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How volatile are New Zealand's terms of trade? An international comparison

Daan Steenkamp¹

The terms of trade are a key influence on New Zealand's economy, and have often been quite volatile. This article compares New Zealand's experience with those of a group of other advanced economies. Cycles in New Zealand's terms of trade have been relatively large, but similar to those in the other advanced commodity exporting countries, such as Australia and Norway. Volatile export prices have typically been the main factor in the variability of commodity-exporting countries' terms of trade

1 Introduction

The terms of trade are important. An improvement in the price of exports relative to the prices of imports makes the country as a whole better off. But the terms of trade are something New Zealand has little control over – as a small country, largely selling commodity-based products,² the prices of our exports are largely set in international markets. Commodity prices also tend to be more variable than the prices of manufactured goods or of services.

Fluctuations in the terms of trade have been a common feature of New Zealand's economic history, and interludes like the period from around 1989 to 2003 in which the terms of trade were stable have been the exception rather than the rule.

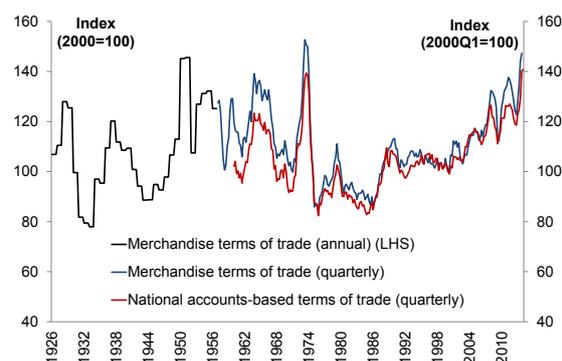
This article compares fluctuations in New Zealand's terms of trade since 1970 to those of a group of advanced economies. We look at the variability in the overall terms of trade, and at the sources of that variability, focusing on import and export prices separately.

2 New Zealand's terms of trade

Figure 1 compares two of the most commonly used measures of New Zealand's terms of trade. The national accounts measure is based on implicit deflators

for exports and imports of both goods and services.³ The merchandise terms of trade are based on the ratio of indices of the transaction prices of merchandise imports and exports (i.e. goods, not services). The two measures show similar patterns. In this article we use national accounts deflators as these are more comprehensive and internationally comparable measures of traded goods and services prices, allowing cross-country comparisons back to 1970.

Figure 1
New Zealand terms of trade



Source: OECD, Statistics New Zealand.

Note: Merchandise includes only trade in goods, while the national accounts-based series includes both goods and services trade.

New Zealand's terms of trade have increased markedly over the past decade. Higher terms of trade represent an increase in the real purchasing power of New Zealand production – more imports can be afforded for a

¹ Thanks to colleagues at the Reserve Bank for helpful comments, especially Chris Hunt, Anella Munro, Miles Parker, Michael Reddell, Jeremy Richardson, and Christie Smith.

² The term 'commodities' is used quite loosely, to encompass unprocessed products (e.g. crude oil, coal, logs or wool) and products subject to basic processing (e.g. milk powder or butter).

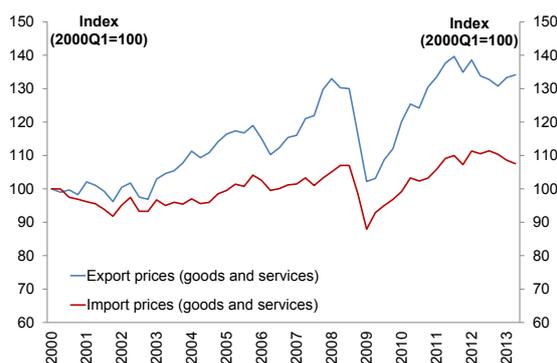
³ In the System of National Accounts, trade is recorded when economic ownership of goods changes and when services are provided.

given volume of New Zealand exports. If the terms of trade today were at 2000 levels then, all else equal, real national income would be around 12 percent lower than it is.⁴

The terms of trade are a valuable summary statistic, but the source of the improvement in the terms of trade also matters.⁵ Generally, higher export prices might have quite different distributional implications than if the price of a single key commodity rises very sharply. Likewise, falls in real import prices will have a different impact than higher real export prices, even though the terms of trade may be the same in the two scenarios. For example, the inflationary implications of a fall in import prices may be quite different to those of an increase in export prices. Generally weaker import prices across the board will also affect people differently than a very sharp fall in a single import price such as the price of oil.

The increase in New Zealand's terms of trade over the past decade or so has reflected rising real world export prices (figure 2), concentrated on a relatively small number of commodities. Real world import prices have

Figure 2
New Zealand real export and import prices (SDR terms)⁶



Source: IMF, Statistics New Zealand.
Note: Deflated using advanced economy CPI obtained from the IMF.

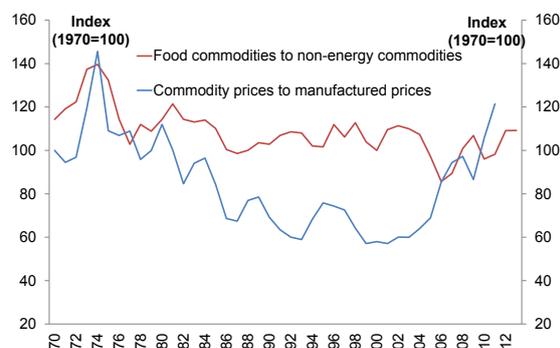
⁴ Calculated, approximately, as a 40 percent rise in the terms of trade, multiplied by an average share of imports and exports of around 30 percent of GDP.

⁵ Steenkamp (2014) discusses the relative price changes and structural shifts that have occurred in the New Zealand economy since the recent pickup in the terms of trade. For more on the macroeconomic implications of the volatility and cyclical nature of the terms of trade and real exchange rate see Grimes (2006) and Chetwin, Ng, and Steenkamp (2013), respectively.

⁶ Special drawing rights (SDRs) are an international reserve currency whose value is calculated as a weighted average of the US dollar, euro, pound and yen. Prices converted using period average rates of SDRs per unit of national currency.

changed very little – like most other advanced economies, New Zealand has benefited from the expansion of low cost manufacturing in East Asia reducing non-oil import prices, but we have also faced much higher real oil prices. Consistent with this New Zealand experience, the ratio of non-energy commodity prices to manufactured prices, for example, has picked up substantially since the early 2000s (figure 3). Over the past 25 years or so, prices for food commodities (the bulk of New Zealand's commodity-based exports) have increased about as much as other (non-energy) commodities.

Figure 3
Relative commodity prices



Source: Grilli and Yang (1988), Pfaffenzeller et al. (2007), World Bank, author's calculations.

But the focus of this article is on the variability in the terms of trade, not their level. As Figure 1 illustrates, while there have been apparent step changes in the terms of trade from time to time, reversals in the terms of trade ("cycles") have been more common.

Variability in the terms of trade can be difficult to cope with. For example, high terms of trade volatility can obscure price signals, creating uncertainty and risk for investment plans and potentially adversely affecting the efficiency of resource allocation. Export price volatility tends to be a particular issue in commodity exporting economies, as commodity prices have tended to be more volatile than other categories of exports.⁷

⁷ Several factors may make commodity prices more volatile and/or persistent than those of manufactured goods. These include, for example, the relatively slow supply response of mining and agricultural production, existence of anticompetitive practices and/or government export bans. The impact on terms of trade volatility will depend on the specific commodities exported and the concentration of commodity exports in a given economy.

Across advanced economies, those countries with more volatile terms of trade also tend to have had more volatile real exchange rates. New Zealand's terms of trade and real exchange rate (trade-weighted index, TWI) have historically been correlated, both in the fixed and floating exchange rate periods (figure 4, and see Sullivan 2013).⁸ Not all big swings in the exchange rate are linked to changes in the terms of trade – such as the swings in the late-1990s in the exchange rate. But big falls in the terms of trade have tended to be accompanied by falls in the real exchange rate. For example, the sharp decline in New Zealand's terms of trade between early 2008 and the middle of 2009 during the Global Financial Crisis (GFC), was matched by a similar fall in the real exchange rate, which smoothed New Zealand dollar export returns. When the exchange rate and the terms of trade move together the exchange rate acts as a buffer for the whole economy. But movements in the exchange rate will also affect returns for producers in individual sectors not directly experiencing changing terms of trade.

Of course, terms of trade fluctuations are far from the only, or even the biggest, changes facing advanced

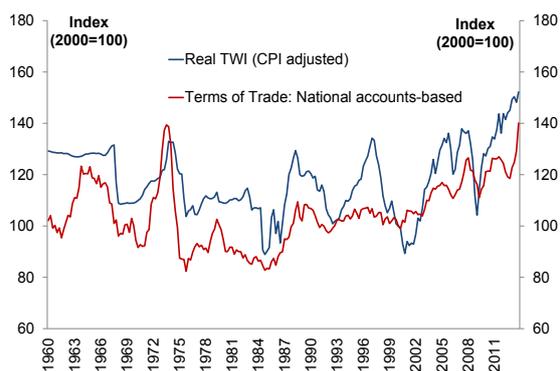
economies. The global recession of 2008/09 illustrated how rapidly manufactured export volumes could fall in the face of a major adverse shock to demand, even though product prices then did not change very much. By contrast, commodity producing economies can usually sell all they produce, but the prices those goods are sold at can be very variable.

3 Some international comparisons

Having had an initial look at New Zealand's experience, this section compares the terms of trade fluctuations of 17 advanced countries since 1970.⁹

Since 2000 New Zealand's terms of trade have risen by much more than most of the countries in our sample (figure 5). The increase has been smaller than in Norway or Australia, both substantial commodity exporters (figure 6), but bigger than in Canada. While Canada also exports a lot of commodities, automotive sector manufactured exports are the largest single component of Canadian exports. At the other end of the sample, Finland, South Korea and Japan have experienced material falls in their respective terms of trade.

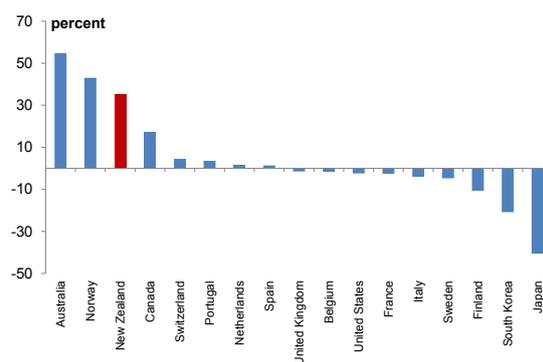
Figure 4
Terms of trade and real exchange rate



Source: OECD, RBNZ, Statistics New Zealand.
Note: Real TWI in this chart is an internal RBNZ backdated version of the official TWI-5 series.

⁸ In commodity exporting economies, a positive correlation between the terms of trade and the real exchange rate may, for example, be the result of stronger domestic demand from higher export prices. Even though spending effects from terms of trade changes tend to take time to affect the real economy, and therefore inflation, the nominal exchange rate may quickly be bid-up in anticipation of consequent demand pressures and monetary policy tightening. Benigno and Thoenissen (2003) provide a theoretical framework linking the terms of trade and real exchange rate.

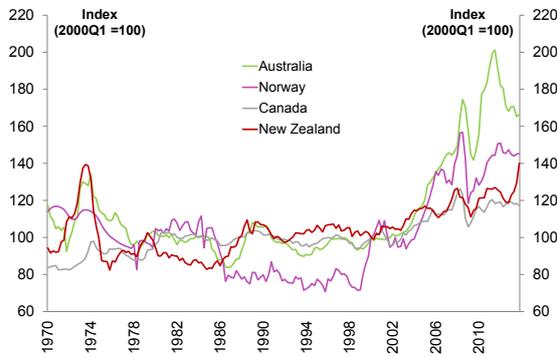
Figure 5
Cumulative terms of trade changes since 2000Q1



Source: OECD, author's calculations.

⁹ The sample includes the 17 countries in the OECD database that have quarterly national accounts deflators available from 1970 onwards: Australia, Belgium, Canada, Finland, France, Italy, Japan, South Korea, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Other OECD commodity exporters such as Chile are excluded because quarterly OECD terms of trade series are not available for the whole sample.

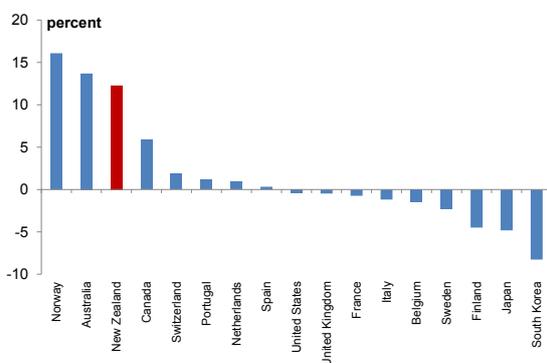
Figure 6
Terms of trade of selected commodity exporting countries



Source: OECD, author's calculations.

Terms of trade changes tend to matter less if a country does not do much external trade. The larger the share of trade in an economy's output, the larger is the boost to domestic income from a higher terms of trade. Figure 7 proxies recent income gains and losses by accounting for each country's foreign trade share in GDP. For example, even though New Zealand's terms of trade have risen much less than Australia's, because New Zealand's foreign trade as a share of GDP (around 30 percent) is materially higher than Australia's (around 20 percent), the income gains, as a share of GDP, have been almost as large in New Zealand as in Australia. Japan, on the other hand, has had a very large fall in its terms of

Figure 7
Income gain (loss) from terms of trade change since 2000



Note: Calculated as average trade share (average of exports and imports to GDP) on average since 2000 multiplied by the change in the national-accounts based terms of trade between 2000Q1 and 2013Q4.

trade, but foreign trade makes up only around 14 percent of Japan's GDP, ameliorating the extent of the income loss.

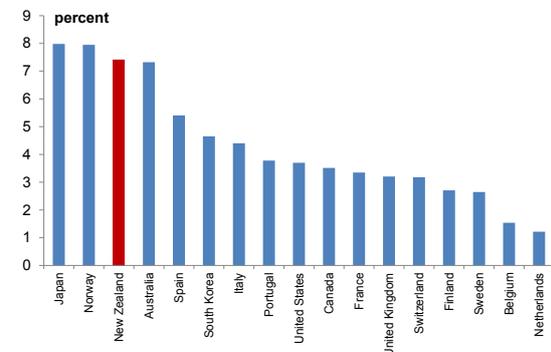
Several methods could be used to compare the variability of the terms of trade across countries. Two simple measures of volatility are presented in this article, namely mean absolute changes, and standard deviations of percentage changes in (log) levels. To identify cycles, the Bry and Boschan (1971) algorithm is used (see box A).

3.1 Volatility of the terms of trade

One way of looking at volatility is just to compare standard deviations of annual or quarterly changes. Figure 9 uses annual standard deviations and shows that New Zealand's terms of trade have been volatile by advanced economy standards. The other commodity exporting countries in the sample have also had volatile terms of trade. But volatility has not been restricted to commodity exporters – over this sample period Japan had the most volatile terms of trade. This was also the result found in an earlier study, covering the period 1960 to 1987 (Makin 1992).

But the terms of trade are not always volatile. For example, in the 1990s New Zealand's terms of trade variability was quite low by its own historical standard and in comparison with advanced economies (figure 10).¹¹

Figure 9
Terms of trade: Standard deviation of annual percentage changes since 1970



¹¹ Grimes (2006) describes some of the macroeconomic implications of the sharp fall in New Zealand's terms of trade volatility in the 1990s.

Box A

Defining cycles

To sift out the short-term noise and identify cycles in each country's data, the Bry and Boschan (1971) algorithm as adapted by Harding and Pagan (2002) is used. The Bry-Boschan algorithm identifies peaks and troughs in a series, based on minimum criteria for phases (trough-to-peak or peak-to-trough) and for completed cycles an up-swing plus a down-swing). Cycle durations are determined with the constraints that peak-to-trough and trough-to-peak durations must be at least two quarters and that a full cycle has a minimum duration (peak-to-peak or trough-to-trough) of five quarters (in other words, a single quarter's movement in the terms of trade will never be counted as a cycle). These minimum durations are the same as those used to identify exchange rate cycles in a cross-country comparison by Chetwin, Ng, and Steenkamp (2013).¹⁰

¹⁰ The Bry and Boschan approach also involves smoothing the series with a moving average. The same moving average length of 6 quarters is used as in Chetwin, Ng, and Steenkamp (2013).

Figure 8 shows one example of the application of the algorithm: the terms of trade turning points identified by the algorithm for New Zealand since 1970. On this measure, there have been nine complete cycles (upswing plus downswing) in the terms of trade over that period, some of which were quite brief. Reversals in the terms of trade have been more common since 2000 than in the 1980s and 1990s.

Figure 8
Bry-Boschan turning points in New Zealand's terms of trade
(*upswings shaded*)



Figure 10
Terms of trade: Standard deviation of annual percentage changes during the 1990s

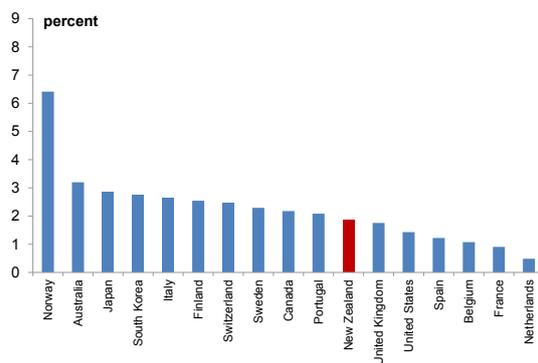


Figure A1 in the appendix provides additional cross-country comparisons, based on the absolute change and standard deviations of terms of trade at quarterly and annual frequencies since 1970.

3.2 How long are the cycles?

The length of New Zealand's terms of trade cycles (proxied by the number of complete cycles over the whole period, figure 11) does not stand out. Figures 12 and 13 compare the mean lengths of upswings and downswings in the terms of trade across the advanced economies in the sample.¹² The length of upswings in New Zealand's terms of trade is slightly above the median of the sample, while the length of New Zealand's downswings is close to the median.

¹² Figures A2 and A3 in the appendix provide additional cross-country comparisons of the mean and median lengths and magnitudes of up- and downswings in each country's terms of trade.

Figure 11
Number of complete terms of trade cycles since 1970

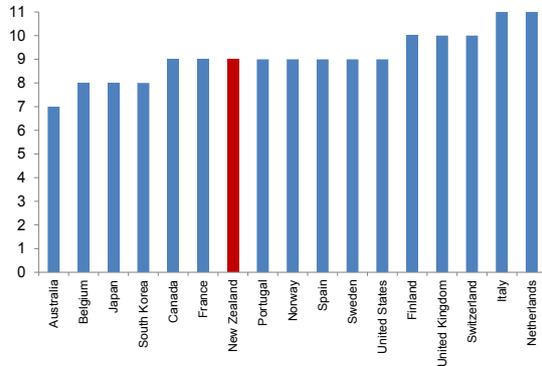


Figure 12
Mean lengths of upswings

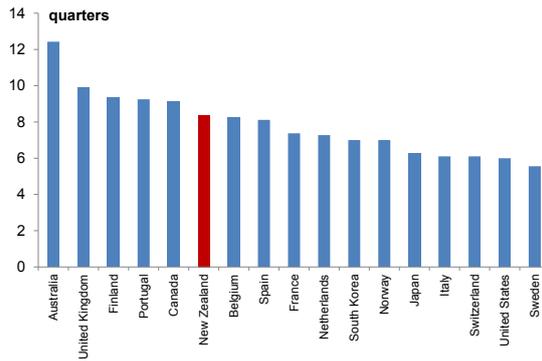
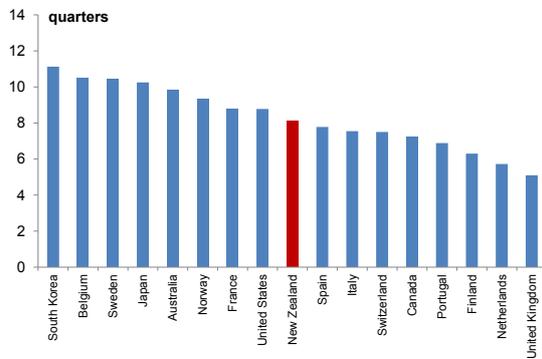


Figure 13
Mean lengths of downswings



3.3 How large are the cycles?

New Zealand has experienced relatively large upswings and downswings, although these have been smaller than those in Australia, Norway and Japan (figures 14 and 15).¹³

Figure 14
Mean magnitudes of upswings

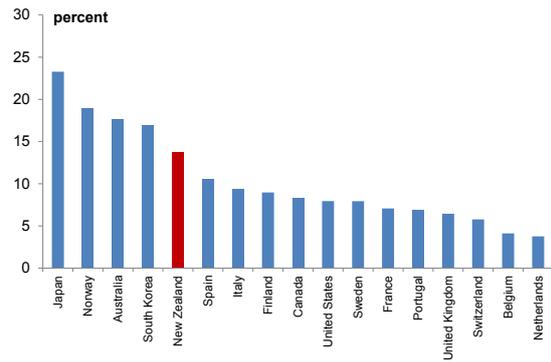
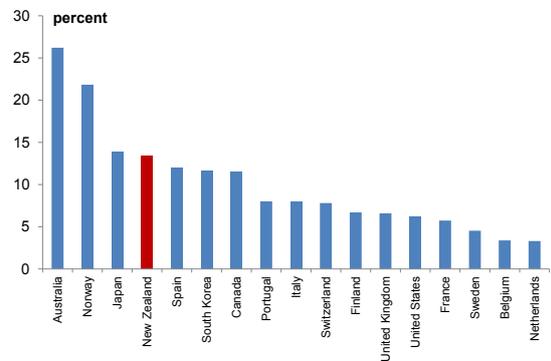


Figure 15
Mean magnitudes of downswings



4 Components of the terms of trade

4.1 New Zealand import and export prices

This section looks at the variability in import and export prices separately. The overall terms of trade are not affected by the currency in which import and export prices are expressed (as it is the ratio of these two). But exchange rate changes mean that the prices of exports and imports individually can at times look quite different,

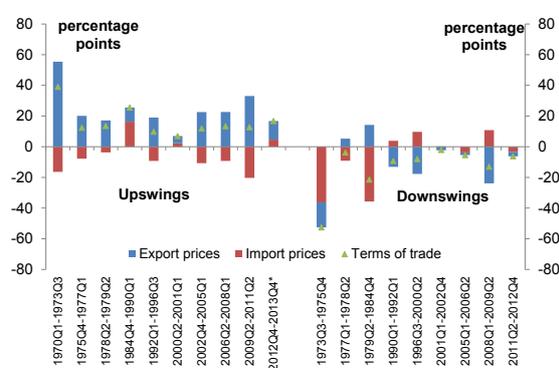
¹³ The central result that New Zealand and other commodity exporting countries stand out in terms of the magnitude of their terms of trade cycles does not change when slightly different cycle duration parameters are used.

depending on whether they are expressed in local currency or in foreign currency terms. If, for example, the exchange rate falls in response to a decline in the foreign currency price of exports, the resulting New Zealand dollar export prices might be little changed, while New Zealand dollar import prices would increase. And yet in this example, the fall in the terms of trade was generally regarded as resulting from export prices: the foreign currency export price has dropped and the foreign currency import price is unchanged – exactly the reverse of the story in New Zealand dollars. For this exercise, we proxy the ‘world prices’ each country pays for its imports and receives for its exports by expressing each series in SDR terms. This approach is most likely to be valid for commodity-exporting countries, since advanced countries’ commodity exports are rarely denominated in local currencies and prices are set in global markets.¹⁴

Figure 16 shows the separate contributions of world (SDR) import and export prices to each of the upswings and downswings (shown in figure 8) in New Zealand’s terms of trade.¹⁵ As noted earlier, commodity prices tend to be more volatile than those of manufactures so it is no surprise that increases in the foreign prices of New Zealand’s exports have typically been the most important driver of upswings in New Zealand’s terms of trade, including the upswings since 2000. In terms of trade downswings, export prices have also been important, but the two ‘oil shocks’ of the mid and late 1970s illustrate cases where foreign import price changes (in this case, primarily a price change in another commodity) have been important sources of terms of trade volatility. Export and import prices expressed in SDR terms have generally moved in the same direction – over the sample there are only three years where they moved materially in different

directions.¹⁶ The most striking of these episodes was the oil shock of 1973-1975, when markedly higher world oil prices were associated with a very sharp fall in world agricultural commodity prices, but on a smaller scale 2013 was another example. More generally, (commodity-dominated) export prices have been more volatile, moving more than import prices in 33 of the past 44 years.

Figure 16
Contributions to terms of trade up- and downswings
(SDR terms)



* Incomplete upswing

The impact of exchange rate changes is captured if we look at prices in New Zealand dollar terms. One way of illustrating the difference is to look at the 2008/09 recession when the world price of New Zealand’s exports fell by almost 25 percent, lowering the terms of trade (see figure 17). But the exchange rate also fell sharply, so that during the worst of the recession, New Zealand dollar export prices were still higher than they had been immediately before the recession began.

¹⁴ See Parker and Wong (2014) for more detail on the pass-through of exchange rate changes to import as well as output prices.

¹⁵ Note that the reason why downswings look small compared to upswings in the chart partly reflects base effects. For example, a 50 percent fall in prices (from, say, 100 to 50) followed by a 100 percent rise (from 50 to 100) yields the same absolute change in prices.

¹⁶ Here, ‘material’ means absolute changes in the two series that are greater than 5 percent.

Figure 17
Export prices and the exchange rate in 2008/9

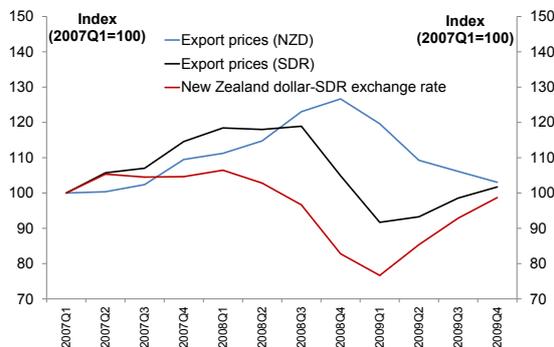
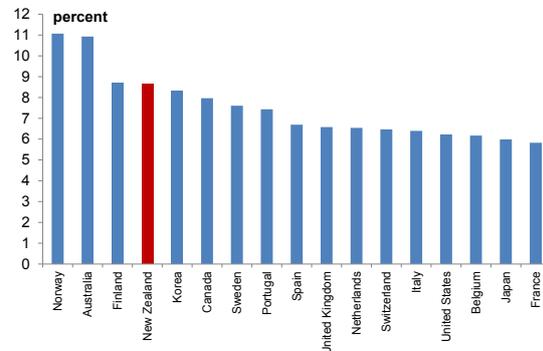


Figure 19
Export price volatility
(SDR terms, annual standard deviation of percentage changes)

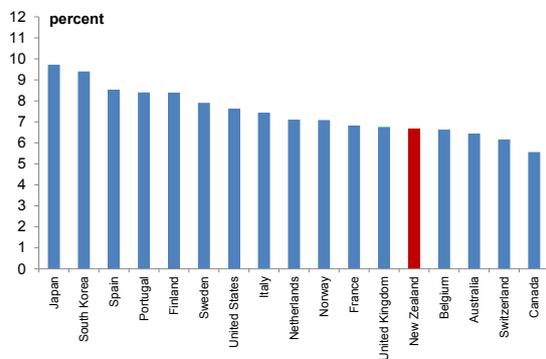


4.2 International comparison: import and export prices

4.2.1 How volatile are import and export prices?

Import price volatility has been relatively low in New Zealand (as it is in the other commodity exporters, figure 18). This is not surprising as food and commodity imports are low as a share of GDP in New Zealand, while advanced economies that are more highly dependent on commodity imports, such as Japan and South Korea, have experienced high import price volatility.

Figure 18
Import price volatility
(SDR terms, annual standard deviation of percentage changes)



On the other hand, and much as expected, the volatility of the international prices of New Zealand's export prices is relatively high. This is also the case for the other commodity exporters (figure 19).

4.2.2 How long are import and export price cycles?

The average duration of New Zealand's import price cycles has been similar to those in other developed economies (figures 20 and 21). The length of New Zealand's export price cycles has also been not unusual. Upswings have been larger than the median in the sample (figure 22), but downswings have been relatively short (figure 23).

Figure 20
Mean lengths of import price upswings
(SDR terms)

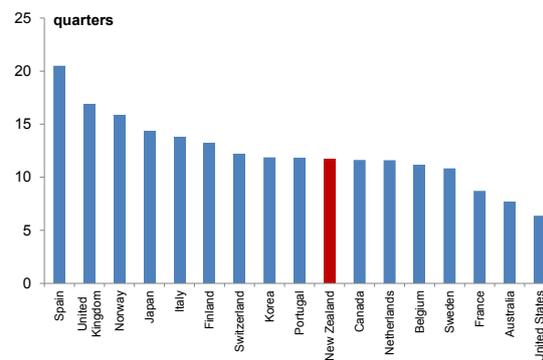


Figure 21
Mean lengths of import price downswings
(SDR terms)

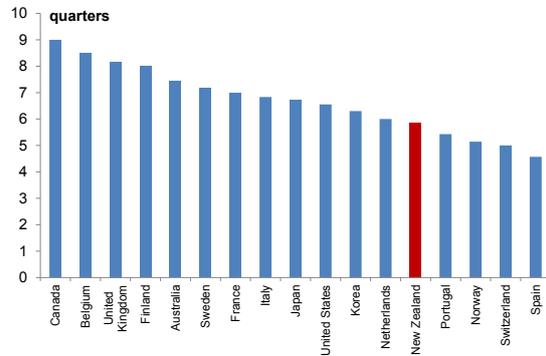


Figure 22
Mean lengths of export price upswings
(SDR terms)

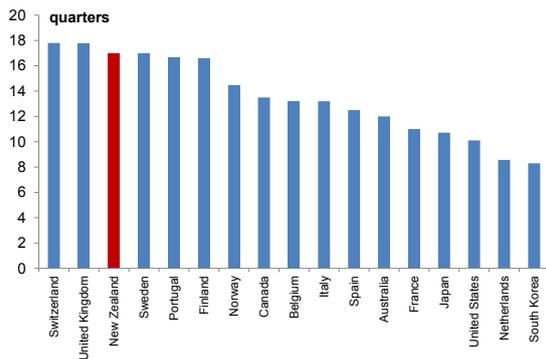
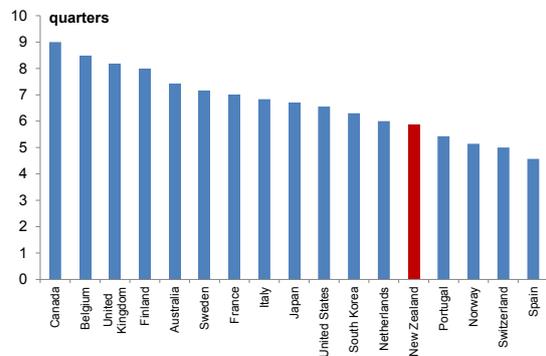


Figure 23
Mean lengths of export price downswings
(SDR terms)



4.2.3 How large are import and export price cycles?

The magnitudes of New Zealand's import and export price swings stand out only a little more. In the case of imports, upswing cycles have been relatively small (figure 24), while the downswings have been slightly larger than the median of the sample (figure 25). Export price upswings have been relatively large by advanced economy standards (figure 26), while downswings stand out less (figure 27).

Figure 24
Mean magnitudes of import price upswings
(SDR terms)

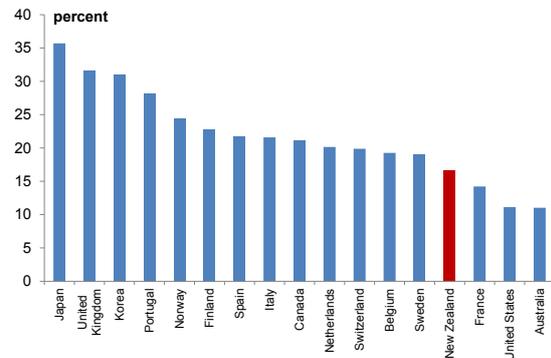


Figure 25
Mean magnitudes of import price downswings
(SDR terms)

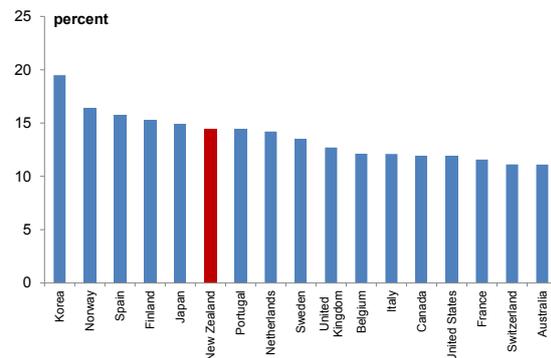


Figure 26
Mean magnitudes of export price upswings
(SDR terms)

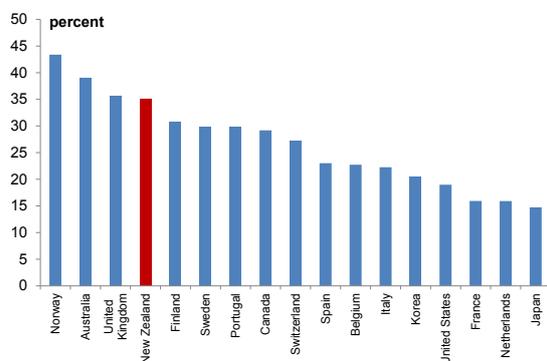
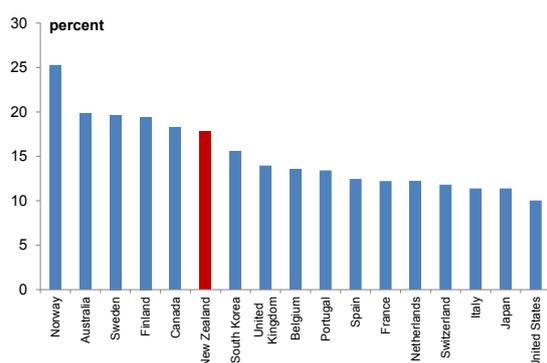


Figure 27
Mean magnitudes of export price downswings
(SDR terms)



5 Conclusion

New Zealand's terms of trade, like those of other advanced commodity exporting countries (notably Australia and Norway), have been quite volatile. That stems primarily from export prices – in particular the high degree of variability in the prices of commodity exports. The high share of commodities in New Zealand's exports means that there have been substantial income gains from the recent commodity boom. The associated volatility in the terms of trade can be uncomfortable, both for producers in sectors directly affected and for the wider economy. Commodity prices are set in world markets, largely outside New Zealand's influence. Thus the possibility of such large relative price changes (fluctuations in the terms of trade)

needs to be taken into account by New Zealand entities in their planning, including when assessing prudent levels of debt to carry.

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Appendix

Figure A1¹⁷

Measures of terms of trade volatility

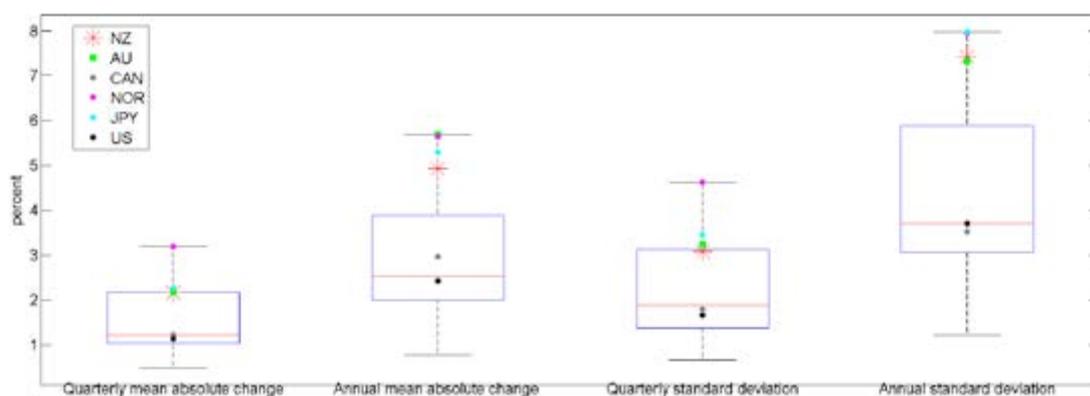
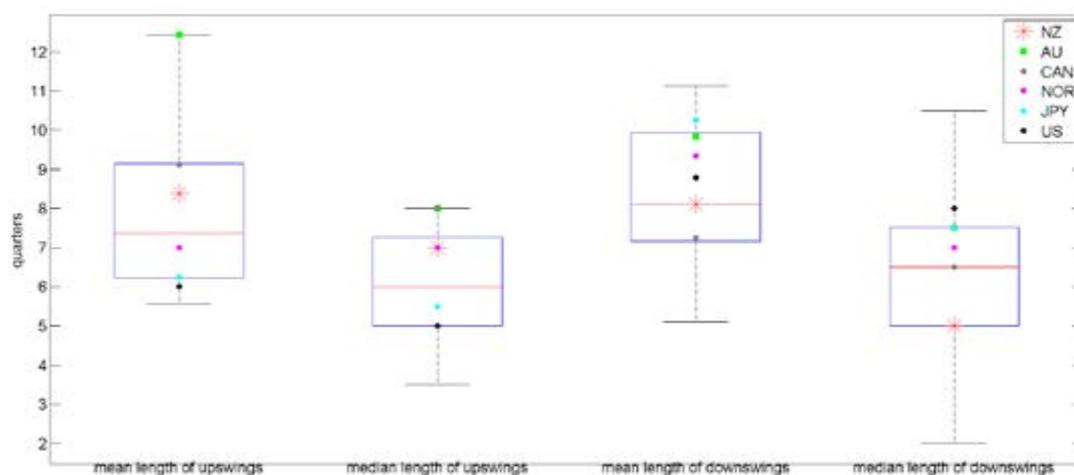


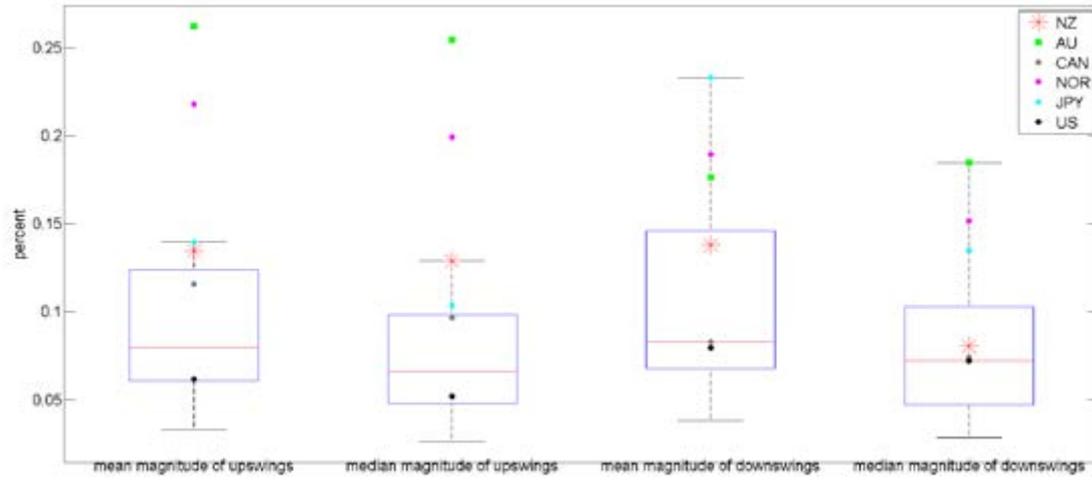
Figure A2

Lengths of terms of trade cycles (within-country means and medians)



¹⁷ The sample includes all 17 countries listed in footnote 9. The central mark on each boxplot is the median, box edges are the first and third quartiles, while whiskers extend to the minimum and maximum data points that are not considered outliers. Possible outliers are those data points more than 1.5 times above or below the interquartile range.

Figure A3
Magnitudes of terms of trade cycles (within-country means and medians)



The interaction between monetary and macro-prudential policy

*Ashley Dunstan*¹

The Reserve Bank has recently developed a macro-prudential policy toolkit. This article considers how macro-prudential policy could interact with the Reserve Bank's monetary policy function. While these policies are set with the differing objectives of financial and price stability, respectively, there is the potential for material spill-overs between them. Preliminary conclusions about how they should be set in conjunction with each other are discussed, touching on the interactions between the speed limit on high loan-to-value ratio (LVR) lending and monetary policy.

1 Introduction

The experience of the Global Financial Crisis (GFC) has again highlighted the significant costs to the real economy associated with financial instability. Following the crisis, a new framework has been developed to help the Reserve Bank in promoting financial stability, known as 'macro-prudential policy' (Rogers, 2013a). Macro-prudential policy enhances the broader framework of prudential regulation by actively varying prudential instruments over time.² The objectives of macro-prudential policy are to help reduce the potentially damaging effects of asset and credit booms, and increase the scope for banks to continue lending following a period of financial stress. This article focuses on how macro-prudential policy could interact with monetary policy.

The introduction of a macro-prudential speed limit on high-LVR mortgage lending in October 2013 put the issue in focus.³ The Reserve Bank believes that the speed limit, by dampening inflation pressures associated with housing and credit demand, may have allowed the monetary policy tightening cycle to begin somewhat later.

In turn, the recent tightening of monetary policy, alongside further tightening projected in coming years, is expected to support the financial stability objective of the speed limit. The speed limit is a temporary measure, and there could be further implications for monetary policy when the speed limit is removed.

There are distinct objectives and processes for macro-prudential and monetary policy (section 2). There can, however, be significant interactions between the two policy areas. Macro-prudential policy, in pursuing financial stability, can have implications for monetary policy (section 3), and likewise monetary policy can have implications for financial stability (section 4). These potentially complex interactions mean that it can be useful, in some circumstances, to co-ordinate the two policy decisions, while retaining the focus of each policy on its primary objective (section 5).

2 Institutional frameworks for monetary and macro-prudential policy

The institutional frameworks for macro-prudential and monetary policy define the objectives, tools and responsibilities for each area, and therefore the scope for co-ordination between them. Monetary policy decisions are typically made by independent central banks, although the details of governance frameworks vary (Aldridge and Wood, 2014). However, there is significant variation across countries in the institutional arrangements for the relatively new area of macro-prudential policy.

¹ This article expands on a speech delivered by Grant Spencer earlier this year (Spencer, 2014). The author is grateful to Roger Perry and Charles Lily, who provided some of the underlying material for this article. Thanks also to Bernard Hodgetts, Michael Reddell, and Chris Hunt for valuable comments and advice.

² This broader framework for prudential regulation is sometimes referred to in the literature and overseas as 'micro-prudential' regulation. Traditional micro-prudential policy has an institution-only focus. In New Zealand, prudential policy has always had a system rather than an institution focus.

³ An FAQ page on the speed limit is available on the Reserve Bank's website: http://rbnz.govt.nz/financial_stability/macro-prudential_policy/5393159.html

The choice of institutional framework for macro-prudential policy is typically influenced by the existing institutional framework for micro-prudential and monetary policy. In most countries, central banks have some involvement in macro-prudential policy (Nier *et al*, 2011). Three main models can be distinguished (IMF, 2013):

- *Model 1:* The macro-prudential mandate and decision-making powers are assigned to the central bank. This results in decision-making powers for both monetary and macro-prudential policy sitting with the central bank. This model has typically been adopted by countries where the central bank previously had responsibility for prudential regulation, such as the Czech Republic and New Zealand.
- *Model 2:* The mandate for macro-prudential policy is assigned to the central bank, but a dedicated decision-making committee for macro-prudential policy is set up within the central bank structure. This committee includes representatives from other institutions (sometimes in a non-voting capacity), such as the Treasury, financial conduct regulator and/or separate prudential regulator. The United Kingdom is an example of this institutional framework.
- *Model 3:* The macro-prudential mandate and decision-making powers are assigned outside the central bank, with a wide range of potential institutional configurations. Decision-making powers can lie with a particular institution, such as the executive arm of Government (as in Switzerland's Federal Council) or a separate prudential regulator. The latter model applies in Sweden and Australia, with extensive information-sharing with other institutions. Alternatively, decision-making powers could lie with a committee comprising representatives from several institutions, including the central bank, as in the case of the Financial Stability Oversight Council in the United States.

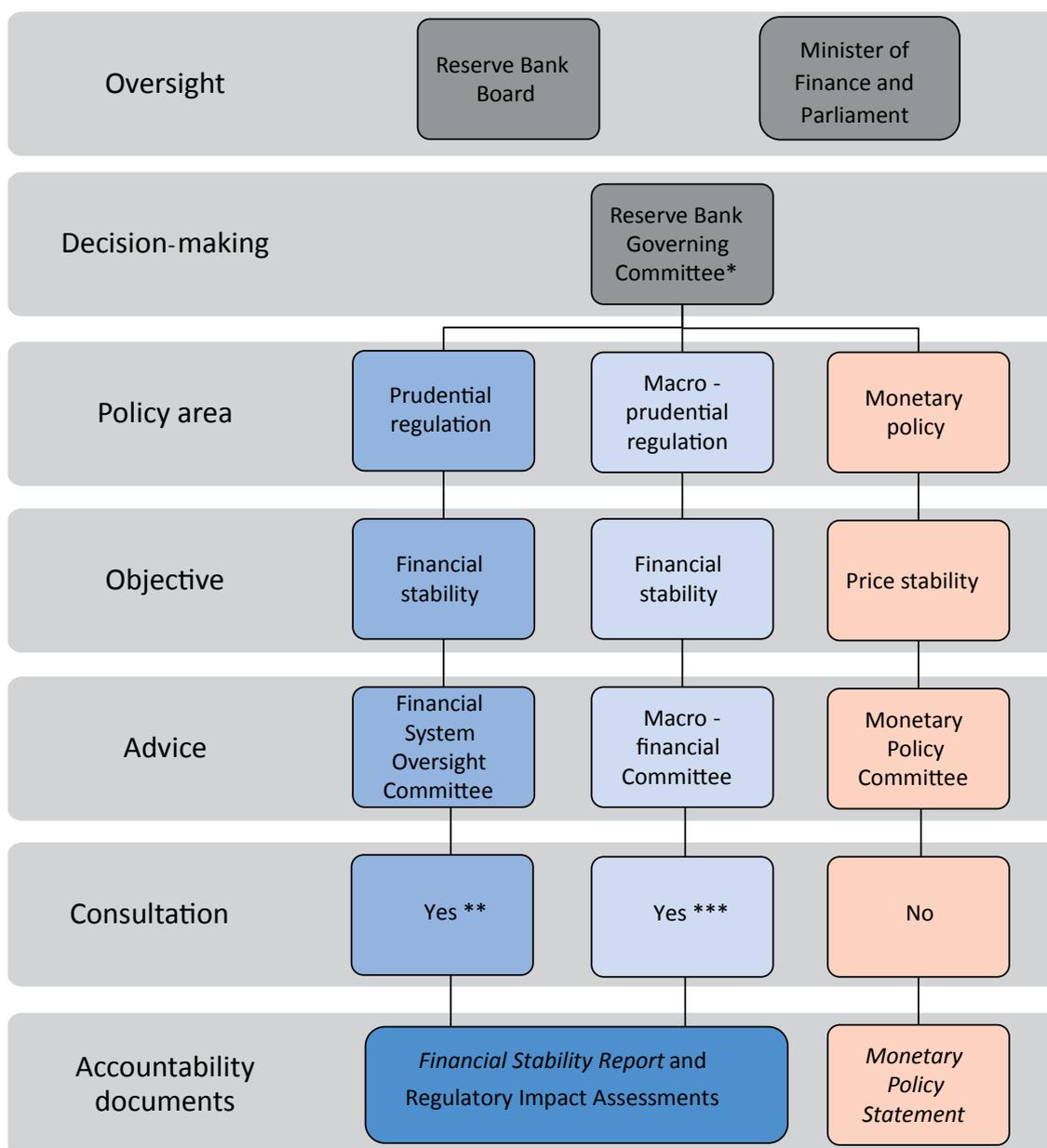
In New Zealand, a Memorandum of Understanding (MoU) on macro-prudential policy between the Reserve Bank and the Minister of Finance was signed in May 2013. The MoU affirmed that the Reserve Bank has decision-making powers for macro-prudential policies, in addition to those already in place for monetary policy and prudential regulation (model 1). This framework has a number of advantages in the New Zealand context. First, it allows the Reserve Bank to leverage its existing expertise with banking regulation and macroeconomic and financial surveillance. Second, it allows for decisions on macro-prudential policy to be made independently, after consultation with the Government.⁴ Finally, with both prudential and monetary policies already within the institution, there is improved scope for taking account of spillovers across the different policy areas.

Despite being overseen by the same decision-making committee within the Reserve Bank, there are distinct objectives and policy processes for monetary and macro-prudential policy (figure 1). The policies have differing objectives of price and financial stability (with both objectives set by the Government), and there are separate streams of advice from internal committees relating to each policy area. The reasons for policy decisions are outlined in separate accountability documents, and oversight by the Minister of Finance, Parliament and the Reserve Bank Board is undertaken separately. As discussed in section 5, these distinct processes and objectives help mitigate the risk that ownership of multiple functions by the Reserve Bank could reduce the credibility, transparency and accountability of each policy area.

The legislative basis for the financial stability objective of macro-prudential policy is the same as for the Reserve Bank's long-standing prudential regulation function. The MoU provides additional wording that helps

⁴ Under the MoU, the Reserve Bank agreed to keep the Minister and Treasury regularly informed on significant developments in macro-prudential policy, and to consult with these parties where macro-prudential intervention is under active consideration. All of the current macro-prudential tools would be implemented by changing or adding to registered banks' regulatory requirements. The Reserve Bank must also consult banks prior to the deployment of a macro-prudential policy instrument. Note, a new MoU would need to be agreed if the existing set of instruments were to be applied to a wider set of regulated entities, or if new tools were added.

Figure 1
The New Zealand policy framework for prudential and monetary policy



* The Governor is accountable for achieving price and financial stability under the Reserve Bank Act. However, in practice these decisions are made by consensus through the Governing Committee, comprising the Governor, Deputy Governors and Assistant Governor (Wheeler, 2013).

** The precise mechanisms for implementing a change in prudential requirements varies by the regulated sector (banks, deposit-taking non-banks and insurers) and the nature of the requirements. In all cases, however, there is consultation on the detail of the proposed requirements, giving regulated entities and other stakeholders an opportunity to comment on the potential changes. The Government is also generally consulted, except for very minor and technical matters.

*** In addition to the existing consultation requirements associated with changing the relevant prudential regulation, the Reserve Bank has agreed to keep Treasury and the Minister of Finance regularly informed on significant developments in macro-prudential policy. See footnote 4 for more detail.

to clarify the financial stability objective in the context of macro-prudential policy. In particular, the MoU sets out an expectation that the Reserve Bank will consider tightening macro-prudential policies during periods of rapid growth in asset prices or leverage. The objective of such tightening

is to: (i) build the resilience of the financial system, thereby giving the system greater capacity to continue lending during a downturn; and (ii) seek to dampen the credit and asset price cycle, thereby reducing the severity of the eventual downturn. Clearly, these objectives

remain somewhat open to interpretation compared to the quantitative inflation target set for monetary policy. In the MoU, the Reserve Bank must consider any interaction with monetary policy when implementing macro-prudential policy, and explain the implications for monetary policy in the *Financial Stability Report*.

While maintaining the clear primary objective of monetary policy as price stability, the most recent Policy Targets Agreement (PTA) includes explicitly the long-standing statutory requirement that monetary policy have regard for financial stability (Kendall and Ng, 2013). As was the case under the previous PTA, monetary policy must also have regard to avoiding unnecessary instabilities in the exchange rate, interest rates and output. Adding the wording around financial stability clarifies that, in situations where the primary objective of medium-term price stability is not threatened, monetary policy could adjust to reflect financial stability concerns. For example, this could imply a slower than normal return of inflation to the target mid-point to account for financial stability risks.

3 Effects of macro-prudential policy on monetary policy

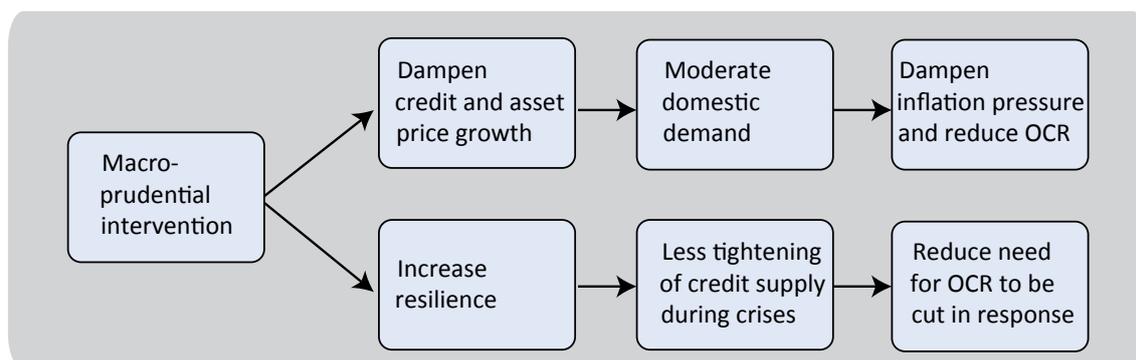
In pursuing the objective of financial stability, macro-prudential policy can, at times, have implications for the appropriate setting of the Reserve Bank's policy interest rate, the Official Cash Rate (OCR). As noted above, macro-prudential policy aims to (i) increase the scope for banks to continue lending during a period of rising loan losses and/or reduced liquidity, and (ii) dampen

the credit and asset price cycle. Depending on the macro-prudential tool that is used, the effect on these two objectives will vary, with differing implications for monetary policy (figure 2):

- Of the current suite of macro-prudential tools, restrictions on high-LVR lending are most likely to help dampen rapid growth in credit and asset prices. Any such dampening would likely reduce domestic demand, and thereby affect the inflation outlook at the time of intervention. LVR restrictions are therefore likely to have greater implications for monetary policy settings than other tools.
- The other three capital and funding-based macro-prudential tools are more geared towards building financial system resilience. These instruments are a counter-cyclical capital buffer, sectoral capital buffers and changes in the core funding ratio. By releasing macro-prudential capital and funding buffers during periods of financial stress, these macro-prudential policies provide additional scope for banks to continue lending and reduce the need for the OCR to be cut in response to a tightening in bank credit supply that typically occurs during periods of financial stress.

The implications of LVR restrictions and other macro-prudential tools for monetary policy are discussed separately below.

Figure 2
Stylised impact of macro-prudential policy on monetary policy



3.1 Restrictions on high-LVR mortgage lending

Several international studies suggest that LVR restrictions can have a significant dampening effect on credit and asset price growth. By reducing the ability of households and investors with a low deposit to purchase housing, such restrictions directly reduce housing market turnover and credit growth. Reduced effective demand for housing, combined with the potential to moderate house price expectations, can help dampen house price inflation and result in a further weakening in household credit growth (Rogers, 2013b).

The potential for LVR restrictions to dampen rapid growth in house prices played a strong role in the Reserve Bank introducing a speed limit on high-LVR lending (RBNZ, 2013a). At the time the LVR restrictions were introduced, the Reserve Bank estimated they would have the effect of reducing house price inflation by 1-4 percent, and credit growth by 1-3 percent, over the first year the policy was in place. Data released since then suggest that the impact has been broadly in line with these estimates. For example, Reserve Bank modelling implies that house price inflation, in the year to March 2014, was around 3.3 percent lower than in a counterfactual scenario without the LVR speed limit (Price, 2014).

The dampening effect of the speed limit on credit and asset prices is likely to have reduced domestic demand through a number of channels: lower house prices may have reduced consumption via a wealth effect; the restrictions are likely to have limited the ability of leveraged households to finance consumption by topping up their mortgage; and declining house sales may have resulted in a reduction in durables spending (particularly in the furniture and hardware categories). The size of these effects will vary depending on the role that high-LVR credit is playing in stoking consumption at the time of intervention.

The Reserve Bank estimates that, in relation to the impact on inflation pressures, the speed limit has resulted in the OCR being 25-50 basis points lower than otherwise (Spencer, 2014). However, given that the speed limit is targeted directly at the housing sector, it would

have taken a much larger increase in the OCR to generate the same impact on house price inflation. Thus, the speed limit may have allowed for easier monetary conditions in non-housing sectors, and a slightly lower exchange rate. Finally, the speed limit has also reduced the need for monetary policy to contemplate tightening in response to housing-related financial stability concerns. This experience suggests that LVR restrictions can delay, but by no means substitute for, a monetary policy tightening cycle (tightening cycles sometimes require OCR increases exceeding several hundred basis points).

LVR restrictions create incentives for high-LVR lending to be undertaken outside the regulatory perimeter, shifting to products, markets or institutions not subject to the regulation ('regulatory leakage'). If significant amounts of lending are undertaken outside the regulatory perimeter, this would undermine the effectiveness of the restrictions in dampening house price and credit growth. The resilience and allocative efficiency of the financial system could also be undermined if lending shifts to institutions with weaker credit risk management practices than banks. To date, there have been few signs of an increase in household lending designed to circumvent the speed limit (RBNZ, 2014). However, the incentive to profit from avoiding the regulation will likely increase the longer it is in force. Similarly, repeated attempts to micro-manage the credit cycle using LVR restrictions could see mechanisms for avoidance quickly emerge after the restriction is reintroduced or tightened.

The Reserve Bank always intended that the speed limit would be temporary, reflecting the likelihood that regulatory leakage would undermine their effectiveness if they were in place for several years. A decision to ease or remove LVR restrictions will be based on financial stability considerations and, in particular, evidence of a sustained moderation in the risks associated with house price inflation. Removal could also have implications for monetary policy settings. For example, both price and financial stability would be undermined if LVR restrictions were removed in an environment of strong housing demand, resulting in a significant rise in high-LVR lending.

3.2 Funding and capital-based tools

The other three macro-prudential instruments would work by increasing the capital or funding buffers of banks during periods of rapid credit or asset price growth. The counter-cyclical capital buffer would involve temporarily increasing aggregate bank capital requirements. Sectoral capital requirements would temporarily increase capital required to fund specific sectoral exposures. The core funding ratio, used as a macro-prudential tool, would involve banks temporarily increasing their use of retail and long-term wholesale funding. While part of the toolkit, these instruments have not yet been used by the Reserve Bank.

By increasing banks' use of relatively expensive liabilities, these tools could, in principle, increase bank lending rates and help dampen the credit cycle (Rogers, 2013b). However, previous research indicates that any impact via this channel is likely to be fairly limited. Firstly, to the extent that funding costs increase, there is no certainty that banks would pass on increased funding costs to end borrowers. Pass-through could be particularly limited because macro-prudential instruments are likely to be imposed during periods of strong competition for new lending. Secondly, overall funding costs may not increase substantially. For capital-based tools, increased capital buffers should be reflected in reduced risks for debt holders, and hence a decline in the cost of this funding. The cost of raising new capital or core funding is also likely to become compressed during periods where macro-prudential intervention is under consideration, as occurred in the period prior to the GFC.

Ha and Hodgetts (2011) conclude that the effect of a plausible tightening of aggregate capital and funding buffers in the pre-GFC period, while uncertain, would likely have increased lending rates by less than one OCR hike. In 2013, the Reserve Bank considered the use of sectoral capital requirements on housing lending to help address financial stability concerns associated with rising house prices (RBNZ, 2013a). However, this instrument was estimated to have a relatively small dampening effect on house prices, equivalent to less than a 10 basis point increase in the OCR. This played a strong role in the policy

decision to instead introduce LVR restrictions.

The use of macro-prudential capital and funding buffers may have implications for monetary policy during a sharp economic or financial downturn. For example, during periods of financial stress, when banks may be drawing down their existing capital to absorb loan losses, raising new capital may be difficult, extremely expensive, or both. As a result, banks are likely to significantly tighten the availability of new credit to conserve capital, further reinforcing the economic downturn. If counter-cyclical capital buffers were applied during the upturn, these buffers could be released, potentially reducing the incentive for banks to cut back on lending. In this way, the release of macro-prudential buffers could reduce the extent to which the OCR needs to be cut during periods of financial instability.

4 Monetary policy and financial stability

Monetary policy can have implications for financial stability through its dampening effect on the credit cycle. By setting the benchmark short-term interest rate, monetary policy influences a wide range of interest rates throughout the economy. For example, a tightening of monetary policy usually has a powerful influence on mortgage rates. This can help moderate credit growth and asset prices as borrowing to fund consumption and business investment becomes less attractive, the debt servicing capacity of new and existing borrowers is reduced, and long-term assets (such as residential property) become less attractive. Unlike macro-prudential policy, these effects on financial stability are not limited to institutions within the regulatory perimeter (Stein, 2013). A tightening of monetary policy to rein in inflation pressures has at times brought an end to credit and asset price booms (Drehmann and Juselius, 2012).

The economic and financial literature is still developing an understanding of how monetary policy can influence risk-taking behaviour (Borio and Zhu, 2010). Studies have found that an extended period of low interest rates tends to be – with the benefit of hindsight – associated with a decline in the underlying asset quality of

bank lending (Jimenez, 2014). Intuitively, low interest rates increase the debt servicing capacity of borrowers, and this can make banks more comfortable offering loans to customers at elevated debt-to-income ratios. The increase in debt servicing capacity could also add to destabilising growth in asset prices and credit. These effects can be particularly problematic if households and lenders develop an unwarranted expectation that interest rates will remain at low levels for a protracted period.

In the wake of the GFC, many countries are considering how to manage the potential financial stability effects of an extended period of low interest rates. For example, authorities in Sweden, Canada and Norway, have expressed concerns about the financial stability implications of strong house price growth underpinned by a low interest rate environment. As a result, these countries have introduced measures to tighten access to risky mortgages (RBNZ, 2013b). In New Zealand, the recent extended period of historically low mortgage interest rates appeared to play some role in encouraging the sharp rise in high-LVR mortgage lending between 2012 and late 2013. Thus, the low interest rate environment contributed to the emerging financial stability risks in the housing market, which ultimately led to the introduction of

the speed limit on high-LVR lending.

As a small open economy, global financial conditions can have a significant impact on the transmission of monetary policy to both price and financial stability in New Zealand. Firstly, the value of the New Zealand dollar tends to be positively correlated with measures of global risk appetite (Cassino and Wallis, 2010). An appreciation of the exchange rate tends to reduce tradables inflation, putting downward pressure on domestic interest rates. Secondly, there is a strong positive relationship between global and domestic long-term wholesale interest rates, especially at terms greater than two years (Lewis and Rosborough, 2013). Finally, New Zealand banks source a significant portion of their funding from offshore, and conditions in offshore funding markets typically have a strong influence on domestic bank lending rates.

As noted above, the Reserve Bank must have regard to financial stability when setting its monetary policy. There is ongoing debate among policymakers and academics regarding the degree to which price stability oriented monetary policy frameworks should take into account financial stability objectives. In particular, there are opposing views on the appropriateness of tightening monetary policy on financial stability grounds during credit

Table 1
Different views of the role of monetary policy in achieving financial stability

	Clean	Lean
Monetary policy	<p>Framework does not need to reflect financial stability.</p> <p>Limited spill-over effects on credit and risk-taking.</p> <p>Blunt instrument to deal with asset market imbalances.</p> <p>Difficult to identify credit/asset price booms in real time.</p> <p>Leaning dilutes price-stability objective.</p>	<p>Financial stability a valid secondary objective.</p> <p>Supports macro-prudential by 'getting in all the cracks'.</p> <p>Slowing asset prices consistent with long-run price stability.</p>
Macro-prudential policy	<p>More targeted and effective than monetary policy.</p>	<p>Can be ineffective against systemic asset market imbalances.</p>
Interactions	<p>Clear separation of objectives and policy decisions.</p>	<p>More policy co-ordination required.</p>

Source: Adapted from Smets (2014).

or asset booms. Broadly speaking, there are two opposing views in this 'lean versus clean' debate:

- The clean view was dominant prior to the GFC, and proposes that monetary policy should not respond to asset or credit booms, except to the extent that they influence inflation pressures. It assumes that policymakers have difficulty identifying credit/asset price booms; that the tightening in monetary policy required to lean against a credit or asset price boom would create unacceptable costs for the wider economy; and monetary policy is effective in 'cleaning' up the impact on the real economy if the financial cycle turns. Proponents of this view sometimes assume that prudential instruments can effectively limit the extent of financial system damage during periods of financial instability.
- The lean view proposes that monetary policy should actively lean against credit booms for financial stability purposes. It is assumed that monetary policy that leans against credit booms is consistent with long-run price stability, and increased interest rates can be effective in limiting a credit boom with limited costs for the wider economy. Proponents of this view sometimes assume that prudential policies alone are unlikely to be sufficient to contain the build-up of systemic risk.

Sweden provides an interesting case study of the difficult trade-offs for monetary policy that can arise between price and financial stability goals. As noted above, Sweden has experienced high and rising household indebtedness in recent years, alongside an environment of low interest rates. In response to the financial stability risks associated with household debt, the Riksbank has set monetary policy at somewhat tighter levels than if based purely on a price stability objective. This decision has not been without controversy, with critics arguing that the reduction in financial system risks achieved by tighter monetary policy has had significant costs in terms of a sustained period of inflation below the target mid-point

and higher unemployment (Ekholm, 2014).

Research is continuing in this area. The lean view has become more influential in recent years, reflecting both the experience of the GFC and the influence of research from the Bank for International Settlements (Borio and Lowe, 2003). There is an emerging consensus that financial stability is a valid secondary objective and that there are instances where monetary policy should respond to financial stability concerns, so long as these actions are consistent with the primary price stability objective (Smets, 2014).

5 Co-ordinating monetary and macro-prudential policy

The previous two sections suggest that there can be material interactions between macro-prudential and monetary policy. This section discusses the appropriate degree of co-ordination between the two policy decisions to take account of these interactions. The two policy decisions will typically be undertaken with each policy focusing on its own primary objective, taking into account the impact of the other policy objective. But, in some circumstances, the interactions are more complex and a greater degree of co-ordination may be beneficial.

The degree of co-ordination required will partly depend on the interaction between the business and credit cycles (table 2). When the cycles are in sync, policy actions will be complementary (north-east and south-west corners of table 2). For example, periods of strong growth and inflationary pressures are often associated with booming asset prices and credit growth. Monetary policy will be tightening in response to growing inflation pressures, so that monetary settings are not likely to be exacerbating financial stability pressures. And the possible introduction of macro-prudential measures in response to financial stability risks could help to lean against strong inflation pressures. Assuming that each policy is able to achieve its primary objective, there should be limited need to co-ordinate the policy decisions.

In situations where the business and credit cycles are out of sync, the primary objectives of the two policies need to be carefully balanced (north-west and south-

Table 2**Interactions between macro-prudential and monetary policy actions depending on outlook for price and financial stability**

Outlook for inflationary pressure				
		Weakening	Stable	Strengthening
Asset and credit price cycle	Exuberance	Conflicting	Primary objectives are independent	Complementary
	Stable	Independent	Independent	Independent
	Contraction	Complementary	Primary objectives are independent	Conflicting

east corners of table 2). The theoretical literature has identified a risk that a lack of co-ordination could reduce welfare in these situations, as each policy seeks to overly counteract the impact of the other on its own objective (De Paoli and Paustian, 2013). For example, a loosening of monetary policy in response to a weak inflation outlook could exacerbate rapid growth in credit and asset prices. As noted above, a number of countries, including New Zealand, have faced live trade-offs along these lines in recent years. It is also possible that trade-offs could emerge if the release of macro-prudential instruments were contemplated at a time of rising inflation pressure.

Macro-prudential instruments can become ineffective in achieving financial stability if a significant amount of lending is undertaken outside of the regulatory perimeter. In this situation a tightening of monetary policy could be particularly helpful for achieving financial stability, as it would increase the cost of credit for all borrowers (including those avoiding the macro-prudential intervention). The case for tightening monetary policy on financial stability grounds would be particularly strong if low interest rates were adding to the build-up of systemic risk. Before responding to financial stability concerns, monetary policy would need to be assured that its primary objective of medium-term price stability is not threatened. A temporary period of inflation below the target mid-point may be appropriate in some circumstances. However, a sustained period of inflation below the target mid-point could risk de-anchoring inflation expectations and threaten medium-term price stability.

Monetary policy can also face constraints and

difficult trade-offs in meeting its price stability objective. In these circumstances, macro-prudential intervention could be particularly helpful from the perspective of monetary policy. The potential trade-offs facing monetary policy are illustrated by the tightening cycle between 2004 and 2007, coinciding with rapid growth in asset prices and credit. During this period, long-term interest rates were persistently below short-term interest rates, prompting borrowers to lock in longer term fixed term mortgages. The reduced traction of monetary policy on mortgage rates meant that OCR increases, required to control inflation, appeared to work in large part through a higher exchange rate dampening tradables inflation. By contrast, the tightening appeared to have less of an impact in dampening rapid house price inflation and associated inflation pressures in the non-tradables sector. Buoyant conditions in global financial markets may have contributed to the elevated exchange rate, low long-term wholesale interest rates and exceptionally low bank funding costs during this period.

At the time, there were loud calls for the use of an alternative policy instrument to assist monetary policy in dampening non-tradables demand, without putting further upward pressure on the exchange rate (Treasury and RBNZ, 2006). To the extent that they are able to dampen rapid asset price and credit growth, macro-prudential instruments could provide support for monetary policy during such periods. As discussed in section 3, any such dampening effects would somewhat reduce, rather than supplant, the need for monetary policy tightening. Moreover, the use of macro-prudential tools must be

justified on financial stability grounds. Hunt (2013) argues that this test would have been met prior to the GFC, if the tools had been available.

As discussed in section 2, monetary and macro-prudential policy have distinct objectives and policy processes. Keeping the focus of each policy area on its primary objective helps to mitigate the risks that could be associated with co-ordinating the two policies from within the same institution. If monetary policy became too focused on financial stability, there is a risk that the transparency, accountability and credibility benefits of the inflation targeting framework could be reduced (Svensson, 2011).⁵ Similarly, the focus of macro-prudential policy on financial stability helps to ensure that the reasons for policy decisions are clear, and that the Reserve Bank can be held accountable for these decisions. Finally, an activist use of macro-prudential instruments to support monetary policy goals would likely reduce the effectiveness of the tools in achieving financial stability. The Reserve Bank is required to explain its policy decisions in its *Monetary Policy Statement*, *Financial Stability Report*, and Regulatory Impact Assessments, and outline how these decisions support the primary objective of the relevant policy.

6 Conclusion

This article discusses the potential interaction between the Reserve Bank's monetary and macro-prudential policy decisions. Macro-prudential policy, set in pursuit of financial stability, can at times have implications for monetary policy. These effects are likely to be largest when macro-prudential intervention dampens inflation pressures associated with the credit cycle. Monetary policy, in pursuing price stability, can have significant effects on financial stability, particularly if regulatory leakage is reducing the effectiveness of macro-prudential policy. There can be a case for tightening monetary policy on financial stability grounds, as long as doing so does not pose a threat to medium-term price stability.

⁵ Ueda and Valencia (2012) show that the credibility of the inflation target can be damaged if the central bank becomes too focused on financial stability, as the private sector develops an expectation that monetary policy will allow higher inflation to help repair private sector balance sheets following periods of financial stability. This, in turn, can reduce the incentives for macro-prudential tools to be used.

The presence of these interactions means that it can be useful, in some circumstances, to co-ordinate the two policy decisions. Nevertheless, each policy area retains distinct primary objectives, advisory committees, and accountability processes. This approach helps ensure that the credibility of the inflation target of monetary policy does not deteriorate due to monetary policy becoming too focused on financial stability; that the accountability and transparency of both policy frameworks are not marred by the primary policy objective being unclear; and that the regulatory leakage that could be associated with attempts to micro-manage the credit cycle with macro-prudential tools is kept to a minimum.

The interaction between monetary and macro-prudential policy is an ongoing area of research. Active areas of research include the size of the spill-over effects between the two policies, the degree of synchronisation between business and credit cycles, and the potential credibility risks of co-ordinating the two policies. The Reserve Bank will continue to draw on this work for its macro-prudential and monetary policy decision-making.

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Can't see the wood for the trees – shedding light on Kauri bonds

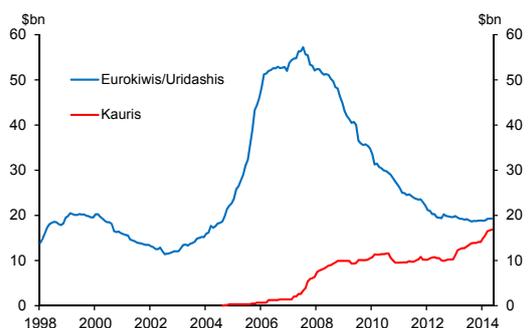
Geordie Reid¹

This article provides an update on the Kauri bond market. It identifies the major participants in the Kauri market, describes the factors which drive the supply of and demand for Kauri bonds, and looks at reasons for the strong Kauri issuance during 2013. Factors supporting increased issuance during 2013 included recovering global risk appetite, investors' search for yield amidst low global interest rates, and favourable pricing conditions.

1 Introduction

A Kauri bond is a New Zealand dollar denominated security, issued and registered in New Zealand by a foreign entity. The Kauri market is still quite young – the first Kauri was issued in August 2004 – but it has come a long way since its inception with over \$16.8 billion of Kauri bonds currently outstanding.² Kauri issuance has risen as the stock of other New Zealand dollar bonds issued by non-residents, typically known as Uridashis and Eurokiwis, has fallen (figure 1).³ Increased Kauri issuance has been accompanied by a rising foreign investor share in the Kauri market.

Figure 1
Eurokiwi/Uridashi and Kauri bonds outstanding



Source: RBNZ.

In July 2007, the Reserve Bank made highly-rated Kauris eligible for use as collateral in domestic

open market operations, leading to a jump in supra-national, semi-government, and agency issuance (see box A). Kauri bonds have since cemented a place in New Zealand's capital markets as a source of highly-rated New Zealand dollar denominated debt, acting as partial substitutes to New Zealand Government bonds (NZGBs).

The first part of this article provides an overview of the Kauri market and describes some of the changes that have occurred since 2008. The second part investigates the factors which drive the demand and supply of Kauri bonds and explains the resurgence of Kauri issuance in 2013.

2 Market overview

Since the last update in 2008,⁴ the Kauri market has continued to develop and increase in depth, with over \$16.8 billion of Kauri bonds currently outstanding (around 7.5 percent of nominal GDP). The Kauri market grew rapidly over 2007 and 2008, in part driven by the Reserve Bank's decision to accept highly-rated (AAA) Kauri bonds as collateral in its domestic market operations. Between 2009 and 2012 Kauri issuance slowed markedly, as investor confidence remained low in the aftermath of the Global Financial Crisis (GFC), demand for assets in 'risk currencies' such as the New Zealand dollar fell and it became cheaper to issue in currencies such as the US dollar and euro. Last year saw a resurgence in the Kauri market with \$5.5 billion of issuance priced, and this trend has continued into 2014, with around \$3 billion issued so far (figure 2).

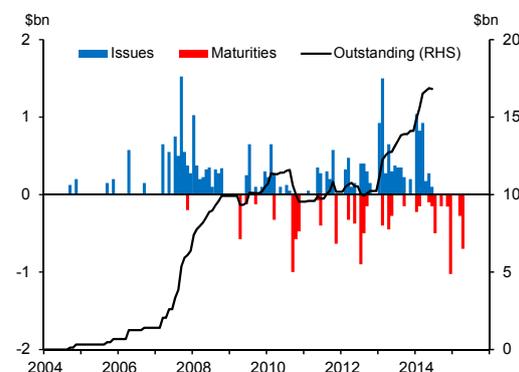
¹ The author would like to thank Lauren Rosborough, Chris Hunt, Michael Reddell, and other colleagues for their comments and advice.

² All data and figures in this article are as of end-May 2014 unless otherwise stated.

³ For more details about Eurokiwi and Uridashi markets, see Eckhold (1998) and Drage, Munro, and Sleeman (2005).

⁴ See Groom (2008).

Figure 2
Kauri bond issues and maturities and total outstanding



Source: KangaNews, RBNZ.

Table 1 contains some summary statistics of the Kauri market to date. Most Kauris are issued for three to five years (over 75 percent of gross issuance falls within this range), with some longer seven and 10 year issues (figure 3). This reflects both investor demand and the funding needs of issuers. The average deal size is \$198 million, while the median size is \$175 million. However, average deal size has trended higher since 2008, and is at a record \$260 million year-to-date in 2014 (figure 4). While deal size obviously depends on an issuer's needs, strong investor demand has been a key factor driving the increase this year. Deals so far this year have been heavily subscribed, with several being scaled up from initial indications. In addition, as markets grow over time they develop the ability to absorb larger issues. This has coincided with an increase in the average tenor (time to maturity at issue) to just over six years, from 5.4 years in 2013 and 5.2 years in 2012 (figure 4).

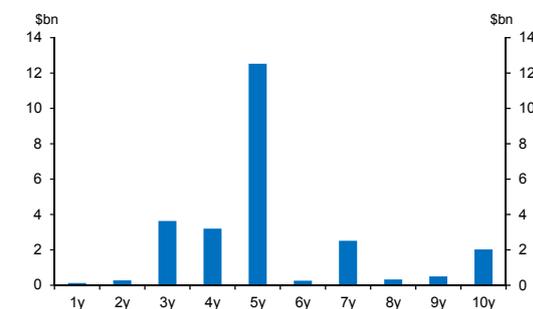
Table 1
Kauri market summary statistics

	New issues	Tap	Total
Number of issues	86	42	128
Issuance (\$bn)	18.2	7.1	25.4
Average deal size (\$mn)	212	170	198
Median deal size (\$mn)	175	150	175
Average tenor (years)	5.3	-	5.3

Source: KangaNews, RBNZ.

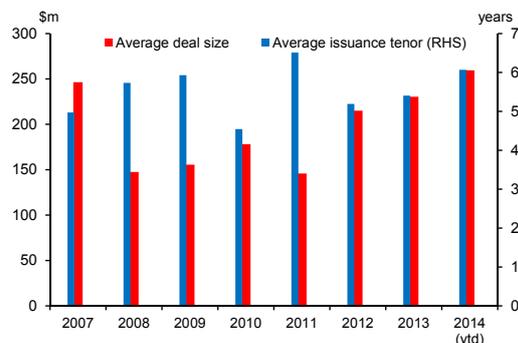
Note: A tap is an increase to an existing bond.

Figure 3
Kauri issuance by tenor



Source: RBNZ.

Figure 4
Average deal size and issuance tenor per year



Source: RBNZ.

2.1 Who are the issuers?

Much of the early Kauri issuance between 2004 and 2007 was made by financial institutions (for example, Morgan Stanley was an active early issuer), but the majority of these bonds have since matured. Following the GFC, many global banks' credit ratings declined and investors grew wary of bank exposure. Consequently,

Box A

SSAs: what are they?

The supranational, semi-government and agency (SSA) market sits between the sovereign government and private credit markets. It encompasses a wide range of issuers with different funding needs. Many SSA issuers are institutions that are vehicles for promoting growth, such as export development agencies.

A supranational is an institution whose mandate extends across national borders, and which is governed by representatives or shareholders from a number of countries. Examples of supranational issuers include the International Finance Corporation (IFC), which is a member of the World Bank group, and the Asian Development Bank (ADB). Supranationals generally have AAA credit ratings.

Semi-government (also known as sub-sovereign) issuers are generally the equivalent to a state or province as a sovereign issuer is at a country-wide level. While their credit ratings can vary, in some cases there is an implicit or explicit government guarantee.

The definition of an agency issuer is less clear-cut. Generally, an agency can be thought of as an institution that performs a task on behalf of its governing sovereign or sovereign-linked state (such as an export development financier or infrastructure development body). They have a wide variety of structures and guarantees provided. Agency issuers in New Zealand tend to have AAA ratings, and include Rentenbank (a German agency for developing agribusiness) and Export Development Canada.

appetite for this debt dried up. Since 2007 Kauris have been primarily issued by highly-rated supranational, semi-government and agency issuers (SSAs, see box A). SSA-issued Kauris make up 94 percent of current outstanding issuance and 86.5 percent of total gross issuance. SSA issuers in the New Zealand market tend to be AAA-rated, the highest possible credit rating, indicating a very low risk of default. This reflects the necessary criteria for eligibility in the Reserve Bank's domestic operations. In addition, there is a small amount of non-financial corporate Kauri bonds outstanding. Market participants expect that while the range of issuers will eventually broaden (like the Kangaroo market in Australia, which has more corporate and lower-rated issuers),⁵ this will be a slow process given the relatively small size of the New Zealand market. In 2013 two Australian banks (National Australia Bank and the Commonwealth Bank of Australia) took advantage of beneficial funding conditions to issue Kauri bonds for the first time.

⁵ The Kangaroo market is the Australian equivalent of the Kauri market, where non-resident entities issue Australian dollar bonds in the onshore market.

2.2 Why issue Kauris?

Kauri issuers generally have no need for New Zealand dollar funding, so why are Kauri bonds popular? The two major factors are diversification and cost. One reason for an institution to issue in the Kauri market is to diversify its investor base. This will (hopefully) provide the advantage of greater stability in overall funding – if there is a disruption in one market at a given point in time, funding can be accessed from alternate sources. Having a presence in a range of markets also allows an issuer to take advantage of favourable funding conditions in different places at different times, thus lowering its overall funding costs. A fuller description of how Kauri issuance may lower an institution's cost of funding is provided later in the article.⁶

2.3 Who are the investors?

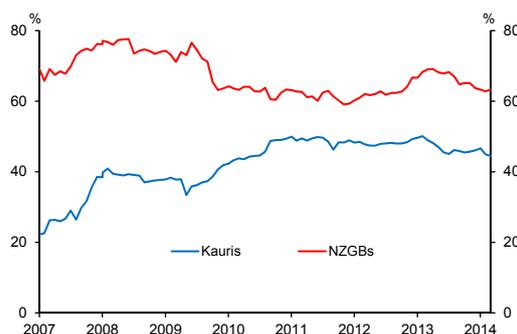
The biggest group of investors in Kauri bonds is local banks, who hold them for a range of reasons including liquidity management purposes. Other domestic investors include fund managers and insurance companies, whose mandates require assets with high credit ratings to be

⁶ In addition, Drage, Munro, and Sleeman (2005) address this issue in the context of Eurokiwi and Uridashi issuance.

held. In recent years, the international investor base has developed, and more offshore asset managers and central banks have started to diversify into the Kauri market. From a diversification and a return perspective, assets denominated in currencies like the Australian and New Zealand dollars are attractive. New Zealand is viewed as having a sound financial system and a strong fiscal position, while New Zealand dollar assets provide higher returns compared to other more traditional reserve currencies. Issuers have said that during late 2013 and early 2014 as much as 70-80 percent of Kauris issued were bought by offshore investors, with strong demand in particular from Asian central bank reserve portfolios. This is supported by a recent IMF survey of reserve managers, which noted that “[m]any [central bank reserve managers] are contemplating shifts to advanced country currencies other than the traditional reserve currencies ... (with high interest expressed in commodity currencies such as AUD and CAD)” (Morahan and Mulder 2013, p. 7). The New Zealand dollar is often grouped with these currencies.

The trend towards increasing international investor involvement in the Kauri market can be seen in figure 5. Non-resident holdings of Kauris have increased from just above 20 percent of the value of total Kauris issued in 2007 to around 45 percent currently. By comparison, non-resident holdings of NZGBs have remained largely constant over this period. Offshore Kauri holdings remain lower than non-resident holdings of NZGBs (at 63 percent of the total). This difference is likely to be because offshore

Figure 5
Non-resident holdings of NZD securities
(percent of total)



Source: RBNZ.

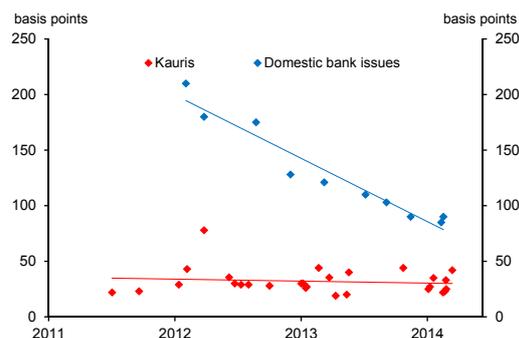
investors are more familiar and comfortable with NZGBs as an investment, and the greater liquidity NZGBs offer. However, the difference has narrowed substantially since 2006 as depth in the Kauri market has grown.

2.4 How does a Kauri transaction work?

As noted earlier, Kauri issuers generally have no need for New Zealand dollar funding. Indeed, most set their funding targets in US dollars or euros with reference to a floating rate (for example 3-month LIBOR). This means that issuers need to swap the New Zealand dollars they receive from a Kauri issue into the desired currency, by means of a cross-currency basis swap (see box B). Interest rate risk is generally hedged through the interest-rate swap market. Figure 7 (overleaf) shows a stylised example of the cash flows involved in such a transaction.

Given their high credit ratings and global name recognition, SSA issuers are able to issue in the domestic New Zealand market at significantly lower cost than, for example, domestic banks. Figure 6 shows the cost of issuing in the local market (the spread to mid-swap) by New Zealand’s big four banks over recent years, along with comparable SSA Kauri issues. Although the difference has narrowed considerably over this period (likely a function of improving global risk appetite and the global search for yield), Kauris still command much tighter spreads. This reflects their higher credit rating and greater name recognition (especially to offshore investors).

Figure 6
Five-year onshore New Zealand dollar
issuance
(spread to mid-swap)



Source: KangaNews, RBNZ.

Note: This analysis looked only at five-year fixed coupon bonds.

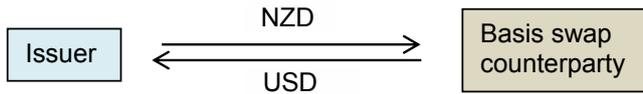
Figure 7

Stylised cash-flows of a Kauri transaction

- Initial issuance of bond – issuer receives New Zealand dollars (NZD) from investors.



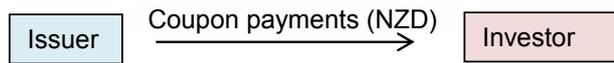
- Issuer will undertake a cross-currency basis swap to convert NZD into desired currency, say US dollars (USD).



- Over the term of the basis swap, the two parties will swap floating rate interest payments. The 'borrower' of USD (the Kauri issuer) makes payments based on the US money market rate (LIBOR), while the NZD borrower payments are based on BKBM plus the basis swap spread (α).



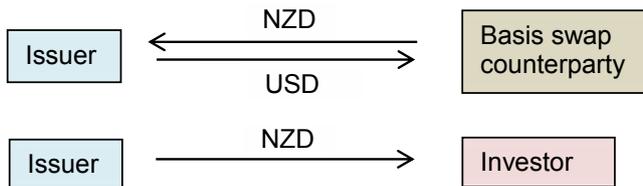
- The issuer must also make fixed NZD coupon payments to investors over the life of the bond.



- The issuer therefore receives floating-rate NZD interest payments through the basis swap, but is obliged to make fixed NZD coupon payments. This interest-rate exposure is hedged through the interest rate swap (IRS) market, where the issuer will receive fixed NZD payments and pay a floating NZD rate based on BKBM.



- As a result, the Kauri issuer has transformed their NZD bond with fixed NZD coupon payments into USD funding with coupon payments based on LIBOR.
- At maturity, the cross-currency basis swap payments are reversed, and the issuer repays the principal to the investor.



This funding cost advantage helps to illustrate another reason why Kauris may be issued. If a Kauri issuer enjoys a greater funding advantage compared to a domestic issuer (say a New Zealand bank) in the onshore New Zealand market than the funding advantage they would receive in an offshore market, then both can be made better off. The Kauri issuer issues in New Zealand and the New Zealand bank issues in, say, Europe. The parties can then swap the proceeds back into the desired

currency, and achieve their funding targets at lower cost than if each had issued in the other market. In this case the Kauri issuer has a comparative advantage in the New Zealand market compared to a domestic issuer, and the New Zealand issuer has a comparative advantage in the European market. The key point to note is that while the Kauri issuer likely has access to cheaper funding in both markets, it has a bigger advantage in the New Zealand market.

3 Factors that affect Kauri issuance

3.1 Factors affecting demand

Because most Kauri bonds have high credit ratings and are repo-eligible, they are often seen as a quasi-substitute for NZGBs. They offer an attractive yield for relatively low credit risk, although secondary market liquidity is poor. Thus many of the drivers of demand for Kauri bonds will be similar to factors driving demand for NZGBs. These include:

- New Zealand dollar outlook. This is relevant especially for offshore investors, who may hold Kauris as part of an overall view on the New Zealand economy (as an alternative to NZGBs);
- Relative interest rates. Higher interest rates in New Zealand compared to offshore make Kauris a more attractive investment. (i.e. the search for yield); and
- Risk appetite. Currencies such as the New Zealand and Australian dollars tend to be in demand when global risk appetite is high, as they provide higher returns over traditional reserve currencies (such as the US dollar and euro).

In addition, there are factors which will make Kauris more attractive relative to NZGBs:

- Swap spreads (the spread between an interest-rate swap and the equivalent government bond). Kauris are often issued at a margin to the swap rate and a wider swap spread provides greater yield pick-up over comparable government bonds.
- Recent changes to the New Zealand Debt Management Office issuance programme will, at the margin, support demand for Kauri bonds. These changes include a reduction in overall NZGB issuance and increased issuance of inflation-indexed bonds, which will further reduce the issuance of nominal NZGBs.

3.2 Factors affecting supply

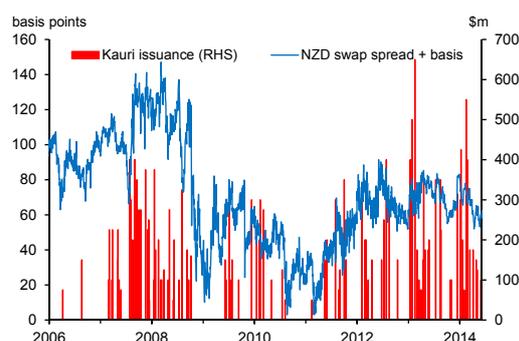
Price is a key factor for an issuer when deciding which market to issue in. One part of this is the basis swap spread. A wider basis swap spread reduces the all-in cost

for issuers (they are paid the spread when swapping out of New Zealand dollars), making the Kauri market a more attractive option. The other price factor is the margin to swap. From an issuer's perspective, wider swap spreads mean they may be able to offer tighter margins to swap while still offering higher yields than NZGBs. Thus if New Zealand swap spreads widen, it becomes more attractive to raise funds using New Zealand dollar issues relative to other currencies. Other factors influencing Kauri supply include:

- The upcoming Kauri maturity profile. Issuers may want to replace maturing bonds with new issuance to maintain their presence in the market; and
- Risk appetite. For issuers, positive risk sentiment may mean they expand their funding programmes, at the margin adding to Kauri issuance. It will also lower the cost (or 'risk premium') associated with currencies such as the New Zealand dollar.

As figure 8 illustrates, greater Kauri issuance tends to occur when it is relatively cheap. That is, when the basis swap spread is more positive and New Zealand swap spreads are wider, Kauri issuance tends to rise. However, there are obviously individual differences between issuers and other factors also influence the decision whether or not to issue. For example, the desire to retain a presence in the market may encourage issuance even if market conditions are less than optimal.

Figure 8
New Zealand swap spreads and Kauri issuance



Source: Bloomberg, RBNZ.

Box B

Cross currency basis swaps

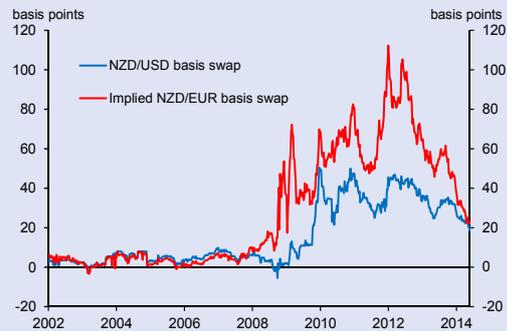
Kauri issuers use cross-currency basis swaps to reduce exchange rate risk by converting the New Zealand dollars they receive at issuance into US dollars or another currency. The offsetting transaction to this is a New Zealand entity (for example a bank) issuing a foreign-currency bond and swapping this into New Zealand dollars. In practice, one leg of a basis swap transaction is usually against the US dollar. Therefore, to swap New Zealand dollars into euros, the New Zealand dollars will be swapped into US dollars, then the US dollars into euros.

The basis swap spread can be thought of as the 'market price' reflecting the relative demand and supply on either side of this transaction. A positive basis swap spread indicates that non-residents' New Zealand dollar issuance (Kauri and offshore New Zealand dollar bond issuance combined) is less than New Zealand residents' issuance in foreign currency. An increase in demand for New Zealand dollars from New Zealand residents issuing in foreign currency will increase the basis swap spread (i.e. New Zealand issuers will have to pay a premium to access New Zealand dollars), while increased supply of New Zealand dollars from non-residents (Kauris, Uridashis or Eurokiwis) will push the spread down.

Figure B1 shows the 5-year basis swap spreads for the New Zealand dollar against the US dollar and euro. Before 2007, there was strong demand in Europe and Japan for highly rated, high-yielding New Zealand dollar assets. Bonds issued by non-resident entities to meet this demand provided an offsetting transaction to the offshore foreign currency borrowing undertaken by New Zealand banks. Offshore entities found it cost effective to obtain foreign currency by issuing New Zealand dollar securities (initially in offshore markets, but increasingly onshore via Kauri bonds), and then swapping the New Zealand dollars with New Zealand banks. This resulted in a convergence in basis swap spreads between funding and receiving currencies, and reduced hedging costs for New Zealand banks.

Figure B1

5-year basis swap spreads



Source: Bloomberg.

Note: The implied NZD/EUR basis swap is derived from the NZD/USD and USD/EUR basis swap spreads, and does not account for transaction costs.

Following the GFC, New Zealand dollar bond issuance by offshore entities slowed significantly as global risk aversion rose and offshore entities' total funding requirements fell. In addition, increased NZGB issuance (caused by fiscal deficits arising from a number of factors including the economic recession and the Christchurch earthquakes) provided another source of New Zealand dollar exposure for investors, at the margin lowering demand for non-resident issued New Zealand dollar debt. At the same time, New Zealand banks moved to source more of their offshore funding from long-term sources (in part due to Reserve Bank requirements),⁷ putting more pressure on basis swap spreads to rise. As a result, the basis swap spread jumped sharply higher. In the past couple of years basis swap spreads have narrowed as issuance of New Zealand dollar debt by foreign entities picked up. The increased issuance is due to decreased risk aversion (especially as the risk of a European debt crisis receded), investors' demand for higher returns amidst easy global monetary policy, and lower NZGB issuance as the fiscal deficit has narrowed.

⁷ See Hoskin, Nield and Richardson (2009).

3.3 What drove the strong issuance during 2013?

During 2013, \$5.5 billion of Kauri bonds were issued, the second highest on record. The Kangaroo market in Australia also saw strong issuance, suggesting there were reasons other than New Zealand domestic factors driving the increase. Strengthening global risk appetite – indicated by the outperformance of equity markets, low volatility, and a narrowing in credit spreads – drove a search for yield, boosting global demand for relatively high-yielding assets. However, domestic factors did play a part. From an issuer's perspective, basis swap spreads were still wide by historical standards, making issuance costs more attractive. Investors found Kauris relatively more attractive, due to wider swap spreads. At the margin, reduced NZGB issuance and the maturity of the April 2013 NZGB may have supported demand, as investors looked to replace highly-rated New Zealand dollar debt.

Looking ahead, the factors that supported issuance during 2013 are still in play. Appetite for risk remains high, volatility remains low, and the global search for yield has continued. Basis swap levels are not as attractive for issuers as in early 2013, but remain well above pre-2008 levels. There is a heavy maturity profile this year, with \$1.8 billion of Kauris maturing in the second half of 2014, which should support 'replacement' issuance. Overall, market conditions are probably not as supportive of issuance as last year but fresh issuance to counter the heavy maturity profile might pick up some of the slack.

4 Conclusion

Since the first Kauri bond was issued in 2004, the Kauri market has grown to over \$16.8 billion of bonds outstanding. In recent years, the international investor base has developed as more offshore asset managers and central banks diversify into Kauri bonds, attracted by higher returns compared to traditional reserve currencies and New Zealand's sound financial system. Strong issuance during 2013 was supported by high investor demand and favourable pricing conditions (in particular high basis swap spreads). These factors have continued to support issuance into 2014. The Kauri market looks set to continue to grow as an important part of New Zealand's capital markets.

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DISCUSSION PAPERS

DP2014/01

Exchange rates, expected returns and risk

Munro, Anella

According to theory, higher expected foreign risk-free returns and foreign currency risk both increase foreign yields, but have opposing effects on the value of the foreign currency. This paper exploits that relationship to jointly identify the unobserved risk-free return and risk premium components of exchange rates and expected relative returns. When risk and return are jointly modelled over a 10-year horizon, UIP cannot be rejected for any of the eight advanced country USD currency pairs examined. Innovations in the currency premium are correlated with 'speculative' positioning in foreign exchange markets, and for non-reserve currencies, with 'VIX' risk aversion. Innovations in the risk-free component are correlated with changes in nominal short-term interest rates. Both expected returns and risk play important roles in exchange rate dynamics.

ANALYTICAL NOTES

AN2014/01

Exchange rate and commodity price pass-through in New Zealand

Parker, Miles; Wong, Benjamin

Exchange rate changes affect prices in New Zealand. Using data from the last 25 years, this note illustrates how the inflation responses have differed depending on what caused the exchange rate to move.

AN2014/02

Structural adjustment in New Zealand since the commodity boom

Steenkamp, Daan

New Zealand's terms of trade have risen by 30 per cent in the last decade, raising national income by about 9 per cent. This note explores some of the economic consequences of the higher terms of trade.

AN2014/03

How has the LVR restriction affected the housing market: a counterfactual analysis

Price, Gael

This paper estimates a counterfactual scenario of what might have happened to housing market indicators since late 2013 if the LVR restriction had not been implemented. House prices and credit growth have been weaker than suggested by that counterfactual model.

NEWS RELEASES

Coordination of Monetary and Macro-Prudential Policies

27 March 2014

The Reserve Bank sees a case to coordinate its monetary and macro-prudential policies, such as loan to value ratios, when the effects of those policies overlap, Deputy Governor Grant Spencer says in a speech today to the Credit Suisse Asian Investment Conference.

“We believe it is essential to retain clear primary objectives for both monetary and macro-prudential policy. These primary objectives are price stability and financial system stability respectively. However, there is an appropriate role for policy coordination in certain circumstances and with certain policy tools. The key in this respect is to ensure that the primary aims of the two policy arms are not undermined by too heavily diverting the attention of those policies to secondary objectives.”

Mr Spencer said that the Bank’s preferred approach is to allow monetary and macro-prudential policies to support each other, conditional on each policy retaining a clear focus on its primary objective. This approach is consistent with the Bank’s current mandates under the Policy Targets agreement (PTA) for monetary policy and the macro-prudential MOU with the Minister of Finance.

“Macro-prudential tools vary in their ability to affect the macro-economy. Also, if they are pushed too hard they can lead to disintermediation and efficiency costs. Monetary policy can have a significant influence on financial stability, but if diverted too far from its main purpose could undermine confidence in the commitment to price stability.”

Mr Spencer said that the Loan-to-Value Ratio (LVR) ‘speed limit’ introduced last October was aimed at reducing the threat to financial stability by dampening the rapid growth in house prices and strengthening households’ and banks’ balance sheets.

“They have also been an important consideration in the Reserve Bank’s monetary policy assessment. The dampening effect of LVRs on house price inflation is estimated to have reduced CPI inflation pressures by an amount equivalent to a 25-50 basis point increase in

the OCR. In this respect, the LVR restrictions may have reduced current pressures on the NZD exchange rate.”

Mr Spencer said that the monetary policy tightening cycle that has now commenced was motivated by the need to maintain CPI inflation in the vicinity of 2 percent over the medium term. In doing so, it should contribute to financial stability by further dampening house price inflation. In this respect, an interest rate move back to more normal levels will give the Bank greater scope to ease or remove the LVR restrictions.

“We have stated that the LVR restrictions are not intended to be permanent. They will be removed once housing market pressures have moderated and when we are confident there will not be a resurgence of house price inflation in their absence.”

Mr Spencer noted that further research is underway to improve the Bank’s understanding of interactions between the two policy arms.

Reserve Bank issues LVR exemption for construction

28 March 2014

The Reserve Bank today published revised rules that exempt construction loans from the Loan-to-Value Ratio (LVR) ‘speed limit’ introduced last October.

The exemption for construction loans was announced on 10 December last year and is backdated to 1 October 2013. After the exemption was announced, the Reserve Bank formally consulted with the banking and building industries on proposed wording for the exemption.

Submissions generally supported the intent of the construction exemption, and provided clarity around language used to define the limits of the exemption.

After considering feedback about the definition of construction loans, the Reserve Bank has altered the wording of the exemption to allow “preparation of the site, such as clearing or earthworks, and putting in place the building’s substructure and framing” before the borrower commits to the purchase of a dwelling that is being built.

The construction loan exemption means that low-deposit lending is not included in a lender’s 10 percent speed limit if the lending is used to finance the construction

of a new house or apartment.

The LVR speed limit aims to reduce the threat to financial stability created by rapid growth in house prices. The exemption aims to support the supply of new housing and, in doing so, reduce some of the pressure arising from excess demand in the New Zealand housing market.

Reserve Bank *Bulletin* Released

31 March 2014

The Reserve Bank today released the March 2014 edition of the Reserve Bank *Bulletin*.

The *Bulletin's* first article provides an introduction to the Reserve Bank's loan-to-value ratio (LVR) restrictions framework. The Bank imposed an LVR 'speed limit' in October last year to slow growth in house prices and housing credit, and mitigate associated risks to the financial system and the broader economy. The article explores the Bank's early experiences in operating the restrictions.

The *Bulletin's* second article outlines and compares the key features of monetary policy governance and accountability arrangements of a range of countries with similar approaches to monetary policy to that used in New Zealand. The focus of the article is on describing the different approaches taken in each of the countries, rather than evaluating the relative merits of the different models.

The *Bulletin's* final article traces the channels through which the exchange rate affects the Consumers Price Index (CPI). It looks at the issue in a New Zealand context, where fluctuations in export commodity prices have been an important influence. It also presents some recent Reserve Bank research into the nature and extent of pass-through, concluding that what causes the exchange rate to move matters a lot for how domestic prices respond.

Reserve Bank raises OCR to 3 percent

24 April 2014

Statement issued by Reserve Bank Governor Graeme Wheeler:

The Reserve Bank today increased the OCR by 25 basis points to 3 percent.

New Zealand's economic expansion has considerable momentum, with GDP estimated to have grown by 3.5 percent in the year to March. Growth is gradually increasing in New Zealand's trading partners, but inflation in those economies remains low. Global financial conditions continue to be very accommodating.

Prices for New Zealand's export commodities remain very high, though auction prices for dairy products have fallen by 20 percent in recent months. Domestically, the extended period of low interest rates and strong growth in construction sector activity are supporting the recovery. Net immigration continues to increase, boosting housing and consumer demand. Confidence remains very high among households and businesses, and measures of investment and employment intentions are positive.

Spare capacity is being absorbed, and inflationary pressures are becoming apparent, especially in construction and other non-tradable sectors. The high exchange rate remains a headwind to the tradables sector, and along with low import price inflation has been holding down tradables inflation. The Bank does not believe the current level of the exchange rate is sustainable.

There has been some moderation in the housing market. Restrictions on high loan-to-value ratio mortgage lending are easing pressure, and rising interest rates will have a further moderating influence. However, the increase in net immigration is adding to housing demand.

Headline inflation is moderate, but inflationary pressures are increasing and are expected to continue doing so over the next two years. In this environment it is important that inflation expectations remain contained. To achieve this it is necessary to raise interest rates towards a level at which they are no longer adding to demand. The speed and extent to which the OCR will be raised will depend on economic data and our continuing assessment of emerging inflationary pressures, including the extent to which the high exchange rate leads to lower inflationary pressure.

By increasing the OCR as needed to keep future average inflation near the 2 percent target mid-point, the Bank is seeking to ensure that the economic expansion can be sustained.

High-LVR lending falls to 5.6% over six months

29 April 2014

The Reserve Bank today said that high loan-to-value ratio (high-LVR) residential mortgage lending had fallen to 5.6 percent for the six months to the end of March 2014.

Deputy Governor Grant Spencer said: "Our initial assessment is that restrictions on high LVR lending helped reduce house price inflation. A more in-depth assessment of the policy and its impact on the housing market will be included in next month's Financial Stability Report."

All banks have complied with rules that restrict high-LVR residential mortgage lending to no more than 10 percent of total new mortgage lending. In September 2013, before the introduction of the new rules, high-LVR lending was approximately 25 percent of all mortgage lending.

The restriction came into force on 1 October last year and 31 March 2014 was the end of the first six month period over which all registered banks had to comply. Future compliance with the high-LVR lending rules will be measured against a 3-month rolling average for banks with more than \$100 million per month of mortgage lending (ANZ, ASB, BNZ, Kiwibank and Westpac) and a 6-month rolling average for banks with less than \$100 million per month of mortgage lending.

High-LVR loans are those that are made to someone borrowing more than 80 percent of the value of the property that is mortgaged.

The latest data is here: <http://www.rbnz.govt.nz/statistics/tables/c30/>

Dairy future bright, but challenges remain

7 May 2014

New Zealand's dairy sector has a bright future, but important challenges need to be managed to ensure it retains its dynamism, the Governor of the Reserve Bank, Graeme Wheeler, said in a speech today.

Mr Wheeler told the DairyNZ conference in Hamilton that the dairy sector makes a vital contribution to

the New Zealand economy.

"Dairy exports make up almost a third of New Zealand's annual merchandise exports, animal numbers and prices have increased and on and off farm productivity growth has been impressive."

Commenting on New Zealand's high exchange rate Mr Wheeler said the strength of the terms of trade, which are at a forty year high, are an important driver. New Zealand's long-term reliance on foreign savings to finance its investment needs also places upward pressure on interest rates and the exchange rate. In addition, the high exchange rate also reflects the relative strength of New Zealand's economy compared to other advanced economies.

"The Reserve Bank considers that the exchange rate is overvalued and does not believe its current level is sustainable. Our exchange rate could be expected to weaken if one or more of the following occurs: the US economy continues to improve; global dairy prices continue to come off their recent highs; China's growth slows; financial market volatility begins to rise; or there is a global 'risk off' event such as a correction in global equity prices."

"If the exchange rate remains strong, it is likely to be reflected in continued low or negative tradables inflation. In such circumstances, the high exchange rate, along with new economic data, will be a factor in our assessment of the extent and speed with which the Official Cash Rate needs to be raised."

"Further, if the currency remains high in the face of worsening fundamentals, such as a continued weakening in export prices, it would become more opportune for the Reserve Bank to intervene in the currency market to sell New Zealand dollars."

Mr Wheeler said that dairy debt almost trebled over the past decade, and currently stands at \$32 billion.

"It is concentrated among a small proportion of highly leveraged farms with around half of the dairy debt being held by only 10 percent of dairy farmers".

Despite the prosperous outlook for the dairy sector, Mr Wheeler warned that even the most dynamic enterprises can lose competitiveness and suffer losses

in market share, so there are important challenges to manage.

“On the external front these include the oscillations in global dairy prices, increasing competition from other international suppliers, the risk of slower growth in China, and the need to continue diversifying our export markets, including positioning for the enormous longer term opportunities in the Indian market. On the domestic front, dairy farmers are conscious that high dairy prices can turn around quickly and will need to continue managing their cash flows and borrowings in a prudent manner.”

Read the full speech on the Reserve Bank website:
http://www.rbnz.govt.nz/research_and_publications/speeches/2014/5721595.html

Housing pressures are easing gradually

9 May 2014

Pressures in the New Zealand housing market are easing gradually but risks remain, the Deputy Governor of the Reserve Bank, Grant Spencer, said in a speech today.

“The volume of house sales has dropped considerably across the country, other than in Canterbury, and the slowdown in volume has also been reflected in prices. Without the Loan to Value Ratio restrictions (LVRs), introduced in October 2013, annual house price inflation might be running some 2.5 percent higher,” Mr Spencer said.

Housing supply conditions have also started to improve, with a recovery evident in residential construction. In Auckland, progress is being made in freeing up the supply of buildable land and improving the consenting process. In Canterbury, the replacement of severely damaged homes is well in train after a slow start.

However, the housing shortage remains large and significant increases in building are required in Auckland and Canterbury over the next three years.

“There are many parts to the housing market equation – and many risks. Probably the major risk at present is the outlook for net immigration, in part due to reduced departures of New Zealand citizens. We are forecasting net immigration to reduce gradually as

economic conditions improve in Australia,” Mr Spencer said.

“We’ve started raising the Official Cash Rate, with the aim of forestalling general inflation pressures in the broader economy. Floating mortgage rates could be 7 to 8 percent in two years’ time, closer to their average of the past 20 years.”

“The extent and timing of interest rate increases will depend on a number of uncertain variables, in particular the exchange rate and housing market pressures,” Mr Spencer said. We believe that LVRs are achieving their purpose. The financial system is less vulnerable to an adverse housing shock and banks are now less exposed to potential credit losses as the interest rate cycle turns upwards.

We’ve stated that the LVRs are temporary, but before removing them we want to be confident that the housing market is responding to interest rate increases; and that immigration pressures are not causing a resurgence of house price pressures. It will take some time to gain this assurance. At this stage we consider the earliest date for beginning to remove LVRs is likely to be late in the year.

Read the full speech on the Reserve Bank website:
http://www.rbnz.govt.nz/research_and_publications/speeches/2014/5724016.html

Views sought in review of settlement systems

12 May 2014

The Reserve Bank is seeking stakeholders’ input for a strategic review of its payment and settlement systems.

The Reserve Bank announced last year that it would review the Exchange Settlement Account System (ESAS) and NZClear Securities Settlement System (NZClear) that it owns and operates. The review is in anticipation of substantial upgrades that are necessary over the next 2-5 years.

The Reserve Bank invites industry stakeholders to provide feedback on the following aspects of the payment and settlement systems it operates:

The Reserve Bank's vision, principles and core requirements for the provision of the payment and settlement services;

The strategic issues impacting the future provision of the payment and settlement services by the Reserve Bank; and

The potential options, identified by the Reserve Bank, which could address the strategic issues.

The deadline for submissions is 20 June 2014 and further information is available on the Reserve Bank website: http://www.rbnz.govt.nz/markets_and_payment_operations/payment_system_review/index.html

Consultation Paper: Strategic review of the Reserve Bank of New Zealand's payment and settlement systems (PDF 210KB)

Financial system sound, but risks remain 14 May 2014

New Zealand's financial system remains sound, and well placed to support the expansion in the economy, Reserve Bank Governor Graeme Wheeler said today when releasing the Bank's May Financial Stability Report.

However, Mr Wheeler warned several risks to the financial system require continued focus.

"Debt in the household sector remains high relative to income, and house prices are overvalued on several measures. As a result, financial stability could deteriorate if there is a sharp correction in house prices, particularly if accompanied by a reduction in debt repayment capacity."

The Reserve Bank introduced loan-to-value restrictions in October last year to assist in reducing this risk, Mr Wheeler said.

"Debt is also elevated in the dairy sector, although incomes are currently strong. A reduction in dairy export prices, and any associated fall in land prices, could place pressure on the more highly leveraged borrowers in this sector."

Mr Wheeler said one source of risk to farm incomes is a disruption to China's economic growth, which could result from vulnerabilities in China's financial system. "Such a disruption could also affect international capital markets, and impair funding conditions for New

Zealand banks."

"More broadly, New Zealand remains exposed to the international financial markets as a result of its high external debt and ongoing current account deficit. However, strong deposit growth in recent years has helped to reduce the reliance of the banking system on offshore funding."

Deputy Governor Grant Spencer said current prudential policy settings remain appropriate given the risks facing the financial system.

"The restriction of high-LVR mortgages appears to be having the desired effect of moderating house price pressures and reducing the risk of a severe market correction. House sales and mortgage credit growth have reduced and we estimate that house price inflation could have been 2.5 percent higher in the absence of the restriction."

Mr Spencer said the Reserve Bank expects the speed limits to remain in place until the housing market comes into better balance. This will be assisted by the upward movement in interest rates and an increasing supply of new houses.

"However, we will need to be confident that immigration pressures will not cause a resurgence of house price inflation. We consider that the earliest date for beginning to remove the LVR restrictions is likely to be late in the year."

Mr Spencer said that, over the coming year, the Reserve Bank will be undertaking a stocktake of its bank and non-bank regulations, with the aim of improving their efficiency, consistency and clarity. A further new initiative is the development of a comprehensive stress testing framework for the banking system. In the insurance sector, following the completion of licensing, the Bank is now developing a framework for ongoing insurance supervision.

RBNZ renews currency swap facility with PBOC

22 May 2014

The People's Bank of China (PBOC) and the Reserve Bank of New Zealand today announced the

renewal of a reciprocal currency arrangement (swap line) to support the settlement of cross border transactions between New Zealand and Chinese businesses.

The arrangement, first agreed in 2011, aims to promote bilateral trade and direct investment for economic development between the two countries. The size of the swap facility is RMB 25 billion (NZD 5 billion) and it has a three year maturity which may be extended if both parties agree.

Reserve Bank Deputy Governor Grant Spencer said the bilateral currency swap line will further help the international use of the renminbi, and contributes to a strengthening of the China-New Zealand relationship.

Proposed sale of Lumley General Insurance (N.Z.) Limited to IAG (NZ) Holdings Limited

6 June 2014

The Reserve Bank of New Zealand has completed its assessment under section 28 of the Insurance (Prudential Supervision) Act 2010 of the proposed change of control of Lumley General Insurance (N.Z.) Limited to IAG (NZ) Holdings Limited.

The Reserve Bank of New Zealand is satisfied that Lumley General Insurance (N.Z.) Limited would continue to meet the licensing criteria set out in section 19(1)(a) to section 19(1)(m) of the Insurance (Prudential Supervision) Act 2010, should the proposed transaction occur.

PUBLICATIONS

Regular publications

<i>Annual Report</i>	Published in October each year.
<i>Financial Stability Report</i>	Published six-monthly. A statement from the Reserve Bank on the stability of the financial system.
<i>Monetary Policy Statement</i>	Published quarterly. A statement from the Reserve Bank on the conduct of monetary policy.
<i>Reserve Bank of New Zealand Statement of Intent, 2013-2016</i>	

Recent Reserve Bank Discussion Papers

2014

DP 2014/01	Exchange rates, expected returns and risk <i>Anella Munro</i>
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Analytical Notes

2013

AN 2013/01	Productivity and the New Zealand dollar - Balassa-Samuelson tests on sectoral data <i>Steenkamp, Daan</i>
AN 2013/02	Drying out: Investigating the economic effects of drought in New Zealand <i>Kamber, Gunes; McDonald, Chris; and Price, Gale</i>
AN 2013/03	New Zealand's short- and medium-term real exchange rate volatility: drivers and policy implications <i>Chetwin, Willy; Ng, Tim; and Steenkamp, Daan</i>
AN 2013/04	Estimated Taylor rules updated for the post-crisis period <i>Kendall, Ross and Ng, Tim</i>
AN2013/05	Estimating the impacts of restrictions on high LVR lending <i>Bloor, Chris; McDonald, Chris</i>
AN2013/06	Some revisions to the sectoral factor model of core inflation <i>Price, Gael</i>
AN2013/07	Neutral interest rates in the post-crisis period <i>Chetwin, Willy; Wood, Amy</i>
AN2013/08	What in the world moves New Zealand bond yields? <i>Lewis, Michelle; Rosborough, Lauren</i>
AN2013/09	Fresh perspectives on unobservable variables: Data decomposition of the Kalman smoother <i>Sander, Nicholas</i>
AN2013/10	Migration and the housing market <i>Chris McDonald</i>

AN2013/11 A closer look at some of the supply and demand factors influencing residential property markets
Elizabeth Watson

2014

AN2014/01 Exchange rate and commodity pass-through in New Zealand
Miles Parker and Benjamin Wong

AN2014/02 Structural adjustment in New Zealand since the commodity boom
Daan Steenkamp

AN2014/03 How has the LVR restriction affected the housing market: a counterfactual analysis
Gael Price

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:

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Articles in recent issues of the Reserve Bank of New Zealand *Bulletin*

Vol. 76, No. 2, June 2013

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

Discovering covered bonds - the market, the challenges, and the Reserve Bank's response

Exchange rate fluctuations: how has the regime mattered?

Exchange rate policy forum: Bringing it all together, where does htis leave us, and where to from here?

Updating the Reserve Bank Museum

Vol. 76, No. 3, September 2013

Why has inflation in New Zealand been low?

A new approach to macro-prudential policy for New Zealand

The Reserve Bank's capital adequacy framework

Vol. 76, No. 4, December 2013

The 2012 Policy Targets Agreement: an evolution in flexible inflation targeting in New Zealand

Measuring systemic risk: the role of macro-prudential indicators

Foreign exchange turnover: trends in New Zealand and abroad

Vol. 77, No. 1, March 2014

An A-Z of loan to value (LVR) restrictions

Monetary policy decision-making and accountability structures: some cross-country comparisons

Exchange rate movements and consumer prices: some perspectives