Contents

Articles
The last financial cycle and the case for macro-prudential intervention
Chris Hunt

Discovering covered bonds - the market, the challenges, and the Reserve Bank’s response
Annalise Vucetich and Amber Watson

Exchange rate fluctuations: how has the regime mattered?
Richard Sullivan

Exchange rate policy forum: Bringing it all together: where does this leave us, and where to from here?*
John McDermott

Updating the Reserve Bank Museum
Matthew Wright

For the record
Analytical notes
News releases
Publications
Articles in recent issues of the Reserve Bank of New Zealand Bulletin

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

* Erratum: this article replaces original Bulletin release. Corrected to include text omitted in error.
The Reserve Bank Museum celebrates and records New Zealand’s economic and banking heritage.

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

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

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

Photography by Stephen A’Court.
The last financial cycle and the case for macro-prudential intervention

Chris Hunt

This article takes a look back at the last financial cycle that occurred over the previous decade – a cycle that contributed to one of the longest periods of uninterrupted economic growth in New Zealand for the past 60 years. It conducts a counterfactual exercise that maps the Reserve Bank’s new macro-prudential policy framework on to financial system developments over the period. It finds that, with the benefit of hindsight, there would have been a compelling case for macro-prudential intervention from 2005 onwards to address a build-up of systemic risk within the financial sector. The temporary increase in capital or liquidity buffers, or the application of loan-to-value restrictions on residential mortgages, would have materially enhanced the resilience of the financial system in the face of developments late in the decade. Macro-prudential intervention may have also tempered credit and asset price developments during the boom itself.

1 Introduction

Private sector debt has expanded markedly over the past decade, along with a sharp increase in prices for residential housing and rural land. The rise in debt served to amplify economic activity and contributed to one of the longest periods of uninterrupted economic growth in New Zealand’s post-war history.

Following the global financial crisis (GFC) growth in private sector credit declined sharply with the demand and supply for credit contracting as economic growth slowed. However, the vulnerabilities built up during the boom associated with high levels of indebtedness have not necessarily been “resolved”. Households and the rural sector, in particular, will be taking debt levels that still look too high into the next financial cycle, while asset prices (rural and residential housing) continue to look significantly overvalued.

As the Reserve Bank has noted in its regular Financial Stability Reports (FSRs) high levels of both domestic and external indebtedness create potential vulnerabilities for the financial system in the event of a sharp downturn in economic conditions or adverse developments in offshore funding markets. International experience during the GFC has illustrated graphically how financial system risks can ultimately culminate in distress for financial institutions and disrupt the real economy.

With these lessons in mind, the Reserve Bank has been bolstering the regulatory framework over the past few years to improve the soundness and efficiency of the financial system. This has come through changes in the “baseline” (or micro) prudential settings associated with Basel III, together with the development of a new “macro-prudential” policy framework designed to address financial system risk that varies with the broader economic cycle.

A Memorandum of Understanding has recently been signed between the Minister of Finance and the Governor of the Reserve Bank formalising the objectives, instruments and governance arrangements for the new macro-prudential framework. As discussed in the Final Policy Position paper, the following prudential instruments can be deployed to promote greater financial system resilience and/or to reduce the prospects of such risks from developing by dampening the credit cycle:

• A counter-cyclical capital buffer (CCB);
• Adjustments to the core funding ratio (CFR);
• Adjustments to sectoral capital requirements; and
• Quantitative restrictions on the share of high loan-to-value (LVR) loans to the residential property sector.

2 The Memorandum of Understanding (MoU), signed 16 May, follows a public consultation on the proposed framework for macro-prudential policy during March and April of this year. The consultation document and accompanying background paper, together with the MoU can be found here: http://www.rbnz.govt.nz/financial_stability/macroe-prudential_policy/
This article takes the Reserve Bank’s new macro-prudential policy framework and looks back at the last financial cycle. It asks the questions: if a macro-prudential framework was in place over the past decade would there have been a compelling case for macro-prudential intervention, and if there was, when might we have deployed any of the instruments (or combinations of instruments) in the policy toolkit. It also discusses when any of the tools may have been “released” or turned off had they been used.

Any attempt to consider a counterfactual policy environment to that prevailing in the past is clearly artificial and assumptions must be made as to how policymakers would have behaved had current policy frameworks and perspectives been in place. Moreover, policymakers around the world did not know a global financial crisis was on the horizon and therefore did not have the benefit of hindsight that the subsequent events have given us. These caveats suggest that we should be somewhat modest in terms of the insights we can learn from this counterfactual analysis. This is particularly true in regards to any overall assessment of the effectiveness of macro-prudential intervention over the last cycle.

The remainder of the article is divided into two main sections. The first provides an overview of the last financial cycle, including the presentation of some stylised facts, identification of the key drivers and a summary of how the Reserve Bank saw the evolution of financial system risks and vulnerabilities at the time. The second section attempts to map the new macro-prudential policy framework onto financial system developments over the last decade. This mapping involves a counterfactual systemic risk assessment using some of the key macro-prudential indicators (MPIs) that now form part of the policy framework. This is followed by an assessment of the case for macro-prudential intervention and instrument selection. It also discusses how some of the tools may have been applied, together with when they might have been released.

2 The last financial cycle – an overview

2.1 The starting point – an “indebted people”

Financial cycles can be parsimoniously described with reference to credit and housing market developments (Borio 2012). On this basis, the last financial cycle was slightly longer and with a greater amplitude than the credit and asset price cycle over the 1990s. This broadly coheres with the last business cycle (proxied by real GDP) which was also longer than the 1990s cycle and in fact the most sustained in New Zealand’s post-WWII history (Chetwin 2012).

New Zealand’s last financial cycle, which we date from 2001 as credit and house price growth started to turn upwards, began from a starting point of high household and external indebtedness – a legacy of the previous financial cycle over the 1990s. The increase in household debt (figure 1) mirrored by an increase in external indebtedness (figure 2), was already providing concern for the Reserve Bank about future resilience to economic shocks (Brash 2002, Woolford 2001).

Figure 1

Household debt and debt servicing

At the time however, the banking system was considered well capitalised. There were no legacy issues related to declining asset quality arising from the end of

---

4 “An indebted people” refers to a speech former Reserve Bank Governor Don Brash gave to the Canterbury Employers’ Chamber of Commerce in early 2002.
the previous economic cycle in the late 1990s, and bank profitability was improving. That said, the role that banks played as the conduit enabling foreign savings to fund domestic investment was clearly identified as the Achilles heel of the financial system (Woolford 2001). However the banking system’s systematic hedging of its external borrowings, meant it was essentially funding in New Zealand dollars (NZD) and thus not at risk in the event of a significant NZD depreciation.

Figure 2
Net external assets (percent of GDP)

Source: Statistics New Zealand.
Note: Data prior to 1989 comes from a dataset compiled by Lane and Milesi-Ferretti and published in the May 2011 Financial Stability Report.

2.2 Stylised facts

The cycle in nominal private sector credit growth lasted just over nine years which we date from April 2001 to September 2010 when growth troughed at -0.5 percent in annual terms. Over this period average annual credit growth was 10 percent with a peak annual growth rate of 17 percent in August 2005. The previous nominal credit cycle lasted about eight years (April 1993 to March 2001) with average annual growth of 9.5 percent and a similar peak of 16 percent.

By 2004 credit growth was fairly broadly based with all sectors experiencing annual growth rates in excess of 10 percent. The first sector to see an acceleration in credit growth was agriculture, with favourable export prices and a low exchange rate in the late 1990s and early 2000s supporting incomes and an increase in leverage. The percentage point increase in the contribution to aggregate credit growth from the rural sector is significant (figure 3) and the sector increased its share of intermediated (bank and non-bank lending) credit outstanding from around 10 percent in 2000 to 13 percent in 2003.

Figure 3
Private credit growth by sector (contribution to annual growth)

The New Zealand house price cycle over the 2000s, like the credit cycle, was longer than in the 1990s. Figure 4 shows the annual growth of nominal and real house prices since the late 1960s. In the more recent low inflation environment real and nominal house prices movements are broadly the same. In the 1970s and 1980s however, high inflation often masked real house price declines.

Figure 4
Real and nominal house prices (annual percent change)

The most recent house price cycle saw the largest trough-to-peak increase in real house prices (87 percent) across the seven real house price cycles we have
identified for the period since 1970 (table 1). The last cycle is also the second longest since the 1970s. Similarly, the correction in house prices was the second largest on record, although a lot shorter and less severe than the long drawn out correction that characterised the end of the 1970s house price boom.

The dramatic rise in house prices over the last cycle (120 percent in nominal terms) increased the underlying collateral value against which banks and other intermediaries would lend to borrowers and is likely to have reinforced borrowers’ access to credit and hence the overall growth in credit. In addition, there were the wealth effects of rising house values which fed through to consumption, while “realised” gains in wealth were also reflected in mortgage equity withdrawal – owners increasing their mortgages on their current property, or selling the property itself (Bollard et al 2006).

The sectoral credit developments described above were also reflected in asset price inflation (figure 5). Rural land prices increased rapidly in the early part of the decade, followed by residential house prices and a more subdued increase in commercial property prices.

Table 1
Real house price cycles since 1970

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of cycle (years)</td>
<td>11</td>
<td>2</td>
<td>2.5</td>
<td>2.75</td>
<td>3</td>
<td>3.25</td>
<td>7.75</td>
</tr>
<tr>
<td>Expansion (quarters)</td>
<td>19</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>24</td>
</tr>
<tr>
<td>Contraction (quarters)</td>
<td>25</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Price change – upturn (%)</td>
<td>63</td>
<td>24</td>
<td>9.8</td>
<td>15</td>
<td>18</td>
<td>18</td>
<td>87</td>
</tr>
<tr>
<td>Price change – downturn (%)</td>
<td>-39</td>
<td>-1.8</td>
<td>-2.8</td>
<td>-1.7</td>
<td>-0.1</td>
<td>-7</td>
<td>-14</td>
</tr>
<tr>
<td>Average annual growth (%)</td>
<td>0.7</td>
<td>10</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Peak annual growth (%)</td>
<td>32</td>
<td>18</td>
<td>8</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: QV Ltd, Statistics New Zealand; RBNZ calculations.
Note: Real house price cycles are defined by at least 2 consecutive positive quarters. End of cycle defined by at least 2 consecutive negative quarterly outturns.

Figure 5
Property price growth (annual percent change)

Source: IPD, REINZ, QV Ltd.
Note: The IPD series is a capital return index and replaces the QV Ltd semi-annual commercial property price series that is no longer available.

2.3 Key drivers of the last financial cycle

The stylised facts on the last financial cycle presented above are the result of a complex interaction between a number of key driving and enabling factors. These factors are more fully explained in the Reserve Bank’s recent review of the last business cycle (Chetwin 2012, Chetwin and Reddell 2012).
In short, an unexpected surge in net migration over 2001, and a supportive interest rate environment following monetary policy “insurance cuts” in the face of perceived risks to global growth in the early part of the decade laid the foundations for a sustained expansion in house prices and household net worth. While net migration returned to more normal levels over 2003, robust employment and income growth, coupled with a self-reinforcing house price expectation dynamic that was influencing borrower behaviour, helped to continue the momentum in the housing market.

In addition, specific features of the interest rate environment accentuated both the housing market and the financial cycle in general. These included lower offshore borrowing costs for New Zealand banks as confidence in the global economy picked up from 2004; lower long-term interest rates relative to short rates which prompted borrowers to shift to fixed rate mortgages (figure 6) thereby reducing the efficacy of monetary policy tightening over the cycle; and increased competition between banks in the fixed rate mortgage lending area, particularly over 2006 and 2007.

One consequence of banks competing more intensely for residential mortgage lending is often a decline in lending standards. The worst loans are typically made in the best of times, and the relaxation of lending standards is a fairly typical late-cycle phenomenon. The Reserve Bank began documenting this development in the May 2005 FSR, noting anecdotal evidence of lending on less traditional terms. The Reserve Bank’s concern increased over time, and in the May 2007 FSR, data especially requested from the banks was published to test our concerns about lending standards. This data confirmed lending standards had been materially relaxed (see figure 18 and the associated discussion for more details).

The non-bank lending sector, while a small part of the New Zealand financial system, also helped to drive developments over the last financial cycle. The sector grew rapidly in the early part of the 2000s, relative to the banking system, increasing its share of total intermediated credit from just over 5 percent in 2000 to nearly 9 percent at its peak in 2006.

2.4 From boom to “softish” landing

Economic activity contracted for six quarters from the first quarter of 2008 through to the second quarter of 2009. The oil price spike over 2007, the accumulated impact of a strong exchange rate and several years of monetary policy tightening help explain the initial step down in growth. Global financial market disruptions over 2008 reflecting troubles with specific institutions and a
broader decline in financial market sentiment, together with a sharp deterioration in global growth, explain the subsequent profile of economic activity in New Zealand over the recession.

Global financial market developments over 2007 and 2008 demonstrated that the concerns about the offshore funding of the banking system had been justified, with the banking system needing liquidity support from the Reserve Bank as well as some government guarantees of their term debt borrowing. However, the banking system weathered the crisis comparatively well, with manageable losses, partly because the liquidity support provided breathing space for the banks to work with troubled customers. The ultimate impact on household and rural balance sheets might have turned out far worse if key global trading partners had not started to recover when they did, or if local banks had been forced to deleverage more actively.

Private sector credit growth slowed and troughed in annual terms at -0.5 percent in 2010 as lenders re-assessed the credit-worthiness of borrowers, and borrowers themselves attempted to restructure their balance sheets and “deleverage” even after economic activity began to pick up from the third quarter of 2009. This was most prevalent in the business sector. Finance company failures, beginning in 2006, also contributed to the decline in credit by reducing access for the more marginal property developments.

Households saw their wealth decline as nominal house prices fell 9.8 percent from the fourth quarter of 2007 to the trough in early 2009. This represents a fairly mild correction relative to the international experience (and the experience of New Zealand in the late 1970s) – but no doubt the correction could have been worse had unemployment spiked higher or if emerging market growth had not recovered as it did. The household debt-to-income ratio fell 11 percentage points from a peak of 153 percent in the second quarter of 2009 to 142 percent in the first quarter of 2012 (refer back to figure 1), as demand for housing credit declined (figure 8) and households increased principal payments in a low interest environment. A decline in household borrowing costs helped smooth this adjustment.

2.5 The Reserve Bank’s view of financial system risks

Throughout the period the Reserve Bank was concerned with the risks to the financial system from a starting point of what appeared to be a high level of external indebtedness and household leverage – both of which were a legacy of the cycle over the 1990s. Initially, the Reserve Bank considered the increase in house prices to be a process driven by economic fundamentals, related to net migration flows and the typical lags in housing supply. From 2003 the Reserve Bank became increasingly concerned by an expectations dynamic that was starting to become entrenched, first among investors, and then more generally among households banking on future increases in house prices and consuming on the basis of their perceived increases in net wealth. The Reserve Bank’s concern with growing financial system risk was expressed in a number of speeches, bulletin articles and from 2004, the publication of the semi-annual Financial Stability Report.

Signs of a decline in bank lending standards from 2005, and growing competition between banks, reinforced concerns over household balance sheets and the associated credit risks this posed for the banking system. Competition between banks was particularly fierce in the 2-year fixed mortgage space, with the margin between the 2-year mortgage rate and the 2-year swap rate declining materially over the course of several “mortgage wars” in 2004 and over 2006/2007. There was also a late cycle concern with growing risks in the agricultural sector.
However, throughout the period the banking system was viewed as generally sound and able to withstand a material shock to its financial position, given strong capital buffers, generally prudent risk management and good asset quality. The major vulnerability for the financial system was the funding risks arising from the banking system’s reliance on offshore short-term wholesale funding.

The Reserve Bank and external commentators were consistently surprised by the strength of the financial cycle and economic activity throughout the period until late 2007. As evidenced in both Monetary Policy Statements (MPS) and FSRs, economic activity was expected to soften due to declining net migration, pipeline monetary policy tightening from 2003, high household debt and increasing debt servicing ratios that would eventually start to bite. The steady increase in oil prices to 2006 was also expected to eat into household disposable income.

For example, figure 9 highlights the Reserve Bank’s internal projections for house prices prepared as part of the March Monetary Policy Statements over the course of the expansion. These forecasts consistently assumed a correction in house prices.

In hindsight monetary policy – the only policy lever available at the time to address cyclical economic pressure – was too slow in responding to resource and associated inflation pressure and was not effective in materially leaning against the financial cycle (Chetwin and Reddell 2012). Concern over the appreciating exchange rate also acted to constrain the Reserve Bank in its ability to respond to pressure emanating from housing.

Figure 9
House price forecasts during the expansion

3 Mapping the macro-prudential framework to the last financial cycle

As discussed in the Final Policy Position paper (RBNZ 2013a) the Reserve Bank sees key four key steps in the macro-prudential policy process (figure 10).

3.1 Systemic risk assessment

The risk assessment process focuses on whether debt levels and asset price imbalances, are, or may be becoming excessive, and whether lending standards may be deteriorating. Internally the Reserve Bank examines a range of quantitative and qualitative information in a quarterly Macro-prudential Indicator (MPI) report to help assess whether there is a case for macro-prudential

Figure 10
The macro-prudential decision framework
intervention. The overall assessment (and relevant indicators) is beginning to be published in the semi-annual FSRs as part of the evolving communication strategy associated with the new policy framework.

Looking back at the last financial cycle, many of the measures of systemic risk we now employ as part of the macro-prudential policy framework, all else equal, would have signalled a growing concern with financial system imbalances and vulnerabilities – particularly from 2005 onwards.

In terms of aggregate private sector credit developments, annual credit growth peaked in early 2005 at 17 percent, and remained above 10 percent until late 2008. The ratio of private sector credit-to-GDP peaked in mid-2009 at around 165 percent (figure 11) and has since corrected by around 10 percentage points in the wake of subdued credit growth over the past few years. The level of credit-to-GDP began materially diverging from its underlying trend from 2004. This “real time gap” – an aggregate measure of excess credit relative to GDP – is also illustrated in figure 12. Research by the Basel Committee for Banking Supervision (BCBS) suggests a credit-to-GDP gap of more than 2 percent should prompt policymakers to consider the case for macro-prudential intervention, and a gap of 10 percent is a reasonable point to fully impose relevant macro-prudential tools.

Figure 11
Aggregate private sector credit (percent of GDP)

This increase in private sector credit was mirrored by an increase in net external liabilities over the period. Net external liabilities as a percent of GDP increased from 66 percent in 2002 to just under 85 percent in early 2009 (refer back to figure 2). The banking system was the primary conduit for the intermediation of foreign savings to domestic borrowers. The benign global financial market conditions from 2003 until 2007 allowed New Zealand banks to borrow relatively cheaply, mainly in the form of short-term wholesale debt.

Figure 12
Aggregate private sector credit-to-GDP gap

As mentioned in section 2, the aggregate credit picture masked some variation across sectors, with agricultural and housing credit growth starting to look “excessive” over 2002. A significant gap between business credit relative to operating surplus, and its trend, starts to open up by early 2005. The business sector subsequently registered the largest divergence between the level of credit-to-income and the underlying trend (figure 13).

Figure 13
Sectoral credit gaps

**Note:** The gaps are calculated relative to GDP for total credit; gross operating surplus for business credit; a measure of agricultural GDP for agricultural credit; and disposable income for household credit.

1. Note the performance of sectoral credit gaps is less robust than the performance of the aggregate credit gap as a harbinger of future financial system stress.
The sectoral asset price picture broadly matches the sectoral credit one (figure 14). “Overvaluation” in rural land prices relative to a measure of rural income occurs earlier than in the housing sector.

**Figure 14**

*Asset price gaps*

![Image of Asset price gaps](image)

Source: RBNZ.

As noted earlier the banking system performed well throughout the last financial cycle, with capital buffers built up during the boom (on the back of rising profitability) able to absorb the sharp increase in non-performing loans over 2008 and 2009. However, while actual capital ratios were above Basel I and Basel II minima (4 percent Tier 1 capital), the actual level of Tier 1 capital that prevailed over the period would have had to increase further to comfortably meet the new Basel III Tier 1 minimum of 6 percent that came in to effect at the start of this year, and the 2.5 percent conservation buffer that will come in to effect at the start of 2014 (figure 15).

**Figure 15**

*Capital ratios (locally incorporated banks, percent of risk-weighted assets)*

![Image of Capital ratios](image)

Source: Registered bank General Disclosure Statements (GDS).

Note: The Basel III capital ratios are not strictly comparable to Basel I or Basel II levels, since Basel III embodies a tighter definition of capital.

The key risk that crystallised for the New Zealand banking system over the course of the global financial crisis was that related to the funding of bank balance sheets. Over the last cycle banks were able to respond to increased borrower demand for credit by drawing from less stable shorter-term forms of funding. As figure 16 illustrates, the share of lending accounted for by stable funding (capital, retail deposits and wholesale funding with more than a year to maturity) declined from late 2002 through to 2007.

**Figure 16**

*Retail and core funding ratios (percent of lending)*

![Image of Retail and core funding ratios](image)

Source: RBNZ SSR and RBNZ prudential liquidity return.

The ability of banks to accommodate domestic growth reflected the ease at which the major banks were able to access global funding markets and the decline in risk premia more broadly which was a function of the positive global economic outlook. There was a marked fall in global risk premia between 2003 and 2007, proxied in figure 17 by corporate bond spreads. By 2006 commentators were suggesting that risk was being under-priced globally, with increasing prominence being directed towards the opaqueness of structured financial products – a point the Reserve Bank began noting in the May 2006 FSR.
As discussed earlier the Reserve Bank also identified a material decline in lending standards towards the end of the boom phase. Anecdotal reports of "low doc" and high LVR lending were first noted back in 2005. From this point the level of the Reserve Bank’s concern grew, particularly in the context of heightened bank competition over 2006 which served to compress margins.

The Reserve Bank was sufficiently concerned with reports of lower lending standards that it requested additional data on banks’ lending by LVR in early 2007. The data confirmed an increase in high-LVR lending (figure 18), while some banks’ lending policies also suggested a relaxation of non-price criteria (e.g. income requirements).

The Reserve Bank also spoke directly to bank CEOs and Chairs to express concern about the relaxation in lending standards and the scramble for market share. The banks agreed that this was an issue and that competitive pressure – behaviour individual banks claimed was driven by “other” banks and the non-bank sector – had led to unsustainably low lending margins.

The Reserve Bank also attempted to inform the public about possible “speculative” behaviour taking hold in the market, through speeches and other public communication. Although it was initially thought to be confined to investor housing, by 2005 the Reserve Bank was pointing out the more general unrealistic expectations of households for future house price increases (Bollard 2005). The prevalence of property-related TV shows and investor seminars further hinted at the buoyancy of the housing market and irrational exuberance taking hold.

In the context of the present counterfactual exercise the systemic risk assessment implied by our current MPIs would have suggested the need to seriously consider deploying macro-prudential instruments from around 2005 onwards:

- Credit growth looked “excessive” both in aggregate and sectoral terms;
- Asset prices appeared very frothy, and possibly “overvalued”, with speculative activity apparent in the investor housing segment in particular;
- Household balance sheets looked stretched and increasingly vulnerable to either a significant correction in house prices and/or a sharp increase in interest rates;
- Funding risks had increased as banks sourced a growing share of short-term funding from the cheap and plentiful stores of global funding markets, in an environment where global risk premia appeared very low; and
- There were growing concerns over a reduction in lending standards that helped to drive competition between banks for mortgage market share. There was also the competition coming from the non-regulated non-bank sector, which also helped to support the growth in private sector credit.
3.2 Weighing up the case for macro-prudential intervention

Step two of the decision framework for macro-prudential policy considers whether a macro-prudential intervention is the appropriate response to the build-up of systemic risk that has been identified in the first step. The existence of financial imbalances might not warrant a macro-prudential response, if financial system risk could be better addressed through other policies.

In terms of the broader assessment of whether other policy settings were helping to drive systemic risk, the Reserve Bank has had a longstanding concern around the (lack of) responsiveness of housing supply, and tax-related biases that favour housing as an investment asset (RBNZ 2011). However in the context of cyclical developments it is likely the Reserve Bank would have had to take these structural features underpinning the housing market as a given. Policy changes in these areas take a long time to be formulated and subsequently implemented.

With the benefit of hindsight some of the Reserve Bank’s prudential settings could have been tighter, which could have helped lean against the build-up in financial system risk over the period. For example, there was no prudential liquidity policy in effect, which given New Zealand’s low savings rate, enabled an over-reliance by banks on funding credit demand through wholesale funding. Had the current policy been in place the funding profile of banks would have evolved somewhat differently, with banks less exposed to short-term money markets at the time global financial markets became paralysed. In addition had Basel III been in place over the last cycle, banks would have had a higher level of loss absorbing capacity associated with a tighter definition of Tier 1 capital and higher minimum capital requirements.

However, even with the current post-crisis micro-prudential settings in place over the last decade it is likely that credit and asset prices would have evolved in a broadly similar fashion to what actually transpired.

Another issue worth mentioning is the perimeter of prudential regulation. The ability of the non-bank sector to support the buoyant credit and asset markets over the period would have arguably been more constrained had the current non-bank deposit-taking regime been in place, even assuming macro-prudential instruments were not used within the sector.

In summary, there was, with the benefit of hindsight, a sufficient case for macro-prudential intervention. Systemic risk assessment through a macro-prudential lens would have found sectoral imbalances that emerged early in the cycle, and become generalised at the system level by 2005. This assessment largely takes as a given the credit and asset price developments over the period. It should be noted that with the current micro-prudential environment mapped back to the past cycle – Basel III, the liquidity policy, the non-bank regime – developments may have unfolded differently. However, it is not clear what material difference the current micro-prudential regime would have had in terms of attenuating the credit and asset price imbalances built up over the boom period per se. Moreover, as noted earlier, monetary policy could in principle have played a greater role in addressing credit market imbalances, albeit in a manner constrained by PTA obligations surrounding the exchange rate.

3.3 Instrument selection

The third step concerns the choice of specific instruments based on whether financial imbalances are generalised or specific to a particular sector, together with consideration of the optimal mix of tools required to address growing financial system risk.

With a view that financial imbalances had become fairly generalised by late 2004, and enabled by cheap foreign funding, it is likely that the CCB, possibly in conjunction with adjustments to the CFR, could have been usefully employed. These two instruments build the resilience of the banking system to any subsequent period of stress by increasing capital and liquidity buffers respectively. At the margin, these tools might also have the added benefit of dampening the upswing.

While financial imbalances were fairly broad-based, certainly by 2005, the Reserve Bank could also have considered deployment of sectoral tools. One possibility would have been to follow the aggregate tools discussed above with residential LVR restrictions in order to focus more specifically on the housing sector. The application of LVR restrictions may have been appropriate in the context
of the decline in lending standards over 2006 and 2007. Sectoral tools could also have been deployed in response to much earlier signs of imbalances, perhaps over 2003 or early 2004 in the housing or agricultural sectors.

In terms of tools selection and the objectives of macro-prudential intervention the initial motivation would have been primarily around building financial system resilience. The deployment of the CCB, adjustments to the CFR and sectoral capital requirements (on their own or in some combination) would speak to this objective. The Reserve Bank has expressed some reservations about the above tools’ ability to attenuate the upswing of the credit cycle. Back of the envelope calculations by both Ng (2008) and Ha and Hodgetts (2011) for example, suggest a modest impact on the cost of bank funding and hence credit growth from time-varying capital requirements. Ha and Hodgetts (2011) also draw a similar conclusion in relation to the CFR.

The more intrusive nature of LVR restrictions suggests a somewhat greater ability to impact the credit upswing. However, this tool comes with arguably greater efficiency and equity costs, relative to the other instruments.

### 3.4 Policy implementation and the release of the tools

This step in the framework concerns how any of the specific tools should be applied and how any tool would be released or turned off. We consider the stylised application of a CCB below, based on suggestions from the BCBS about how the tool should be applied. This is even more speculative than the previous section, and actual policy choices could have been substantially different.

The choice variables in relation to the deployment of a CCB concern the notice period and the buffer maximum. The Final Policy Position paper states that the notice period – the time allowed for banks to adjust their regulatory capital ratios – can vary up to 12 months. The paper also states that the typical buffer maximum will be 2.5 percent of common equity. Figure 19 maps the credit gap shown in figure 12 and BCBS advice about how to use the gap to deploy the CCB, to the deployment of a CCB over 2005.

Assuming a 12 month notice period, and a progression of stepwise increases, the buffer would have reached its 2.5 percent maximum in the second quarter of 2007.

**Figure 19**

Stylised counter-cyclical capital buffer (12 month notice period, percent of risk-weighted assets)

In practice, release of buffer related to coincident indicators of stress – more timely than shown.

Figure 20 compares actual Tier 1 capital ratios of the locally incorporated New Zealand banks relative to Basel III minimums (had they been in place) and the CCB calculated in figure 19. Banks would have had to increase their Tier 1 capital in the period prior to 2005 to comfortably meet the regulatory minimum and the conservation buffer. The imposition of a CCB would have forced additional capital raising and/or a reduction in risk-weighted asset growth.

The prospect of “leakage” of credit to other lenders would have been a very real possibility had the Reserve Bank imposed a CCB in 2005, particularly in the context of the unregulated non-bank sector at the time. Assuming reciprocity arrangements had been in effect, there would likely have been little or no shift in lending to foreign bank branches operating in New Zealand, since the home regulator would have been obliged to institute the 2.5 percent CCB on their banks exposed to the New Zealand market.

Note, common equity is part of Tier 1 regulatory capital.

---

7 We also assume the first move is a 1 percent increase. In addition, a 2.5 percent maximum is shown for illustrative purposes. National jurisdictions reserve the right to impose a higher buffer than the BCBS recommendation.

8 Reciprocity refers to the arrangements built into the Basel III CCB regime, where regulators of banks operating as branches in other jurisdictions (or lending directly cross-border) are required to meet the host regulator’s CCB requirements. This is designed to create a level playing for all banks operating in a given jurisdiction.
Any shift in lending to institutions not subject to the CCB would tend to mitigate any impact of the policy on credit growth, but the CCB would still be successful in making the core of the financial system more resilient. The Reserve Bank has also noted that a CCB could be extended to non-bank deposit takers in the future.

In a downturn, removing any temporary capital or liquidity buffers, or the unwinding of LVR restrictions is primarily designed to lean against financial stress and help prevent a significant contraction of economic activity. Releasing capital buffers will help banks absorb losses while helping to support lending to credit-worthy borrowers. Similarly, removing the constraint on lending imposed by LVR restrictions will also remove a regulatory constraint that would be unhelpful from a system-wide perspective during a period of stress. Normalising the level of the funding-liquidity buffer to its micro-prudential minimum would recognise the difficulties associated with raising expensive forms of stable funding – particularly term wholesale funding – in the event of disruptions to funding markets, when the cost of funding and possibly access may be compromised. This could prevent the banking system from having to meet an onerous CFR requirement through a material contraction in lending or Reserve Bank liquidity support.

The growing concern with New Zealand banks’ ability to access offshore funding over the course of 2007 and the initial response by the Reserve Bank in August of that year to ease market liquidity pressures, suggests any CFR buffer in place would have been first released, relative to any other instrument. A gradual release of the CFR may have been appropriate in this context, as it was not clear at the time what the nature or magnitude of the global financial economic shock was. The renewed bout of financial market turbulence associated with the failure of Lehman Brothers in September 2008, suggests complete removal by late 2008 would have been likely.

In terms of releasing any capital buffers, had they been in place, it is likely this may have been undertaken in early 2009, or possibly late 2008. In the 2008 May FSR the Reserve Bank saw a ‘prudent’ re-pricing of risk as banks passed on higher funding costs, although it was noted that there was a risk that if credit conditions tighten excessively the slowdown in economy will be exacerbated. Non-performing loans ticked up modestly over 2008.

By May 2009 a material decline in asset quality had occurred, although from a low base, and there was an expectation of a further deterioration over the course of 2009. In addition, there were increasing reports of some borrowers facing difficulties obtaining credit. The Reserve Bank reiterated the message that banks should not tighten lending criteria excessively.

In hindsight a graduated release of any capital buffers may have been optimal. There was no evidence of a credit crunch and there was no depletion of capital as the banking system remained profitable. Moreover, with the heightened level of uncertainty surrounding the global outlook and its impact on the New Zealand economy, there was also the possibility of a serious capital shortfall arising in the near term if asset quality significantly deteriorated much more than it did. Given the uncertainty, the Reserve Bank would have expected released capital to be used to support lending rather than to pay dividends in excess of profits.

4 Conclusion

This article has attempted to map the new operational framework for macro-prudential policy on to the last financial cycle. This counterfactual exercise is admittedly somewhat artificial, given the different institutional context, and the fact that we have the added benefit of hindsight.
that comes with living through the most significant global downturn since the Great Depression, and the specific events that unfolded here in New Zealand.

Nevertheless, this exercise is instructive in that it provides some form of test of the new policy framework based on historical "data". What we can say, with some degree of comfort, is that our indicator framework would have been signalling a concern with the build-up in systemic risk, particularly from 2005 onwards. At the very least the Reserve Bank would have been seriously considering macro-prudential intervention around this period. The article is a little bit more tentative on the optimal mix of tools that might have been applied. The generalised nature of the financial imbalances would seem to have merited an aggregate approach to addressing systemic risk, either in the form of an aggregate capital buffer or adjustments to the CFR. This approach could have been complemented by sectoral tools, particularly if it was felt that more traction over the cycle was necessary later in the period.

References


Ha, Y and B Hodgetts (2011) “Macro-prudential instruments for New Zealand: a preliminary assessment”,

paper prepared for Reserve Bank workshop on Macro-prudential policy, Wellington, 21 March.


RBNZ (2013b) Consultation paper: Macro-prudential policy instruments and framework for New Zealand, March.

RBNZ (2011) Submission to the Productivity Commission inquiry on Housing Affordability, August.


Discovering covered bonds – the market, the challenges, and the Reserve Bank’s response

Annalise Vucetich and Amber Watson

Covered bonds are corporate bonds that are backed by a pool of high-quality assets originated by the issuer. Popular in Europe for around 300 years, they are a relatively new source of funding for New Zealand banks.

This article provides some background on covered bonds and the international covered bond market. It then looks at the benefits and the policy challenges arising from banks’ issuance of covered bonds, and the Reserve Bank’s response to the development of the New Zealand covered bond market.

1 Introduction

Originating in Europe around 300 years ago, covered bonds are considered to be a relatively safe investment, and in recent years have also become an attractive funding source for banks outside Europe. The distinguishing feature of a covered bond is that it provides dual recourse – the bond holder has a secured claim on a specific pool of the issuer’s assets and an unsecured claim on the issuer. Canadian, Australian and New Zealand banks have recently begun issuing covered bonds and there are currently signs of a covered bond market developing in Asia and the United States.

Several countries have restrictions on banks’ issuance of covered bonds. Specific covered bond legal frameworks are in place in many countries, including all western European countries, the United Kingdom, Canada and Australia. The Reserve Bank of New Zealand has recently developed the Reserve Bank of New Zealand (Covered Bonds) Amendment Bill (the Bill) which will apply to New Zealand registered banks’ covered bond programmes.2

This article explains what covered bonds are, describes the international market for covered bonds, and discusses the benefits of covered bond issuance, and the policy challenges that they pose. It then describes the Reserve Bank’s response to the development of the covered bond market in New Zealand, including limits on New Zealand banks’ issuance of covered bonds, and the new Bill.

2 What are covered bonds?

A covered bond is a bond that is backed by a pool of high-quality assets originated by the issuing bank.3 This so-called ‘cover pool’ consists largely of relatively low-risk assets, such as residential mortgages and public debt. The bank has an obligation to ensure that the value of the cover pool remains at least equal to the outstanding value of the covered bond, so it may add assets to the cover pool to compensate for any decline in the quality of the cover pool assets. The cover pool assets are segregated from the bank’s other assets so that covered bond investors are able to enforce their security interest over them in the event of the bank’s default.

Covered bond holders’ recourse to this cover pool is a key distinction between covered bonds and unsecured bonds. A holder of an unsecured bond has recourse only to the issuing bank. Covered bond holders have dual recourse to the cover pool and to the bank. If the bank defaults, covered bond holders’ interests are secured by the cover pool assets. If these subsequently prove to be insufficient to meet covered bond holders’ claims, the covered bond holders continue to have an unsecured claim against the bank for the residual amount due to them, which ranks equal to the claims of other unsecured creditors.

Covered bonds also differ from residential mortgage backed securities (RMBSs). Although RMBSs also involve the segregation of assets, the bank does not have an obligation to maintain the value of the segregated asset.

---

1 The authors are grateful to Felicity Barker, Michael Reddell and Jeremy Richardson for their valuable comments.

2 The Bill makes provision to extend the law to other entities by regulation.

3 This article looks at covered bonds issued by banks (or by banks’ funding vehicles), or by bank-equivalent entities (such as “credit institutions” in Europe), and generally refers to issuers as “banks”.

pool, and RMBS investors have a claim only against the asset pool, not a direct claim on the bank. Accordingly, a bank that has issued RMBS does not have a continuing financial interest in the asset pool, and is not liable to RMBS investors for any shortfall in its value.

Figure 1 illustrates the structural differences between covered bonds, RMBS and other wholesale funding, such as unsecured bonds.

3 Covered bond market

The global market for covered bonds is substantial, with more than EUR 2,500 billion of covered bonds outstanding in 2011, issued by more than 300 issuers from 25 countries.4 Europe is the oldest and largest covered bond market, with Germany being home to the largest investor base. However, the international market for covered bonds has experienced steady growth outside Europe over the past ten years. At times during the global financial crisis (GFC), term funding in unsecured markets became difficult for banks to obtain, and it has remained more expensive since then. Following the GFC, banks have also sought to diversify their funding sources and lengthen the maturity of their funding, partly in response to regulatory requirements. In 2012 more than half of the total value of new covered bond issues came from outside Europe.5

New covered bond markets have emerged in Canada, New Zealand and Australia. As shown by figure 2, covered bond issuance from New Zealand and Australia is relatively small on an international scale, although it is growing, as shown by new issuance in 2011 (figure 3). This growth is driven by international investors who currently look favourably on New Zealand and Australian covered bonds as they are less exposed to the effects of the European banking crisis. There are also indications of the development of an Asian covered bond market, particularly in Singapore and South Korea.

Figure 2
Total covered bonds outstanding as at 2011

Source: European Covered Bond Council (2012)

---

4 UniCredit (2012); European Covered Bond Council (2012).

5 PriceWaterhouseCoopers (2012).
4 Benefits of covered bond issuance

Covered bond issuance is generally considered to have benefits in reducing the liquidity and refinancing risk facing financial institutions. This may in turn help strengthen financial system stability. Compared to senior unsecured debt, the greater security of covered bonds attracts relatively longer-term and more risk-averse investors such as insurers, pension funds and central banks. Access to these investors allows issuers to diversify their funding, increase their liquidity at a lower price, and reduce their probability of default in times of economic stress.

As figure 4 shows, the tenor of covered bond funding by New Zealand banks tends to be longer than for other debt funding. Longer-term funding has become increasingly desirable for banks, after the GFC revealed the dangerously high exposure of many banks to rollover and funding risk, due to their heavy reliance on short term debt. New Zealand banks have also been seeking to lengthen the term of their funding in response to regulatory liquidity requirements imposed by the Reserve Bank.

The attractiveness of covered bonds to risk-averse investors made them a comparatively more resilient funding mechanism during the GFC. The GFC adversely affected unsecured funding markets, but figure 5 shows how the issuance of covered bonds by EU banks held up relatively well during a period when it was difficult to obtain funding through unsecured bond markets.

Figure 4
New Zealand banks’ covered bond and other debt issuance March 2011- December 2012

Source: RBNZ
The lower risk and longer tenor of covered bonds means that they have also had historically lower premiums relative to senior unsecured debt, even during a crisis. Figure 6 illustrates that, throughout the GFC in 2008-09 and the European sovereign debt crisis in 2010-12, covered bond spreads have generally been lower than those of senior debt.

5 Policy challenges from covered bond issuance

Although banks’ use of covered bonds to fund themselves can contribute to financial system stability, the potential losses for a bank’s unsecured creditors if the bank defaults may be greater if the bank has issued covered bonds than they would otherwise be. This is because covered bond holders have a priority claim over the cover pool assets, so the claims of unsecured creditors, including depositors, must be satisfied out of the remaining assets of the bank, i.e. those that are not in the cover pool.

Table 1
Limits imposed internationally

<table>
<thead>
<tr>
<th>Country</th>
<th>Limit</th>
<th>Imposed by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Cover pool assets &lt; 8% of total assets at time of issuance.</td>
<td>Legislation Supervisory agency</td>
</tr>
<tr>
<td>Belgium</td>
<td>Cover pool assets &lt; 8% of total assets.</td>
<td>Legislation Supervisory agency</td>
</tr>
<tr>
<td>Canada</td>
<td>Issuance limited to 4% of total assets.</td>
<td>Legislation Supervisory agency</td>
</tr>
<tr>
<td>Italy</td>
<td>Limit of 25%, 60% or 100% of assets based on capital ratio of bank</td>
<td>Legislation Supervisory agency</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Cover pool assets &lt; 10% of total assets at all times.</td>
<td>Supervisory agency</td>
</tr>
<tr>
<td>Norway</td>
<td>Case-by-case assessment.</td>
<td>Supervisory agency</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Case-by-case assessment.</td>
<td>Supervisory agency</td>
</tr>
<tr>
<td>United States</td>
<td>Issuance limited to 4% of issuer’s liabilities after issuance.</td>
<td>Supervisory agency</td>
</tr>
<tr>
<td>Singapore</td>
<td>Proposed limit of issuance &lt; 2% of total assets.</td>
<td>Legislation Supervisory agency</td>
</tr>
<tr>
<td>South Korea</td>
<td>Proposed limit of issuance &lt; 8% of total assets.</td>
<td>Legislation Supervisory agency</td>
</tr>
</tbody>
</table>

Source: European Covered Bond Council (2012), individual economies’ frameworks.
cover pool. In principle, this risk should be reflected in price, with unsecured creditors demanding a higher rate of interest to compensate for the subordination of their claim.

Internationally, limits are increasingly being used to balance the costs and benefits of covered bond issuance, by preventing bank assets from becoming too heavily encumbered by covered bond programmes (table 1). Note that these limits are not directly comparable, as countries differ in how they define various aspects of the limit, such as total assets.

Furthermore, many jurisdictions have specific legal frameworks for covered bonds. Covered bonds can be categorised as legislative covered bonds (LCBs) or structured covered bonds (SCBs). LCBs are established under a specific legal framework with generic requirements that apply to all issues under that framework. SCBs are established via contract, with the details agreed upon between the bank and the bond holder through individual contracts.

Although Europe does not have a unified covered bond legal framework, covered bond legal frameworks in Europe tend to be broadly similar and relatively prescriptive in nature. This is due to the influence of UCITS, a set of European Union requirements which accords preferential treatment to covered bonds that comply with certain criteria. In the United States, legislation has been proposed, while Canada and Australia both implemented covered bond legislation in 2012. Some Asian countries, including Singapore and South Korea, have also recently been looking to develop legislation.

Investors look for two key elements in covered bond legal frameworks. These are:
- the effectiveness of the segregation of the cover pool assets from the assets of the issuing bank; and
- the supervision of the assets in the cover pool.

Effective segregation is important as it ensures that, in the event of an issuing bank’s default, the cover pool assets remain separate from the assets of the bank, so that covered bond holders are able to enforce their security interest over this collateral. Supervision helps to ensure that the value of the cover pool assets remains sufficient to cover the bonds. To this end, many countries’ legal frameworks provide for supervision of covered bond issues by a public authority, and/or include a requirement to have an asset pool monitor.

6 New Zealand’s response

6.1 Reserve Bank regulatory limit

Before 2011 there were no legal impediments to New Zealand entities issuing covered bonds. New Zealand banks began issuing covered bonds in 2010, and five have done so to date: ASB, ANZ, BNZ, Westpac and Kiwibank. Total issuance by New Zealand banks as at April 2013 was approximately NZD 13,954 million, and has largely been in euros, Swiss francs and New Zealand dollars.

Covered bond issuance improves banks’ ability to source long-term funding, and allows them to do so at lower cost. This helps banks to meet the minimum core funding ratio requirement under the Reserve Bank’s liquidity policy and, more generally, improves their resilience in the face of short-term funding disruptions.

In April 2011, the Reserve Bank of New Zealand imposed a limit on New Zealand-incorporated banks’ issuance of covered bonds by way of a condition of their registration. This limit was introduced to balance the benefits of New Zealand banks issuing covered bonds against the potential costs to unsecured creditors, including depositors. This is consistent with the Reserve Bank’s statutory purpose, to promote the maintenance of a sound and efficient financial system (see section 1A Reserve Bank of New Zealand Act 1989).

As a result of this limit, a locally incorporated bank may not encumber more than 10 percent of its total assets as collateral for covered bonds. Banks generally build in a safety margin when complying with regulatory limits, so the actual maximum value of a bank’s cover pool assets will be somewhat lower than 10 percent of its total assets,

6 Undertakings for Collective Investments in Transferable Securities (UCITS) are a set of European Union Directives. Article 22(4) sets out the minimum requirements, summarised as: the issuer must be a credit institution; issuance must be governed by a special legal framework; issuers must be subject to special prudential public supervision; eligible cover pool assets must be defined by law; the cover pool must have sufficient collateral to cover bond holder claims throughout the term of the covered bond; and covered bond holders must have priority claim on the cover pool in the event of issuer default. (European Covered Bond Council (2013)).
and its actual level of issuance will be lower again. The Reserve Bank considers that this limit appropriately mitigates the risk to depositors and other unsecured creditors.

Table 2 sets out a stylised example to compare the potential losses for unsecured creditors in the event of a New Zealand bank failure, between the case of a bank which has issued covered bonds up to the effective limit, and a bank that has not issued any. Bank A is assumed to have issued covered bonds with a value of 8 percent of its total assets, which allows for a prudent buffer below the actual regulatory limit of 10 percent of assets in the cover pool. The rest of Bank A’s and all of Bank B’s funding are in the form of regulatory capital and unsecured funding. In both cases total capital is assumed to be 7.5 percent of total assets, which is close to the current average for large New Zealand banks.7

The table shows the impact on the two banks of losses equivalent to 20 percent of the bank’s total assets, and it is assumed at the same time that the assets in Bank A’s cover pool remain unimpaired. Both banks’ losses are allocated first to regulatory capital and second to unsecured creditors. The outcome is that Bank A’s unsecured creditors lose 14.8 percent of the value of their claim on the bank, while Bank B’s unsecured creditors lose 13.5 percent. This shows that even under these extreme assumptions,8 covered bond issuance with the regulatory limit in place only increases unsecured creditors’ loss rate by 1.3 percentage points.

In practice, even losses sufficient to push a bank into insolvency are very unlikely in New Zealand, given the high levels of capital held by New Zealand banks, which have increased further in response to increased regulatory minima following the GFC. Under any reasonable assumptions about the level of bank losses, the bank’s capital will fully absorb those losses. So overall, with the 10 percent limit in place, any increase in risk for the bank’s other creditors arising from covered bond issuance is very low, and should be offset by the bank’s increased resilience from being able to issue covered bonds.

Figure 7 shows that New Zealand banks’ cover pool assets are within the 10 percent regulatory limit. BNZ is the largest issuer of covered bonds in New Zealand and has encumbered around 7 percent of its total assets in favour of covered bonds.

---

7 The banks’ total capital adequacy ratios, which are calculated using risk-weighted assets, are currently in the range of 11.5 to 13 percent.

8 The United Kingdom Independent Commission on Banking (2011) indicates that overseas bank losses during the GFC tended to be below 10 percent of total risk-weighted assets.
Australia passed covered bond legislation in 2011 which imposes an 8 percent limit on cover pool assets. This limit is specified differently from the New Zealand limit. The New Zealand limit applies at all times, whereas the Australian limit applies only at the time of issuance. In addition, if an Australian bank holds cover pool assets in excess of the limit, it must deduct the value of the excess amount from its capital in calculating its regulatory capital adequacy ratios: if a New Zealand bank breaches its cover pool limit, it is in breach of its conditions of registration.

The Reserve Bank considers that a different limit for New Zealand banks is appropriate. Table 3 shows the total amount of assets that New Zealand and Australian banks are permitted to encumber in favour of covered bonds by comparison with the actual amounts currently encumbered. Total issuance by Australian banks as at April 2013 was around AUD 36,950 million.

Being able to issue larger absolute amounts is advantageous for two reasons. Firstly, the value of an individual covered bond issue must be relatively substantial to attract buyers on the international market – typical issuance size for covered bonds in the European market is €0.5 billion to €1 billion. Secondly, it allows repeat issuance, which is generally required to provide the necessary liquidity to attract a wide range of investors. The Reserve Bank considers that an 8 percent limit in New Zealand could prevent the small to medium sized banks from entering the covered bonds market, or from repeat issuance. This could impact on competitiveness within the New Zealand banking sector.

### 6.2 Legislation

New Zealand does not yet have any covered bond legislation in place and, as a result, all covered bonds issued by New Zealand banks are SCBs. All else equal, investors can be expected to look more favourably on LCBs, and internationally there is evidence that LCBs trade at lower spreads than SCBs, particularly during periods of reduced market liquidity.\(^9\) Consequently, without covered bonds issued by New Zealand banks being more attractive to investors, the banks will not be able to access these lower spreads.

---

\(^9\) A study by the European Central Bank (European Central Bank (2008)) found that the complexity of SCBs reduces their transparency for investors with regard to the segregation of the cover pool, and investor protection. Market turmoil in 2007 and 2008 led to a reduction in liquidity for SCBs, with the spreads of these widening relative to LCBs.
bond legislation, New Zealand banks risk being at a disadvantage, particularly given their comparatively small size. Investors may be deterred by having to spend time negotiating individual contracts with small New Zealand banks that are only able to make one-off issues: a single covered bond framework applying to all New Zealand banks should address this concern. This has the potential to reduce the banks’ funding costs, a saving which they can in principle pass on to their borrowers.

As noted above, there are two key desirable features of covered bond legislation. The first is independent supervision of cover pool assets, but there is currently no legal requirement for the cover pool assets of New Zealand-issued covered bonds to be monitored by an external party.

The second desirable feature of covered bond legislation is that the cover pool assets are effectively segregated from the assets of the issuing bank. New Zealand covered bonds are structured so that the cover pool assets are segregated from the bank’s other assets via sale to an independent special purpose vehicle (SPV) that holds the cover pool assets as collateral for the covered bonds. However, New Zealand’s bank failure management regime, which includes liquidation and a separate statutory management regime,\(^\text{10}\) raises two questions about the effectiveness of this segregation.

First, statutory management (or liquidation) triggers a moratorium and gives the statutory manager (or liquidator) certain rights, such as the right to suspend the discharge of any obligations. Under normal circumstances, the bank retains legal title to certain cover pool assets, and retains the management of these assets. If the bank defaults, the SPV (or its agent) takes over the legal title and the management of the cover pool, including the management of loan repayments on the cover pool assets. However, the moratorium may prevent the SPV (where it is only the beneficial owner of the cover pool assets) from doing this.

Second, if the SPV is found to be an ‘associated person’, ‘subsidiary’ or ‘related company’ of a bank in statutory management or liquidation, there may be a risk that it is placed into statutory management along with the bank, or that its assets are pooled with those of the bank in liquidation. This may prevent the covered bond holders from enforcing their security interest over the cover pool assets.

6.3 Reserve Bank of New Zealand (Covered Bonds) Amendment Bill

To address these issues, the Reserve Bank of New Zealand (Covered Bonds) Amendment Bill (‘the Bill’) was introduced to Parliament in May 2012. The objectives of the Bill are to:

a) provide legal certainty about the effective segregation of cover pool assets from the other assets of a bank that issues a covered bond; and

b) provide for a minimum level of monitoring of New Zealand banks’ covered bond programmes.

The Bill requires banks\(^\text{11}\) to register their covered bond programmes, subject to certain registration requirements in the Bill that relate to the segregation of the cover pool assets and their supervision by an independent cover pool monitor. The Bill also clarifies the segregation of cover pool assets from the bank’s other assets, and gives legal certainty to the separation and legal ownership of cover pool assets if a bank is liquidated or placed into statutory management under the Reserve Bank of New Zealand Act 1989, the Corporations (Investigation and Management) Act 1989, the Insurance (Prudential Supervision) Act 2010, or the Companies Act 1993. Once the legislation comes into force banks will only be able to issue covered bonds under registered programmes, so programmes that existed before the legislation came into force will have to be registered before new bonds can be issued under them.

New Zealand’s legislation aims to support the contractual issuance of covered bonds, and is therefore

---

\(^\text{10}\) Statutory management can be used in a number of circumstances, including potential insolvency of the bank, and involves the appointment of an external manager who has a range of powers, including powers to manage a bank closure.

\(^\text{11}\) The Bill will only apply to registered banks in New Zealand, although it makes provision to extend the law to other entities by regulation. As a result, only registered banks will be able to issue LCBs; indeed they will be restricted to issuing LCBs. Other entities that wish to issue covered bonds, such as non-bank deposit takers or corporate issuers, will have to issue SCBs, and the requirements in the Bill will not apply.
less prescriptive in terms of programme requirements than some European frameworks. However, it does impose a number of requirements on issuing banks, including a requirement to maintain an asset register in accordance with documented procedures. To facilitate monitoring by the Reserve Bank, there are also notification requirements on each bank in respect of any registered covered bond programme it has set up. The bank must notify the Reserve Bank of every covered bond issuance under each such programme, and of any substantial changes to any existing registered programme. The bank must also notify the Reserve Bank if at any time the value of cover pool assets is less than the value of the bonds outstanding under a registered programme.

7 Conclusion

Covered bond issuance outside Europe has grown over recent years, largely as a result of the GFC. Many banks have issued covered bonds as they provide access to a new investor base, longer term funding and reduced funding costs. This can help to increase their resilience at times when funding markets are disrupted.

Covered bond issuance has the potential to increase the risk for a bank’s unsecured creditors, including depositors. This sets a natural limit on how many covered bonds a bank would be able to issue – other creditors would demand an increasingly high price to compensate for the subordination of their claim. In addition, regulatory limits have increasingly been put in place around the world to reinforce this market discipline, and hence to balance the costs and benefits of banks issuing covered bonds. There is also a growing trend for countries outside Europe to develop specific legal frameworks to provide for supervision of cover pool assets, and for effective segregation of cover pool assets from the assets of the issuer.

New Zealand banks entered the covered bond market in 2010. The Reserve Bank has since imposed a limit restricting cover pool assets to 10 percent of total assets, and the Government has introduced specific covered bond legislation to support the issuance of covered bonds by New Zealand banks. The Reserve Bank expects that the covered bond market will continue to provide a resilient source of funding for New Zealand banks, particularly in times of stress.

References

UniCredit (2012), UniCredit 2012 Review, UniCredit
UniCredit (2013), Australian and New Zealand Covered Bond Update 15 April 2013, UniCredit
Exchange rate fluctuations: How has the regime mattered?¹

Richard Sullivan²

This article outlines the major features of New Zealand's monetary and exchange rate regimes in recent decades. The focus is on how the real exchange rate has been affected by the changing exchange rate regimes. Some simple statistical analysis suggests little difference in the behaviour of the real exchange rate between the fixed and floating exchange rate period and, importantly, the mean, range and variance of the real exchange rate prior to and since inflation targeting are virtually identical.

1 Introduction

Over the last 50 years New Zealand has employed many different approaches to managing or responding to the exchange rate, and while macro-economic performance over that period has changed markedly, the real exchange rate and its fluctuations over longer periods have displayed surprisingly little change. This article outlines how the exchange rate and monetary management have evolved over recent decades. New Zealand’s real exchange rate has fluctuated through wide ranges, but the choice of exchange rate regime or the switch to inflation targeting appears to have made little difference to the behaviour of the real exchange rate.

2 The fixed exchange rate regime

2.1 Exchange rate management

After the Second World War the international exchange rate system was that agreed to at the Bretton Woods Conference in 1944 (that established the IMF) whereby most countries fixed their currency against the USD, which in turn was convertible into gold at a fixed rate. New Zealand did not join the IMF until 1961, but maintained a fixed exchange rate regime throughout, making just two discretionary changes in the 25 years following the war.

Following a series of currency crises and exchange rate realignments around the world in the late 1960s and 1971, a temporary arrangement to restabilise currencies known as the Smithsonian Agreement was established. New Zealand followed Australia’s example by initially pegging the dollar to the United States dollar at its previous par value.

The link to the depreciating USD caused the exchange rate to depreciate against other currencies to an uncomfortable degree and in July 1973 New Zealand shifted to a fixed, but occasionally adjustable (at the discretion of the Minister of Finance), exchange rate against a basket of currencies. Discretionary changes were made to the exchange rate on a number of occasions, initially upwards to offset rising foreign inflation but increasingly downwards in response to recurrent balance of payments difficulties.³ Changes to the exchange rate also reflected particular concern about poor profitability in the agricultural sector.

Figure 1

New Zealand real exchange rate

Source: BIS, Reserve Bank

¹ A longer version of this article was presented at the Reserve Bank/Treasury exchange rate policy forum held in Wellington on 26 March 2013. Papers presented at that forum are available at http://www.rbnz.govt.nz/research_and_publications/seminars_and_workshops/Mar2013/programme.html

² I thank Anella Munro, Ozer Karagedikli, Michael Reddell and the members of the Issues and International team at the Reserve Bank for helpful comments on earlier drafts.

³ See Appendix for a chronology.
Generally, revaluations and devaluations were made in an effort to maintain competitiveness with Australia. However, sharp fluctuations in the terms of trade and relative inflation rates in the 1970s (see section 2.2) led to increasing concern about the growing frequency of the discretionary (often very large) changes in the nominal exchange rate. New Zealand’s average inflation rate was significantly higher than that of most of its trading partners, making any fixed nominal exchange rate progressively less competitive over time. For exporters and importers the uncertainty created by sharp sudden changes in the exchange rate was unhelpful, and given the size of some changes (for example, a devaluation of 15 percent in August 1975) the fear that inflation pressures were being aggravated intensified.

By 1979 it was judged that a more flexible system was appropriate, and a crawling peg was introduced. Under this system the exchange rate was adjusted against a trade-weighted basket by small amounts, sometimes daily, with relative inflation to main trading partners being the main criterion for adjustment. For the duration of this regime the average nominal movement in the currency was a depreciation of 0.5 percent per month. This regime helped ensure that price differentials alone did not lead to sustained changes in the real exchange rate.

The crawling peg lasted until June 1982 when the Government introduced a wage and price freeze as part of a heterodox approach to markedly reduce the high inflation rate. The nominal exchange rate was again fixed against its basket although it was devalued by 6 percent in March 1983 in response to an Australian devaluation.

2.2 What was monetary policy responding to?

Monetary policy and exchange rate management was just one part of an overall bundle of direct policy tools used discretionarily by governments to manage a range of external and domestic pressures, and directed towards desired industrial, social, income, redistribution and growth outcomes.

While New Zealand entered the post-Bretton Woods era at the time of an emerging commodities boom – indeed, the first two adjustments to the fixed exchange rate were revaluations – the high terms of trade were not to last long. The first oil price crisis and the accession of the UK to the European Economic Community (EEC) meant import prices rose strongly and New Zealand faced the prospect of restricted access to some export markets and faced significant new tariff barriers and quota limits in others. The terms of trade dropped sharply in 1975 and would fluctuate around this new low level until about 2005.

A deteriorating terms of trade and loss of main export markets, coupled with increased overseas borrowing, generated increasing current account deficits. Successive devaluations and other measures aimed at increasing export income and reducing demand for imports were insufficient to stem the growing external debt.

Monetary policy itself was used to target many outcomes. At various times the Reserve Bank, as directed by the Minister of Finance, implemented capital controls, set interest rate ceilings for lending and borrowing, set lending limits, set and altered reserve ratio requirements, and required banks and finance companies and other financial institutions to hold certain minimum levels of government securities.

Continuing high levels of trade protection, a growing use of subsidies for exporters, rising government debt and the “Think Big” programme of capital projects to reduce dependence on oil imports were all features of policy during this period.

2.3 Monetary policy implementation and outcomes

The main features of monetary policy implementation during the fixed exchange rate period were the use of directions to financial institutions and markets, including a variable reserve asset ratio applied to trading banks, guidelines (and caps) for lending growth, and, of course, a pegged exchange rate. With interest rates, in real terms, generally held quite low there was a fairly heavy reliance

---

4 Unsurprisingly, the REER was a lot more stable during this period, as the adjustment to nominal exchange rate was made to offset inflation differentials.

5 For a comprehensive overview of past monetary regimes in New Zealand, see Monetary Policy and the New Zealand Financial System (1992)
on more direct controls over financial institutions.

Maintaining a fixed exchange rate limited domestic monetary policy discretion, although controls on private capital flows meant that the constraints were very different than those facing a fixed exchange rate system with open financial markets (such as the UK in 1992).

A significant feature of this period was the volatile but typically rapid growth in money supply and credit. Further, there was a close correlation between cycles in private sector credit growth and the deficit in overseas exchange transactions. Periods of buoyant economic activity would be associated with rapid credit expansion, increasing imports and a widening in the current account deficit.

2.4 Setting a fixed exchange rate

Determining whether it was appropriate to change the level of the nominal exchange rate under a fixed regime required a framework for thinking about how relevant influences affected the real exchange rate that would be consistent with New Zealand economic fundamentals. Occasional devaluations and revaluations to the nominal exchange rate were made when the Minister of Finance deemed that developments (including exchange rate adjustments in Australia and the UK) had moved the real effective exchange rate (REER) too far from its appropriate level.

The Bank in 1981 noted three methods of determining an appropriate, or equilibrium, REER when setting the exchange rate: purchasing power parity, underlying external payments imbalance (from an estimated equilibrium) and asset market disturbances (Deane 1981).

Divergence of New Zealand’s inflation, particularly exporter costs, from the average inflation of its major trading partners meant that the relative PPP approach highly influenced advice. However, the Bank’s concern about the current account deficit grew over the period and the focus of exchange rate policy shifted toward maintaining external balance.

Imbalances built up gradually, but changes to the nominal exchange rate were infrequent, and hence often quite large, especially given the high and variable rates of inflation at the time. Implementation of the crawling peg led to less volatility in the REER (and the nominal exchange rate) as adjustment to the inflation differentials could be made as a series of small steps: the Reserve Bank reset the nominal exchange rate daily.

2.5 Macro-economic performance

By 1985, New Zealand’s GDP per capita had fallen from an average of 110 percent of the OECD average in 1972 to less than 95 percent. Inflation was high and volatile apart from short periods of wage and price freezes in the early 1980s. After negligible unemployment in the 1960s and first half of the 1970s, the registered unemployment rate increased steadily after 1976 to reach 5.7 percent in 1984. These trends continued throughout the structural adjustment phase described in section 3.

3. The float and structural reform

The New Zealand dollar was floated on 4 March 1985 following the removal of capital controls in late 1984. It has been allowed to freely float since, with only rare and modest intervention from the Reserve Bank since 2007.

The coincident opening of capital markets was also expected to help achieve greater financial market efficiency. Further, the development of domestic monetary policy independence would enable stabilisation of domestic variables such as inflation and interest rates: “…the changes have been designed to introduce more competition into both the domestic money market and the foreign exchange market, to broaden and strengthen these markets … and generally enhance determining an underlying balance free of “disturbances of a temporary nature”, preparing projections of “normal” current and capital flows and modelling the required exchange rate moves that would be required to reach the estimated equilibrium (with assumed trade elasticities). Deane noted “there are major theoretical and technical difficulties in its use.”

Estimating these formally faced the problem of considerable lags on the availability of suitable data.
the efficiency and efficacy of monetary policy.” (Deane, 1984)

3.1 Environment leading into the float

In the decade leading to the float the Government borrowed heavily overseas to support domestic demand at a level higher than that compatible with external balance. While this cushioned the country from the full impact of the fall in the terms of trade, it inhibited structural adjustment, and meant a large increase in external debt. Exchange rate adjustments tended to be made later than was required, and usually in large, disruptive steps.

In 1984 the consensus of official opinion was that the real exchange rate was well out of step with its equilibrium. The announcement of the snap election triggered a run on the exchange rate in the belief that there would be a post-election devaluation (in part because it became known that the Opposition Finance spokesman had indicated there would be if the then-Opposition were elected). Advice from the Reserve Bank and The Treasury to devalue prior to election was not accepted. The foreign exchange market was closed the day after the election in July and remained closed for three days, only re-opening when it was announced that the currency would be devalued by 20 percent. Once foreign exchange markets opened at the devalued rate, the Reserve Bank estimated that the support of the currency (through spot and forward sales) had cost the taxpayer around 2.3 percent of GDP.

If anything the exchange rate became harder to manage post-devaluation. Removal of interest rate controls and progressive liberalisation of capital controls opened New Zealand to large inflows and outflows of capital, complicating domestic monetary management. Over several months the ground was laid for the shift to a floating exchange rate, allowing full domestic monetary autonomy, which was announced on 2 March 1985.8

3.2 Perceived benefits of floating

The Reserve Bank cited the following benefits from floating the exchange rate (Reserve Bank, 1986, Chapter 1):

- Provide appropriate price signals for international traders and capital movements.
- Facilitate the removal of exchange controls and compulsory reserve ratios, increasing the flexibility of financial institutions.
- Remove taxpayer exposure to speculative pressure on the currency.
- Provide a less costly adjustment to external shocks, reducing the extent to which adjustment would have to occur through employment and output, and make more-apparent the extent of imported inflationary pressure.
- Make domestic policy deficiencies more apparent, including through the fact that the exchange rate can be an important indicator of the monetary policy stance.
- Reduce administrative costs.
- Overshooting in the REER would be transparent, through nominal exchange rate moves.
- Domestic monetary policy would be given independence to act, especially with regard to interest rates.
- Control of official debt, as under a fixed exchange rate any balance of payments deficit needed to be financed by official borrowing.

The move to a floating currency was seen as a way to transform New Zealand’s balance of payments difficulties, by turning any deficit and consequent pressure on the exchange rate into a market phenomenon to be financed at the market price.9 The Reserve Bank saw floating the exchange rate, and the removal of exchange and interest rate controls as part of a package of measures that could facilitate structural adjustment.

---

7 Capital controls limited the scope for pure private capital flows, but changes in the timing of import payments and export receipts greatly accentuated the pressure during this period.

8 For a full account of the process leading up to the float see Chapter 8: Exchange Rate Policy Developments in Financial Policy Reform (1986)

9 Financial Policy Reform (1986, pp 131) suggests that floating the exchange rate would enable New Zealand to preserve a balance of payments equilibrium. Indeed, anecdotes from former Reserve Bank employees suggest that some thought at the time that the current account deficit would disappear as a result.
3.3 Post-float structural reform

Following the float of the dollar, the second half of the 1980s and early 1990s saw wide ranging policy reform. Major reforms included:

- Deregulation of domestic financial markets.
- Removal of export and producer subsidies, reduction of import tariffs.
- Ending centralised wage bargaining, Employment Contracts Act.
- Corporatisation/privatisation of state-owned enterprises such as rail, forestry, banks, post office, telecoms, energy.
- Removal of barriers to entry/competition in many markets.

3.4 Reserve Bank Act 1989

Post-liberalisation the Reserve Bank continued to operate under existing legislation in which formal responsibility for monetary policy rested with the Minister of Finance. In practice the Minister of Finance delegated operational management to the Reserve Bank, hence the passage of the Reserve Bank Act in 1989 did not greatly alter the way the Reserve Bank was running monetary policy at the time. Indeed in some respects the Act formalised the focus since 1984 on reversing the poor inflation record of the previous two decades.

Section 8 of the Act states “The primary function of the Bank is to formulate and implement monetary policy directed to the economic objective of achieving and maintaining price stability.” The main features of the Act in relation to monetary policy were:

- a statutory commitment to achieving price stability as the primary function of the Reserve Bank,
- roles of Minister and Governor were clarified, including operational independence for the Bank in conducting monetary policy and requirement for public disclosure of monetary policy actions, and
- reporting and accountability for monetary policy were formalised (ie, Governor to Board to Minister, and Governor to public and Parliament e.g. the Monetary Policy Statement).

4 Achievement of price stability to present

Inflation fell within the target band in the first quarter of 1993, a few quarters ahead of schedule. The flexible inflation targeting approach that characterised the early years of disinflation has been followed ever since. Throughout this period the dollar has been floating and there have been no significant controls on capital flows. Reserve powers to undertake foreign exchange intervention have been available to the Minister of Finance and to the Reserve Bank throughout, but only a limited amount of intervention has been undertaken, and only since 2007. The method of implementing monetary policy took longer to evolve.

4.1 The TWI comfort zone

Within the first few years the Reserve Bank settled on an operating model in which the amount of settlement cash made available to settlement banks was the main instrument, and monetary policy indicators were yield gaps (between short and long rates), 90-day rates, and the TWI. The target level of system liquidity was maintained by offsetting projected government cash flows and currency transactions through open market operations.

The Reserve Bank’s preference was for the market to make corrections to financial market conditions and it was reluctant to take a strong view on any financial prices (interest rates or exchange rates). This stance gradually proved untenable.

From 1988/89, monetary policy was implemented within a framework of “comfort zones” the most important of which was typically that for the TWI. With each inflation forecast the Reserve Bank calculated the boundaries the TWI could move to without inflation departing from the target range (accounting for the then quite large estimated direct pass through of the exchange rate to domestic consumer prices). While the thresholds were not published, they were calculable with some confidence using the Reserve Bank’s published estimates of exchange rate pass-through. When the TWI approached one of the thresholds, financial markets would respond with offsetting interest rate movements, limiting the need...
for direct monetary response by the Reserve Bank. From
time to time statements ("open mouth operations") or
adjustments to the settlement cash targets were deployed.
Comfort zones were also used for other variables, but
the TWI zones were typically the most important. A feature
of the comfort zone period was relatively low short-term
volatility in the TWI, though 90-day rates exhibited quite
high levels of volatility by international standards.

4.2 The Monetary Conditions Index
(MCI)

The introduction of the MCI\textsuperscript{11} in June 1997 was in
some respects an extension of the comfort-zone system,
whereby the Reserve Bank tried to condition financial
markets to look at the monetary conditions consistent with
the inflation target, this time treating exchange rate and
interest rates together. One perception of the TWI comfort
zone was that it put a floor under the exchange rate and
enabled investors in New Zealand dollars to make one
way bets with no risk.

Pronouncements on target values of the MCI were
made quarterly. The threat of central bank intervention
in the overnight interest rate market ensured that the
market delivered a 90-day interest rate consistent with the
Reserve Bank desired monetary conditions (determined
at the Monetary Policy Statement) and the prevailing
exchange rate.

The aftermath of the Asian crisis (coupled with
successive droughts in agricultural regions) spelled the
end for the MCI. With hindsight the bands were set far too
tightly and sharp moves in the exchange rate engendered
huge volatility in short-term interest rates. And when the
exchange rate fell sharply as real conditions weakened,
the Reserve Bank was slow to reduce its target MCI,
resulting in a sharp increase in 90-day rates at a time
when both external and domestic demand was falling.

4.3 Introduction of the OCR

The Reserve Bank abandoned the MCI, and
settlement cash targets, in March 1999, introducing a
more conventional approach, directly setting a short-term
interest rate, the Official Cash Rate (OCR). The OCR
was to be set at regular intervals eight times per year, in
scheduled public announcements made each quarter at
the release of the Monetary Policy Statement, and once
between each two Statements.

4.4 Intervention

In 2004 (following extensive research over several
years, but as the dollar was rising fast from historic lows)
the Reserve Bank and the Minister of Finance signed
a Memorandum of Understanding outlining conditions
for exchange rate intervention for reasons other than
countering "extreme disorder". Work on intervention policy
had gone hand in hand with a review of reserve holdings
and the Reserve Bank began to hold more reserves (Orr
2004 and Eckhold and Hunt 2005).

As part of the process for deciding on exchange rate
intervention, the Reserve Bank released a set of criteria
under which intervention could be undertaken. It stated
that for intervention to occur, the currency level must be
exceptional and unjustified. Further, any intervention must
be opportune and likely to be effective, and be consistent
with current stance of monetary policy.\textsuperscript{12}

The first round of intervention in June 2007 had an
immediate impact on the exchange rate lasting several
days. The Reserve Bank noted at the time that it created
"doubt in the market about the future direction of the
exchange rate" and "sent a signal to the market that the
Reserve Bank was concerned about the high value of the
New Zealand dollar". Nevertheless, the exchange rate
remained high, with respite only coming from the global
financial crisis when "risky" currencies such as the New
Zealand dollar were sold off heavily.

\textsuperscript{11} The MCI was an index combining 90-day rates and the TWI
to develop a summary measure of monetary conditions
in the economy, with changes based on relative effects on
inflation and aggregate demand of the two components.
Short-term interest rates (proxied by the 90-day rate)
were judged (empirically) to be twice as influential as the
exchange rate and hence the ratio was 2:1. The Reserve
Bank set ‘tolerance bands’ around the projected path of
monetary conditions (based on the projections for the TWI
and 90-day rates). For more see http://www.rbnz.govt.nz/
monetary_policy/about_monetary_policy/0096178.html.

\textsuperscript{12} The Reserve Bank does not typically comment publicly but
releases its net purchases and position each month with a
month lag.
5 Implications

Considerable changes have taken place in exchange rate and monetary management in New Zealand over the past 50 years. But what difference have they made to, in particular, the behaviour of the real exchange rate? Different exchange rate and monetary regimes appear not to have significantly affected the REER’s overall behaviour. Indeed short-term measures to alter the nominal exchange rate in order to assist tradable sectors appear to have had little lasting effect on the REER. Targeting lower volatility in the nominal exchange rate has often meant volatility appears elsewhere in the economy.

Over the past 50 years the REER has moved generally in the direction one would expect from terms of trade movements alone (figure 2). The long, if bumpy, decline in the terms of trade from the 1950s to around 1986 was matched by a steady downward trend in the REER. However, over the next 20 years the REER was roughly flat while the terms of trade stepped up slightly at the beginning of the period, before flattening off at a level higher than that suggested by the previous relationship with the REER. But if the swings in the exchange rate reflect to some extent swings in the terms of trade, what the REER has not done is reflect the full extent of the decline in relative productivity or incomes over the full period (figure 3).

Figure 2
Terms of trade and the real exchange rate

From about 2005 the upward trend in the terms of trade has once again been matched by an upward shift in the REER. Perhaps this is due to the latest move being seen as a permanent shift upwards in the relative price of commodities, allied to the increasing wealth in the east Asian area.

Figure 3
New Zealand relative economic performance

Looking at the exchange rate performance in the pre-inflation targeting era and since inflation targeting, it is not apparent that the main statistical properties of the REER have changed. The median is almost identical in the two periods while the mean, range and shape of the distribution is also very similar.

The data in table 1 suggest that neither the exchange rate regime (comparing the various fixed rate systems versus floating) nor the presence of inflation targeting has made much difference to the characteristics of the REER. In many respects, that should not be too surprising. The real exchange rate is a real phenomenon, ultimately determined by the structural characteristics of the economy, while monetary policy and nominal exchange rate tools only affect the real exchange rate in the short term.

This is, of course, quite simple analysis only. Often fluctuations in the REER will reflect fluctuations in macro fundamentals. Sometimes, as with the terms of trade, such fundamentals can be quite variable and at other times quite stable. But what this analysis does remind us of is that even in periods with a fixed nominal exchange rate the real effective exchange rate can prove quite variable. It also provides little or no prima facie reason to think that different exchange rate regimes have made much systematic difference to the behaviour of the real exchange rate (at least at horizons beyond a month or so).
Table 1
Analysis of NZD REER

<table>
<thead>
<tr>
<th></th>
<th>Full sample</th>
<th>Fixed</th>
<th>Floating</th>
<th>pre-Inflation targeting</th>
<th>Inflation targeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>93.7</td>
<td>94.7</td>
<td>92.8</td>
<td>94.3</td>
<td>92.9</td>
</tr>
<tr>
<td>median</td>
<td>93.0</td>
<td>92.7</td>
<td>93.5</td>
<td>92.9</td>
<td>93.4</td>
</tr>
<tr>
<td>maximum</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
</tr>
<tr>
<td>minimum</td>
<td>70.3</td>
<td>70.3</td>
<td>70.4</td>
<td>70.3</td>
<td>70.4</td>
</tr>
<tr>
<td>standard deviation</td>
<td>9.9</td>
<td>10.3</td>
<td>9.5</td>
<td>10.0</td>
<td>9.8</td>
</tr>
</tbody>
</table>

References
Dalziel, P. and R. Lattimore, (2004), The New Zealand Macroeconomy, Oxford University Press
Deane, R. (1983). ‘Recent Developments in the New Zealand Foreign Exchange Market’. Address to the Centre for Money, Banking and Finance, Macquarie University, Sydney,
Reserve Bank of New Zealand (1992), Monetary Policy and the New Zealand Financial System.
Reserve Bank of New Zealand (1986), Financial Policy Reform, Wellington

Appendix A
A chronology

1967
November – NZD devalued by 19.5 percent against the USD.

1971
December – end of Bretton Woods peg to gold. NZD remains pegged to USD at previous par.

1973
July – NZD revalued by 3 percent. NZD no longer pegged to USD (in future pegged to a trade-weighted basket).
September – NZD revalued by 10 percent to insulate against foreign inflation.

1974
September – NZD devalued by 9 percent against all currencies except AUD following decision by the Australian Government to devalue by 12 percent

1975
August – NZD devalued by 15 percent.

1979
June – NZD devalued by 5 percent, and crawling peg introduced whereby smaller, more frequent changes of less than one-half of one percent would be made unannounced. Forward exchange contracts were introduced for USD. Reserve Bank would set premium or discount.

Table 1
Analysis of NZD REER

<table>
<thead>
<tr>
<th></th>
<th>Full sample</th>
<th>Fixed</th>
<th>Floating</th>
<th>pre-Inflation targeting</th>
<th>Inflation targeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean</td>
<td>93.7</td>
<td>94.7</td>
<td>92.8</td>
<td>94.3</td>
<td>92.9</td>
</tr>
<tr>
<td>median</td>
<td>93.0</td>
<td>92.7</td>
<td>93.5</td>
<td>92.9</td>
<td>93.4</td>
</tr>
<tr>
<td>maximum</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
<td>114.5</td>
</tr>
<tr>
<td>minimum</td>
<td>70.3</td>
<td>70.3</td>
<td>70.4</td>
<td>70.3</td>
<td>70.4</td>
</tr>
<tr>
<td>standard deviation</td>
<td>9.9</td>
<td>10.3</td>
<td>9.5</td>
<td>10.0</td>
<td>9.8</td>
</tr>
</tbody>
</table>
1982
June – Steady devaluation of NZD under crawling peg was suspended as Government imposed 12-month wage and price freeze. Freeze also applies to interest rates, dividend rates, directors’ fees and professional charges.

1983
March – NZD devalued by 6 percent against the basket of currencies, in response to AUD devaluation of 10 percent.
August – Reserve Bank quotation of a fixed daily USD exchange rate ceased. Quoted rate would be allowed to vary in a band in line with market forces. Reserve Bank would no longer participate in forward market.

1984
June – Reserve Bank re-enters forward exchange market, reflecting concern over likelihood of upcoming devaluation.
July – NZD devalued by 20 percent following election of a new government (and three days of foreign exchange market being closed). Controls on lending and deposit interest rates removed.
November – Abolition of overseas borrowing controls.
December – Controls on outward and inward foreign exchange capital transactions removed.

1985
March – NZD floated. Reserve Bank indicated it would remain in the market to meet New Zealand Government requirement for foreign exchange, and to smooth movements if undue volatility occurred.

1988/89
Comfort zones approach introduced.

1989
December – Reserve Bank of New Zealand Act passed, effective 1 February 1990. The Act defined price stability as the objective of monetary policy and made many significant changes in the function, operation and structure of the Bank.

1990
March – First Policy Targets Agreement signed, formalising 0-2 percent annual CPI as an operational definition of price stability, to be achieved by December 1992.
April – Reserve Bank issues first Monetary Policy Statement.

1997
June – Reserve Bank introduces MCI approach to monetary policy implementation.

1999
February – Reserve Bank announces change to implementation of monetary policy in order to simplify process. From March the Reserve Bank will announce Official Cash Rate (OCR), reviewed every six weeks in public announcements.
December – new PTA is signed with new government. Major change is directive to avoid unnecessary instability in output, interest rates and the exchange rate while maintaining the primacy of the statutory price stability objective.

2004
March – Reserve Bank and Minister of Finance sign MOU on foreign exchange intervention framework

2007
June – Reserve Bank confirms it has intervened in foreign exchange market to sell NZD.
New Zealand’s exchange rate has been the focus of much angst and debate recently. The fact that the average New Zealand income has failed to converge with the rest of the advanced world over the past few decades, has also attracted attention, and has been a subtext to the angst about the exchange rate. I agree that these are significant issues and those issues are indeed connected. Angst about the exchange rate level, and perhaps the variability, crystallises in a view that if only monetary policy were run differently the problem would go away. But the hard won monetary policy lessons of the last quarter of a century demonstrate that we cannot generate sustainably more growth (in the real economy or in exports) by keeping monetary policy unjustifiably loose. And any attempt to do so would create future inflationary problems that would be costly (in terms of growth and employment) to resolve. So New Zealand’s economic circumstances pose some serious challenges. Some things need to change. But the way that New Zealand’s monetary policy is conducted - quite conventional by advanced country standards – is not one of those things.

To explore what might be the underlying cause of New Zealand’s overvalued exchange rate let me start with an extremely stylised view of the economy, one which is easy for everybody to understand.

The economy I am thinking about is one which is at full employment and inflation is always on target so there is no need for monetary policy. Suppose however, that savings are insufficient to fund the investment needs of this economy (like New Zealand for the last 40 years). With access to global capital markets, this economy can fund its investment needs by borrowing from the rest of the world. The result is a capital account surplus. If foreign investors have any home bias in their investment decisions, then the more foreign savings that are demanded, the higher the interest rate the domestic economy needs to pay. But because the overall balance of payments is by definition always zero, this capital account surplus requires a current account deficit. The exchange rate is the price that will yield a level of exports and imports to meet this requirement and therefore the exchange rate will be more appreciated. In this framework a lack of savings relative to investment needs yields a prediction of domestic interest rates higher than the global average, a high (appreciated) exchange rate and a persistent current account deficit.¹ This prediction matches the stylised features of the New Zealand economy over the past 40 years. In passing it is worth noting that in this stylised story monetary policy played no role in generating such an outcome.

One of the worries often voiced is that New Zealand is suffering from a surge in unwanted capital inflows resulting in an overvalued exchange rate that in turn causes damage to exports and thus the economy’s growth potential. While there may be temporary surges from time to time, what we would have expected to see – if this had been a persistent problem – is lower interest rates than in the rest of the world.

Of course, our economy is never at rest, so output can cycle around its fully employed potential and inflation

¹ The trained reader will recognise this description as version of the standard Keynesian IS-LM-BP model of the exchange rate that can be found in a standard economic text book such as Wickens, Michael (2008), Macroeconomic Theory: A Dynamic General Equilibrium Approach, Princeton University Press, Princeton.

* Erratum: this article replaces original Bulletin release. Corrected to include text omitted in error.
can cycle around its target. These cyclical dynamics can generate volatility in the exchange rate. Moreover, given that exchange rates tend to move much faster than the prices of goods and services, any disturbance to the economy (whether trade related or not) can be reflected in the exchange rate overshooting its long term fair value.

Such overshooting opens up the possibility of a misallocation of resources between the traded and non-traded goods sectors. In addition, because the exchange rate is taking more than its share of the adjustment it will tend to be more volatile. Such volatility will add to the risks and uncertainties of investing in the tradables sector and thus reduce the incentives to invest.

While such a stylised framework provides a useful starting point, it cannot really be used to diagnose New Zealand’s economic conditions and offer policy options because there are too many gaps. For example, this framework provides no reason why savings would remain low (relative to investment needs) over the long run. Moreover, the framework is not rich enough to give any insight into how the economy may be damaged from the constellation of low savings, high interest rates, and high exchange rates. For instance, story has no discussion of how a high exchange rate can allocate resources away from the tradables sector towards the non-tradable sector and what that means for growth and productivity.

The papers presented today fill many of the gaps left by my stylised framework and put forward ideas that help further our understanding of exchange rate issues in the New Zealand context. Some elements of the story are straightforward, and we can feel quite confident about them. But there are many things we do not know with the degree of certainty we would wish. Some of the puzzling issues of New Zealand’s economic performance have perplexed analysts here and abroad for a long time.

Policy choices cannot wait until researchers have conclusively resolved all the puzzles. It is necessary for both the Reserve Bank and Treasury to provide advice even as we seek to increase our understanding. What we have set out today is a process of thoughts and judgements that lead authors to take the positions they hold. After the forum we will need to reflect carefully on how the insights of this analysis are incorporated into policy advice. I expect the arguments will be debated – in fact, I hope they will.

Overview of the day

The paper presented by Michael Reddell looks back over history and takes a long term perspective of the exchange rate issue. He points to the puzzle that over a number of decades the real exchange rate has not matched New Zealand’s relative productivity decline. This stylised feature of the data seems all the more puzzling given the far-reaching reforms New Zealand undertook in the late 1980s and early 1990s.

Reddell goes on to argue that not only has the exchange rate not adjusted as might have been expected, it has, if anything, been under upward pressure because of the persistent real interest rate differential. This differential reflects the fact that at any given interest rate (for example, the “world interest rate”) there is a larger gap between desired investment spending and the available national savings than is typical abroad. As in the simple thought experiment we started with, the underlying cause of the long term problem is the saving-investment imbalance.

While many people have worried about the lack of savings relative to other advanced countries, there has been relatively little thought to the investment side. Reddell is something of an exception to this. He argues it is the combination of New Zealand’s modest savings and its quite large investment needs (associated with its relatively rapid population growth) that largely resolves the puzzle. The investment needed to provide infrastructure and housing in a fast-growing population, in a country with quite modest savings preferences, results in a need for a high level of capital inflows. As above, the pressures that generate these capital inflows yield higher interest rates and a higher average real exchange rate, which crowds out business investment that would have lifted New Zealand’s productive capital and allowed progress in closing the income/productivity gaps.

The paper presented by Anne-Marie Brook starts from the current state of long-term imbalances in the New Zealand economy and examines what can be done going
forward. The focus of this paper is on savings, with some seemingly radical ideas suggested.

Unless we start confronting difficult and radical ideas, we will be stuck with the same problems we have had for the past 40 years. Brook puts forward some policy options to boost private sector saving including tax changes, a range of different retirement income policy settings, and policies that affect the housing market.

One option considered is the introduction of tax-preferred saving vehicles to provide investors with options other than property. Specific options include: (i) reduce the tax rate on capital income, by extending the existing PIE regime; (ii) move towards a private save-as-you-go (SAYGO) pension system, which would involve pairing compulsory savings with means-testing of NZS; and (iii) strengthen the default policies that nudge individuals to save more (as KiwiSaver does). In addition, Brook considers a number of policies that would dampen house price inflation, which may help to boost private saving.

Turning to cyclical issues Willy Chetwin, Tim Ng and Daan Steenkamp examine real exchange rate volatility over the short term (periods up to one year) and the medium term (periods longer than one year). They find that the short-term volatility in New Zealand has been generally greater than in most other advanced countries. Significantly, they find that cyclical exchange rate volatility has been large and that we have had longer-lasting cycles when compared to other countries.

Such volatility opens the possibility of economic harm. Evidence of that harm is difficult to find, probably because it is always difficult to see what otherwise could have been under different circumstances. While we will never know what the counterfactual could have been, it seems implausible to think a less volatile exchange rate would have led to the same economic outcomes we have today.

To help mitigate this harm, Chetwin et al discuss various policy options that may be available. First, foreign exchange intervention might influence the short-term exchange rate volatility, but it is unlikely to reduce medium-term volatility. Second, improve the flexibility and efficiency of the economy and financial system to reduce the reactivity of the exchange rate to changing fundamentals. Third, subject to inflation expectations remaining anchored, use the scope within the flexible inflation targeting framework to trade off volatility in the exchange rate against volatility in inflation. Four, introduce, or use more extensively, other non-monetary policy stabilisation measures, such as: fiscal policy, macro-prudential tools, and supplementary stabilisation instruments.

Some of the proposed stabilisation measures might make a difference - and several are things I would support, whether or not they made any difference to the amplitude/length of the exchange rate cycle. For example, we should avoid the situation New Zealand found itself in from 2005 to 2008, where increases in government spending exacerbated the imbalances already apparent in an overheated economy. And reviewing microeconomic regulatory structures to help ensure that the economy can respond more flexibly to shocks, (for example, removing barriers to a responsive housing supply), are likely to make good sense. Avoiding policy-induced swings in migration is also likely to help (although many of the swings aren’t directly policy-induced at all). Reducing the cyclicity of domestic demand, the pressures that monetary policy has to lean against, is almost certainly desirable where possible - and is a case both our institutions have been making for decades. The use of macro-prudential tools, such as the new counter-cyclical capital buffer, may also help in this regard, although these instruments are more likely to provide better resilience in financial crises than do much to dampen upswings.

Enzo Cassino and David Oxley examine the relationship between exchange rate movements and the real economy. They survey a vast amount of theoretical and empirical literature for evidence on the relationship between fluctuations in the exchange rate and its impact on the economy. They find the evidence is often ambiguous. The relationship between changes in the exchange rate and adjustments in the economy does not follow any universal law, but depends on the nature of the shocks

---

1 These are not new ideas. The Reserve Bank and Treasury looked into the issue in the joint Supplementary Stabilisation Instruments Report in 2006 - undertaken when domestic demand pressures appeared to be pushing the exchange rate to uncomfortable levels. The Reserve Bank also provided advice on this issue to the Finance and Expenditure Committee inquiry in 2007. Papers at the joint Treasury/Reserve Bank/VUW conference in 2011 touched on this issue.
affecting the economy. Thus, while it is possible that any exchange rate overvaluation may have a negative impact on the economy, the existing empirical evidence does not allow them to reach a conclusive view.

Concerns about the exchange rate often give rise to questions about alternative regimes. The possible alternative regimes – floating, fixed or hybrid – are explored in the paper by Willy Chetwin and Anella Munro. They consider the trade-offs an economy faces when deciding on its combination of exchange rate, monetary policy and capital account policies.

We all may like to have independent monetary policy to control inflation, a stable and predictable exchange rate, and free access to global capital. Unfortunately, the famous “impossible trinity” of international finance tells us we can only have two of the three. Advanced economies outside the euro area have tended to choose open capital accounts, independent monetary policy for inflation control, and have foregone control over the exchange rate. New Zealand has made a similar choice. If New Zealand was to move in a different direction and pursue greater exchange rate control, that would imply less use of monetary policy for stabilising domestic conditions such as inflation and output, or a less-open capital account and probably require the holding of a larger stock of foreign currency reserves.

The paper presented by Richard Sullivan provides a history of New Zealand’s monetary and exchange rate regimes since the break-up of the Bretton Woods system in the early 1970s. Sullivan focuses on the real exchange rate and how varying regimes affected its performance over the last 40 years. In large part, most exchange rate regimes New Zealand has tried – and we have tried many—have seen large real exchange rate variation. Sullivan finds that the mean, range, and variance of the real exchange rate prior to, and since the introduction of the flexible inflation targeting regime, are virtually identical. Moreover, he also finds that whatever exchange rate system is used, fluctuations in the real exchange rate have been driven by traditional economic drivers such as the terms of trade, relative cyclical economic performance and inflation outcomes.

Conclusion

The papers presented in this forum cover a great deal of ground and confirm the widespread sense in the public debate that there are some exchange rate issues that matter for reversing New Zealand’s poor long-term economic performance. Much of the public debate so far has centred on what monetary policy can do about an overvalued currency. But the papers presented today demonstrate that the issue is much bigger than monetary policy.

As much as we would like it otherwise, the overwhelming evidence is that monetary policy just cannot make a sustained difference to the real exchange rate. At the margin, monetary policy and foreign exchange rate intervention can perhaps take out the worst of the peaks and the troughs of the cycle in exchange rates.

There are non-monetary policies that could be used to reduce the long-run average of the real exchange rate. For example, fiscal policy could be geared towards increasing public savings (in the process building fiscal buffers and expanding NZSF contributions). Policy options to increase private savings include: taxing income from savings at a lower rate than from labour income; automatic enrolment of all workers into the KiwiSaver scheme; or even making KiwiSaver mandatory. Those responsible for such non-monetary policies might well give serious consideration to some of these policies. In addition, improving our understanding of New Zealand’s desired savings and investments would be useful, especially since the interaction between our low savings and heavy investment in housing has undermined New Zealand’s economic performance.

A number of non-monetary measures that might be used to moderate the exchange rate cycle have also been looked at over the course of the day, including: fiscal policy, macro-prudential policy, and various supplementary stabilisation instruments. Further work on the likely impact of these measures would be useful. Irrespective of whether they can change the real exchange rate much, some of these measures would be good to implement in their own right.
Updating the Reserve Bank Museum

by Matthew Wright

The Reserve Bank Museum opened in September 2006 after a two-year development period. Over the last year the Museum has been revised, enhancing its ability to conduct a growing public financial literacy programme and to play a role promoting key Bank messages to the general public.

1 History and role of the Reserve Bank Museum

The Reserve Bank Museum opened in September 2006, after a two year development process. By May 2013 it had received nearly 48,000 visitors, including school groups attending as part of an ongoing financial literacy programme. The original target had been 5000 visitors per annum.

The Museum is a significant direct point of regular two-way contact between the Reserve Bank and wider public, and one of the communications vehicles the Bank uses to bring key messages to that audience. This role has expanded and evolved particularly since 2011. Currently the Museum is engaged in a financial literacy programme for schools, starting as early as Year 4 and including talks pitched for high school economics students.

During this period some minor amendments to the Museum’s long-term content were implemented,1 but the only major change to the permanent exhibitions was the addition of the MONIAC econometric computer, on long-term loan from the New Zealand Institute of Economic Research.2

In 2012 the Reserve Bank Museum Committee requested a review and renovation of the Museum displays. The primary driver was that display licences for much of the multi-media content, procured from third-party archival sources, had been obtained on a five-year basis and required renewal. There had also been significant wear and tear on the permanent displays, some minor errors had been noted, and much of the data and chart content dated from 2005-06 when the panels were written. A general review and update seemed appropriate.

1 However, temporary exhibitions with contemporary relevance were an annual feature.
2 The MONIAC was brought to working condition in the Reserve Bank property workshop during early 2007, with input both from Reserve Bank staff and from Victoria University of Wellington. See T. Ng and Wright, M, (2007), ‘Introducing the MONIAC: an early and innovative economic model’, Reserve Bank of New Zealand Bulletin 70(4).
2 Reviewing and updating the Reserve Bank Museum

The review was conducted by a sub-group of the Committee, with input from a professional museum display company. Peer review of proposed new content was conducted by relevant staff within the Reserve Bank.

The review asked two key questions. First, had the intervening years introduced changes in perspective that required re-casting? When some of the displays were developed in 2005-06 they had been effectively a commentary about a decade or so just gone. The practical and philosophical challenges of writing contemporary history, with its “recency” issues, are well known; and the passage of years made it possible to gain a perspective of distance, creating opportunities to put the displays in a fresh context if appropriate.

Second, what practical additions or changes could be made on the basis of five years’ visitor experience? This question was underpinned by the growing role of the Museum as a public education resource, and as a communications channel to the general public. Both functions had been anticipated from the outset, but the opportunity existed to refine the content on the basis of experience, and better suit the Museum for this role in the future by improving its user-friendliness for its target audiences.

On review, no significant revision of the range of permanent exhibits and overall shape of the Museum was thought necessary; the broad mix of content was robust and the original decisions were endorsed. However, perspectives had been gained in the intervening years and some content was re-cast where necessary, notably the panel outlining the Reserve Bank’s legislative foundation, and the panels outlining the regulatory function, which had expanded significantly since the Museum was first mooted.

Most of the other information panels were updated with new data; and opportunity was also taken to extend...
the range of physical objects on exhibit.

New artefacts include a wider range of currency, such as a 2500-year-old bronze coin, on long-term loan from Te Papa Tongarewa, the Museum of New Zealand, and provided to draw interest and give context to the New Zealand notes and coins on display. The number of coin and note drawers was materially increased, drawing on the Reserve Bank’s extensive numismatic collection.

A special display was added on inflation, which remains a primary function of the Reserve Bank.

The audio-visual content was reviewed and, where appropriate, re-licensed. The original flat-panel displays were renewed with off-the-shelf computer technology, creating the ability to amend the information simply by adding or deleting files.

Special attention was given to ‘future proofing’ by eliminating material such as specific numbers that could ‘date’, on the basis that hand-held computing made it possible to put regularly changing data online.

Provision was made to add QR codes to the main information panels in due course, enabling visitors with smart-phones to automatically connect to a wide range of online resources published by the Reserve Bank, and extend their visitor experience after leaving the Museum.

At the time of writing the target date to complete the revisions was July 2013.

Bibliography

AN 2013/01
Productivity and the New Zealand dollar
-- Balassa-Samuelson tests on sectoral data
Daan Steenkamp, June 2013

The Balassa-Samuelson hypothesis suggests that countries with a weak relative productivity performance should, over time, see a low or falling real exchange rate. This note uses detailed sectoral data to test the hypothesis over the period 1978-2006 and fails to find any evidence of the expected effect.

AN 2013/02
Drying out: Investigating the economic effects of drought in New Zealand
Gunes Kamber, Chris McDonald and Gael Price, June 2013

In early 2013 New Zealand suffered its worst drought in decades. Using several new aggregate climate indicators and a newly-developed model, we estimate the economic impact of the drought. Annual real GDP in 2013 could be around 0.6 percent lower than it would otherwise have been.

AN 2013/03
New Zealand’s short- and medium-term real exchange rate volatility: drivers and policy implications
Willy Chetwin, Tim Ng and Daan Steenkamp, June 2013

Some simple cross-country comparisons of exchange rate volatility are presented, suggesting that New Zealand’s exchange rate has been more volatile than those of many of its peers. The note also discusses possible reasons for the volatility, and possible policy responses.
NEWS RELEASES

RBNZ consults on capital rules for housing loans
26 March 2013

The Reserve Bank is reviewing the housing loan capital adequacy requirements currently in place for banks, and today released a consultation paper (PDF 380KB) that reviews an important aspect of these rules.

Reserve Bank Deputy Governor Grant Spencer said the housing loan requirements determine the amount of capital that banks need to set aside to cover potential losses from lending to the housing sector. The rules, set in early 2008 as part of the Bank's implementation of the Basel II capital adequacy regime, are reviewed periodically in light of evolving market trends and risks.

“The aim of the current review is to ensure that banks’ baseline capital requirements for housing loans properly reflect risk in the housing sector, particularly in relation to Loan to Value Ratios (LVR). The Bank is proposing higher capital requirements for high LVR loans.

“A review is timely right now given the Reserve Bank’s current proposal to introduce a macro-prudential policy regime. It makes sense to get the baseline capital requirements right before the macro-prudential framework is introduced,” Mr Spencer said.

The Reserve Bank also intends to review other aspects of banks’ capital holdings against housing loans.

Any changes coming out of the review will result in adjustments to the Reserve Bank’s existing regulatory requirements on banks.

Submissions on the proposals are sought by 16 April 2013.

Reserve Bank Bulletin released
27 March 2013


The Bulletin’s first article discusses various core inflation measures and how they are used in the economic analysis that feeds into New Zealand monetary policy.

The Bulletin’s second article outlines work that is under way to provide the government with resolution tools it can use in the unlikely event of bank failure. These tools include Open Bank Resolution. The article assesses the recovery and resolution framework in New Zealand in the context of the Financial Stability Board principles that are driving similar developments internationally.

The Bulletin’s third article outlines the Reserve Bank’s involvement in the operation of the New Zealand payment system, as a provider and operator of the Exchange Settlement Account System (ESAS) and the NZClear securities settlement system.

Developments in the overnight indexed swap (OIS) market are explored in the Bulletin’s final article. It concludes that OIS prices are an unbiased gauge of market expectations of future monetary policy decisions.

RBNZ reviews Non-Bank Deposit Takers regime
4 April 2013

The Reserve Bank today released a consultation paper (384KB) on its review of the prudential regime for Non-Bank Deposit Takers (NBDTs).

NBDTs are entities that offer debt securities to the public, and borrow and lend money, or provide financial services, or both, but which are not banks. In New Zealand, they are commonly finance companies, building societies and credit unions.

Reserve Bank Deputy Governor Grant Spencer said: “NBDTs play a valuable role in the financial system by providing alternative deposit products to customers and investors, and alternative sources of funding for individuals and businesses.

“With the core parts of the prudential regime for this sector having been in place since late 2010, it is timely to now step back and assess the framework’s overall operation and efficiency and to ensure it is appropriately tailored for the current NBDT environment.”

Key parts of the consultation document include fine-tuning the definition of what constitutes an NBDT and ensuring the appropriate supervisory arrangements are in place for the sector.

The paper also looks at the underlying objectives of the regime, as well as considering the prudential and disclosure requirements, the offences and penalties in
place for non-compliance, and crisis management powers.

“In looking at these matters, the Bank is conscious of the licensing regime for NBDTs that is currently before Parliament, and how this will affect the regulation of NBDTs in future,” Mr Spencer said.

The Bank will prepare a report for the Minister of Finance on the outcomes of the review, which will then be tabled in Parliament. More information on the Reserve Bank’s prudential supervision of NBDTs is available on the Bank’s website.

Submissions on the consultation are sought by 17 May 2013.

Addressing housing pressures key to stability
8 April 2013

Avoiding another costly housing boom is critical for economic and financial stability, particularly at a time when the economy faces headwinds from an overvalued exchange rate, drought and a substantial programme of fiscal consolidation, Reserve Bank Deputy Governor Grant Spencer said today.

In a speech to the Employers and Manufacturers Association in Auckland, Mr Spencer said the housing market is important to New Zealanders, from an economic, financial and emotional perspective. It is also highly relevant for the Reserve Bank’s monetary and financial stability policies.

On average, the gearing of New Zealand households is relatively low, but a growing number of households have high levels of debt with interest payments consuming a large portion of their income. As well as leaving households vulnerable, this could also put pressure on banks’ balance sheets.

Easy credit conditions and rising house prices have prompted more people to buy homes, and with construction still at a slow pace, this has contributed to excess demand and added house price pressures, Mr Spencer said.

“We are left with concerns that the current escalation of house prices is increasing risk in the New Zealand financial system by increasing both the probability and potential effect of a significant downward house price adjustment that could result from a future economic or financial shock.”

In the short-to medium-term, we want to ensure that the banking system is adequately capitalised for the risks associated with mortgage lending, and also avoid demand pressures that can create a destabilising overshoot of house prices while additional supply is gradually brought on stream.

If the housing market momentum continues and adds inflationary pressures, a monetary response would become more likely.

Macro-prudential tools, which the Bank is currently consulting on, may help to rein in credit supply decisions by banks and moderate credit demand from households. But these tools are not as powerful as monetary policy.

Mr Spencer said housing supply pressures in Christchurch will be addressed over coming years as the major rebuild programme gathers pace. Auckland’s situation is more complex, with a range of supply constraints and cost factors that need to be worked on.

Bank failure resolution: checking the emergency kit
11 April 2013

New Zealand is building a strong framework to respond efficiently, flexibly and swiftly in the rare event a bank should fail, the Reserve Bank’s Head of Prudential Supervision Toby Fiennes said today.

In a speech to the Institute of Directors in Wellington, Mr Fiennes said the Reserve Bank had considerable safeguards in place to prevent bank crises, including supervising banks and having conservative capital and liquidity requirements.

“I want to emphasise that New Zealand banks are sound and stable and we see the risk of failure currently as very low. However, there is a need to think about how to handle potential stresses, rather like regularly checking your earthquake survival kit at home to make sure it contains everything you might need,” he said.

Mr Fiennes said every financial crisis would be different
and so it was vital the failure resolution emergency kit was flexible, well-equipped and effective. The Open Bank Resolution (OBR) policy is a good example of this.

"Open Bank Resolution is a tool that gives government an additional option to taxpayer bailout or liquidation. It’s not the only option that will be available on the day, but its existence provides important incentives for bank shareholders and management to minimise the risk of failure."

OBR is a mechanism for reopening a bank very rapidly after a failure event. Unlike liquidation, transaction accounts are released to the bank’s customers as swiftly as possible so they can carry on making and receiving payments. The first losses are borne by the bank’s existing shareholders, then a portion of depositors’ and unsecured creditors’ accounts are frozen if required, to be released in whole or in part as resources are available. A government guarantee protects the unfrozen portion of their accounts.

While a number of countries have deposit insurance in place to protect bank depositors in a bank failure, such a scheme is not a direct alternative for OBR, Mr Fiennes said. It is not a case of choosing between OBR or deposit insurance. OBR is applicable both in a world with deposit insurance and one without.

He said that in 2011 the Government decided not to introduce a deposit insurance scheme in New Zealand because it may reduce the incentive for banks and others to manage their risk properly, is difficult to price and not always effective in preventing bank runs.

More information on Open Bank Resolution is available on the Reserve Bank website.

**OCR unchanged at 2.5 percent**

24 April 2013

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

Reserve Bank Governor Graeme Wheeler said: "The outlook for monetary policy remains consistent with that described in the March Monetary Policy Statement.

"Despite continued strains in Europe and disappointing data in some countries most recently, global financial market sentiment remains buoyant and the medium-term outlook for New Zealand’s overall trading partner GDP growth remains firm.

"Growth in the New Zealand economy has picked up. Consumer spending has increased and rebuild activity in Canterbury is gaining momentum. House price inflation is high in some regions, despite prices already being elevated. The Bank does not want to see financial or price stability compromised by housing demand getting too far ahead of supply."
“Fiscal consolidation is constraining aggregate demand. In addition, drought has lowered agricultural production and will likely also negatively affect farm output in the coming season. International dairy prices have spiked higher in response to the drought, but these price gains could prove temporary.

“The New Zealand dollar remains overvalued and is higher than projected in March. Further appreciation has occurred partly in response to the announcement of a substantial quantitative easing programme in Japan. The high New Zealand dollar continues to be a significant headwind for the tradables sector, restricting export earnings and encouraging demand for imports.

“The CPI increased 0.9 percent in the year to the March quarter and is expected to remain close to the bottom of the target range this year. Weak near-term inflation prospects need to be balanced against our projection for inflation to gradually rise towards the 2 percent target midpoint.

“At this point, we expect to keep the OCR unchanged through the end of the year.”

RBNZ concerned over growing financial stability risks
8 May 2013

While the financial system remains sound, developments in private sector credit and the housing market point to increasing risks to financial stability in New Zealand, Reserve Bank Governor Graeme Wheeler said today, when releasing the Bank’s May 2013 Financial Stability Report.

“Housing pressures are increasing risk in the financial system,” Mr Wheeler said. “House prices relative to disposable incomes are already high by international standards. Further price escalation will worsen the potential damage that could result from a housing downturn following an economic or financial shock.

“Our concerns are shared by the OECD and by the IMF in its recent review of the New Zealand economy. Housing risks have also been noted recently by all three of the major international credit rating agencies.

“Housing pressures, arising from pent-up demand, limited supply and the lowest interest rates in 50 years are being felt particularly in Auckland and Christchurch, where supply constraints are greatest. Demand is being underpinned by easier credit conditions, both in terms of lower mortgage rates and an increased willingness by banks to lend at high loan-to-value ratios (LVRs).”

Mr Wheeler said a strengthening of global financial market sentiment in recent months is contributing to the easier conditions by reducing bank funding costs and making offshore funding more readily available. “Global sentiment is also contributing to New Zealand’s overvalued exchange rate, which is continuing to hinder a rebalancing of activity towards the tradables sector that would assist in reducing external vulnerabilities.”

With the credit cycle now turning upwards, there are signs that the post-GFC recovery in household savings may be stalling. Household debt is rising from a level that is already high relative to incomes.

Leverage in parts of the agricultural sector also remains high, and borrowing by the sector is increasing at a time when recent drought conditions could expose financial vulnerabilities for some farmers.

“Reflecting our concerns around housing sector developments, the Reserve Bank has been developing a macro-prudential policy framework. We have recently consulted on this framework and will soon be signing a memorandum of understanding with the Minister of Finance to confirm the key elements of the policy, including governance arrangements,” Mr Wheeler said.

Deputy Governor Grant Spencer said that, while housing risks are growing, banks are performing well financially and have strong balance sheets. Their capital levels comfortably meet the new Basel III requirements that took effect in January.

“Looking forward, we want to ensure that bank capital requirements adequately reflect the risks around housing lending and accordingly we are undertaking a housing capital review. In the first stage of this review the Bank is increasing the risk weights applying to high LVR housing loans for the four major banks that use their own models as a basis for calculating minimum capital requirements.

“The increase in the risk weights, applying to all current and new high LVR loans for the major banks, will result in...
an average increase in capital held for housing of around 12 percent and will take effect from 30 September 2013.

“With regard to the new macro-prudential policy, the public consultation has provided useful feedback on the costs and benefits of the proposed framework and on the potential effectiveness of the various instruments. Overall, we do not envisage major changes to the framework proposed in the consultation documents. Over the next two months, we will be consulting further with the banks to establish the implementation details of the various instruments so that we are able to use them as necessary,” Mr Spencer said that the Reserve Bank is also strengthening regulation in a number of other areas, including OBR pre-positioning, a review of the Bank’s oversight of the payments system and the implementation of a new prudential regime for the insurance sector.

RBNZ signs MOU on use of macro-prudential tools
16 May 2013

The Minister of Finance, Hon Bill English, and Reserve Bank Governor, Graeme Wheeler, have signed a Memorandum of Understanding on Macro-Prudential Policy, as announced today in the Government’s Budget Statement.

Mr Wheeler said that the MOU provides governance arrangements for the use of macro-prudential tools that are designed to promote greater financial system stability.

“Under the MOU, the Reserve Bank would consult the Minister of Finance ahead of the bank making any macro-prudential policy decision. However, final policy decisions would be made independently by the Reserve Bank,” Mr Wheeler said.

This follows public consultation by the Bank on four macro-prudential tools that would:

- build additional resilience in the financial system during periods of rapid credit growth and rising leverage or abundant liquidity; and
- dampen excessive growth in credit and asset prices.

“These new tools could be used from time to time to help avoid extremes in credit and asset price cycles. They can promote financial stability by helping to build capital buffers and reduce incentives for speculative behaviour, which can contribute to boom-bust cycles in credit and asset prices,” Mr Wheeler said.

The four new tools agreed under the memorandum include:

- Adjustments to the Core Funding Ratio
- A Countercyclical Capital Buffer
- Adjustments to sectoral capital requirements
- Quantitative restrictions on the share of high loan-to-value ratio (LVR) loans to the residential property sector.

Mr Wheeler said work will now focus on ensuring the new tools can be implemented by registered banks, which account for most lending to New Zealand households and businesses.

“Over the next two months, we will be consulting further with the banks to establish the implementation details of the various instruments so that we are able to use them as necessary.”

Reserve Bank releases position paper following macro-prudential consultation
17 May 2013

The Reserve Bank today released its response to submissions (PDF 207KB) and a paper summarising its final policy position (PDF 305KB) following the public consultation on its macro-prudential policy framework that took place in March and April.

Today’s release comes after yesterday’s Budget announcement that the Minister of Finance and the Governor have signed a Memorandum of Understanding defining the operating guidelines and governance arrangements for macro-prudential policy.

Deputy Governor Grant Spencer said: “The consultation process has provided useful insights into the four macro-prudential instruments that we described in the consultation papers and on the implementation framework that we proposed.

“This feedback is assisting us in the design of the instruments and in refining the policy framework. However, it has not resulted in major changes to the framework.
"We will now be looking to incorporate operational details of the macro-prudential policy instruments into the Banking Supervision Handbook and we will consult further with the banks on this in the coming weeks. This will then enable the macro-prudential framework to be put in place, for potential future use," he said.

More information about macro-prudential policy, as well as a simple Q&A document can be found on the Reserve Bank’s website.

**Forces affecting the NZ economy and policy challenges**

30 May 2013

The Reserve Bank will need to draw on all its policy instruments to achieve its price and financial stability objectives in an environment of domestic and external pressures, Governor Graeme Wheeler said today.

“As a small open economy, New Zealand can expect to be buffeted by an array of shocks,” Mr Wheeler said in a speech to the Auckland Institute of Directors. "But these are extraordinary times.

“Not only does the economy need to absorb the impact of a significant drought and the resource allocation associated with rebuilding our second largest city, we also have to adjust to heavy capital inflows that cause our exchange rate to appreciate and reduce the profitability and competitiveness of our tradables sector.

“And we need to do so at a time when house price inflation is increasing risk in the New Zealand financial system.

“Many of these challenges will be with us for some time. Meeting our price and financial stability objectives, will require us to draw on the full array of policy instruments, including macro-prudential instruments, as appropriate.”

Mr Wheeler said that the exchange rate and the housing market present difficult challenges for monetary policy when both the currency and asset prices appear to be overvalued and investor demand is expected to remain strong.

“New Zealand’s exchange rate is significantly overvalued. Fortunately it has retreated a little in recent weeks with a stronger US dollar. However, investors seem undeterred by the fact that our exchange rate is over-valued, the current account deficit is sizeable and private sector external indebtedness is high. For the current exchange rate to be sustainable in the long term, sizeable increases in the terms of trade and/or productivity would be needed.

“Investors also appear to downplay the liquidity risks inherent in a small market like New Zealand. This is reflected in our past exchange rate cycles that have exhibited substantial overshooting followed by sharp and rapid exchange rate depreciation.

“The Reserve Bank has been responding to the rising exchange rate through two avenues: in maintaining the Official Cash Rate (OCR) at an historically low level; and through a degree of currency intervention.

“The downward pressure on inflation exerted by the high exchange rate means that the OCR can be set at a lower level than would otherwise be the case. In recent months we have undertaken foreign exchange transactions to try and dampen some of the spikes in the exchange rate.

“But we are also realistic. We can only hope to smooth the peaks off the exchange rate and diminish investor perceptions that the New Zealand dollar is a one-way bet, rather than attempt to influence the trend level of the Kiwi. We are prepared to scale up our foreign exchange activities if we see opportunities to have greater influence.”

Mr Wheeler said that the Bank is also concerned about the financial stability risks associated with the housing market, in particular the scale of housing lending, and especially high loan-to-value ratio (LVR) lending.

“Risks associated with excessive housing demand could normally be constrained by raising official interest rates and letting them feed through into higher mortgage costs. However, this would carry significant risks of a further strengthening in the exchange rate and further downward pressure on tradable goods prices. This might, in turn, be expected to push CPI inflation further below the 1 to 3 percent target range.

“This is where macro-prudential policies can play a useful role in promoting financial stability. Capital and liquidity overlays can help build up buffers in the banking system while adding to the cost of bank funding. And loan-
To-value restrictions may help to reduce the actual supply of mortgage lending.

“If house price pressures abated, it would increase the possibility that the OCR could remain at its current level for longer than through this year. Similarly, if housing pressures are much less of a concern and the exchange rate continues to appreciate and the inflation risk looks low, it may create opportunities to lower the OCR,” Mr Wheeler said.

“Macro-prudential measures can be useful in helping to restrain housing pressures, but they are no panacea. This reinforces the importance of measures to enhance productivity in the construction sector, free up land supply, and examine related tax issues.”

**OCR unchanged at 2.5 percent**

13 June 2013

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

Reserve Bank Governor Graeme Wheeler said: “The global outlook remains mixed with disappointing data in Europe and some other countries, and more positive indicators in the United States and Japan. Global financial sentiment continues to be buoyant and the medium term outlook for New Zealand's main trading partners remains firm.”

“Growth in the New Zealand economy is picking up but remains uneven across sectors. Consumption is increasing and reconstruction in Canterbury continues to gather pace and will be reinforced by a broader national recovery in construction activity, particularly in Auckland. This will support aggregate activity and eventually help to ease the housing shortage.

“In the meantime rapid house price inflation persists in Auckland and Canterbury. As previously noted, the Reserve Bank does not want to see financial or price stability compromised by housing demand getting too far ahead of the supply response.

“Despite having fallen over the past few weeks, the New Zealand dollar remains overvalued and continues to be a headwind for the tradables sector, restricting export earnings and encouraging demand for imports. Fiscal consolidation will continue to constrain aggregate demand over the projection horizon.

“Annual CPI inflation has been just below 1 percent since the September quarter of 2012, largely reflecting falling prices for tradable goods and services. While tradables inflation is likely to remain low, annual CPI inflation is expected to trend upwards through the forecast period.

“Reflecting the balance of several forces, we expect annual GDP growth to accelerate to about 3.5 percent by the second half of 2014, and inflation to rise towards the midpoint of the 1 to 3 percent target band.

“Given this outlook, we expect to keep the OCR unchanged through the end of the year.”

View the Monetary Policy Statement at http://www.rbnz.govt.nz/monpol/statements/

**NZ regulatory regime well adapted to financial landscape**

19 June 2013

Effective prudential regulation is a crucial component of a sound and efficient financial system, the Reserve Bank’s Head of Prudential Supervision Toby Fiennes said.

In a speech to the Law and Economics Association of New Zealand, Mr Fiennes said the international regulatory framework has developed rapidly over recent years and New Zealand has responded accordingly.

“The global financial crisis has led banking regulators around the world to revisit their whole approach. Here in New Zealand, the finance company failures and the repercussions from the Canterbury earthquakes have underlined the importance of sound regulation that can help prevent failures.

“We have strengthened and built on the key features of our regime, including an early tightening of liquidity standards, reflecting the adverse liquidity shock experienced during the global financial crisis. We have been fast adopters of the tougher Basel III capital standards, with some tailoring to New Zealand conditions. We have also extended our prudential oversight regime to cover insurers and non-bank deposit takers (NBDTs).”

“The New Zealand approach places significant...
emphasis on self-discipline and with regulatory requirements we have tried to minimise complexity while ensuring strong capital and liquidity buffers,” Mr Fiennes said.

“This approach works well for us in New Zealand. We have a relatively simple financial system, for which a straightforward, conservative approach is well-suited.”

Mr Fiennes said New Zealand’s financial system remains in fundamentally good shape, with the banking sector maintaining high levels of capital and adequate liquidity buffers, the core payments systems generally operating smoothly and the insurance sector positioning itself well for future shocks.

“But New Zealand can’t afford to be complacent. We will continue to be vigilant and forward-looking in our supervision with a focus on key risks, key business drivers and board accountability,” Mr Fiennes said.

“As well as strengthening the oversight of systemically important payment and settlement systems, the Reserve Bank will also look for opportunities to simplify regulatory regimes and harmonise them across sectors.”

Mr Fiennes said legislation does not require the Reserve Bank to protect against every failure – no regulatory regime could realistically achieve this - nor to protect consumers from the direct effects of failure. However, the regulation and supervisory regime does provide significant safeguards to reduce the likelihood and impact of failures.

“Although failures are unlikely, we will remain prepared and will continue to develop our response toolkit, drawing on insights from international experience.”

In a speech to an Anti-Money Laundering and Countering Financing of Terrorism seminar in Wellington, Mr Edwards said there were two key reasons the new AML regime is important.

“First, our AML regime is part of a co-ordinated international effort to tackle two worldwide problems: criminal activity that is made more attractive when the proceeds are able to be laundered, and the funding of terrorist attacks.

“The second purpose of the Anti-Money Laundering and Countering Financing of Terrorism Act 2009 is to maintain and enhance New Zealand’s international reputation for a sound and high-integrity business environment.”

The Reserve Bank, the Department of Internal Affairs and the Financial Markets Authority are tasked with supervising entities under the Act and are well placed to begin their new role, Mr Edwards said. The purpose of this supervision is to check that firms have the systems in place to comply with their AML obligations, including detecting and reporting suspicious activity.

While the new regime beds in, the emphasis will be on the monitoring of compliance with the Act.

“We expect that our monitoring activity will alert us to any breaches that will be investigated and potentially result in enforcement actions.

“Supervision is a two-way street; willing and enthusiastic participation by industry will make the process more efficient and make the regime more effective,” Mr Edwards said.

Notes to editors

Money laundering is how criminals disguise the illegal origins of their money. Financers of terrorism use similar techniques to money launderers to avoid detection by authorities and to protect the identity of those providing and receiving the funds.

The Reserve Bank of New Zealand supervises banks, life insurers, and non-bank deposit takers.

The Financial Markets Authority supervises issuers of securities, trustee companies, futures dealers, collective investment schemes, brokers, and financial advisers.

Supervisors well placed for new anti-money laundering regime

20 June 2013

New Zealand’s new Anti-Money Laundering (AML) regulatory regime, taking effect from 30 June, will help to take the profit out of crime, reduce the chances of New Zealand being involved in terrorism financing and enhance New Zealand’s reputation on the global stage, Reserve Bank Anti-Money Laundering manager Rob Edwards said today.
The Department of Internal Affairs supervises casinos, non-deposit taking lenders, money changers, and any other financial institutions not supervised by The Reserve Bank or The Financial Markets Authority.

Examples of financial activities regulated under the AML/CFT Act include (but are not limited to):

- accepting deposits or other repayable funds from the public
- making a loan to or for a customer
- issuing a debit or credit card
- managing the means of payment
- supplying goods through a finance lease (other than for consumer products)
- providing remittance services which transfer money or property
- issuing or accepting liability under life insurance policies
- issuing or selling securities and derivatives
- safekeeping or administering cash or liquid securities on behalf of other persons
- exchanging foreign currency.
PUBLICATIONS

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

Recent Reserve Bank Discussion Papers

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

2013
DP2013/01  Export performance, invoice currency, and heterogeneous exchange rate pass-through
  Richard Fabling and Lynda Sanderson

Analytical Notes

2012
AN 2012/01  House price expectations of households: a preliminary analysis of new survey data
  Graham Howard and Özer Karagedikli
AN 2012/02  Kiwi drivers - the New Zealand dollar experience
  Chris McDonald
AN 2012/03  Currency intervention – the profitability of some recent international experiences
  Enzo Cassino and Michelle Lewis
AN 2012/04  In search of greener pastures – improving the REINZ farm price index
  Ashley Dunstan and Chris McDonald
AN 2012/05  A model for interest rates near the zero lower bound: An overview and discussion
  Leo Krippner
AN 2012/06  Not a jobless recovery, just a slow one
  Rebecca Craigie, David Gilmore and Nicolas Groshenny,
AN 2012/07  Risk, return, and beyond: A conceptual analysis of some factors influencing New Zealanders’ investment decisions
  Elizabeth Watson
AN 2012/08  Extending the Reserve Bank’s macroeconomic balance model of the exchange rate
  James Graham and Daan Steenkamp
AN 2012/09  Do actual and/or expected OCR changes affect the New Zealand dollar?
  Jason Wong and Bevan Cook
AN 2012/10  Modelling New Zealand mortgage interest rates
  Enzo Cassino
AN 2012/11  Building a picture of New Zealand manufacturing
Gael Price
Market perceptions of exchange rate risk
Michelle Lewis

2013
AN 2013/01  Productivity and the New Zealand dollar - Balassa-Samuelson tests on sectoral data
Daan Steenkamp
AN 2013/02  Drying out: Investigating the economic effects of drought in New Zealand
Gunes Kamber, Chris McDonald and Gael Price
AN 2013/03  New Zealand’s short- and medium-term real exchange rate volatility: drivers and policy implications
Willy Chetwin, Tim Ng and Daan Steenkamp

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

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

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

**Vol. 75, No. 3, September 2012**
- Alan Bollard – Reflections from 2002-12
- The economic impact of the Canterbury earthquakes
- Asset returns and the investment choices of New Zealanders
- Foreign currency reserves: why we hold them influences how we fund them
- Dealing with debt: speech to the Auckland Employers and Manufacturers Association
- Learnings from the Global Financial Crisis: Sir Leslie Melville Lecture, Australian National University, Canberra

**Vol. 75, No. 4, December 2012**
- Matching workers with jobs: how well is the New Zealand labour market doing?
- What is the repo market? Why does it matter?
- Recent trends and developments in currency 2011/2012
- Financial accounts and flow of funds

**Vol. 76, No. 1, March 2013**
- Measures of New Zealand core inflation
- Open Bank Resolution - the New Zealand response to a global challenge
- Reserve Bank payment system operations: an update
- Developments in New Zealand’s overnight indexed swap market