A quick look over the neighbour’s fence: New Zealand and Australia compared
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In the quest to understand the New Zealand economy better, it can be instructive to take a comparative look at other economies. By identifying similarities and differences and asking what lies behind them, we can cast light on the factors that have been shaping economic developments here in New Zealand. The obvious first place to look is at our nearest neighbour, Australia.

1 Introduction
This article surveys some of the main economic trends in New Zealand and Australia over the 1990s, with a particular emphasis on those aspects most relevant to the Bank; inflation pressures, the business cycle, and monetary conditions and policy. It concludes that Australia and New Zealand during the 1990s have followed a broadly similar expansionary cycle, but that the amplitude of the cycle in New Zealand has been greater than in Australia. Monetary conditions have correspondingly been firmer in New Zealand in recent years than in Australia.

The article is structured as follows. Section 2 focuses on a discussion of demand pressures in Australia and New Zealand, with an emphasis on the factors driving inflation pressures. Section 3 focuses on the supply side with an analysis of the determinants of longer run growth potential in the two economies. External balances are compared in section 4, and sections 5 and 6 draw the preceding strands together in a discussion of inflation pressures and the monetary policy responses. Finally, section 7 concludes.

2 Synchronised demand pressures
A comparison of New Zealand and Australian GDP growth rates during the 1980s (figure 1) shows that New Zealand has experienced a more pronounced cycle than Australia: the New Zealand economy was in deeper recession in

\[ \text{Figure 1} \]

\[ \text{Real GDP} \]

\[ \text{(annual average percentage changes)} \]

\[ \% \]

\[ \text{Source: Statistics NZ, Datastream} \]

\[ \text{NZ} \quad \text{Australia} \]

\[ 90 \quad 91 \quad 92 \quad 93 \quad 94 \quad 95 \quad 96 \quad 97 \]

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1 Many thanks to Bruce White for comments and to Paul Conway for estimating Australian potential output. Thanks also to Graham Howard and Selina Young for valuable data and graphics assistance.
the early part of the 1990s, but by 1994 was expanding more vigorously.

A number of factors can be identified as having contributed to the relatively stronger cycle in New Zealand:

**External competitiveness**
New Zealand’s external terms of trade during the 1990s have been more favourable than Australia’s (figure 2). Thus the real depreciation of the New Zealand dollar that occurred in the early 1990s (figure 3) gave the export and import competing sectors of the New Zealand economy an initial boost. In Australia, the broadly comparable depreciation of the Australian dollar mostly offset a fall in the terms of trade. Similarly, later in the cycle when the New Zealand economy gained comparatively more momentum, relatively more of the monetary restraint came through real exchange rate appreciation, and net exports contributed negatively to growth.

**Business confidence**
Domestically, the strength of demand in the early stages of the recovery in New Zealand was underpinned by robust business confidence, particularly when it became apparent that the key elements of the economic reforms initiated in the mid-1980s were not going to be rolled back by the new government elected in late 1990. As business confidence improved, private investment growth was boosted substantially. Another factor behind the strength of the investment cycle in New Zealand will have been new investment to replace capital ‘scraped’ during the restructuring of the economy.

**Consumer confidence**
In contrast, consumer confidence in New Zealand noticeably lagged behind that in the business sector. As a result, private consumption growth was not such a major factor in lifting the New Zealand economy out of the trough of the business cycle (relative to Australia). Rather, growth in private consumption played an important role in maintaining high growth in output at a later stage.
**Aggregate expenditure**

These points are further illustrated in figures 4 (a)-(d), which show, for both countries, annual contributions to GDP growth from net exports, investment, private consumption and government consumption. It can be seen that the initial growth in both countries came mainly from net exports and investment, but more so in the case of New Zealand than Australia. In both countries, private consumption peaked later, although for Australia, growth in private consumption began to make a significant contribution to growth at least a year earlier than in New Zealand. Also notable is that each of the three main influences on demand (net exports, investment and private consumption) followed a more pronounced cycle in New Zealand than in Australia. Finally, figure 4(d) shows that government consumption contributed a little less to overall demand in New Zealand than in Australia. Also, fiscal policy more broadly, as reflected in the fiscal balance (figure 5), has been tighter in New Zealand than in Australia since 1993. However, positive effects of the firm fiscal policy stance on business confidence may have offset the more direct contractionary effects on demand, and this will have helped reinforce New Zealand’s more pronounced recovery.

**Employment growth**

Another factor likely to have been relevant in New Zealand was the enactment, in 1991, of the Employment Contracts Act. It seems reasonable to ascribe some of the fall in the real costs of labour (figure 6) to this legislation. Similarly, the strong growth in employment (figure 7) and decline in unemployment from close to 11 percent in 1991 to around 6 percent by 1995 (figure 8) probably owes something to the increased flexibility in employment arrangements. The impact of employment growth on household disposable incomes was one of the main contributors to the strong growth in private consumption that occurred during the latter half of the expansion. Eventually, however, the strength of the economy led to the emergence of skill shortages in the mid-1990s. As a consequence, growth in New Zealand’s real unit labour costs has outstripped that in Australia in...
recent years, and employment growth recently has slipped below that in Australia.

**The housing market**

One of the most notable differences between the New Zealand and Australian growth cycles has been in the respective housing markets. In both countries the construction of new houses rose by over 40 percent within three years, following the trough of 1991. In Australia, this construction ran ahead of demand, and in 1995 and 1996 there was a considerable excess of new houses on the Australian market. This meant not only that house prices in Australia remained subdued for most of the 1990s, but also that the home construction industry turned down sharply in 1995 and 1996. This downturn in housing construction in Australia helped ease the pressures on economy-wide capacity constraints that built up in 1994 and 1995. In New Zealand, by contrast, the demand for houses increased even more than the supply, which came to be reflected in strong house price inflation (figure 9). Thus, in New Zealand, new house construction was sustained through 1996 and 1997, mostly at around 1994 peak levels.

A number of factors have been suggested as drivers of the New Zealand housing market. Generally speaking, confidence in the housing market was underpinned by improved confidence in the long run outlook for the New Zealand economy, and correspondingly, for income and employment prospects. Another driver was increased population growth, stemming from an upsurge in immigration in the mid-1990s. Following large scale net emigration from New Zealand in the 1980s, by the mid-1990s the trend had swung to net immigration at levels that contributed significantly to New Zealand’s population growth. Australia has also had significant levels of immigration, but without such sharp swings (figure 10). Also, to the extent that New Zealand home buyers expected house price rises to continue, real mortgage interest rates in New Zealand will have appeared low, and even negative, for relatively long periods of time (figure 11). Interestingly, however, with a recent slowing in the New Zealand housing market and some
evidence of a pick-up in Australian house prices, this particular relationship may now be reversing.

**The weather**

Finally, in 1994 and 1995 – the years corresponding with the peak of the growth cycle – large parts of Australia experienced a severe drought, which reduced farm output and rural incomes sharply. Australia’s farm GDP is assessed to have fallen as the result of the drought by about 10 percent, and GDP overall by about 0.5 percent. The New Zealand farm sector did not have the same experience; indeed, 1994 and 1995, if anything, were good growing seasons. It was also around this time that the New Zealand forestry sector enjoyed a considerable boost – reflected in both harvesting and new plantings – as the result of a sharp rise in the world price of soft wood and related products.

The general picture that emerges from the above is one in which the Australian economy was subject to a more mixed set of influences than was the New Zealand economy - particularly after about 1994. In particular, two events – the sharp downturn in the Australian housing market, and the drought – occurred at about the time the economy was peaking. These influences will have helped lessen the degree of monetary policy restraint required to contain demand pressures in Australia, relative to New Zealand.

So far we have focused very much on the respective cycles and the factors that shaped them. It is also informative to ‘look through’ the cycles and compare the two economies over the period as a whole (table 1). Here too there are similarities and differences. Over the cycle as a whole the growth rates achieved by Australia and New Zealand have been similar, but there have been differences in the relative contributions to this growth. New Zealand has experienced stronger growth in investment but

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2 The stronger growth of investment in New Zealand is of note given that New Zealand is a less capital intensive economy. This reflects among other things the relative smallness of the capital intensive mining sector in New Zealand compared with Australia.
less of a contribution from government consumption and from net exports.

3 The supply side of the story

The supply capacity of an economy is not something that can be observed directly, but has to be estimated. One approach is to estimate ‘potential output’ – the level of capacity at which the economy is capable of operating without inflation pressures developing. For the purposes of this article, a measure of potential output for both New Zealand and Australia was calculated using a semi-structural multivariate filtering technique, as described in Conway and Hunt (1997). On the basis of this measure, potential output growth for New Zealand rose from a trough of around 0 percent in 1990 to approximately 3-4 percent per annum over the last few years. These more recent growth rates are similar to our estimates of Australia’s recent potential growth rate.

Growth in potential output can be attributed to three factors: growth in capital inputs, growth in labour input and growth in output per unit of input (total factor productivity (TFP) growth).

To compare the driving forces behind potential output growth across countries, we need to compare each of these components.

Table 2 shows our estimates of the contributions to potential output of each component for New Zealand and Australia over the 1992-96 period. The data are shown in terms of annual percentage growth rates. Potential output growth is equal to the sum of the contributions from capital, labour and total factor productivity. Figures 12(a) and (b) show the same information as in table 2, but for each year individually, allowing us to trace the evolution of each component over time.

As shown in table 2, the respective growth rates for the capital stock and potential output have been roughly the same in both countries. Potential output growth in both countries averaged around 3 percent per annum over the 1992-96 period. The contribution of capital inputs in Australia and New Zealand was also similar at around 0.5 percent per annum in both coun-

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Table 1: Contribution of expenditure components as a percentage of total GDP growth: 1992Q3 to 1997Q3

<table>
<thead>
<tr>
<th></th>
<th>New Zealand (percent)</th>
<th>Australia (percent)</th>
<th>Difference (NZ-Aust) (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private consumption</td>
<td>59.2</td>
<td>59.0</td>
<td>0.2</td>
</tr>
<tr>
<td>Government consumption</td>
<td>4.6</td>
<td>10.7</td>
<td>-6.0</td>
</tr>
<tr>
<td>Investment</td>
<td>45.9</td>
<td>40.8</td>
<td>5.1</td>
</tr>
<tr>
<td>Exports</td>
<td>38.5</td>
<td>55.2</td>
<td>-16.7</td>
</tr>
<tr>
<td>Imports</td>
<td>-50.0</td>
<td>-61.4</td>
<td>11.4</td>
</tr>
<tr>
<td>Net exports</td>
<td>-11.5</td>
<td>-6.2</td>
<td>-5.3</td>
</tr>
<tr>
<td>Increase in stocks</td>
<td>1.7</td>
<td>-4.3</td>
<td>6.0</td>
</tr>
<tr>
<td>Expenditure GDP</td>
<td>100.0</td>
<td>100.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

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4 One of the main lessons to be learned from the productivity literature to date is the importance of taking into consideration the role of the aggregate business cycle. Since productivity tends to be pro-cyclical (as labour and capital tend to be used more intensively during cyclical upswings and less intensively during cyclical downswings), it is useful to report productivity growth rates over a full business cycle (peak-trough-peak). Although the period analysed (1992Q1-1996Q4) does not coincide perfectly with a full business cycle, it covers a similar phase of the business cycle for both countries and so should not invalidate cross-country comparisons.
The capital input measure used for New Zealand is the Reserve Bank of New Zealand (RBNZ) FPS capital stock measure. The Australian capital stock series used is the official Australian Bureau of Statistics (ABS) real capital stock measure of equipment and non-dwelling construction. This excludes inventories, dwellings, livestock and agricultural land.

6 The labour input for both countries was the trend rate of employment, which was calculated as 1 – the trend rate of unemployment. The trend rate of unemployment was estimated as the HP-filtered unemployment rate (l = 1600).

The extent to which contributions to economic growth from labour supply will be sustained will depend on the rate of growth in the available labour force (population growth, participation rates) and the potential for further falls in the rate of unemployment to be achieved. These factors will be influenced largely by the (microeconomic) labour market policies of each country.

Figure 12 (a) and (b) also show that New Zealand has seen a significant rise in TFP growth since 1990 – with our average TFP growth rate improving from negative values in 1990 to a peak of about 1.5 percent in early 1994, before averaging around 1.0 percent growth per annum more recently. While some of the measured pick-up in productivity growth in New Zealand will have been cyclical in nature (reflecting that resources tend to be used more intensively during up-swings than during downswings), it also seems likely that there has been...
a significant underlying lift in productivity in New Zealand. However, Australian productivity has performed even better, with average TFP growth there estimated to have stabilised at around 1.5 percent per annum.\(^7\)

One possible explanation for New Zealand’s lower TFP growth rate is that it is the counterpart to our stronger growth in employment. At least in the short term, a falling unemployment rate may imply an increase in the proportion of lower productivity people in the labour force, leading to lower productivity growth in the aggregate. To the extent that this has been the case, future productivity growth will depend on the speed at which the skills of the expanded labour force, as well as the utilisation of the growing stock of capital equipment, can be enhanced.

These observations, however, should be treated as no more than tentative and preliminary: productivity is notoriously difficult to measure and interpret and we are still some distance from an adequate understanding of the trends in productivity in New Zealand (and Australia). More in-depth analysis of the factors driving productivity growth in New Zealand is the subject of research that has been jointly commissioned by the Reserve Bank, the New Zealand Treasury and the Department of Labour. (This research is likely to include industry-level comparisons with Australian productivity data, which should help to extend what we can learn from the Australian data and experience.)\(^8\)

4 External accounts

For open economies like New Zealand and Australia, a channel by which excess demand can evidence itself is in the trade account of the balance of payments. That is, excess demand is met by net imports of goods and services from abroad, rather than by local production being run hard against capacity constraints. Figure 13(a) shows how, for both Australia and New Zealand, the balance of trade on goods and services deteriorated from 1991 until 1995. But Australia, unlike New Zealand, experienced significantly improved trade balances in 1996 and 1997. The greater deterioration in New Zealand’s external trade position will have stemmed largely from the relatively greater rise in the real exchange rate during the period that monetary policy was tightened. (The effect of a rising real exchange rate is to shift aggregate demand away from local production and towards goods and services produced abroad.)

But, of course, channelling excess domestic demand abroad (by increasing net imports) can only be a temporary ‘escape valve’. This is particularly true in the case of countries such as New Zealand, and to a lesser extent Australia, which already have large external obligations to service. This is because if the trade surplus falls short of the cost of servicing already accumulated external obligations (the investment income balance on the balance of payments), there will be an overall deficit on the current account of the balance of payments. This will further increase the country’s external obligations. Figures 13(a)-(c) show how, for New Zealand, these relationships have evolved in such a way as to cause the current account deficit to widen considerably of late (and to date, by more than Australia’s). This may mean that from here on, the scope for New Zealand to meet domestic demand from abroad may be more limited than it has been in the recent past. This may imply a change in the ‘mix’ of monetary conditions, with the exchange rate having relatively less of a restraining influence, and interest rates relatively more of a restraining influence. Such a change in the mix of monetary conditions is already occurring in New Zealand.

\(^7\) The above estimates of equilibrium TFP growth in Australia are consistent with official Australian estimates. For example, the ABS estimates the average annual growth rate of TFP over the last growth cycle (1988-1996) to be 1.2 percent, almost exactly the same as our estimates for that period.

\(^8\) The results of this research will be publicly available, and will be reported on in a future Bulletin article.
Zealand, with the exchange rate having fallen and interest rates risen during recent months.

5 Inflation

The above discussion of demand pressures (in section 2), potential output growth (in section 3), and external imbalances (section 4) leads naturally to a discussion of inflation and monetary policy.

A useful summary measure of domestic inflation pressures is the ‘output gap’; that is, the difference between actual output and estimated potential output, expressed as a percentage of potential output. Comparative estimates of the output gap for New Zealand and Australia are shown in figure 14. These show that, although potential output has risen substantially in New Zealand, actual output grew even more strongly, and led to a persistently positive output gap between early 1993 and late 1996. By contrast, our estimates for Australia suggest a shorter period of more modest excess activity. Herein probably lies most of the explanation for why New Zealand experienced stronger inflation pressures, and why monetary policy needed to work harder to contain inflation in New Zealand than in Australia (see next section).
For open economies like New Zealand and Australia, the prices charged for imported goods and services also have an important, and direct, impact on inflation. Figure 15 shows import price levels in Australia and New Zealand in ‘world price’ terms. It is evident that New Zealand experienced significantly more ‘imported’ inflation than Australia between 1994 and 1997. As a result, import price inflation over this time period had a significant upward impact on overall inflation in New Zealand. These pressures were more subdued in Australia, both because of smaller increases in the (world) price of Australia’s imported goods, and because traded goods make up a smaller proportion of Australia’s CPI.

Why New Zealand’s imported goods and services inflated at a faster rate than Australia’s (in world price terms) is a bit of a mystery. There is, for example, no reason to think that the composition (or quality) of New Zealand’s imports is substantially different from Australia’s. One possibility, however, is ‘pricing to market’. By this we mean that foreign suppliers to New Zealand and/or local importers may have increased their margins by more than their Australian counterparts. This could be due to insufficient competition in New Zealand’s importing sector. Alternatively, the relatively greater appreciation of the New Zealand dollar vis a vis the Australian dollar may have given New Zealand importers, or overseas exporters to New Zealand, a greater opportunity to raise their margins. To the extent that this was the case, the effectiveness of a strong New Zealand dollar in channelling demand abroad and easing inflation pressures, may have been muted. But also if this explanation is the correct one, we should see some unwinding of import price margins as the result of the more recent exchange rate depreciation, and less upward impact on the inflation rate than we would otherwise expect.

Despite the stronger inflation pressures that this article has suggested New Zealand experienced in the most recent cycle, the inflation rate in New Zealand did not rise by as much as it did in Australia. This is especially true when inflation is compared across countries using comparable indices.

To illustrate the importance of comparing like with like, consider figures 16 and 17. Figure 16 shows (for both countries) the CPI ex-interest, which is the basis on which inflation rates across countries are most often compared. Over the 1990s, CPI inflation ex-interest has averaged 0.8 percent less in New Zealand than in Australia. But this comparison masks a wider underlying difference in outcomes. Specifically, the Australian CPI index has no counterpart to the ‘Purchase and Construction of New Dwellings’ and ‘Expenses of Dwelling Purchase’ items in the CPI regimen, which have a weight in the New Zealand index of over 8 percent.

If inflation rates in Australia and New Zealand are compared using CPI inflation excluding credit services and shelter (as shown in figure 17), the difference between inflation in New Zealand and in Australia has averaged 1.1 percent since 1990 and 1.5 percent since 1993. This widening of the difference in measured inflation between New Zealand and Australia reflects the fact that, in New Zealand, pressures

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9 World price indices adjust for the effect of changes in the respective values of the New Zealand dollar and Australian dollar by multiplying each country’s domestic import price indices by their respective TWI.

10 Since trade price indices are ‘value’ indices, they are not adjusted for changes in quality.
in the housing market have made a significant contribution to overall CPI inflation.\textsuperscript{11}

6 Monetary policy

On virtually any measure, monetary conditions have been firmer in New Zealand than in Australia through the last growth cycle: see for instance figure 18, which compares New Zealand and Australian Monetary Conditions Indices,\textsuperscript{12,13} figure 19 which shows comparative short-term interest rates and figure 20 which shows the yield gap (between short-term, policy related, and longer term interest rates) in both countries. Also, see Figure 3 which compares movements in the real exchange rates of the two countries.

Like Australia, our short-term interest rates were lower than long-term rates from mid-1991 to late 1994 but, since then short-term interest rates in New Zealand have been consistently above long-term rates (figure 21). The fact that Australia maintained a positive yield curve even during the 1994-95 period of monetary policy tightening illustrates that monetary conditions in Australia were not tightened to the degree they were in New Zealand. The recent increase in short-term interest rates in New Zealand also reflects the shift in the balance between the role of the exchange rate and of interest rates in keeping demand in line with the economy’s productive capacity.

Naturally enough, New Zealand’s relatively tighter monetary conditions raises the question: why should this have been so?

Sometimes it has been suggested that the answer lies in what appears to be less stringency in Australia’s monetary policy framework and that, if New Zealand adopted a similar framework, there could be less firm monetary

\textsuperscript{11} Of course, the other way of achieving comparability of inflation measures would be to add the housing components that appear in the New Zealand CPI to the Australian CPI measure. Given that housing inflation in Australia has been reasonably close to the overall inflation rate, then the amount by which Australia’s inflation over the period exceeded New Zealand’s would likely be in line with that shown by a comparison of the two official (inflation ex-credit) measures. Note, however, that if, in the period ahead, housing inflation in Australia picks up and in New Zealand falls away, then again the official Australian measure will tend to understate inflation relative to how it is measured in New Zealand.

\textsuperscript{12} Ideally, comparisons over a long time horizon should use real MCIIs rather than nominal. However, given low inflation rates in the two countries over this period, the divergence between the real and nominal MCIIs is quite small and the basic trends are roughly the same.

\textsuperscript{13} Note that Australia does not have an official MCI. For the purposes of this analysis, the Australian MCI was calculated using a 3:1 interest rate:exchange rate trade-off, compared to the 2:1 trade-off used for New Zealand. The Australian trade-off is a judgmental estimate. The greater relative weight given to interest rates in Australia reflects the fact that prices in Australia are less affected by exchange rate movements than are prices in New Zealand.
Certainly there are some differences between the policy frameworks in place in New Zealand and Australia. But, in recent years, those differences have narrowed, and the remaining differences are probably quite marginal. The principal differences are:

- the mid-point of Australia’s 2 to 3 percent ‘thick point’ inflation target is one percentage point higher than the mid-point of the 0 to 3 percent target range that applies in New Zealand (and was 1.5 percent higher up until late 1996 when the New Zealand inflation target was widened from 0 to 2 percent);

- different time periods over which the target is intended to be achieved. In New Zealand, the intention is that annual inflation rates should be kept within the target range all the time, whereas Australia targets average inflation over ‘the course of the cycle’.

However, neither difference should be overstated. It is apparent that the scope the Reserve Bank of Australia (RBA) sees for allowing variation in the inflation rate over ‘the course of the cycle’ is reasonably limited. In the words of RBA Deputy Governor Dr Steven Grenville, “Stabilising and maintaining price expectations is the key issue in thinking about the question ‘over the course of the cycle’… We would not be too fretted if actual inflation moves about a bit over the short term provided price expectations do not change.”[^14] [emphasis added]. This implies that the RBA would manage monetary policy cautiously in circumstances where inflation looked as though it were moving away from the target, unless it was clear that the departure was widely viewed as being the result of temporary factors.

Also, it does not necessarily follow that less monetary restraint is required to achieve a higher inflation target than a lower one. Important

in this connection is the role of inflation expectations: how much monetary restraint is required depends importantly on by how much inflation expectations are above the desired inflation rate. Where monetary policy has to work hardest is where the inflation expectations that lie behind wage and price setting behaviours remain persistently above actual inflation outcomes. Figure 22 suggests that inflation expectations in New Zealand have been no less consistent with actual inflation than in Australia.

More generally, there has been considerable convergence in the ‘institutional’ aspects of the inflation targeting regimes in the two countries. The independence of the RBA was clarified and formalised in an exchange of letters between the Treasurer and the RBA Governor in August 1996, and its Governor is now required to give formal and regular account of the way in which monetary policy is conducted. The arrange-

ments under which this happens broadly parallel those in New Zealand under which the Treasurer and the Governor of the Reserve Bank enter into a Policy Targets Agreement, and under which the Governor of the Bank appears before the Finance and Expenditure Committee of Parliament, normally at least twice a year.

7 Conclusion
A look back over the past decade reveals that there have been broad similarities but a number of specific differences in New Zealand and Australia’s respective macro and monetary policy profiles. Naturally, there have been periods when the combinations of influences affecting one country or the other have diverged and that is expected for the future as well. Indeed, to the extent that the New Zealand economy is smaller and narrower than that of Australia, it is perhaps inevitable that New Zealand is comparatively more exposed to ‘ups and downs’.

Overall, the explanation for the firmer monetary conditions that have prevailed in New Zealand appears to lie outside of the monetary regimes in place in both countries. It seems that the principal explanation lies in the more synchronised set of demand pressures that New Zealand experienced. These demand pressures ran ahead of growth in the economy’s output potential, as they followed a period of economic restructuring during which capital investment slowed, much capital was ‘scrapped’, and employment fell. Since then, however, there has been considerable expansion in the capacity of the New Zealand economy – driven by strong employment growth, high levels of capital formation and significant productivity gains. The key to maintaining an even stance in monetary policy in New Zealand in the period ahead will be to keep potential output growth moving ahead, while avoiding, to the extent possible, sharp shifts in demand influences.