section highlighted the changing composition of bank funding over recent years. This compositional shift has had an additional significant impact on the overall cost of funding. In this section we explore these forces on pricing.

From a Reserve Bank perspective, our focus is more on the cost of funding relative to the OCR rather than the absolute cost of funding itself. The Reserve Bank can influence the absolute cost of new funding by changing the OCR. But the Bank has little control over, say, the spread between deposit rates and the OCR, or the spread between long-term wholesale bank debt rates and the OCR. These spreads are important determinants of lending rates. To control lending rates, the Reserve Bank must take account of these spreads when setting the OCR.

Unless otherwise noted, the rest of this article uses the term “cost of funding” to represent the relative cost of bank funding to the OCR (or some other short-term interest rate) rather than the absolute cost of funding itself.

Deposits

As noted in section 3, deposits are now the largest source of funding for local banks. We also noted that “on-call” funds make up a little under half of total deposits, with the rest spread over various terms, but mainly short-terms (less than one year).

Figure 4 illustrates, for various maturities, the spread between retail deposit rates and wholesale interest rates for the four major local banks. For three and six month wholesale rates we use 90-day and 180-day bank bills and for the one and two year rates we use swap rates.

\(^2\) The Reserve Bank imposes a regulatory limit to the issuance of covered bonds by New Zealand banks of 10 percent of the total assets of an issuing bank, with this limit calculated on the value of assets encumbered for the benefit of covered bond holders.
When we look at even shorter tenors, spreads between retail rates and wholesale rates are even lower, as illustrated in figure 5. Just prior to the GFC, banks were offering highly unattractive rates for one month term deposits, some 500 basis points below the comparable one month bank bill rate.

Compared to term deposit rates, banks have not tended to “pay-up” for on-call deposits. We currently estimate that the average rate paid by banks for on-call deposits remains slightly below the official cash rate. It is worth noting that over the last couple of years, we have seen banks offer more inducements to attract on-call money, by offering attractive bonus interest rates. These typically come with conditions attached (such as high rates only earned when no withdrawals are made during a month).

What caused the structural break in the series? The reasons are largely the same as those behind the changing composition of bank funding. Banks can no longer rely on short-term wholesale debt as a source of cheap funding, in a post GFC world, given market and regulatory pressures. The demand for more stable sources of funding has pushed up their cost. Banks must now offer higher retail term deposit rates to attract this desired, more stable source of funding.

The pricing indicators reveal that banks have a preference for longer-maturity term deposits compared to very short-term tenors. In Figure 4 above, the spread between deposits and wholesale rates at the three-month tenor was the lowest compared to longer tenors. This is the case both before and after the GFC. In other words, banks do not seem willing to “pay up” for three month term deposits, reflecting their short tenor and, no doubt, administrative costs for marginal gain in duration of funding.

When we look at even shorter tenors, spreads between retail rates and wholesale rates are even lower, as illustrated in figure 5. Just prior to the GFC, banks were offering highly unattractive rates for one month term deposits, some 500 basis points below the comparable one month bank bill rate.

Compared to term deposit rates, banks have not tended to “pay-up” for on-call deposits. We currently estimate that the average rate paid by banks for on-call deposits remains slightly below the official cash rate. It is worth noting that over the last couple of years, we have seen banks offer more inducements to attract on-call money, by offering attractive bonus interest rates. These typically come with conditions attached (such as high rates only earned when no withdrawals are made during a month).

Figure 5
Spreads between term deposits, the on-call rate and wholesale rates
(Average of 4 major banks, 4-week moving average)

Source: interest.co.nz, RBNZ

The Reserve Bank’s surveyed series of the on-call rate was discontinued in 2009. In this analysis we have estimated the on-call rate from 2009 onwards. There is now a proliferation of on-call accounts, ranging from zero interest cheque accounts to transaction accounts paying a small interest rate to savings accounts that offer very attractive bonus interest rates. Given this, it is difficult to measure an overall weighted average on-call deposit rate.
**Short-term wholesale debt costs**

The absolute cost of bank funding in short-term wholesale markets can be proxied by one month or three month bank bill rates. The relative cost of short term funding to the OCR can then be determined by the spread between the bank bill rate and the overnight indexed swap (OIS) rate over the same term, which provides an indication of the expected future level of the OCR. The three month OIS rate, for example, measures the expected OCR rate over the next three months.

Figure 6 shows the spread between the three month bank bill and OIS rates, as a proxy for the cost of raising short term wholesale funds relative to the cash rate. Between 2003 and mid-2007, the spread traded in a fairly tight range, averaging 19 basis points.

From mid-2007, as the global financial crisis got underway, the spread became much more volatile and exploded upwards, reaching a peak of around 120 basis points in October 2008. Between mid-2007 and the end of 2008, the spread averaged 49 basis points. Since mid-2009, the spread has settled back down towards a more normal level, helped by the significant injection of liquidity by the major central banks. More recently, there was a mini-spike up in late 2011, as the European debt crisis intensified, with heightened risk of a Greece sovereign debt default at that point. But very easy global liquidity conditions have helped contain the spread at a modest level through 2012.

**Figure 6**

Spread between 3-month bank bill and OIS rate *(basis points)*

**Long-term wholesale costs**

Indicative trends in long-term wholesale debt funding costs can be gleaned from a number of indicators. A number of previously issued bank bonds trade on the secondary market. Although this market is not particularly liquid, trends in the pricing of these bonds – based on either actual trades or indicative pricing provided by market makers – are useful proxies for long-term wholesale funding costs.

We constructed time series of yields of bank issued debt traded in the secondary market, focusing on maturities within 3-7 years, to provide trends in long-term wholesale funding costs. We split the sample into domestically issued bonds and those issued in US dollars and show the series on a spread-to-swap basis. These time series are illustrated in Figure 7.

In that figure we’ve included another indicator. With New Zealand’s four largest banks owned by Australian parents, trading in the parents’ credit default swap (CDS) spreads can be another useful indicator of trends in funding costs. Credit default swaps are widely traded derivatives. A buyer of a five year CDS contract in a bank (or other entity) makes a periodic payment to the seller of the contract in return for the promise of compensation should that bank (or other entity) “default” over the next five years. They can be useful as hedging instruments and the quoted CDS “spread” is a useful proxy for the cost of long-term debt for the bank or entity to which the contract refers.

In Figure 7 we include the average CDS spread for the four major Australian banks as one of our indicators of long-term wholesale debt funding costs.

Our analysis suggests that the cost for banks of issuing long-term debt was low and stable over the period from 2003 until the GFC began to hit from mid 2007. After Lehman Brothers filed for bankruptcy in 2008, implied long-term funding costs of USD-issued debt rose markedly. Domestically issued debt and CDS pricing was also significantly affected at that time, albeit less so.
At the time of writing, these indicators of long-term funding costs remained high by historical standards. Note that these indicators do not reflect actual funding costs but are indicative in nature. That is, they are a notional proxy for the cost of borrowing at a given point in time. The issuance of long-term debt tends to be infrequent and in large, lumpy amounts. Banks often have the ability to sit out periods of disruption in markets, such as in late 2008 during the GFC (when term funding needs were partly met through recourse to the Reserve Bank’s Term Auction Facility) and in late 2011 during the European debt crisis. No local bank actually issued USD bank debt around the time of the Lehman’s bankruptcy when the notional cost of term funds spiked up significantly.

In practice, actual funding costs (sometimes referred to as the “landed cost of funds”) tend to be higher than the levels shown in figure 7 at times when the banks are issuing debt. New issues are typically dealt at a premium, say 10-25 basis points, to the secondary market to attract investors. Paying brokerage for domestic issues and dealers’ margins also adds to the cost of issuing long-term bank debt.

A rising, and now substantial cost, for overseas debt issues is the cost of hedging cashflows back into New Zealand dollars so that banks avoid taking on any undesired currency exposure. At the same time as banks issue debt in an overseas currency they enter cross-currency basis swap agreements for the same tenor which eliminates any currency risk. For example, a bank issuing 5-year debt in euros would, at the same time, enter into 5-year cross currency basis swap agreements. Typically, this would involve an agreement to convert euro exposure into US dollars and another agreement to convert US dollar exposure into New Zealand dollars. Obviously, for debt issued in US dollars, only one cross currency basis swap agreement is needed.

There is an active market for long-dated cross currency swaps and the price faced by New Zealand banks to hedge their foreign currency debt at issuance can be illustrated by Figure 8.

It shows, for example, that if a bank issues five-year debt in Euros and wants to fully hedge all the cashflows over the period (including repayment of principal), then another 100 basis points is effectively added to the “landed cost” of that debt. This cost of hedging currency exposure has increased tremendously over recent years. Prior to the GFC the cost of hedging was low.

Figure 7
Indicators of long-term wholesale debt funding secondary rates (basis points)

![Figure 7](Source: RBNZ, Bloomberg)

Figure 8
5-year cross-currency basis swaps (basis points)

![Figure 8](Source: Bloomberg)

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4 A cross-currency basis swap agreement is a contract in which one party borrows one currency from another party and simultaneously lends the same value, at current spot rates, of a second currency to that party. During the contract, floating rates of the two currencies are exchanged and one party will, in addition, pay a fixed spread or the so-called “basis”, a constant figure which is determined at the start of the contract and the price of which is determined by the supply and demand for the two currencies.

5 The Reserve Bank’s Financial Stability Report, May 2012 (page 12) has a discussion of developments in basis swap markets and why the cost of hedging has increased.
Figure 8 is only indicative of trends and significantly understates the actual cost of hedging, as other transaction costs are involved.\(^6\)

5 Calculation of an indicative marginal funding cost indicator

The previous sections have looked at some of the key components that make up the overall cost of bank funding. In this section we put it all together to produce an overall measure of funding costs. Rather than a measure of average funding costs, we are most interested in an indicative “marginal” funding cost indicator, as this is likely to have a major bearing on bank pricing behaviour. A bank pricing its loans would typically put more weight on its marginal funding costs than average funding costs. By marginal, what we have in mind is some sort of “smoothed” cost – not necessarily reflecting the last dollar raised – for example, the average cost of raising funds over the last few months. This is an important concept in determining the weights when aggregating funding sources.

Before we describe our aggregate funding cost indicator, it is interesting to compare the different sources and their costs of funding. To make them comparable, we measure their cost relative to the OCR.\(^7\) Figure 9 illustrates the various components.

The short-term wholesale debt cost indicator is the same as mentioned above – the three month bank bill rate less the three month OIS rate. Despite the spike up and increased volatility during the GFC, compared to the other two funding sources, short-term wholesale debt funding costs appear more stable. As at the end of May, the cost of raising short-term wholesale debt was about 20 basis points above the expected OCR rate.

For retail funding, because of their substantial difference in pricing, we illustrate on-call deposits and term deposits separately. As the weights between these two sources don’t change a great deal we use constant weights of 40 percent for on-call deposits and 60 percent for term deposits in our calculations for our overall funding cost indicator. As most of the term deposits are for short terms, we use the six month term deposit rate in our calculations. Recognising the changed regulatory landscape, with deposits a more sought after source of funding, from 2009 we have added a 30 basis points spread to our term deposit rate series. This recognises that the six month term is not always the best rate offered, with investors tending to flock to the best short term rate.

Retail deposits used to be the cheapest source of funding until early 2009, before the regulatory changes encouraged banks to move to more stable sources of funding, increasing their relative price. At the end of May we estimated that retail deposits cost about 120 basis points in excess of the expected OCR, reflecting on-call rates that were about 20 basis points below the OCR and a term deposit funding spread of 220 basis points.

Figure 9
Indicative marginal funding costs relative to OCR
(basis points)

The long-term wholesale debt funding cost indicator combines the domestic and US dollar long term funding cost indicators. Prior to early 2009 we use an equal weight, reflecting similar proportions of total funding from these two sources. From early 2009, we assume that more than 80 percent of long-term wholesale funding is done in the offshore US dollar market. This reflects the limited ability

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\(^6\) Issuing debt in euros, for example, involves other transaction costs such as swapping 6-month cashflows into 3-month cashflows (currently around 20 basis points), extra costs taking into account the convexity of different yield curves and the “crossing the spread” throughout the required layers of transactions. The cost of hedging recent European debt issues has been closer to 150 basis points once these are taken into account.

\(^7\) Strictly speaking, we use the 3-month OIS rate in most of our calculations, which measures market expectations of the OCR in 3-months time.
of banks to issue long-term domestic debt in New Zealand because of the limited pool of investors. Data limitations mean that we don’t include the euro market. Historically, only a small proportion of debt was raised in that market, but it has become a more important source, particularly since the introduction of covered bonds. Going forward we would look to include debt raised in Europe for our funding cost indicators.

To generate the marginal cost of funding indicator for long-term debt we use our secondary market spread-to-swap series, and add estimates for the cost of hedging and new-issuer premiums. To make it comparable to the OCR, we add the short-term wholesale cost indicator.

As at the end of May, we estimate that the cost of issuing long-term debt in the domestic market and US market was about 240 basis points over the OCR – the most costly form of funding for banks.

Putting together these three main sources of bank funding, we can create an overall indicative measure of marginal funding costs relative to the OCR. A key judgment in creating the series is what weights to apply to the various sources of funding. As the funding mix was relatively stable prior to the regulatory changes on the core funding ratio, we use the average funding mix for the period through to March 2009. From that date on, we assume that banks anticipated the regulatory changes proposed and upped their funding mix towards more stable sources. Thus for retail deposits, the assumed funding mix increases from 42 percent in the early period to 60 percent from March 2009 and increases from 6 percent to 20 percent for long-term wholesale funding (in the USD market rather than the constrained domestic market). For short-term wholesale debt, the funding mix reduces from 52 percent in the earlier period to 20 percent.

Figure 10 shows the weighted indicative marginal funding cost indicator relative to the OCR. It shows that before late 2008, banks could fund at a rate below the OCR. Our estimates suggest that from 2002 until Lehman Brothers filed for bankruptcy, banks could fund at an average rate of 60 basis points below the OCR. The GFC was a game changer and, combined with new regulations for banks to seek more stable sources of funding, funding costs rose markedly to a new level.

Our model suggests that from mid 2009 until May 2012, indicative marginal funding costs have averaged 110 basis points above the OCR, or an increase of 170 basis points from the pre-GFC days. Focusing on the recent period, funding costs have increased from about the third quarter last year as the European debt crisis developed. As access to long-term debt in offshore markets has become more difficult and expensive, banks have competed for retail deposits, putting upward pressure on their funding margins. Our estimate as at the end of May for overall indicative marginal funding costs was about 130 basis points over the OCR.

Figure 11, overleaf, shows the absolute level of our indicative marginal funding cost indicator against the OCR itself. It clearly shows how indicative funding costs tracked below the OCR prior to late 2008 and now track well above the OCR.

The implications for lending rates are clear. Figure 1 showed how lending rates had jumped up relative to wholesale interest rates from around 2008. This upward shift in the margin between lending rates and wholesale interest rates can be explained by the rising cost of funding relative to the OCR, as illustrated in Figure 12. This shows the relative stability between the floating mortgage rate and the 90-day bank bill rate in the pre-2008 period, matching the relative stability in our marginal funding spread indicator. Both series rose during 2008-2009 and have both since stabilised.
Conclusion

The OCR is an important driver of the cost of funding for banks. Before the global financial crisis began to bite in 2008, there was a relatively stable relationship between the OCR and overall bank funding costs. This implied a relatively stable relationship between the OCR and floating mortgage rates.

The period of 2008-2009 was a game changer. Banks learned first hand about the vulnerability created by relying too much on short-term wholesale funding markets. In addition, markets reassessed the risk of investing in banks and regulators around the world, including the Reserve Bank, took action to encourage banks to seek more stable sources of funding.

Since that time banks have reduced their reliance on short-term wholesale funding markets and increased their exposure to long-term funding sources and retail deposits as part of the total funding composition. This trend has created a stronger, less vulnerable, financial systems, but it has come at a cost. Competition for retail deposits has driven up their cost and longer-term debt is more expensive to source, owing to the term premium as well as the deterioration in market conditions.

During 2008-2009 there appeared to be a ‘step-up’ in funding costs relative to the OCR. Since then, this funding spread appears to have stabilised again, at the higher level. We demonstrated this by calculating a notional marginal funding cost indicator based on historical data. This does not represent the true cost for banks. Bank funding is a highly technical and intensive process and our model is relatively simple. Our calculations should be seen in that light, as indicative of the trends in funding costs, than a true and accurate measure of actual bank funding costs.

We showed that relative to the pre GFC era, bank funding costs relative to the OCR have increased in the order of 170 basis points. This extra cost of funding has fed directly into mortgage rates. It is important to note, however, that in implementing monetary policy, the Reserve Bank has attempted to take the higher funding costs into account. Thus the OCR over this period has been lower than would have been the case if previous interest rate relationships had persisted.

The relationship between the OCR, funding costs and mortgage rates is an ongoing topic for research by the Reserve Bank. The Bank continues to monitor funding markets and interest rate relationships which are a key input into the monetary policy setting process.
Anti-money laundering and countering the financing of terrorism – the Reserve Bank’s supervisory approach

Hamish Armstrong

In September 2010, a Bulletin article set out the Reserve Bank of New Zealand’s role and responsibilities with regard to the Anti-Money Laundering and Countering Financing of Terrorism Act 2009 (“the Act”). It briefly explained the regulatory and supervisory framework established by the Act, discussed the Reserve Bank’s risk-based approach in this context and outlined some of the major areas of work to be undertaken to develop and implement the Reserve Bank’s supervisory framework.

This article updates material that has been published since that article and provides further detail on the Reserve Bank’s proposed supervisory approach.

Introduction

Money laundering is the way criminals disguise the illegal origins of their money. Financers of terrorism use similar techniques to try and avoid detection by authorities and to protect the identity of those providing and receiving money for funding acts of terrorism. Under the Act, the Reserve Bank is one of three supervisors tasked with ensuring firms comply with new obligations designed to help deter and detect money laundering and terrorist financing.

AML/CFT Regime / Environment

During the past 18 months, the regulatory environment with respect to Anti-Money Laundering and Countering Financing of Terrorism (‘AML’) in New Zealand has developed significantly with the publication of several regulations and guidance. Many key thresholds and exemptions have now been set or clarified and, importantly, the date for full implementation of the Act has now been set as 30 June 2013.

National and Sector Risk Assessments

In March 2011, the NZ Police published a National Risk Assessment (‘NRA’). This contains information about money laundering and terrorist financing issues at a national level and from a law enforcement perspective. The three AML supervisors1 issued their Sector Risk Assessments on 29 March 2011. The Reserve Bank’s Sector Risk Assessment complements the information in the NRA and contains the Reserve Bank’s preliminary assessment of the level of risk of money laundering and terrorism financing across all the sub-sectors it supervises.

Regulations

On 30 June 2011, four sets of AML regulations were promulgated. These regulations are administered by the Ministry of Justice. The three AML supervisors, along with NZ Customs and the NZ Police, were consulted extensively during the policy development and drafting.

The Anti-Money Laundering and Countering Financing of Terrorism (Definitions) Regulations 2011 specifically include certain financial advisers and trust and company service providers as reporting entities2 (so that they are subject to the full range of AML requirements); exclude certain entities from the Act (such as lawyers, accountants and government departments); establish thresholds for occasional transactions3 and beneficial ownership;4 and provide further detail around designated business groups.5

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1 The Reserve Bank of New Zealand (responsible for banks, life insurers, and non-bank deposit takers), the Financial Markets Authority (responsible for issuers of securities, trustee companies, futures dealers, collective investment schemes, brokers, and financial advisers) and the Department of Internal Affairs (responsible for casinos, non-deposit-taking lenders, money changers, and all other reporting entities).

2 The Act places obligations on certain financial institutions as well as casinos, collectively referred to as “reporting entities”.

3 Cash transactions outside a normal business relationship.

4 A beneficial owner is someone who has effective control over a customer or person on whose behalf a transaction is conducted.

5 Groups of related entities that can share aspects of their AML risk assessments and compliance programmes.
The Anti-Money Laundering and Countering Financing of Terrorism (Exemptions) Regulations 2011 exempt certain transactions and services from the Act or parts of the Act on the basis of their lower money laundering and terrorist financing risk (e.g. currency exchange in hotels; closed insurance policies; loyalty card schemes; low value gift cards).

The Anti-Money Laundering and Countering Financing of Terrorism (Requirements and Compliance) Regulations 2011 contain further detail in order to clarify the extent of certain obligations such as customer due diligence in relation to anonymous accounts; information to be collected about beneficiaries of trusts; and the content of annual reports.6

The Anti-Money Laundering and Countering Financing of Terrorism (Ministerial Exemption Form) Regulations 2011 prescribe the form in which the Minister must make Ministerial exemptions.

In addition, the Anti-Money Laundering and Countering Financing of Terrorism Act Commencement Order 2011 sets the date by which the Act’s requirements will come into effect as 30 June 2013. This planned delay is intended to give industry the opportunity to prepare themselves for compliance with the Act and also to allow AML supervisors time to develop their supervisory programmes.

Codes of practice

The Identity Verification Code of Practice ("the Code") was issued on 1 September 2011. This was issued jointly by the three AML supervisors and applies to all reporting entities across all sectors subject to supervision. The Code provides a suggested best practice for all reporting entities conducting name and date of birth identity verification in respect of customers (that are natural persons) who have been assessed to be low to medium risk. Importantly, compliance with the Code is not compulsory. Reporting entities may opt out and develop alternative processes, so long as they can demonstrate that such processes are equally effective as those set out in the Code.

Guidelines

The AML supervisors have issued three joint guidelines, applicable to all reporting entities across all sectors.

The Risk Assessment Guideline was issued on 13 June 2011. Undertaking a risk assessment is a key obligation on reporting entities and lays the foundation for all risk-based decisions and controls within its programme to address money laundering and terrorism financing risks. It involves identifying and assessing the risks their business might reasonably expect to face. This guideline was developed to assist reporting entities in this process.

The Interpreting “Ordinary Course of Business” Guideline was issued on 21 September 2011. This clarifies the meaning of the phrase “in the ordinary course of business” in the Act, which is an important part of assessing whether a firm is captured by the AML regime.

The AML/CFT Programme Guideline was issued on 13 December 2011. A reporting entity’s programme will set out the internal policies, procedures and controls necessary to detect money laundering and financing of terrorism and to manage and mitigate the risk of it occurring. The programme must be based upon the entity’s own risk assessment. This guideline was developed to assist reporting entities develop their AML programme.

In addition to these joint guidelines, the Insurance Business Coverage Guideline was published solely by the Reserve Bank for the insurance sector. This will assist businesses that provide life insurance to determine whether they have obligations under the Act, by providing our views on several potential exemptions and carve-outs established by the Anti-Money Laundering and Countering Financing of Terrorism (Exemptions) Regulations 2011.

Future guidance

In the lead up to 30 June 2013, we expect to issue guidelines on several more topics, including a Designated Business Group Guideline, which will assist reporting entities’ consideration of their eligibility to form a designated business group and will set out the process by which they should notify their supervisors; a Country Assessment...
Guideline, to assist reporting entities in assessing the adequacy of AML regimes in overseas jurisdictions; an Audit Guideline, setting out our expectations in relation to the review and audit of risk assessments and AML programmes; and a Beneficial Ownership Guideline, to assist firms in undertaking due diligence on their customers with more complex ownership structures.

Supervisory Approach

Risk-based Approach

As well as the outward facing work outlined above, we have been preparing ourselves for day to day operations post-30 June 2013, when the Reserve Bank will assume responsibility for supervising our population of reporting entities.

Given the number of reporting entities and the necessarily finite supervisory resources, we will supervise reporting entities according to the risks they present to the objectives of the Act (namely: to detect and deter money laundering and the financing of terrorism; to maintain and enhance New Zealand’s international reputation; and to contribute to public confidence in the financial system).

This requires a consistent process to identify, measure and prioritise the risks posed by reporting entities to these statutory objectives, in order to inform any decisions regarding appropriate regulatory responses. For this purpose we have begun developing an entity risk assessment model (‘ERA’), which assesses the business of each reporting entity against criteria or characteristics that may make that business more susceptible to being used for money laundering or financing of terrorism. This involves an assessment of their customer types, product/services, delivery channels, and the countries and institutions they deal with. These characteristics are based on international experience and information from NZ Police as set out in the first NZ National Risk Assessment. For example, a financial product that allows third party payments is considered higher risk than a pure “savings” product; a corporate customer with an opaque or complex ownership structure is considered higher risk than a natural person; and an overseas customer in a jurisdiction with high levels of corruption is considered higher risk than a domestic customer.

We began this assessment process in 2011, using information received from a series of AML surveys. This will continue as an internal and confidential process after 30 June 2013 through AML annual reporting requirements and will drive the development of our AML supervisory approach, determining how the Reserve Bank will undertake its statutory function of monitoring reporting entities for compliance with their regulatory obligations. The nature and extent of our supervisory relationship with any individual reporting entity will depend on how much of a risk we consider it poses, as established using the entity risk model discussed above.

This means we will focus most of our supervisory resource and attention on identified areas of higher risk within our population of reporting entities so that those entities that are most at risk of a money laundering and/or terrorist financing (‘ML/TF’) event occurring within their business are subject to the most supervisory attention.

This risk-based approach to supervision is consistent with the intention of the legislation and with the approach that reporting entities themselves are expected to follow when designing and implementing their anti-money laundering controls. This approach is being increasingly encouraged by FATF and was formally included in their revised recommendations earlier this year. It has already been implemented by international supervisors such as the UK’s FSA and Australia’s AUSTRAC and it is also the approach planned to be taken by the other domestic AML supervisors, Department of Internal Affairs and the Financial Markets Authority.

Entity risk assessments and individual firms’ risk ratings are and will remain confidential. We may consider publishing aggregated data, once we have developed a deeper understanding of the range of risks within our population of reporting entities.

This may include specific reporting entities or clusters/groups of reporting entities, specific products, specific customer types, etc.

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7 E.g. FATF, APG, UK’s FSA and Australia’s AUSTRAC

8 This may include specific reporting entities or clusters/groups of reporting entities, specific products, specific customer types, etc.
Supervisory responsibilities

As an AML supervisor, the Reserve Bank has a number of new statutory functions. These are set out in section 131 of the Act, and include:

- s131(a): to monitor and assess the level of risk of money laundering and financing of terrorism across all of the reporting entities it supervises;
- s131(b): to monitor the reporting entities it supervises for compliance with the Act and regulations and for this purpose to develop and implement a supervisory programme.

At first glance these seem to be similar concepts. In practice, however, they are quite different functions.

Monitoring and assessing the level of money laundering and financing of terrorism risk across reporting entities involves measuring and understanding the likelihood and impact of a money laundering or terrorist financing event occurring in one of these firms.

It is envisaged that the ERA process described above will continue to be our primary tool for monitoring and assessing ML/TF risk within our reporting entities. The ERA is currently an annual process of collecting and analysing information relating to the characteristics of reporting entities, their business models and practices. As we move closer to and then into business-as-usual, the ERA model will be adjusted to incorporate an assessment of the adequacy of a reporting entity’s controls.

This information will be used to assess the likelihood and impact of a ML/TF event occurring in each individual reporting entity, with entities then being grouped into “clusters” of higher/medium/low comparative risk.

As well as enabling reporting entities to be grouped into these broad categories, information collected via this process will also be useful in conducting entity-specific analysis of ML/TF risk or controls systems.

Monitoring reporting entities for compliance with the Act and regulations involves measuring and understanding the extent to which firms are fulfilling their legal obligations. This involves assessing the extent to which a reporting entity has implemented an effective control framework as required by the Act, separate from the ERA (which focuses on the risk of an ML/TF event actually occurring).

It is with regard to this second function – monitoring reporting entities for compliance with their legal obligations – that the Reserve Bank is expected to develop a supervisory programme.

Although the primary objective of the supervisory programme is to monitor firms’ compliance, any information gathered during such supervision will also improve the Reserve Bank’s understanding of the risks within the reporting entities, assisting it to fulfill its function under s131(a) of the Act.

Supervisory tools

The Act grants the Reserve Bank specific powers to carry out the functions detailed above.

Section 132 of the Act states that the Reserve Bank, as supervisor, has “all the powers necessary to carry out its functions under this Act”.

In addition, the Reserve Bank has the specific power to:

- on notice, require production of, or access to, all records, documents, or information relevant to its supervision and monitoring of reporting entities for compliance with this Act (section 132(2)(a)).
- conduct on-site inspections (section 132(2)(b)).

We will also use methods of supervision not involving the formal exercise of statutory powers, including:

- reviewing annual reports;
- issuing questionnaires / conducting surveys;
- desk-based reviews of risk assessments, policies, procedures or audit reports;
- meetings with firms / presentations; and
- analysis of data from external sources.

We intend using these tools in a mixture of baseline monitoring and risk-based supervision.

Baseline monitoring

All reporting entities will be required to submit an annual AML report with basic information about their operations, risk assessments and compliance programmes. This will also include an element of self-certification of compliance with their legal obligations. These annual reports will be reviewed and any apparent areas of increased risk will be escalated for more in-depth supervisory follow up.
**Risk-based monitoring:**

In addition to this baseline, off-site monitoring, we propose to focus both off-site and on-site supervisory efforts on identified risk clusters. The ERA will identify clusters of firms (e.g. high, medium and low risk) and this will be used to determine a schedule of on-site inspections, with larger, more complex and riskier entities being inspected more regularly.

In addition to assessing firms’ compliance with their legal obligations, this will enable us to validate and update each entity’s risk rating, by incorporating a formal assessment of the quality of their control systems.

The depth and breadth of these inspections will be largely determined by the nature of the entity being inspected. For instance, an inspection of a small credit union could cover most, if not all, aspects of AML compliance in one day or less. However, a three or four day inspection of a large bank might necessarily be limited to specific aspects of its AML/CFT programme.

In addition to the on-site supervisory activities described above, we will also undertake off-site risk-based supervision. We anticipate that information and intelligence from law enforcement, the Financial Intelligence Unit and National and Sector Risk Assessments may identify further clusters of higher risk products, business lines, countries or customer types. Similarly, areas of potentially higher risk may also be identified by our base-line monitoring or on-site inspections.

In this context, a wider range of supervisory tools, including information requirements, surveys and desk-based reviews of annual compliance reports, audit reports, risk assessment or policies/procedures, will be applied in a graduated/escalated manner, determined firstly by the number of reporting entities within which the risk has been identified and which will be targeted by the tool.

For instance, if an increased risk or issue is identified in a single reporting entity (e.g. if specific intelligence from law enforcement concerning a particular registered bank), it will be more likely to be subject to an information requirement or on-site visit. If an increased risk is identified in relation to an entire sub-sector (e.g. if a National Risk Assessment suggests that credit unions are being exposed to a higher risk) or a particular customer type (e.g. if criminals controlling bullion dealers are identified as more likely to be laundering criminal funds) then we are more likely to use a thematic survey or questionnaire to a large number of reporting entities in order to monitor and assess the level of compliance in relation to that specific risk.

The results of these supervisory activities will be examined as they become available. This may require us to reassess the risk profile of the entity or group of entities involved, require entities to take remedial action or may lead to a consideration of enforcement action.

We also plan to increase our knowledge and understanding of our firms’ business and ML/TF risk by undertaking thematic work. This might include requests for, and subsequent desk-based review of, information relating to particular business lines or products/services (e.g. reviewing banks’ policies and procedures concerning correspondent banking); particular subsectors (e.g. reviewing the risk assessments from all building societies); or particular customer types (e.g. reviewing all firms’ approaches to dealing with customers who are trusts, or Politically Exposed Persons).

**Conclusion**

The Anti-Money Laundering and Countering Financing of Terrorism Act 2009 places new obligations on financial firms and on the Reserve Bank as AML supervisor.

The Reserve Bank is committed to a risk-based regime that allows firms the flexibility to deal with risks in a...
proportionate and effective manner and means that we will use the full range of supervisory tools at our disposal more effectively, paying greater attention to higher risk reporting entities than lower risk ones.

The new regulatory regime, and the responsibilities it places on firms, should reduce the potential for money laundering and the financing of terrorist activities to occur in New Zealand.

All publications referred to above can be found on the Reserve Bank website – www.rbnz.govt.nz/amlcft
ANALYTICAL NOTES

AN 2012/02
Kiwi drivers – the New Zealand dollar experience
Chris McDonald,
May 2012

On 1 August 2011 the Reserve Bank’s trade-weighted exchange rate index (TWI) rose to 75. The only previous time that this level was reached since the exchange rate was floated in 1985 was in July 2007. On both of these occasions, the high level of the TWI was matched by the ANZ commodity price index, which itself reached levels not seen in 30 years. The close timing of these peaks was almost certainly no coincidence. In this paper, we quantify this relationship and consider its importance for explaining the New Zealand dollar over the past 25 years relative to the many other influences, such as housing cycles and interest rate differentials.

AN 2012/03
Currency intervention - the profitability of some recent international experiences
Enzo Cassino and Michelle Lewis
June 2012

In recent years there have been high profile currency interventions by the Swiss National Bank (SNB) and the Bank of Japan (BoJ). In this note, we review these interventions, with a focus on the profitability of currency intervention, along with the relationship between profitability and the degree of exchange rate stabilisation. We also highlight the ways in which these interesting international episodes are of only limited direct relevance to thinking about current New Zealand exchange rate issues.
DISCUSSION PAPERS

DP2012/01
The financial accelerator and monetary policy rules
Güneş Kamber and Christoph Thoenissen

The ability of financial frictions to amplify the output response of monetary policy, as in the financial accelerator model of Bernanke et al (1999), is analysed for a wider class of policy rules where the policy interest rate responds to both inflation and the output gap. When policy makers respond to the output gap as well as inflation, the standard financial accelerator model reacts less to an interest rate shock than does a comparable model without an operational financial accelerator mechanism. In recessions, when firm-specific volatility rises, financial acceleration due to financial frictions is further reduced, even under pure inflation targeting.

DP2012/02
Modifying Gaussian term structure models when interest rates are near the zero lower bound
Leo Krippner

With nominal interest rates near the zero lower bound (ZLB) in many major economies, it is theoretically untenable to apply Gaussian affine term structure models (GATSMs) while ignoring their inherent material probabilities of negative interest rates. I propose correcting that deficiency by adjusting the entire GATSM term structure with an explicit function of maturity that represents the optionality associated with the present and future availability of physical currency. The resulting ZLB-GATSM framework remains tractable, producing a simple closed-form analytic expression for forward rates and requiring only elementary univariate numerical integration (over time to maturity) to obtain interest rates and bond prices. I demonstrate the salient features of the ZLB-GATSM framework using a two-factor model. An illustrative estimation with US term structure data indicates that the ZLB-GATSM “shadow short rate” provides a useful gauge of the stance of monetary policy; in particular becoming negative when the US policy rate reached the ZLB in late 2008, and moving more negative with subsequent unconventional monetary policy easings.

DP 2012/03
The information content of central bank interest rate projections: evidence from New Zealand
Gunda-Alexandra Detmers and Dieter Nautz

The Reserve Bank of New Zealand was the first central bank to publish interest rate projections as a tool for forward guidance of monetary policy. This paper provides new evidence on the information content of interest rate projections for market expectations about future short-term rates before and during the financial crisis. While the information content of interest rate projections decreases with the forecast horizon in both periods, we find that their impact on market expectations has declined significantly since the outbreak of the crisis.
NEWS RELEASES

OCR unchanged at 2.5 percent

8 March 2012

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

Reserve Bank Governor Alan Bollard said: “Inflation has settled near the middle of the Bank’s target range, and inflation expectations have fallen.

“The domestic economy is showing signs of recovery. Household spending appears to have picked up over the past few months and a recovery in building activity appears to be underway. That recovery will strengthen as repairs and reconstruction in Canterbury pick up later in the year. High export commodity prices are also helping to support a continuing recovery in domestic activity.

“Policy actions from a number of central banks have boosted global confidence. While encouraging, financial market sentiment remains fragile and risks to the global outlook remain. Furthermore, the easing in global monetary policy and resultant recovery in risk appetite has contributed to a marked appreciation in the New Zealand dollar.

“While helping contain inflation, the high value of the New Zealand dollar is detrimental to the tradable sector, undermines GDP growth and inhibits rebalancing in the New Zealand economy. Sustained strength in the New Zealand dollar would reduce the need for future increases in the OCR.

“Given the medium-term outlook for inflation, it remains prudent to hold the OCR at 2.5 percent.”

Government announces new appointments

9 March 2012

News release issued by the Minister of Finance

The Government has appointed board members to two new Crown companies – Southern Response Earthquake Services Ltd and Crown Asset Management Ltd – and reappointed Reserve Bank chairman, Arthur Grimes.

Southern Response Earthquake Services Ltd is the renamed residual parts of AMI Insurance that will remain in Government ownership once the sale of AMI Insurance’s non-Christchurch earthquake related business is finalised.

The Government announced Ross Butler as chairman last year. He will be joined on the board by Anne Urtwin (deputy chair), Jenn Bestwick, Bevan Killick, Susan Thodey and David Whyte. The board members will take up their new roles when the sale process is complete. This is expected to be in April.

“All appointees have relevant governance or senior executive level backgrounds that collectively offer the skills required for the establishment board. I am confident the new board will effectively assist the residual company to assess and meet AMI’s Canterbury earthquake-related claims,” Mr English says.

Mr English also announced the appointment of six new board members to Crown Asset Management Ltd (CAML), which has been established to consolidate the management and recovery of six finance companies in active receivership, which were covered under the Crown Retail Deposit Guarantee.

The appointees are Gary Traveller (chair), Peter Castle (deputy chair), Debbie Birch, Steven Fyfe, Keiran Horne and Steve Smith.

“As experienced commercial directors and insolvency practitioners with varied backgrounds including banking, law, accounting and finance, the board is well placed to assist the company to provide a better return to the Crown by maximising returns and minimising costs,” Mr English says.

Mr English has reappointed Dr Grimes to the board of the Reserve Bank. This will enable him to assist in the appointment of a new Reserve Bank Governor when the current Governor, Alan Bollard, finishes his term in September.

The new Governor is appointed by the Minister of Finance on the recommendation of the Reserve Bank board.

Reserve Bank Bulletin released

30 March 2012

The Reserve Bank today released the first issue of the Reserve Bank Bulletin for 2012.
The Bank’s prudential supervisory role has seen major change over the last five years, particularly since the Bank took on regulation of the non-bank deposit taking and insurance sectors. The Bulletin’s first article outlines the evolution of this area of the Bank, including looking at the impact that the Canterbury earthquakes and recent financial crises have had on this function.

From here, the March Bulletin steps back in history. The second article reviews New Zealand’s economic developments over the turbulent period since 1998. While there was a long period of relatively good economic times, there have also been periods of little or no sustained growth over this time. This article also looks at the imbalances that have carried through this period.

The third article reviews the ways that monetary policy and governance provisions have evolved since the Reserve Bank was established in 1934. Reserve Bank Act provisions for operational autonomy around agreed monetary policy targets have been stable now for more than 20 years. However, earlier decades were less settled in this respect.

The Bulletin’s final article also takes us back to the 1930s – this time to the New Zealand Debt Conversion Act of 1933. New Zealand went into the Great Depression highly indebted, and this piece explains the legislation used to reduce the cost of the government’s debt.

**AMI Insurance and Restructure Sale**

*5 April 2012*

The Reserve Bank of New Zealand has completed its assessment of the proposed restructure of AMI, and change of control of AMI Insurance (Operations) Limited to IAG.

The Bank has now granted all necessary approvals under the Insurance (Prudential Supervision) Act 2010, and has granted AMI Insurance (Operations) Limited a full insurance licence.

**OCR unchanged at 2.5 percent**

*26 April 2012*

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

Reserve Bank Governor Alan Bollard said: “Inflation is restrained and is expected to stay near the middle of the Bank’s target range.

“The domestic economy is showing signs of recovery. Housing market activity continues to increase and a recovery in building activity appears to be underway, as forecast. That recovery will strengthen as repairs and reconstruction in Canterbury pick up later in the year.

“However, the global outlook remains of concern. Near-term indicators have moderated and financial market sentiment is still fragile.

“The New Zealand dollar has stayed elevated despite recent falls in commodity prices. Should the exchange rate remain strong without anything else changing, the Bank would need to reassess the outlook for monetary policy settings.

“For now, it is appropriate for the OCR to remain at 2.5 percent.”

**Reserve Bank responds to lessons of the GFC**

*3 May 2012*

The Reserve Bank is introducing a number of prudential policy changes, based on lessons from the global financial crisis (GFC), in order to further strengthen the New Zealand financial system.

This was the message of a speech delivered today by Reserve Bank Deputy Governor Grant Spencer, to the Financial Institutions of New Zealand 2012 Remuneration Forum in Auckland.

Mr Spencer identified three key prudential policy lessons from the GFC. The first was that financial institutions are more vulnerable than previously thought to “contagion effects” from financial shocks, due to the likelihood of liquidity contraction.

“In response, we have ‘upped the game’ on bank liquidity requirements, including the Core Funding...
Mr Spencer confirmed the Bank’s intention to increase the CFR from 70 to 75 percent in January 2013.

The second lesson was the importance of the credit cycle as a driver of financial system risk. In response, macro-prudential policies, aimed at limiting the build up of risk during credit booms, are being developed both here and internationally, Mr Spencer said.

“This is a new approach to prudential policy and as such we are developing, along with Treasury, an explicit macro-prudential governance framework to be agreed with the Minister of Finance as a basis for policy decisions going forward. We expect that the Reserve Bank will take the lead role in implementing macro-prudential policy, subject to consultation with government,” Mr Spencer said.

The third lesson was that governments must find ways of protecting the financial system from bank failures without recourse to taxpayer funded ‘bail-outs’.

“Our main response to this lesson is a resolution framework called Open Bank Resolution (OBR),” Mr Spencer said. OBR gives the government the option of quickly dealing with a bank failure, such that it remains open for transaction business, without requiring a government bail-out.

“Learning these lessons and improving our prudential policy framework will better equip us to withstand the effects of future financial shocks,” he said.

Financial system coping well with international stresses

9 May 2012

Global economic and financial conditions continue to pose risks for New Zealand’s financial system, Reserve Bank Governor Alan Bollard said today when releasing the May 2012 Financial Stability Report.

“Financial market sentiment has improved since the start of 2012, largely reflecting policy measures in Europe which have helped to mitigate the effects of softening economic growth, stretched sovereign debt positions and weak bank balance sheets. However, the situation remains fragile given limited progress in addressing Europe’s underlying issues.

“In New Zealand, households remain cautious and have been saving more while business investment has been weak. Private sector indebtedness has declined, although this has largely been offset by rising public debt.

“Growth in most advanced economies remains weak and there have been recent signs of slowing in Australia and China. Commodity prices have eased in recent months which could create financial pressures for some primary exporters if sustained.”

Deputy Governor Grant Spencer said the soundness of the NZ banking system continues to improve despite considerable international volatility, while credit demand is weak.

“Encouragingly, international debt markets have freed-up over 2012 with term funding now available again, although the cost remains elevated. A strong inflow of retail deposits has enabled banks to lift their domestic funding shares and minimise offshore funding use. All banks are now meeting the Reserve Bank’s Core Funding Ratio by a comfortable margin and we have confirmed our intention to lift the ratio from 70 percent to 75 percent in January next year.

“The Reserve Bank is continuing to strengthen regulation of the financial system, drawing on lessons from the financial crisis. We have recently reviewed submissions on our Basel III capital proposals and will shortly release modified standards for further industry review.

“In other areas, we are progressing a new legislative framework for covered bonds and continuing work on the pre-positioning of banks’ systems for Open Bank Resolution. In the insurance sector, the provisional licensing regime came into force on 7 March, with 105 insurers licensed to conduct business on that date.”
OCR unchanged at 2.5 percent

14 June 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 has weakened a little since the March Monetary Policy Statement. Political and economic stresses in Europe, along with a run of weaker-than-expected data, have seen New Zealand’s trading partner outlook worsen. Furthermore, there is a small but growing risk that conditions in the euro area deteriorate more markedly than is projected in the June Statement. The Bank is monitoring euro-area developments carefully given the potential for rapid change.

“Increased agricultural production and the weakened global outlook have driven New Zealand’s export commodity prices lower. The resulting moderation in export incomes, although partially offset by depreciation in the exchange rate, will weigh on economic activity in New Zealand. Fiscal consolidation is also likely to constrain demand growth going forward.

“Offsetting these negative influences, housing market activity continues to increase, supported by recent reductions in mortgage interest rates. In addition, repairs and reconstruction in Canterbury are expected to substantially boost construction sector activity in coming quarters. Aggregate GDP growth is projected to pick up slightly to just over 3 percent next year. Given this economic outlook, inflation is expected to settle near the mid-point of the target range.

“It remains appropriate for monetary policy to remain stimulatory, with the OCR being held at 2.5 percent.”
Regular publications

- **Annual Report**
  - Published in October each year.

- **Financial Stability Report**
  - Published six-monthly. A statement from the Reserve Bank on the stability of the financial system.

- **Monetary Policy Statement**
  - Published quarterly. A statement from the Reserve Bank on the conduct of monetary policy.

**Recent Reserve Bank Discussion Papers**

<table>
<thead>
<tr>
<th>Year</th>
<th>Discussion Paper</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>DP 2011/06</td>
<td>Cyclical changes in firm volatility</td>
<td>Emmanuel De Veirman and Andrew Levin</td>
</tr>
<tr>
<td></td>
<td>DP 2011/07</td>
<td>Forecasting house price inflation: a model combination approach</td>
<td>Sarah Drought and Chris McDonald</td>
</tr>
<tr>
<td></td>
<td>DP2011/08</td>
<td>Foreign acquisition and the performance of New Zealand firms</td>
<td>Richard Fabling and Lynda Sanderson</td>
</tr>
<tr>
<td>2012</td>
<td>DP2012/01</td>
<td>The financial accelerator and monetary policy rules</td>
<td>Güneş Kamber and Christoph Thoenissen</td>
</tr>
<tr>
<td></td>
<td>DP2012/02</td>
<td>Modifying Gaussian term structure models when interest rates are near the zero lower bound</td>
<td>Leo Krippner</td>
</tr>
<tr>
<td></td>
<td>DP 2012/03</td>
<td>The information content of central bank interest rate projections: evidence from New Zealand</td>
<td>Gunda-Alexandra Detmers and Dieter Nautz</td>
</tr>
</tbody>
</table>

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**Analytical Notes**

<table>
<thead>
<tr>
<th>Year</th>
<th>Analytical Note</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>AN 2011/01</td>
<td>The macroeconomic impact of the Rugby World Cup</td>
<td>Adam Richardson</td>
</tr>
<tr>
<td>2012</td>
<td>AN 2012/01</td>
<td>House price expectations of households: a preliminary analysis of new survey data</td>
<td>Graham Howard and Özer Karagedikli</td>
</tr>
<tr>
<td></td>
<td>AN 2012/02</td>
<td>Kiwi drivers - the New Zealand dollar experience</td>
<td>Chris McDonald</td>
</tr>
<tr>
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<td>AN 2012/03</td>
<td>Currency intervention - the profitability of some recent international experiences</td>
<td>Enzo Cassino and Michelle Lewis</td>
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