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# The 1991-97 business cycle in review

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The economy commenced a period of economic expansion in 1991, with the actual level of GDP not contracting until early 1998. This proved to be one of New Zealand's most prolonged and strongest periods of business expansion for several decades. In addition, explicit inflation targets existed over the entire period, with the strong economic growth testing the Reserve Bank's ability and resolve to maintain low and stable consumer price inflation.

This article discusses the various economic stresses and strains that impacted on the economy over the 1991-97 period. In doing so, the article covers issues such as:

- what actually happened to output, inflation, and monetary conditions;
- which events were likely to prove one-off and hence be absent during the next business cycle upturn, and which features are likely to reoccur; and
- which events can and can not be explained by theory, New Zealand's past experience, and international developments.

Answering these questions may help improve monetary policy. However, this article does not cover in detail the role of the Reserve Bank in the recent business cycle – beyond describing what happened to monetary conditions and price pressures. The role of monetary policy in the recent cycle is left to an article planned for the March 1999 *Bulletin*.

## 1 Introduction

This article discusses business cycle developments over the 1991-97 period, and attempts to differentiate the one-off structural influences on the economy from those of a more cyclical nature. The article discusses what actually happened to output, inflation, and monetary conditions. It also compares these developments to both past and international experiences, and what we may have expected based on standard economic relationships. As a result, we are better able to understand which events were one-off, or unusual, or even inexplicable, and which events are likely to reoccur as a normal part of business cycle behaviour.

Reforms such as those New Zealand has put in place since 1985 could be expected to alter significantly the usual business cycle influences. Global experience suggests that newly deregulated economies may see surges in bank lending and capital in-flows, as the economy adapts itself to new institutional arrangements. In due course, such factors would be expected to return to more normal levels as households,

businesses and financial institutions adjust to their new circumstances.

Following reform, we might also expect output growth to accelerate, as the economy becomes more efficient. At some point, however, this growth rate would have to stabilise, albeit around a higher level. In addition, it is entirely possible that economic reforms might cause demand pressures to evolve in new ways. As a result of trade and financial liberalisation, international capital flows may play a larger role in determining investment, credit supply and interest rates.

At the same time, however, it is reasonable to presume that some of the strength of New Zealand's most recent economic expansion owed to traditional business cycle pressures. For instance, business cycles in other countries, even in countries that have not undergone recent reform, have often gone hand in hand with sharp asset price appreciations.

The broad conclusions of this article are that the pace and duration of the 1991-97 economic expansion were strong when compared to policy makers' initial expectations, New Zealand's recent history, and other contemporaneous experiences internationally. This growth resulted from one-off

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structural reforms (with their implications for investment and consumption), robust international growth, and other, more traditional, business cycle pressures. As such, it is perhaps not surprising that inflation pressures were strong, and monetary conditions were held firm for a prolonged period. It is also not surprising that New Zealand experienced a strong appreciation of the real exchange rate, although the extent of this appreciation is less than extraordinary when compared to our own past experience and developments internationally.

Looking ahead to the next upturn, it is likely that several factors that fuelled the expansion have dissipated, possibly implying a less inflationary environment and less volatility in monetary conditions. The rapid rise in household debt may have peaked, and it may be that expectations of the growth potential of the economy have been scaled back to something rather more realistic, thus dampening people's willingness to consume and invest. The rapid rise in immigration that occurred between 1992 and 1997 has also passed, and any one-off boost to output from labour market reform has dissipated. Finally, the international economy looks likely to remain more subdued in the near term.

However, another business cycle upswing is guaranteed to occur at some point, and monetary conditions again will likely need to be tightened in order to constrain inflation. The extent of upward pressure on the exchange rate will depend on the strength of inflationary pressures and the level of interest rates both in New Zealand and abroad. In addition, the continuing growth of worldwide capital flows and the deepening of international financial markets suggest that international events will, in future, have an even greater influence on our economy.

The remainder of the article is set out as follows: section 2 discusses the key features of the 1991-97 business cycle, including output, prices and monetary conditions. Section 3 provides an interpretation of recent events, identifying structural factors that provided a one-off boost to economic growth, the sequencing of events, and the demand pressures that arose. Section 4 focuses explicitly on explaining the developments in monetary conditions, looking at domestic and international price pressures, as well as interest rate and exchange rate behaviour. A conclusion follows.

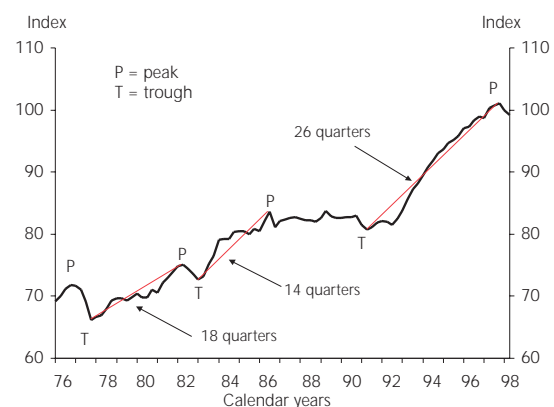
## 2 Key features of the recent business cycle

This section describes in stylised terms the behaviour of the key components of the economy – namely the behaviour of income growth, inflation, interest rates, and the exchange rate – over the most recent business cycle.

### 2.1 Output growth over the 1990s

Perhaps the most remarkable feature of the economy in the 1990s was the durability of the expansion from 1991 to 1997. Figure 1 dates peaks and troughs of New Zealand's business cycles since 1976.<sup>2</sup> The most recent expansion lasted roughly 24 months *longer* than the previous two expansions (the first running from late 1977 to 1982, and the second lasting from 1983 to mid-1986).

**Figure 1**  
Real GDP cycles since 1976  
(Source: Statistics New Zealand)



Another significant feature of output was that the average rate of growth over the cycle was quite elevated. Figure 2 shows the growth rate of GDP in New Zealand along with a summary measure of the growth rate of GDP in selected OECD countries.<sup>3</sup> The annual growth rate of GDP peaked in

<sup>2</sup> Peaks and troughs are dated according to a levels-based definition of the business cycle. This methodology is similar to that used by the NBER and characterises business cycles in terms of expansions and recessions, rather than in terms of faster and slower periods of economic growth.

<sup>3</sup> The 18 'selected OECD Countries' are Austria, Australia, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, the Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, the United Kingdom, and the United States. In future figures 19 OECD countries are used: the 18 countries above and Ireland.

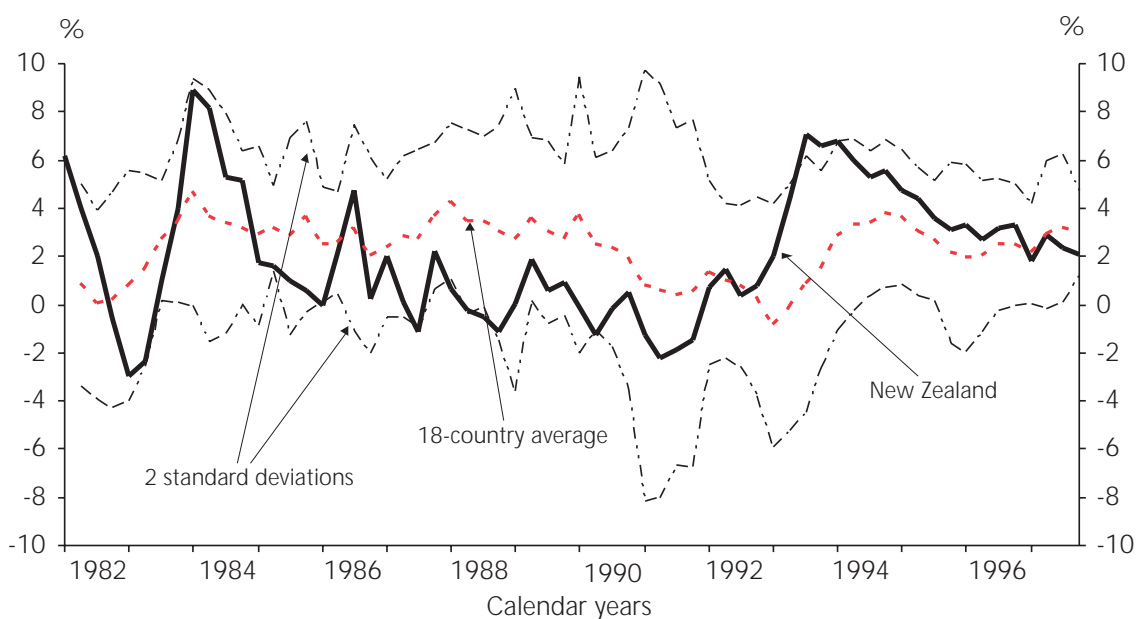
1993 at 7.1 percent, which was about equal to the most rapid pace seen in the previous 20 years. Moreover, the subsequent deceleration in output growth was quite mild by historical standards (figure 2). The result was that economic growth in New Zealand continued to exceed the average growth among OECD countries until mid- to late-1996.

A final feature of the expansion was the rapidity with which the economy recovered from the recession in 1990/91. Output accelerated as fast, or faster, than in essentially any OECD country (figure 2). In 1991, at the trough of the recession, New Zealand's rate of expansion was well below

the OECD average. However, as New Zealand's economy recovered, the growth rate of GDP jumped sharply; by mid-1993 the economy was expanding at a rate well above the average growth rate of other OECD countries. That left New Zealand's growth rate unusually high in statistical terms (that is, more than 2 standard deviations above the average growth rate of the selected OECD countries).

In sum, the expansion in output from 1991 to 1997 was prolonged, strong, and rapid. To a considerable extent, these features helped set the tone for inflation developments, and for monetary conditions – the levels of the exchange rate and interest rates – throughout the decade.

**Figure 2**  
**Real GDP growth: New Zealand and selected OECD countries**  
*(Sources: Statistics New Zealand, International Financial Statistics, RBNZ calculation)*



## 2.2 What happened to inflation over the recent business cycle?

Figure 3 plots the inflation rate in New Zealand since 1980 alongside a summary measure of OECD inflation rates. The figure reveals three key developments in inflation.

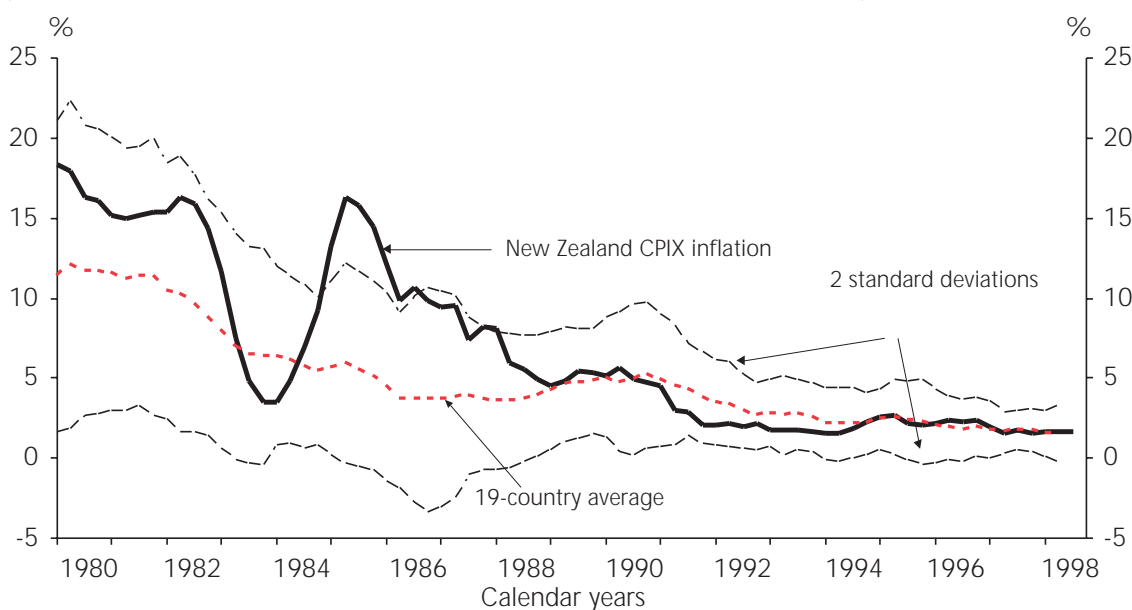
First, in the 1990s inflation had dropped to, and has remained at, a subdued level. In the early to mid-1980s, except for a brief period during 1983-84 when prices were controlled, double-digit inflation rates were the norm rather than the

exception. However, since the second quarter of 1991, which was the bottom of the 1990/91 recession, CPIX annual inflation has averaged just a little more than 2 percent.<sup>4</sup>

Secondly, New Zealand's CPIX inflation rate in the 1990s has been on par with, and at times a bit below, the average inflation rate for other OECD countries. In contrast, in the

<sup>4</sup> CPIX is the acronym for the consumer price index excluding interest rate costs. The series used here also accounts for the impact that the goods and services tax had on the price level.

**Figure 3**  
**Annual inflation rates: New Zealand and selected OECD countries**  
*(Sources: Statistics New Zealand and International Financial Statistics, RBNZ calculation)*



1980s New Zealand's inflation rate tended to be well above the average of other OECD countries. Although New Zealand's inflation rate did rise somewhat from 1994 to 1996, the deviation from the OECD average is almost imperceptible.

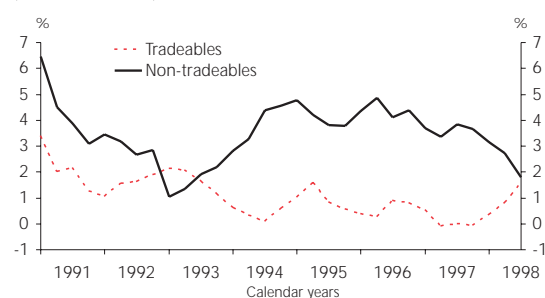
Thirdly, in the 1990s, the inflation rate in New Zealand has been exceptionally stable. CPIX inflation peaked at 18.4 percent in 1980:Q1. By the end of the decade, in 1989, inflation had been reduced to between 4.5 and 5.4 percent, nearly comparable to the low of 3.5 percent attained during the 1982-84 price controls. By contrast, the CPIX inflation rate has varied from a minimum of 1.5 percent to fractionally under 3 percent since the trough of the 1991 recession.

Although the overall inflation rate was stable in the 1990s, inflation pressures were nevertheless intense. This was evinced in the varied behaviour of inflation rates across sectors of the economy. For instance, the inflation rate of non-tradeable goods and services rose between 1993 and 1995 (figure 4), from about 1 percent to nearly 5 percent, leaving it well above the, then-prevailing, midpoint of the 0 to 2 percent target range for *underlying* inflation. In contrast, over the same period the inflation rate of traded goods and services remained quite subdued. This configuration began to reverse in mid- to late-1997. At about this time, domestic price pressures eased, leading to a deceleration in

non-tradeables inflation. Meanwhile, the depreciation of the exchange rate that began in April 1997 put upward pressure on the prices of imported goods, and hence tradeables inflation.

As we will explain in section 3, these features of inflation, along with developments in real output, played a major role in setting the tone for the evolution of monetary conditions from 1991 to the present.

**Figure 4**  
**Tradeables and non-tradeables inflation**  
*(Source: RBNZ)*



### 2.3 How did monetary conditions evolve over the last business cycle?

#### *Interest rates*

Figure 5 shows that both short-term and long-term interest rates in New Zealand fell markedly from the mid-1980s, especially from 1990 to 1994. However, from 1994 onward, short-term interest rates doubled, increasing from about 5 percent in the first quarter of 1994, to around 10 percent in the third quarter of 1996. Nonetheless, nominal short-term interest rates remained considerably below the levels seen during the 1980s.<sup>5</sup>

Figure 5 shows that long-term interest rates also rose from 1994 to 1996, although by considerably less than short-term interest rates. As a result, the yield curve became inverted (ie long-term interest rates were below short-term interest rates) from 1995 to early 1998. Over the last year or so, as the economy has slowed and monetary conditions have eased, the yield curve has returned to a positive slope (ie long-term rates are again above short-term rates).

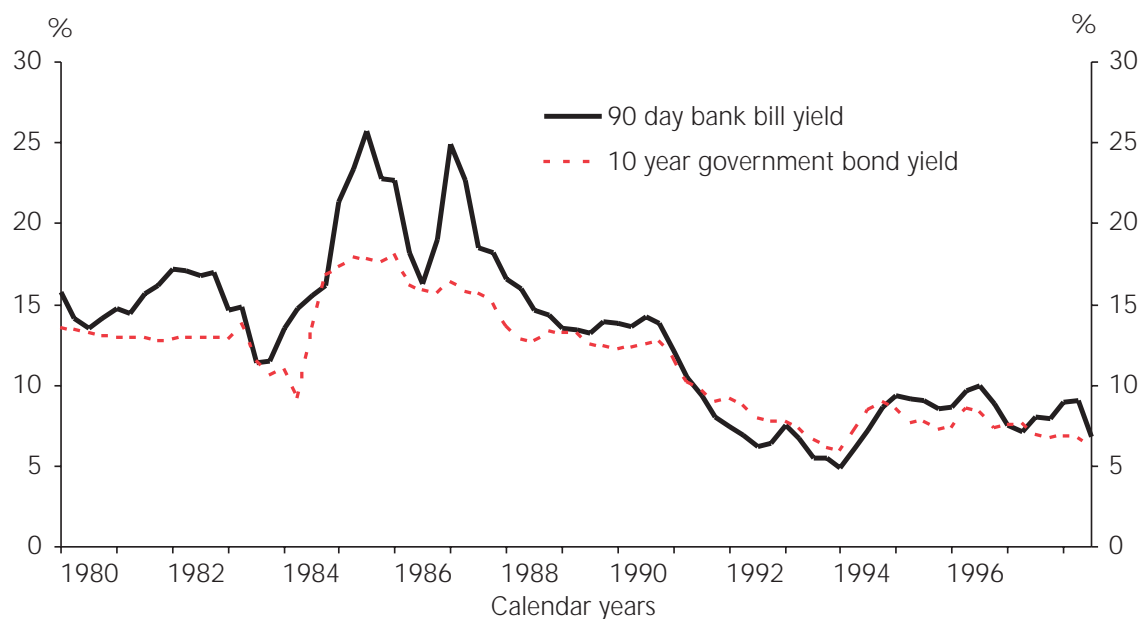
An additional important development is that interest rates have tended to be heavily influenced by developments in other countries. After tracking significantly higher than in other industrialised countries in the late 1980s, by 1992 New Zealand's long-term nominal interest rates converged to world levels, as would be expected for an economy with no impediments to foreign capital flows. Since then, they have remained reasonably close to the average level of interest rates in OECD countries (Figure 6, overleaf).

#### *A look at the exchange rate*

Figure 7 overleaf depicts nominal and real effective exchange rates for New Zealand.<sup>6</sup> Several important features are apparent.

First, there are clear differences in the behaviours of the nominal and real (inflation adjusted) exchange rates. The nominal exchange rate depreciated more or less continuously from 1979 to 1993, reflecting New Zealand's relatively high inflation rate. The real exchange rate, which is the better measure of the international competitiveness of New Zealand's economy, exhibited no such trend.

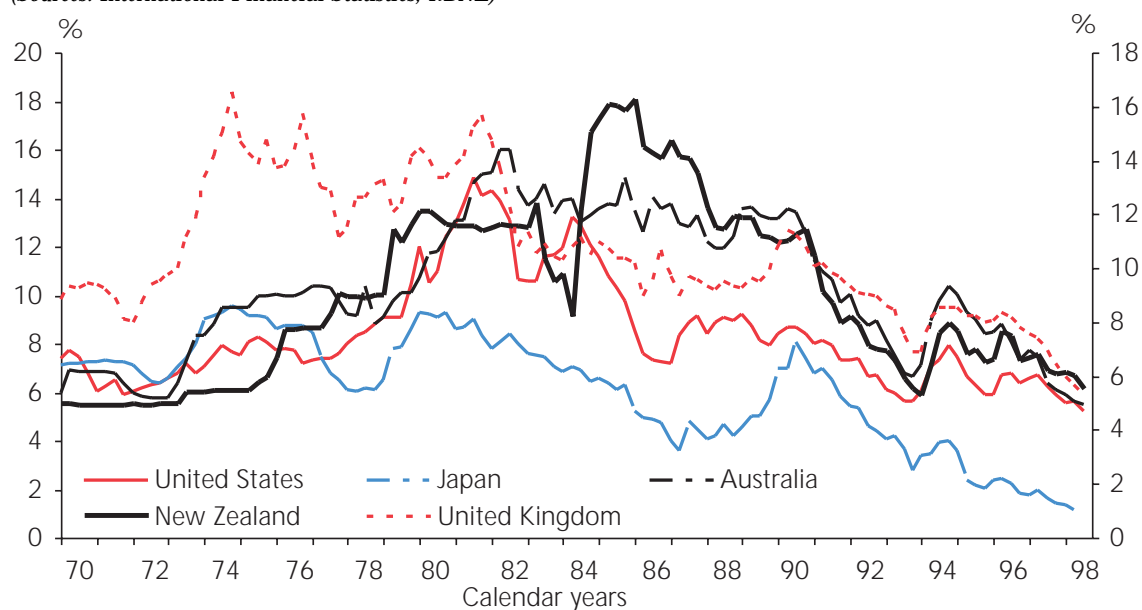
**Figure 5**  
New Zealand nominal interest rates  
(Source: RBNZ)



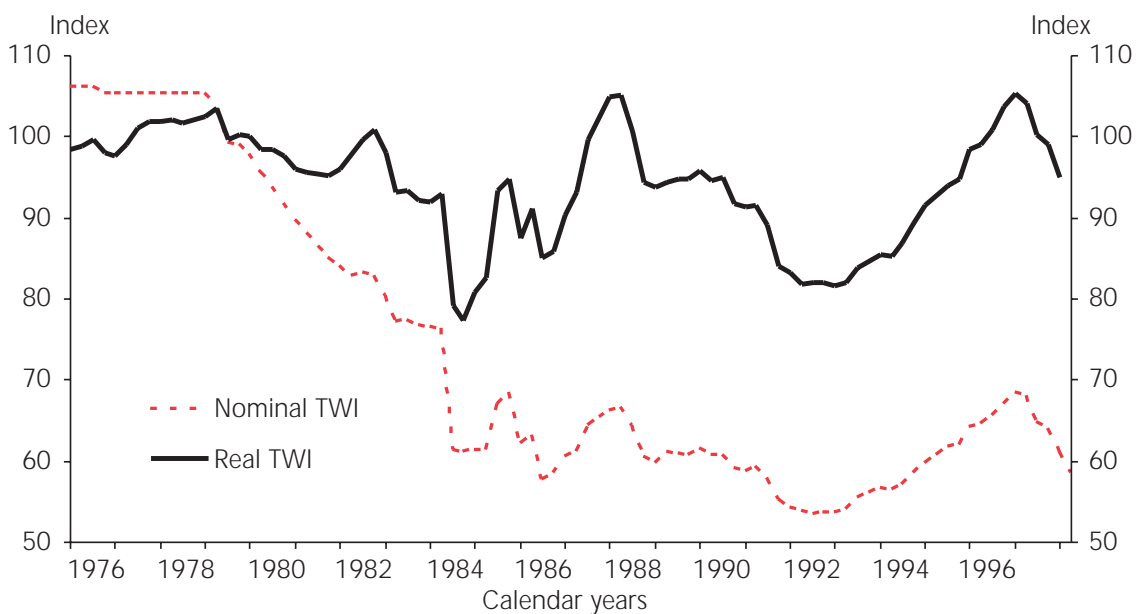
<sup>5</sup> Comparisons with NZ interest rates in the 1960s and 1970s could be made. However, the value of such comparisons seems limited since numerous regulatory impediments during those decades meant that interest rates did not fully reflect the forces of supply and demand for financial instruments.

<sup>6</sup> The real exchange rate is the nominal trade-weighted exchange rate multiplied by the domestic consumer price index (CPIX) and divided by a trade-weighted measure of foreign CPIs. The CPIs from Australia, Germany, Japan, the UK, and the US are used in calculating the foreign price level.

**Figure 6<sup>7</sup>**  
**Nominal long-term interest rates: selected countries**  
*(Sources: International Financial Statistics, RBNZ)*



**Figure 7**  
**New Zealand exchange rates: nominal and real**  
*(Source: RBNZ)*



<sup>7</sup> In figure 6 the interest rate reported for Australia is the yield on fifteen year Treasury bonds, while the government bond yield is reported for Japan. Ten year government bond yields are reported for New Zealand and the US, while the long-term government bond yield is used for the UK. The New Zealand data are from the RBNZ; the other series are from International Financial Statistics.

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Secondly, since 1990 nominal and real effective exchange rates have moved in tandem, because New Zealand's inflation rate has about equalled the average inflation rate of our trading partners.

Thirdly, although the real exchange rate moved through a big cycle in this decade, the magnitude and duration of the cycle was broadly in line with others since 1979. The behaviour of the *real* exchange rate since 1976 can be broadly separated into four phases:

- a 25 percent fall from 1979 to late 1984 (23 quarters long);
- a 33 percent rise from late 1984 to mid 1988 (14 quarters long);
- a 22 percent fall from mid-1988 to early 1993 (19 quarters long); and
- a 28 percent rise from early 1993 to April 1997 (17 quarters long).

On average, these swings have lasted around 18 quarters, or 4.5 years. Given this categorisation, the upswing from 1993 to 1997 was not unusually long. It lasted nearly as long as the downswing from 1988 to 1993, and the magnitude of the upswing was approximately equal to the rise from 1984 to mid-1988.

### 3 Interpreting the business cycle developments

This section focuses on interpreting and explaining the developments in output, inflation, and monetary conditions discussed in the previous section. In so doing, an emphasis is placed on explaining these developments relative to international experience, our own history, and to economic theory. Overall, we consider:

- What features of the last business cycle were most likely one-off events?
- What features are likely to reoccur in future cycles?
- How have the reforms changed or affected New Zealand's business cycle?
- What features of the business cycle seem unusual or inexplicable?

### 3.1 Structural influences on the economy in the 1990s

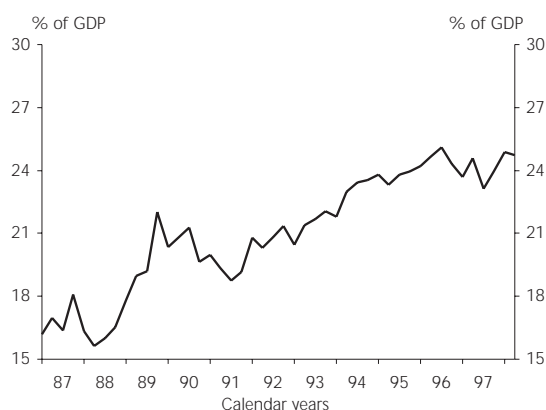
#### *Trade liberalisation*

New Zealand has undergone significant trade liberalisation since the 1980s, including the reduction of tariffs, the removal of import licensing, and a free trade agreement with Australia.

One effect of trade liberalisation has been a marked increase in import penetration (figure 8). From 1987 to the present, import penetration increased from about 15 percent of GDP to just under 25 percent, meaning that the importance of imports to our economy increased by two thirds. This means that the prices of imported goods – and hence potentially the exchange rate too – now have a greater influence on aggregate inflation than in the past, which has important implications for monetary policy. There seems little reason to believe that the trend in import penetration will be reversed any time soon.

Another important influence has been the impact of trade reform on consumer and durable goods prices. Tariff elimination has allowed the prices of many consumer and durable goods to fall markedly. However, because most tariffs have already been eliminated, any future downward pressure on prices from this source is likely to be limited.

**Figure 8<sup>8</sup>**  
**Imports as a percentage of GDP**  
*(Source: Statistics New Zealand, RBNZ calculation)*



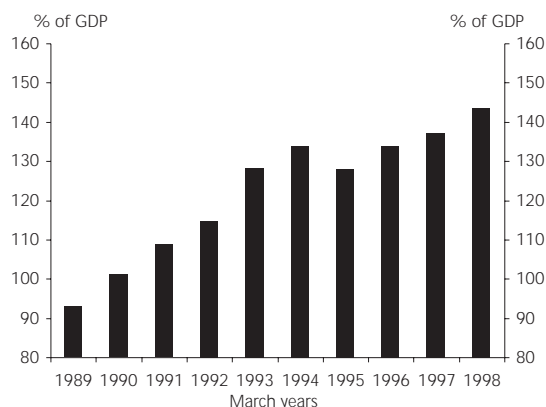
### *Capital account liberalisation*

Very early on in the reform period, capital and exchange controls were eliminated. Other reforms also made it easier and more attractive for foreign firms to invest in New Zealand firms and to set up businesses directly in New Zealand. These reforms had an important influence on the direction of the economy in the 1990s.

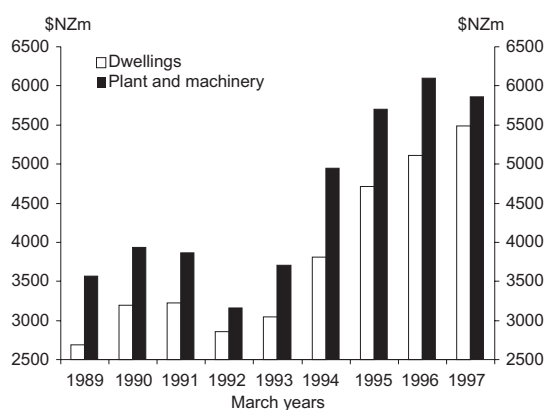
Liberalisation of capital flows and the easing of restrictions on foreign investment helped spark a boom in offshore investment in New Zealand. In the 1990s, the rate of return on investments here has generally been higher than in most other developed countries, making New Zealand an attractive destination for foreign capital flows. As a result gross foreign-owned investments in New Zealand increased from around 100 percent of GDP in 1990 to over 140 percent in the year ended March 1998 (figure 9).

Liberalisation of capital flows helped to fund a surge in domestic investment expenditure that began in 1992 as the economy expanded (figure 10). Given New Zealand's historically low savings rate, it seems unlikely that such a surge in investment could have been funded from domestic sources. Thus, it is quite possible that liberalisation of foreign investment played a major role in strengthening and prolonging the expansion. In addition, investment in total plant and machinery was stronger than investment in dwellings. Thus, it is likely that the capital inflows helped to increase New

**Figure 9**  
**New Zealand's total international investment liabilities**  
*(Source: Statistics New Zealand)*



**Figure 10**  
**Private investment: Plant & machinery, and dwellings**  
*(Source: Statistics New Zealand)*



Zealand's sustainable growth rate.

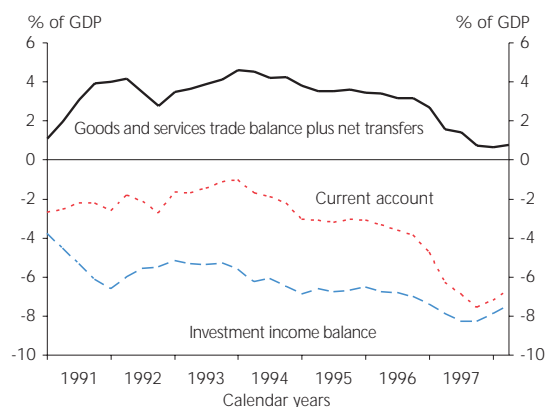
The other side to the increase in foreign investment in the 1990s has been the decline in the current account balance (figure 11). To some extent, New Zealand's current account deficit represents a vote of confidence by foreigners in our economy. For example, as the economy began to grow strongly in the post-reform period, the outlook for profitability improved and encouraged foreign investment. In addition, high returns on investments in New Zealand also increased profit remittances overseas and retained earnings accruing to foreigners (see Collins et al., 1998, for a more developed exposition of these and related issues).

<sup>8</sup> **Import penetration, as depicted in figure 8, is the ratio of real imports (excluding computers) to real GDP. Computers are excluded because of measurement bias.**



**Figure 11**  
Annual current account balance and its components

(Source: Statistics New Zealand)



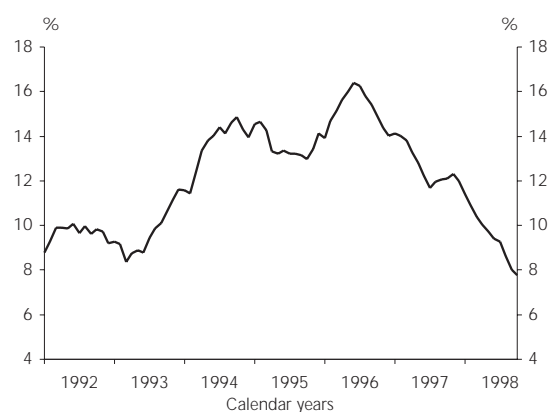
#### *Deregulation of the domestic financial sector*

Since the mid-1980s, restrictions on borrowing and lending interest rates have been eliminated, reserve requirements have been removed, government-owned banks have been privatised, and the banking sector has been opened to competition from overseas.

All of this influenced the development of the last business cycle. For example, the deregulation of banks improved households' access to finance. At the same time, banks were withdrawing from the high level of corporate and commercial property financing of the eighties and encouraging more housing lending. Figure 12 illustrates the strong growth in lending to households that occurred over the last business cycle. From growth rates of around 10 percent per annum in the early 1990s, lending growth accelerated, underpinned by higher employment levels and improved household expectations of permanent income.

These developments probably helped fuel house sales and prices. On the other hand, pronounced house price cycles were a fact of life in New Zealand (Figure 21) long before the financial sector was deregulated and controls on international capital flows were removed. Consequently, it is unclear how much influence banking sector reform will have on future housing market pressures. At a minimum, it seems reasonable to assume that any future housing boom will be funded in large part by borrowing from offshore. This means that, relative to past business cycles, interest rates will tend

**Figure 12**  
Growth in lending to households  
(Source: RBNZ)



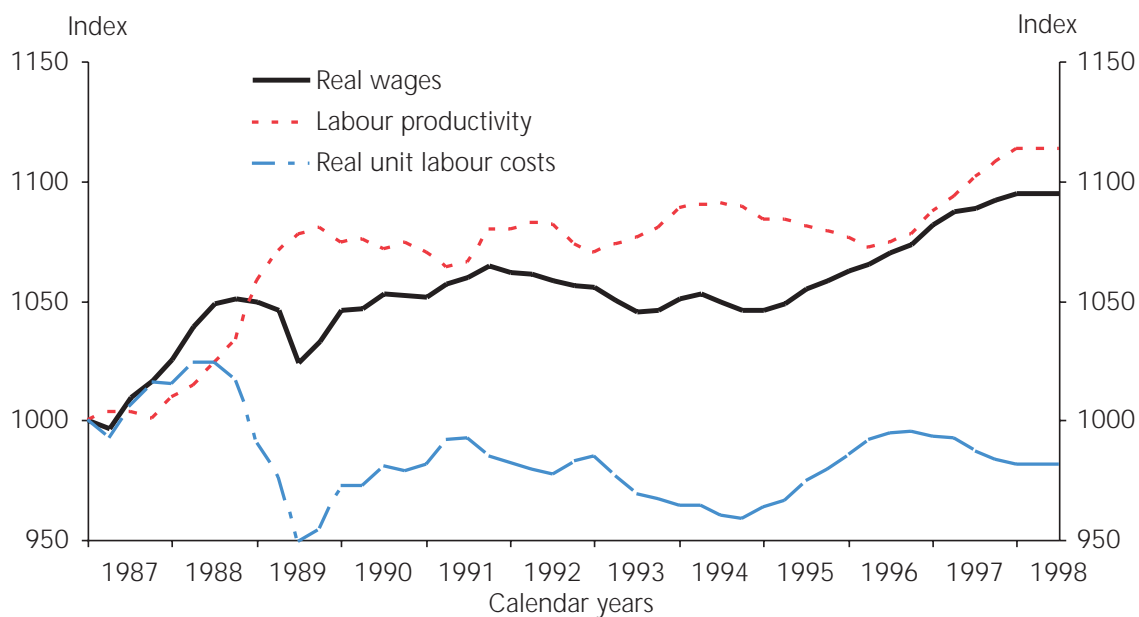
to remain lower than would otherwise have been the case, and the exchange rate may come under more upward pressure owing to capital inflows.

#### *Changes in the labour market*

The passage of the Employment Contracts Act (1991) made possible wage and labour force flexibility. As such, we should expect real wage increases better to reflect productivity developments. Figure 13 shows that from 1991 to 1997 labour productivity did increase, but only slightly. Real unit labour costs fell slightly over the first part of the cycle, with the decline over 1992 to 1995 much larger than was seen in Australia.

In any case, it is difficult to differentiate structural shifts in labour market conditions from business cycle trends. It seems plausible that, in future, the labour market will be able to adjust more quickly to changing economic and financial circumstances. Probably the most important outcome of this would be that the unemployment rate might be permanently lowered. Inevitably, though, the unemployment rate will continue to rise and fall with the business cycle.

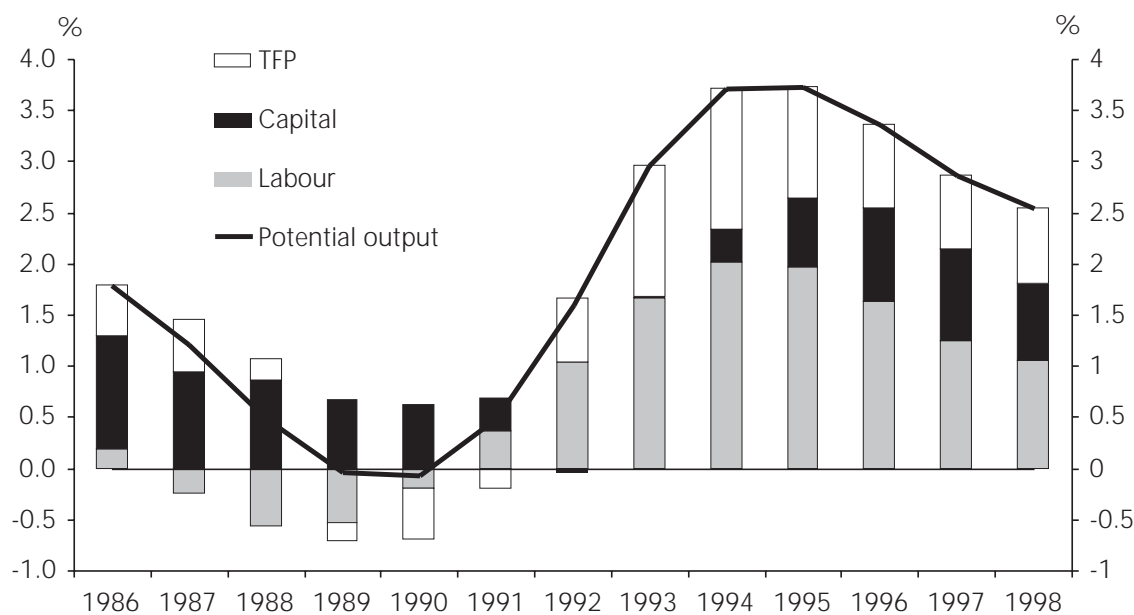
**Figure 13**  
**Real wages, labour productivity, and real unit labour costs**  
*(Source: Statistics New Zealand, RBNZ calculation)*



**Potential output and productivity growth**

The structural reforms in New Zealand appear to have provided a positive backdrop for strong growth in the productive capacity of the economy. Figure 14 shows potential output growth<sup>9</sup> as the sum of its components, that is, growth in labour inputs, the capital stock, and total factor productivity.

**Figure 14**  
**Contributions to potential output growth**  
*(Source: RBNZ)*



<sup>9</sup> Estimated using the semi-structural multivariate filtering technique described in Conway and Hunt (1997).

New Zealand's potential output growth is estimated to have increased from a trough of around zero in 1990, to about 3.5 percent per annum in 1995, before falling back to around 2.5 percent more recently. Initially, the strong increase in potential output growth was driven by strong labour input and total factor productivity growth. The labour input was boosted by significantly higher immigration, and possibly by more flexible employment arrangements. Improvements in total factor productivity may have been underpinned by a process of technological diffusion, allowing New Zealand to begin to 'catch up' to the higher levels of TFP in the United States and elsewhere.

Investment expenditure also maintained potential output growth, and upheld total factor productivity performance from 1994 to 1996. Financial deregulation gave New Zealand firms access to foreign capital at lower real interest rates. Also, the appreciation in the real exchange rate over 1992 to 1997 led to a significant fall in the price of imported investment goods. These factors provided a strong inducement for New Zealand firms to increase their capital stocks, especially given the significant amount of capital that was scrapped during the late 1980s and early 1990s.

Although growth in potential output has fallen back somewhat since 1996, we believe that the productive capacity of the economy remains higher than before the economic reforms. This is an important observation for a few reasons. First, it is likely that part of the acceleration of growth in the early to mid-1990s represented a one-time effect from shifting to a new, higher growth path. As a result, we may be less likely to see such a pronounced acceleration in growth in future business cycles. Secondly, the movement onto the higher growth path may have fed growth expectations, leading businesses and households to be overly optimistic about the future. Because it is always difficult to tell precisely where potential output is (especially in real time), it is not hard to believe that estimates of *sustainable* growth may have become overly optimistic. Presumably, over the next business cycle households and businesses may be more circumspect about the potential for rapid and permanent increases in economic growth.

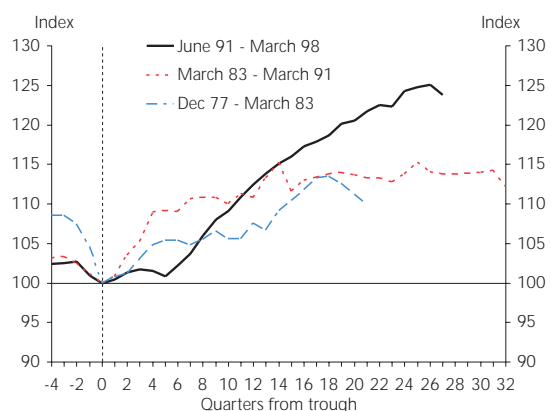
### Sequencing of growth

To some extent, New Zealand's economy has tended to rebound sharply from recessions (figure 1). However, the period from 1991 to 1997 was unusual in that it was not led by a rapid fiscal expansion, as had been the case so often before. Figure 15(a) shows that, by comparison with previous cycles, the most recent expansion was slightly slower to take off, but was longer and stronger once it did.

Exports were the first component of GDP to recover from the 1990/91 recession (figure 15b). Exports, assisted by a falling real exchange rate, began to pick up in the early 1990s, well before the turn-around in total GDP growth. However, export growth became more subdued in the early 1990s, as the stimulatory effect of the decline in the real exchange rate was offset by flat international demand. But there was an export growth rebound in 1993-94, driven by a recovery in external demand and a still low real exchange rate.

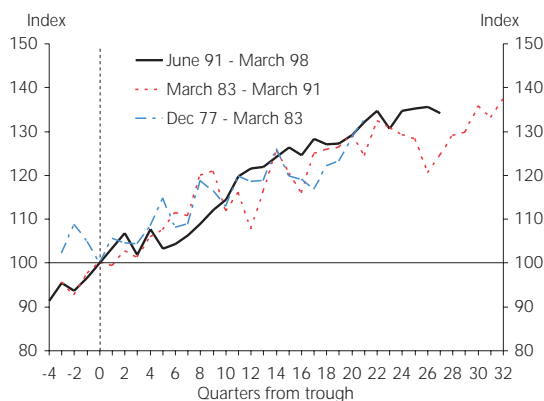
In addition to the platform for business confidence provided by reforms, business confidence was stimulated by easier monetary conditions and fiscal restraint, both of which led to lower long-term interest rates.<sup>10</sup> Those effects stimulated private investment early in the cycle (Figure 15c). Investment growth peaked at roughly the same time as total real GDP, and dropped off only slowly thereafter.

**Figure 15a**  
**GDP components over recent cycles: Real output**  
*(Source: Statistics New Zealand)*

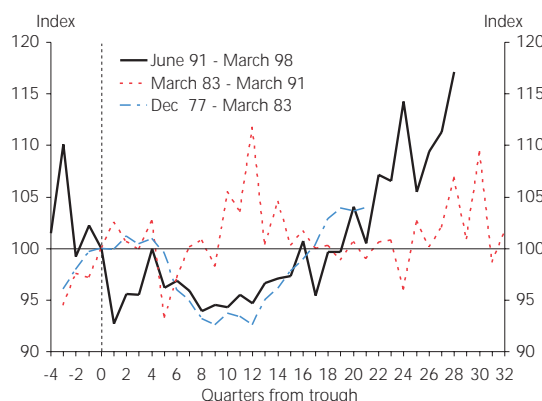


<sup>10</sup> In the QSBO the net proportion of surveyed firms expecting the "general business" situation to improve (in the next 6 months) increased sharply from a net balance of -43.5 in March 1991 to 53.7 in March 1992.

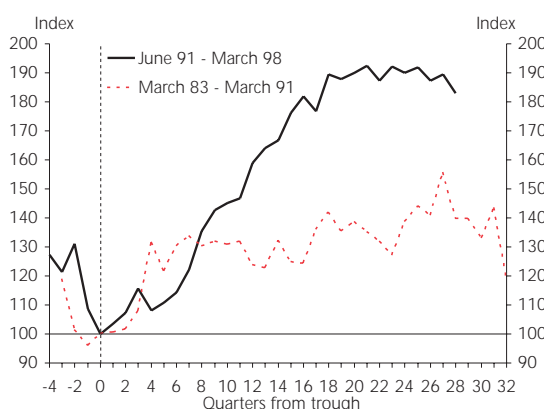
**Figure 15b**  
GDP components over recent cycles: Real exports  
(Source: Statistics New Zealand)



**Figure 15e**  
GDP components over recent cycles: Real government consumption and investment (ex-frigates)  
(Source: Statistics New Zealand)

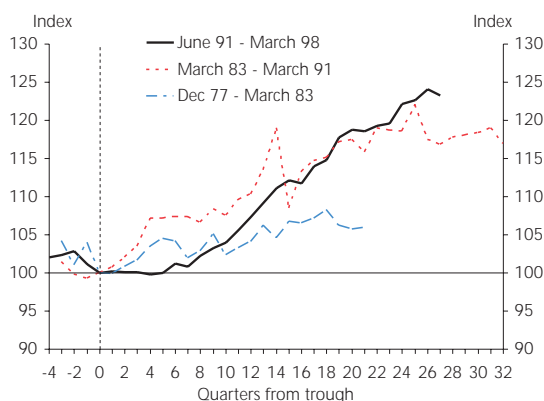


**Figure 15c**  
GDP components over recent cycles: Real investment  
(Source: Statistics New Zealand)



December 1977-March 1983 data is unavailable.

**Figure 15d**  
GDP components over recent cycles: Real consumption  
(Source: Statistics New Zealand)



Growth in private consumption was slower to rebound (figure 15d). Compared to the previous two cycles, consumption grew more slowly but more steadily, not peaking until approximately four quarters after GDP had peaked. Initially, subdued private consumption growth was probably the result of falling employment growth, low consumer confidence, and tight fiscal policy. Later, consumption picked up strongly as a result of cyclical factors (strong employment growth and incomes), as well as other factors (e.g., tax reductions, high immigration, and increased financial wealth).

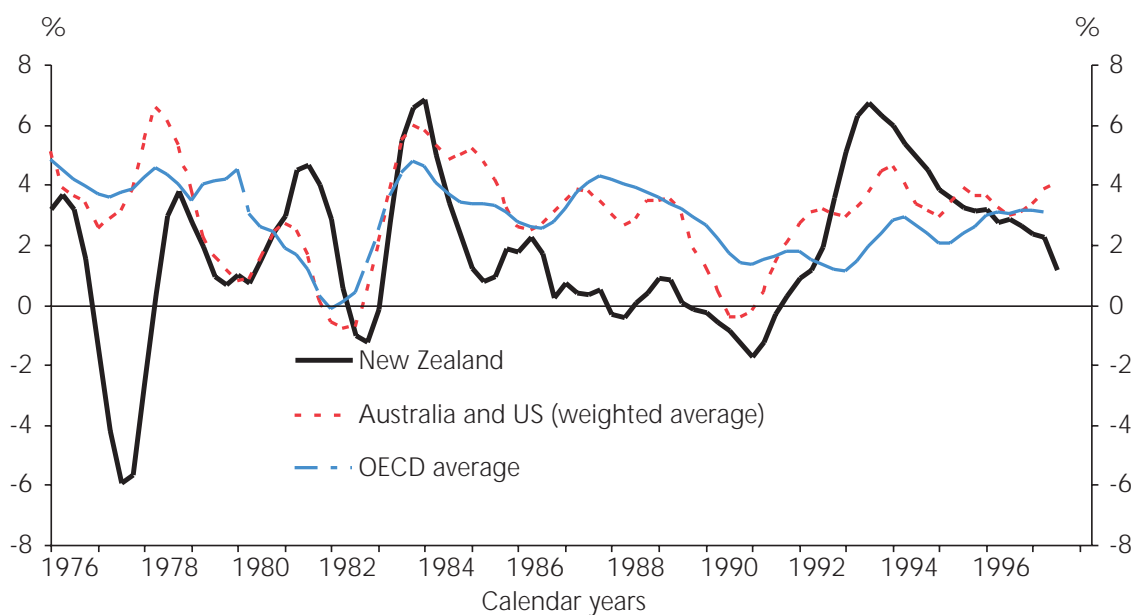
Finally, government spending boosted GDP growth only late in the expansion. This further sustained the demand pressure, as investment and exports slowed (figure 15e).

### 3.2 Demand pressures

#### *The strength of the economies of our trading partners*

Historically, New Zealand's growth has been importantly influenced by that of our major trading partners. However, in the late 1980s and 1990s, New Zealand's trade patterns evolved in important ways. The composition of our trade continued to shift away from the United Kingdom toward the economies of Australia, the US, Japan, and other Asian countries. This ongoing development is important because of the durability of the expansions in some of these regions (figure 16). The economic expansion in the US, from 1991 to the present, is among the longest on record. Consistent with the liberalisation of trade and capital flows, New Zealand was able to benefit from this lengthy expansion.

**Figure 16**  
**Real GDP growth: New Zealand and international**  
*(Sources: Statistics New Zealand, International Financial Statistics)*



Although the long expansion in the US and Australia helps explain why our expansion lasted so long, it is less convincing as an explanation for why our business cycle was so strong, and why the economy accelerated so rapidly in 1992 and 1993. These latter two developments reflected factors specific to New Zealand, some of which we now explore.

***Wealth and consumer confidence***

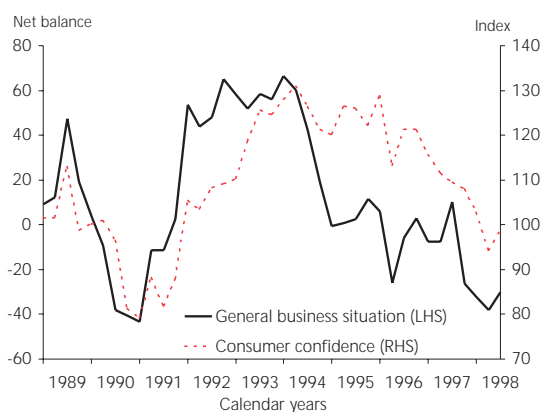
It would be unusual if the substantial economic reforms undertaken in New Zealand had not raised expectations of a better economic future. After all, that was the point of the reforms. As the recovery took hold in early 1992, perceptions that income would be permanently higher were probably fuelled by real-side developments such as rapid economic growth and increases in employment. Employment growth, for instance, was sufficiently strong that the unemployment rate fell from a peak of 10.9 percent in the third quarter of 1991, to a cyclical low of 6.0 percent in late 1996.

At the same time, however, it seems likely that businesses, households, foreigners and policy makers became overly optimistic about the prospects for economic growth in New Zealand following the reform process. For instance, with the economic expansion well underway, expectations of sustainable economic growth began to centre around 4 percent per annum. More recently, most observers have revised

downward their estimates of sustainable growth to something more like 2.5 to 3.0 percent per annum.

Although there is no direct proof that expectations of economic growth became exuberant in the 1990s, there is indirect evidence, especially amongst households. For instance, consumer confidence, although slower to take off than general business confidence, jumped to, and remained at, a remarkably high level (figure 17 overleaf). This confidence was sustained even after general business confidence had deteriorated.

**Figure 17**  
**Business and consumer confidence**  
*(Sources: NZIER Quarterly Survey of Business Opinion (QSBO), Westpac McDermott Miller Survey)*



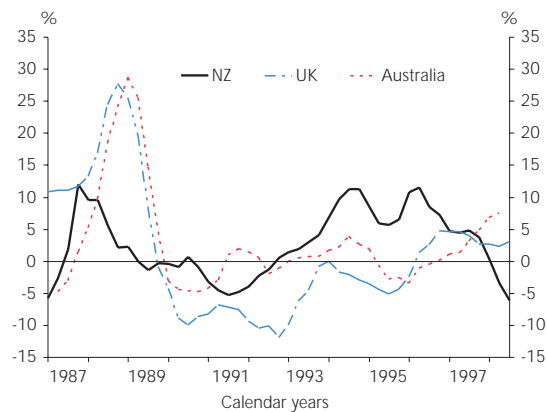
### *The housing market*

Undoubtedly, robust consumer confidence helped boost the housing market. To the extent that households came to believe, rightly or wrongly, that their incomes would be permanently higher because of reforms, they would have been more willing to make greater outlays on housing. This may have been an important factor contributing to rising house prices, which in the latter stages of the business cycle increased considerably faster than the overall price level (figure 21).

Whatever the causes of rising house prices, it is clear that pressures in the housing market were more intense in New Zealand than elsewhere. Although the scale and timing of property booms varies considerably across countries, our property markets have historically tended to be most closely aligned with those in Australia, and to a lesser extent the United Kingdom. However, as figure 18 suggests, real property prices appreciated considerably faster in New Zealand in the early to mid-1990s than in either Australia or the United Kingdom.

As discussed below, the relatively strong housing market in New Zealand – combined with the fact that housing-related expenditures figure prominently in the CPI – helps explain much of the evolution of monetary conditions and the exchange rate over the last business cycle. And although households may now be more circumspect about their future economic prospects than they were from 1994 to 1996, it seems prudent to assume that such pressures will continue to be evident in future business cycles.

**Figure 18**  
**Real house price inflation**  
*(Source: Australian Bureau of Statistics, Datastream, Valuation New Zealand)*



### *Immigration*

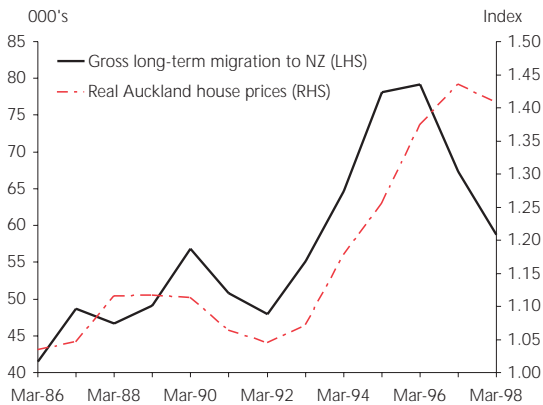
It has already been suggested that immigration in the 1990s may have led to demand pressures. As figure 19 indicates, immigration surged from 1992 to 1996. The influx owed, among other things, to the more liberal immigration policies of New Zealand, but also importantly to the political uncertainties surrounding the hand-over of Hong Kong to China. The surge in immigration over this period – especially the inflow of wealthier, permanent residents – is thought to have boosted housing prices in New Zealand, especially in Auckland. Similar pressures have been evident in other countries. For example, immigration from Hong Kong into Vancouver, British Columbia has been noted as a factor that markedly boosted that city's housing prices from 1985 to 1993.

Whether demand pressures from immigration will be important over future business cycles depends, in part, on immigration policy. However, irrespective of immigration policy, the 1992-96 surge in immigration may have been somewhat unique. Clarification of the political situation in Hong Kong, and the smooth hand-over, may have reduced the likelihood of a further wave of wealthy immigrants from that part of the world.

In addition, immigration could, in certain circumstances, actually help to *reduce* macroeconomic supply and demand imbalances. For example, migrants who bring skills that are in high demand or who add to the labour force will help to hold down unit labour costs. In turn, this would help to hold down production costs and the price of goods and serv-

ices sold, and help to relieve inflation pressures. Additionally, to the extent that immigrants bring capital with them to New Zealand, investment will be boosted, raising the economy's productive capacity.

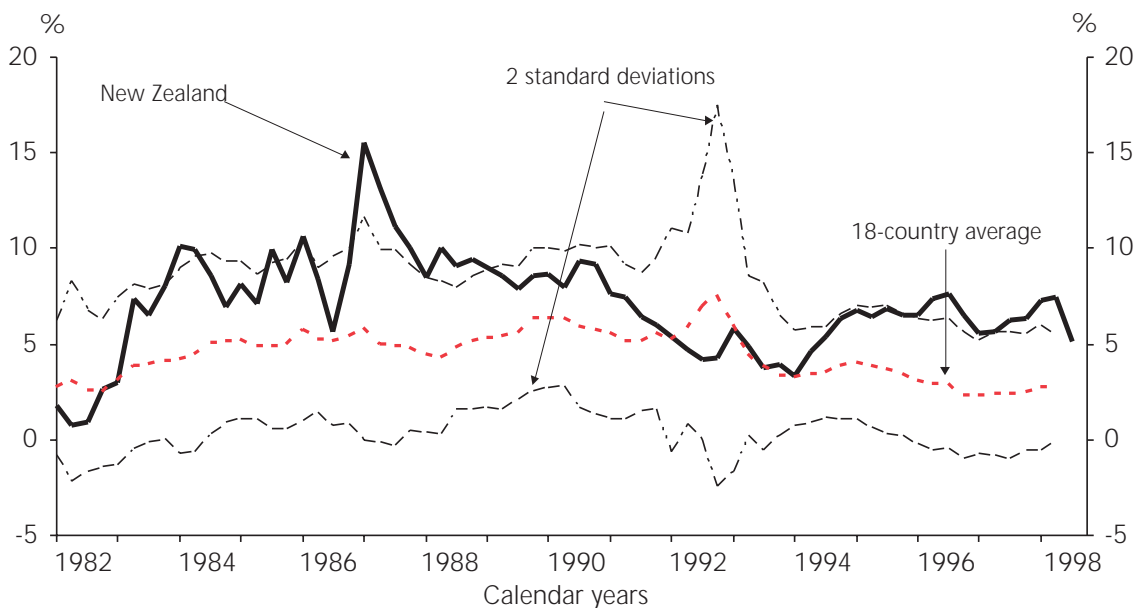
**Figure 19**  
**Long-term immigration and real house prices**  
*(Sources: Statistics New Zealand, Valuation New Zealand)*



**Fiscal policy**

In contrast to previous business cycles, fiscal policy played an expansionary role only at the end of the 1991-97 period. This may have contributed to the differences between this cycle and the past. While previous cycles tended to be short and sharp, and somewhat matched up with the three-year political cycle, this cycle was more prolonged.

**Figure 20**  
**Short-term real interest rates: New Zealand and selected OECD countries**  
*(Sources: RBNZ and International Financial Statistics, RBNZ calculation)*



## 4 Understanding the behaviour of monetary conditions

This section tries to interpret the behaviour of monetary conditions – interest rates and the exchange rate – in the 1990s. As in the previous section, the analysis draws on past experience, international comparisons, and economic theory. The general conclusion is that developments in monetary conditions do not look unreasonable, given the context of actual inflation pressures. However, the strength of the exchange rate over 1996-97 is rather unusual.

### 4.1 Interest rates

As we noted in section 1, short-term nominal interest rates fell from nearly 20 percent in the mid-1980s to about 5 percent by early 1994, before rebounding in 1995 and 1996 to nearly 10 percent. An obvious reason for this sharp rebound in interest rates was the development of significant inflation pressures related to business cycle pressures.

Figure 20 plots the level of real (ie inflation-adjusted) short-term interest rates for New Zealand and selected OECD countries. By early 1992 New Zealand's short-term real interest rates moved down to about the OECD average. However, from 1994, New Zealand's short-term real rates rose substantially, eventually stabilising well above the industrial country average.

There are two main reasons for the sharp rise in short-term interest rates in 1994 and their relatively elevated level from 1994 to 1997. First, as noted in section 1, in 1994 nominal interest rates jumped globally as the US central bank, the Federal Reserve, began to tighten monetary policy. Given the openness of New Zealand's capital markets, and its relative smallness, swings in interest rates in large countries, like the US, are to an important extent now passed on to New Zealand's financial markets especially at the long-end of the yield curve.

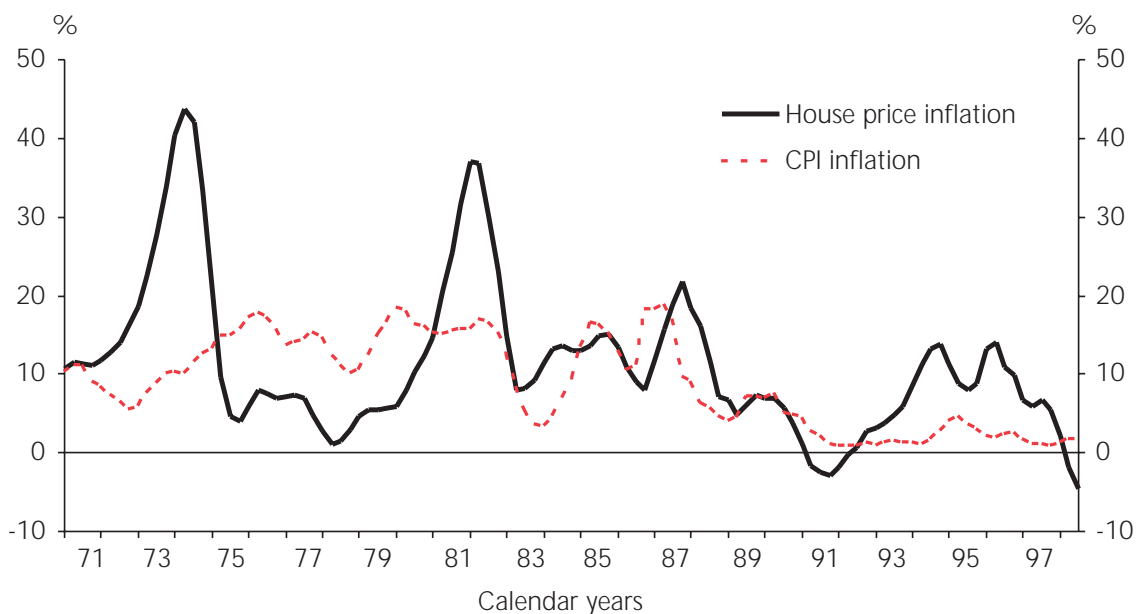
However, between 1994 and 1996 New Zealand's short-term nominal interest rates rose more than comparable US rates. By and large, this rise reflected the need for domestic monetary policy to be restrictive in the face of substantial inflation pressures. As noted in section 1, the growth rate of the economy jumped markedly from 1991 to 1994, and remained elevated relative to other OECD countries. Indeed, figure 2 suggests that by late 1993 to early 1994 New Zealand's rate of expansion was well at the top end of the range for OECD countries.

The rise in real house prices provides additional evidence that business cycle pressures were strong in New Zealand, relative to other countries (see figures 18 and 21). Housing and housing-related items (rent for instance) contribute substantially to the consumer price index. Other things equal, a sharp rise in house prices tends to push up CPIX inflation.<sup>11</sup>

If there is a surprise in figure 20, it is that both short-term real interest rates remained relatively high during 1997 and early 1998, even though economic activity returned to about the OECD average (figure 2). In part, the relatively high interest rates may have reflected a lag in the monetary policy response to the rapidly deteriorating economies of East Asia. The high interest rates over this period also reflect the fact that most of the initial easing in monetary conditions was via a marked decline in the exchange rate.

Short-term interest rates are just one measure of the tightness of credit conditions for an economy. Long-term interest rates are another measure, and arguably the more appropriate measure of the costs of financing long-term capital investments. Figure 22 plots estimates of *long-term* real in-

**Figure 21**  
**New Zealand house price inflation and CPI inflation**  
*(Sources: Statistics New Zealand, Valuation New Zealand)*



<sup>11</sup> It is worth pointing out that not much can be inferred about inflationary pressures during this period from CPIX inflation outcomes. The reason is that under the current monetary regime, monetary conditions will be adjusted so as to ensure that inflation is confined to its targeted range. This means that, to understand the severity of inflation pressures existing in the economy, we must turn to other measures, such as house prices, income growth, and measures of the output gap.



terest rates in New Zealand and other OECD countries.<sup>12</sup> It is apparent that long-term real interest rates have behaved somewhat differently than short-term interest rates since 1994. Although New Zealand's long-term real interest rates rose sharply in 1994, for the most part the rise just matched the average in other OECD countries. In addition, in contrast to short rates, it was not until early- to mid-1996 that New Zealand's long-term interest rates began to look high relative to those in other OECD countries (figure 22). The initial disparity between short- and long-term interest rates suggests that financial market participants may have expected the rise in short rates to be only temporary.

There are several reasons why long-term interest rates may have remained above levels seen in other OECD countries in 1996 and 1997. Plausible explanations include:

- political uncertainty related to the introduction of proportional representation voting (MMP), and the subsequent breakdown of the Coalition Government;
- a reduction in the government's operating surplus;
- the high and rising current account deficit; and

- investors' beliefs that the exchange rate was overvalued and therefore apt to depreciate in the near term.

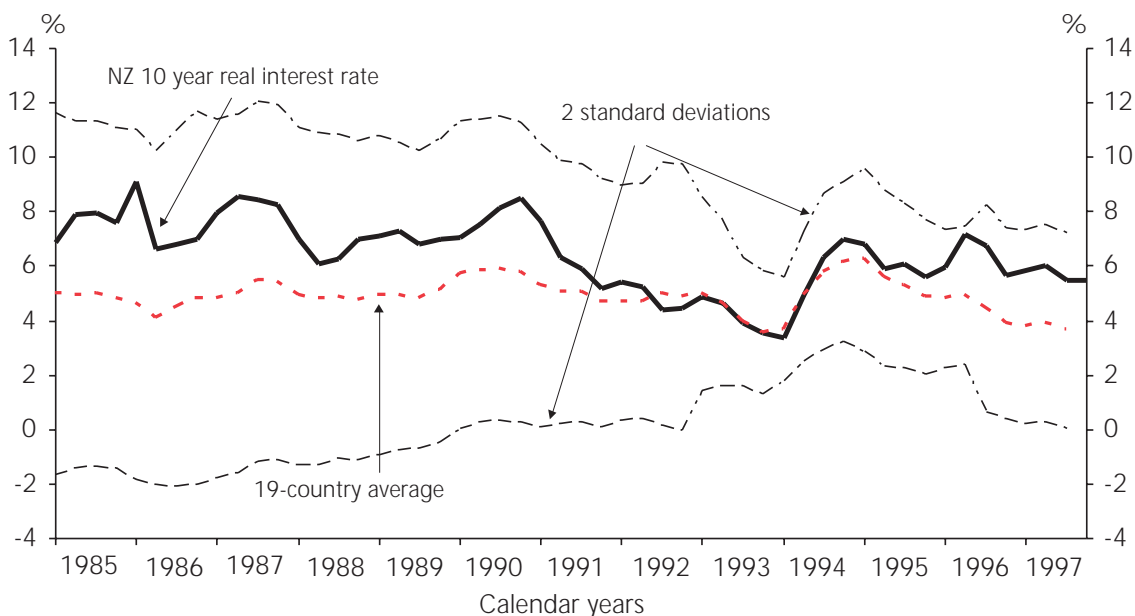
## 4.2 The exchange rate

This section uses two approaches to try to assess the behaviour of the real exchange rate in the 1990s. First, we compare New Zealand's experience with the experiences of other OECD countries. Next, we compare New Zealand's experience with what might have been expected on the basis of one, admittedly simple, economic relationship.

### *What can we learn from the experiences of other countries?*

One way to decide whether the exchange rate behaved unusually over the business cycle is to compare New Zealand's experience with that of other countries. Presumably, if New Zealand's experience were somehow unusual, it should be difficult to find other countries that have seen currency appreciations as marked as New Zealand's 1993 to 1997 appreciation.

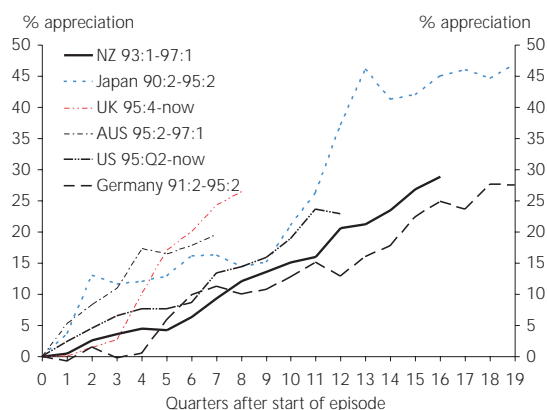
**Figure 22**  
**Long-term real interest rates: New Zealand and selected OECD countries**  
*(Sources: RBNZ, International Financial Statistics, RBNZ calculation)*



<sup>12</sup> Estimates of real *long-term* interest rates are notoriously difficult to construct because of a lack of data on long-term inflation expectations. We have estimated long-term inflation expectations using a measure of trend inflation. Trend inflation rates have been obtained for each country using the Hodrick-Prescott filter.

In fact, it is not too hard to find cases in the 1990s where a country's real effective exchange rate has appreciated by about as much, and as quickly, as did the New Zealand dollar from 1993 to 1997. In figure 23, we have selected "episodes" of currency appreciation in the 1990s from other OECD countries. As an aid, we have lined up the episodes at a common starting point. Thus, for example, New Zealand's episode of appreciation is taken as starting in the first quarter of 1993. An episode for Japan is taken as starting in the second quarter of 1990 and proceeding until the second quarter of 1995, and so forth.<sup>13</sup> The scale on the left-hand axis of figure 23 shows the total percentage appreciation in the relevant exchange rate from the onset of the episode.

**Figure 23**  
Recent episodes of exchange rate appreciation  
(*International Financial Statistics, RBNZ*)



Among OECD countries, we can point to at least four other countries that have had real exchange rate appreciations about as substantial as that seen in New Zealand from 1993 to 1997. The four are Japan 1990–95; Germany 1991–95; the UK 1995 to present; and the US 1995 to present. This suggests that New Zealand's experience was by no means unique.

In figure 24 we adopt another approach, comparing the behaviour of the AUD/NZD bilateral real exchange rate with the relative levels of house prices in the two countries. In

theory, the real exchange rate should be related to the ratio of prices of nontraded-to-traded goods across countries.<sup>14</sup> In figure 24 (facing page) we use as a proxy of that ratio the real price of housing in New Zealand relative to that in Australia, and real rental rates in New Zealand relative to those in Australia. Although these proxy measures are by no means ideal, there is evidence of a strong correlation.

*What can we learn from uncovered interest parity?*

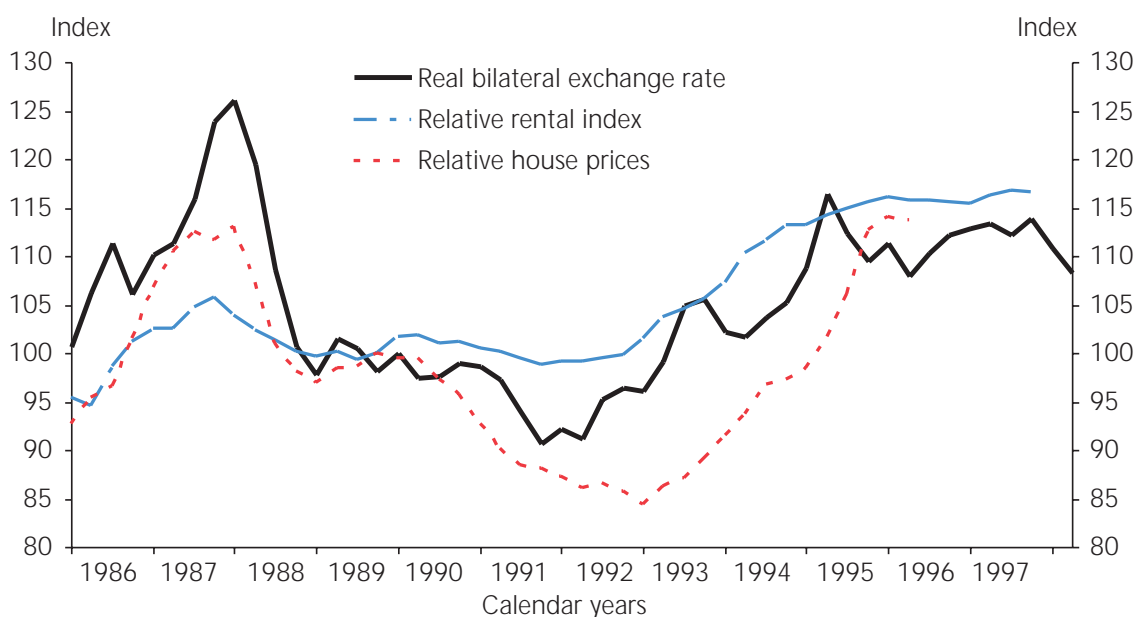
Section 4.1 identified a number of factors that led to high interest rates over the latter part of the last business cycle. Given the unfettered access foreigners have to New Zealand capital markets, interest rates and the exchange rate should be reasonably closely linked. To understand why, it is helpful to review briefly the theory of what is known in the jargon as "uncovered interest rate parity."

Uncovered interest parity (UIP) links foreign and domestic interest rates to the exchange rate. There are many versions of uncovered interest parity; the one we focus on here links *real* foreign and domestic interest rates to the *real* effective exchange rate. UIP states that for a small open economy whose capital markets are internationally integrated and are free of impediments, its exchange rate will appreciate whenever domestic interest rates rise relative to the interest rates of its trading partners. Intuitively, if interest rates are higher in New Zealand, Australians may wish to invest in New Zealand to boost returns on their portfolios. Hence, New Zealand's relatively higher interest rates would be likely to attract capital inflows from Australia, and that would tend to appreciate the New Zealand dollar.

<sup>13</sup> Our choices of starting and ending dates for these episodes were selected judiciously by eye balling the data.

<sup>14</sup> If the prices of traded and nontraded goods for New Zealand are denoted  $P_t$  and  $P_{nt}$ , and  $P_t^*$  and  $P_{nt}^*$  for Australia, then the real exchange rate should appreciate whenever the ratio  $(P_{nt} / P_t) / (P_{nt}^* / P_t^*)$  rises. However, we can simplify this expression if prices of traded goods have common trends across countries, as one might expect for Australia and New Zealand. In that case, the real exchange rate will be influenced mainly by the ratio  $P_{nt} / P_{nt}^*$ . Thus, the New Zealand dollar would be expected to appreciate relative to the Australian dollar whenever the price of an important nontraded good in New Zealand (such as housing) rose faster than in Australia.

**Figure 24**  
**Relative house prices and the real exchange rate: Australia – New Zealand**  
*(Sources: Valuation New Zealand, Datastream, RBNZ)*



To make this UIP relationship explicit, let  $q$  denote the (log) level of the real exchange rate,  $\bar{q}$  denote the (log) level of the “equilibrium” real exchange rate,  $r$  denote the real interest rates in New Zealand, and  $r^*$  denote the (average) level of real interest rates among our trading partners. The UIP condition is that:<sup>15</sup>

$$q = \bar{q} + \theta (r - r^*) \quad (1)$$

The condition (1) says that the real exchange rate will appreciate ( $q$  rises) above its long-run “equilibrium” level  $\bar{q}$  whenever real domestic interest rates rise above foreign real interest rates.<sup>16</sup> The parameter  $\theta$  measures how much the real exchange rate adjusts in response to deviations of our real interest rate from world real rates. In theory,  $\theta$  would be expected to take on values greater than 1.0, meaning that the exchange rate will respond more than one-for-one to interest rate differentials (see Baxter, 1994 or MacDonald

ald, 1997 for the rationale). So, for example, if the parameter  $\theta$  turned out to be 2.0 (which is an empirical issue), a 1 percent rise in New Zealand’s interest rates relative to those of our trading partners would cause the exchange rate to appreciate by 2 percent.

Figure 25 suggests that UIP provides a reasonable explanation for the behaviour of New Zealand’s real effective exchange rate. We have plotted deviations of the real TWI from an estimated trend. We have also plotted the differential between short-term real interest rates in New Zealand and a trade-weighted average of real interest rates of our major trading partners. As can be seen, the real exchange rate has tended to rise and fall with the interest rate differentials. In particular, both the interest differential and the real exchange rate steadily rose from 1994 to about 1997.

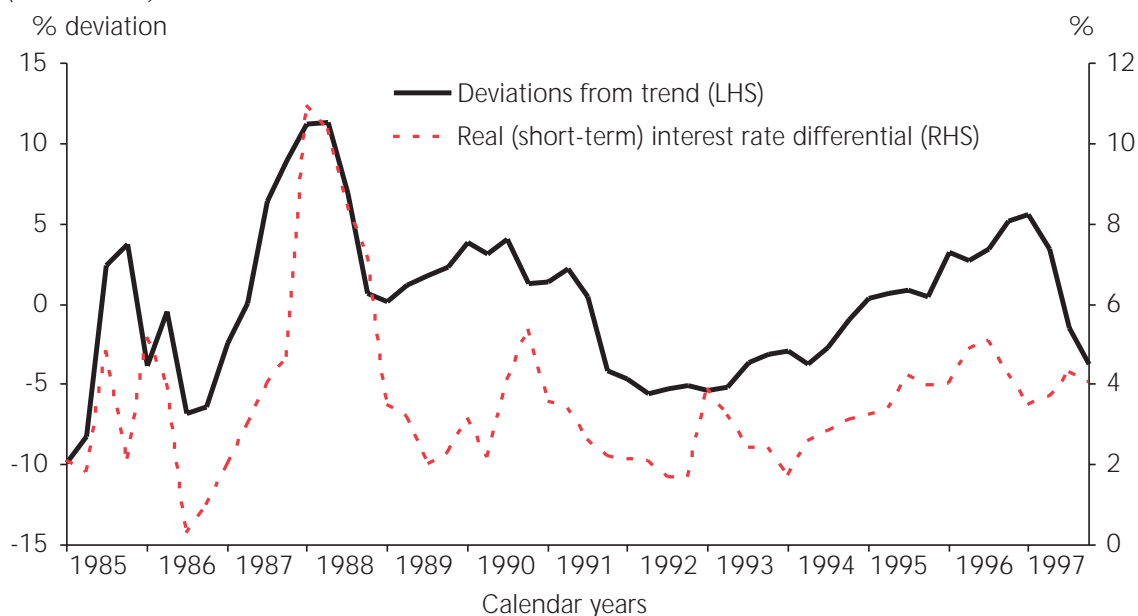
As we noted earlier, the rise in short-term interest rate differentials between New Zealand and our trading partners, to an important extent, reflected the need for monetary policy to remain firm to dampen incipient inflation. Not surprisingly, as indicated by the figure, New Zealand’s short-term interest rates rose relative to those of our trading partners, pushing up the NZD real effective exchange rate.

It is possible to be even more precise about the link between interest rates and the exchange rate by econometrically esti-

<sup>15</sup> See Baxter (1994) or MacDonald (1997) for a derivation of this version of uncovered interest parity.

<sup>16</sup> An obvious difficulty with putting the UIP condition into practice is that the ‘equilibrium’ real exchange rate,  $\bar{q}$ , is unknown. In this paper, we estimate this ‘equilibrium’ exchange rate using a Hodrick-Prescott (HP) filter.

**Figure 25<sup>17</sup>**  
**Deviations of real exchange rate from trend and real interest rate differential**  
 (Source: RBNZ)



mating the relationship (1). Given an estimate for the parameter  $\theta$ , we can predict the level of the exchange rate that would be compatible with uncovered interest parity *given the interest rate differential* between New Zealand and its trading partners. If the actual exchange rate were above the predicted level for an extended period, we might have reason to believe that the exchange rate was unusually high.

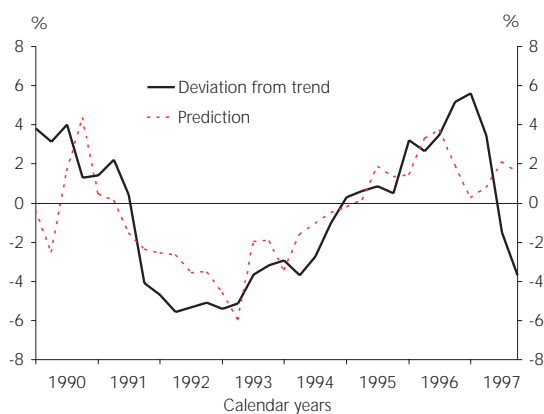
Figure 26 shows the level of the real exchange rate predicted by a statistically estimated uncovered interest parity relationship.<sup>18</sup> The predictions track the actual real exchange rate reasonably well up until mid-1996. After that, the simple relationship suggests that the exchange rate should have fallen, though the actual exchange rate continued to rise for some months. It is not until about mid-1997 that the actual exchange rate returned to the level suggested by UIP.

The version of the UIP model used to construct the predictions in figure 26 is quite simple, and excludes many variables that might reasonably be added. For example, we could profitably include differences in income growth between New Zealand and its trading partners, measures of the terms-of-trade, measures of fiscal policy, and so on. In addition, it

could be that our model performs worse near turning points in the exchange rate, such as around the turning point in 1997.

Still, we believe the relationship in figure 26 is instructive. In particular, it is quite possible that the responsiveness of the real exchange rate to real interest rate differentials has in-

**Figure 26**  
**Deviations of real exchange rate from trend and predictions**  
 (Source: RBNZ)



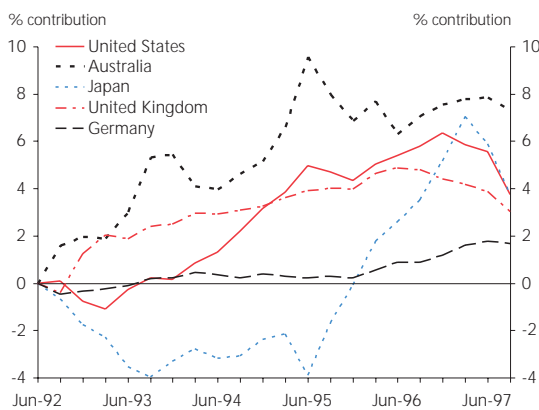
<sup>17</sup> The foreign real interest rate is calculated as a trade-weighted average of the real interest rates observed overseas. Real rates are nominal rates less the inflation rate over the preceding four quarters.

<sup>18</sup> We estimated the model (1) using ordinary least squares.

creased of late. Capital markets have become more open and liquid not just in New Zealand, but also among our trading partners. With respect to the UIP condition (1), this may mean that the parameter  $\theta$  increased during the 1990s.

There is reason to believe that financial innovations in Japan may help explain why the UIP condition deteriorates over

**Figure 27**  
Country-contributions to the NZ TWI appreciation  
(Source: RBNZ, RBNZ calculation)

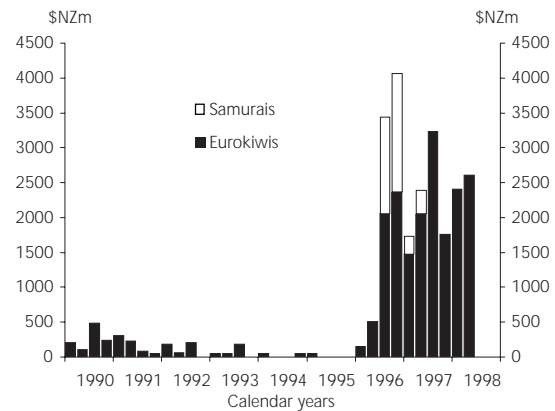


1996-97. If we decompose the appreciation of the real TWI into country contributions, the yen/NZD exchange rate is seen to play an increasingly important role from 1995 (figure 27). Note that the peak of the yen/NZD contribution occurs close to the time when the UIP relationship goes most astray.

Between 1995 and 1997 there was a dramatic resurgence in the issuance of Eurokiwi bonds and – for the first time – a massive upswing in issuance of Samurai bonds (see Eckhold, 1998 for a discussion of the Eurokiwi bond market). These NZ dollar-denominated assets, sold in Europe and Japan respectively, provided easier access to NZ dollar investment opportunities, especially for Japanese retail investors. Once again, the timing of the upswing in issuance of these bonds coincides with the recent ‘extraordinary’ appreciation (figure 28). More recently, the issuance of Samurai bonds has tailed off dramatically, as NZ interest rates have declined, and competing international rates have risen.<sup>19</sup>

<sup>19</sup> It also seems likely that Japanese investors are now fully aware that the New Zealand dollar is not a one way bet. This is particularly obvious in the light of the exchange rate’s depreciation since 1997.Q1.

**Figure 28**  
Eurokiwi and Samurai bond issues  
(Source: RBNZ)



## 5 Conclusion

It has sometimes been argued that monetary conditions in New Zealand behaved abnormally or unusually in the 1990s. The evidence most often cited is that short-term interest rates hit 10 percent by mid-1996, and that the real (TWI) exchange rate appreciated nearly 30 percent from early-1993 to April 1997.

Without a doubt, the rise in short-term interest rates and the appreciation of the exchange rate over this period represented large changes. However, this tells us little about whether those changes were, in some sense, “too large”. To fully appreciate the behaviour of interest rates and the exchange rate in the 1990s, we need to view them in the context of domestic business cycle pressures, developments in international capital markets, and the business cycle and inflationary pressures of our major trading partners.

We have argued that, in the right context, neither interest rates nor the exchange rate were dramatically out of line with what might have been expected. In particular, the expansion from 1991 to 1997 was long and strong, and the acceleration out of the trough in 1991 was rapid. These features alone would have been sufficient to generate substantial inflation pressures.

In addition, household exuberance may have been fed by the rapid growth early in the upswing, and by advancing house prices later on. Prices of non-traded goods, especially housing, rose strongly in New Zealand, especially relative to

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Australia. This price pressure put considerable strain on monetary conditions, and the exchange rate in particular. Of course, such price rises did not show through in *overall* CPIX inflation exactly because the Reserve Bank Act worked as intended.

Nonetheless, a puzzle still remains. Relative to at least one measure, the exchange rate did seem to be elevated from mid-1996 to mid-1997. Events in Japan may have played a role. By 1995 the appreciation of the NZD against the Japanese yen was providing a sizeable boost to our real exchange rate. About the same time, Japan put in place new financial regulations that made it easier for investors to take advantage of attractive overseas opportunities. In addition, interest rates in Japan were well below the average of other OECD countries and were falling. Consequently, it may be that overseas demand (especially from Japan), for relatively high-yielding New Zealand investments, boosted capital inflows

to New Zealand.

On balance, though, the behaviour of interest rates and the exchange rate in the 1990s appears reasonably intelligible.

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