
Monetary Policy Statement¹

May 2000

This Statement is made pursuant to Section 15 of the Reserve Bank of New Zealand Act 1989.

Contents

1.	Overview and policy assessment	2
2.	Recent developments and current economic situation	5
3.	Medium-term macroeconomic outlook	15
4.	Policy issues	19

Appendices

1.	Chronology	22
2.	Reserve Bank statements on monetary policy	23
3.	Summary tables	25
4.	Notes to the tables	33

This document is available on the Reserve Bank's website (<http://www.rbnz.govt.nz>).

ISSN 1170-4829

¹ Projections finalised on 4 May 2000. Policy assessment finalised on 16 May 2000.

1 Overview and policy assessment

The Reserve Bank has decided to increase the Official Cash Rate to 6.5 percent.

Information which has become available since the Bank's March *Monetary Policy Statement* indicates that there was very strong growth over the second half of 1999. As a result, the level of GDP in the December quarter was 5.8 percent higher than it had been a year earlier. Even allowing for a significant post-Y2K slowing in growth in the March quarter, we estimate that over the last two years the economy has grown to the point where demand is now exerting pressure on the economy's supply capacity and beginning to create inflationary pressures. This conclusion, which may well be surprising to many, is supported by a range of indicators, including high levels of capacity utilisation, increasingly widespread anecdotes about the difficulty which employers are having in finding staff, and the high levels of confidence which businesses have about the prospect for their own sales and profitability.

We project that growth will continue to be moderately strong over the next year or so, before slowing somewhat to around the sustainable growth rate further out. This projection of continued growth is based on our expectation that growth in our main trading partners will continue to be strong and on the lagged effect of the stimulatory monetary conditions which have prevailed over the last two years. The slowdown in growth to a more sustainable rate further out reflects the gradual tightening of monetary policy which has taken place in recent months, and which is conditionally projected to continue.

Measures of inflation have been somewhat volatile of late, with some numbers rising and others remaining relatively low. Despite this volatility, it seems clear that general inflation pressures are beginning to build, reinforcing our sense that demand is beginning to put pressure on capacity. It seems likely that measured inflation would increase in the next year or two were monetary conditions not to be gradually tightened further.

At present, we see overall monetary conditions as somewhat stimulatory. While current interest rates are providing little or no stimulus to the economy, the exchange rate still seems to be providing support to the export and import-competing sectors. Under the circumstances, and with

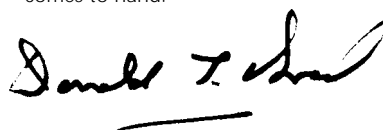
inflation beginning to pick up, it seems appropriate that monetary stimulus continue to be removed over the near term.

It should be noted, however, that we currently see rather less need for interest rates to increase over the next year or two than was the case in the mid-nineties. Indeed, at this stage we project 90-day interest rates to peak at a level well below their mid-nineties peak. This view is based on an expectation that household sector spending will increase more moderately in this cycle, the result in turn of a much higher level of household sector debt and an expectation that weaker net migration will mean that the housing market will remain subdued.

We are projecting a gradual increase in the exchange rate. This exchange rate appreciation is a result of improved global trading conditions for New Zealand, a projected rise in domestic interest rates, and an expected reduction in the balance of payments deficit. One factor suggesting a more modest appreciation in the exchange rate during this cyclical upswing than in the last is the outlook for domestic and foreign interest rates. With interest rates rising globally, in particular in the United States, it appears unlikely at this stage that New Zealand rates will rise substantially above rates overseas, in contrast to what happened in the mid-nineties.

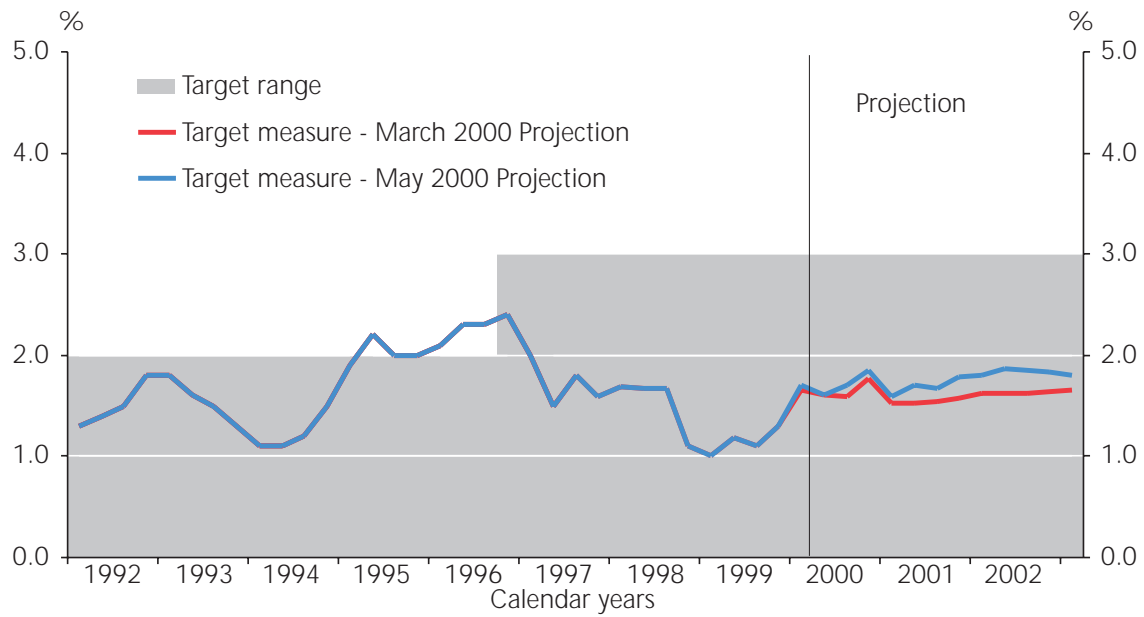
But it is important to realise that the only thing which is absolutely certain at this stage is where the Official Cash Rate is being set in the present. Our projections are, as always, highly conditional. Were the United States and/or Australian economies to slow more sharply than now seems likely, for example, it is very possible that monetary policy would not need to tighten as much as now projected in New Zealand. Conversely, if the Japanese economy picked up more strongly, or household expenditure in New Zealand showed signs of rising strongly, then policy might well need to tighten by more than projected.

With a new *Monetary Policy Statement* issued approximately each three months, and an additional review between each *Monetary Policy Statement*, there is ample opportunity to adjust the Official Cash Rate as appropriate as new information comes to hand.



Donald T Brash
Governor

Figure 1
Consumer price inflation²
(annual percentage change)



² The target measure shown is annual underlying inflation until the September quarter 1997, annual CPIX inflation from the December 1997 quarter until the June 1999 quarter, and annual CPI inflation thereafter (adjusted to exclude interest and section prices from the September 1999 quarter to the June 2000 quarter).

Table 1**Summary of economic projections**

(Annual percentage change, unless specified otherwise)

March year	Actuals		Projections		
	1999	2000e	2001	2002	2003
Price measures					
CPI*		1.0	1.7	1.6	1.8
1.8					
Wages	2.7	2.1	3.2	3.5	3.6
Import prices (in New Zealand dollars)	2.7	6.4	-4.5	-0.6	0.1
Export prices (in New Zealand dollars)	-1.1	8.4	-4.0	-0.7	-0.2
Monetary conditions					
Nominal MCI (year average)	-50	-275	-75	100	175
90-day rate (year average)	6.2	5.2	7.0	7.5	7.4
TWI (year average)	57.3	56.1	56.1	57.8	58.6
Output					
GDP (production, annual average % change)	0.0	4.3	4.6	2.7	2.6
GDP (production, March qtr to March qtr)	1.7	5.1	3.5	2.6	2.6
Output gap (% of potential GDP, year average)	-2.0	-0.4	1.3	0.9	0.2
Key balances					
Government operating balance (% of GDP, year to June)	1.8	0.6	1.1	1.6	2.0
Current account balance (% of GDP, year to March)	-5.8	-8.0	-5.4	-5.0	-5.4
Terms of trade (annual average % change)	-0.5	0.8	0.5	0.0	-0.1
Unemployment rate (March qtr s.a.)	7.2	6.4	5.4	5.3	5.4
Household savings rate (% of disposable income, year to March)	-1.5	-1.6	-0.8	-0.9	-1.4
World economy					
World GDP (annual average % change)	1.0	4.0	4.0	3.4	3.5
World CPI inflation	0.9	2.0	1.8	1.9	2.0
Quarterly projections (quarterly percentage change, unless specified otherwise)					
	Sep-99	Dec-99	Mar-00	Jun-00	Sep-00
CPI	0.4	0.2	0.7	0.3	0.5
CPI (annual percentage change)*	1.1	1.3	1.7	1.6	1.7
GDP (production, s.a.)	2.5	2.2	0.6	1.1	1.1

e = estimate

s.a. = seasonally adjusted

* This series is annual CPIX inflation until the June 1999 quarter, and annual CPI inflation thereafter (adjusted by SNZ to exclude interest and section prices from the September 1999 quarter to the June 2000 quarter).

Notes for this table are in Appendix 4.

2 Recent developments and current economic situation

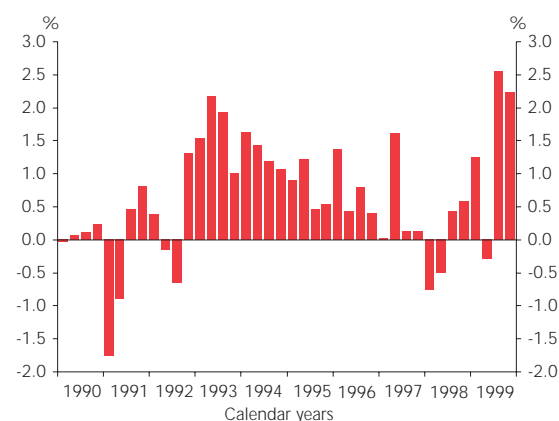
Since the March *Statement*, the data have indicated that the New Zealand economy is growing at a robust rate, continuing a trend that has been evident for several quarters. Indeed, GDP growth for the December 1999 quarter turned out to be substantially stronger than expected. However, employment data for the March 2000 quarter suggests that some of the strong growth at the end of 1999 may have been related to preparations for Y2K, and that growth in early-2000 has been weaker. CPI inflation for the March 2000 quarter came in close to our estimate, while short-term interest rates both in New Zealand and in major trading partners have continued to rise.

This chapter discusses the Bank's assessment of the current state of activity and inflation in the economy, in light of these developments. Our updated medium-term projection for growth, inflation and monetary conditions is presented in Chapter 3. Chapter 4 discusses some of the more important policy issues the Bank has taken into consideration in arriving at the OCR decision announced with this *Statement*.

GDP, CPI inflation, and indicator data received since March

The economy grew very strongly in the second half of last year (Figure 2), with GDP growth for the December quarter in particular quite broadly based. As expected, given the

Figure 2
Production GDP
(seasonally adjusted quarterly percentage change)



excellent farming season this year, primary production made a major contribution, though strong growth was also recorded in manufacturing, non-residential construction, transport, and communications. Over 1999 as a whole, growth of non-primary production broadly matched that of primary production, with both categories growing by more than 5 percent.

Indeed, primary sector components did not contribute as great a proportion of overall growth in the December quarter as they did in the September quarter. Table 2 shows that primary components accounted for just over a third of overall growth in the September 1999 quarter, but less than a fifth of growth in the December quarter. Over the second half of

Table 2
Primary sector contribution to GDP growth
(percentage point contribution to quarterly or half-yearly percentage change)

	1999		1999
	Sep qtr	Dec qtr	Second half
Agriculture and hunting	0.3	0.2	0.5
Primary food manufacturing	0.3	0.1	0.4
Fishing, forestry and mining	0.2	0.0	0.2
Primary product wholesale trade (estimate) ³	0.1	0.1	0.2
Total primary	0.9	0.4	1.3
Non-primary	1.6	1.8	3.4
Total production GDP	2.5	2.2	4.7

³ Based on the Wholesale Trade Survey result for the December 1999 quarter.

the year as a whole, primary sector growth accounted for about a quarter of total growth over that period.

From year to year, primary production tends to be mostly supply-driven – that is, fluctuations in output do not tend to be associated in a major way with changes in the pressure of demand on the economy's productive resources. For example, better weather might lead to higher farm output, but to the extent that that extra output was delivered using the same 'inputs' of labour and capital equipment, it would not imply any greater inflationary pressure than otherwise. Monetary policy should therefore be relatively unresponsive to such fluctuations.

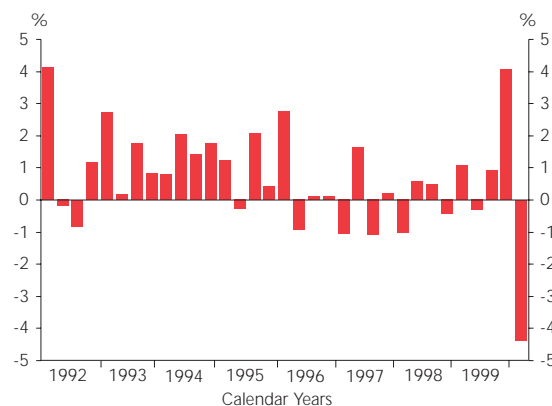
Fluctuations in primary sector production may also be fairly short-lived (or at least difficult to predict too far ahead), and often dissipate or reverse over the near term of a few quarters. For example, the sharp rise in primary production in the September quarter of last year was in part a 'correction' from a sharp fall in the June quarter, with the profile over the two quarters largely reflecting delayed stock slaughter through the winter months. It would not make sense for monetary policy, which is focused on the medium-term outlook of one to two years, to respond to short-lived quarterly fluctuations of this nature.

In this regard, the 'downstream' effects of strong pastoral production on such industries as transport and retailing – estimates of which are not shown in Table 2, but which anecdotes suggest have been noticeable – are relevant. Increased transport and retailing activity as a result of increased farm activity could not be considered to be supply-driven, but it may still be short-lived, to the extent that the increase in farm activity is short-lived.

In sum, looking carefully at the contribution of primary production to growth over 1999, it seems that not all of the strong GDP growth seen is likely to portend rising persistent inflation pressure, being due to in some part to primary sector developments.

Another short-lived factor relevant to the growth profile over the December and March quarters is preparations for Y2K, which also suggests some reason to be cautious about the medium-term inflation implications of the strong growth outturns last year. Total hours worked in the economy rose very sharply in the December quarter, and then fell back equal-

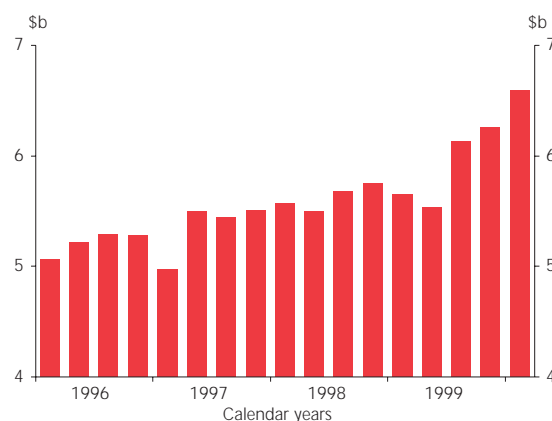
Figure 3
Total hours worked
(seasonally adjusted quarterly percentage change)



ly sharply in the March quarter (Figure 3). Anecdotes⁴ suggest that more hours than usual were worked prior to the New Year, followed by a greater-than-usual reduction in the early part of January. These data suggest that GDP growth for the December quarter may have been boosted to some degree by Y2K preparations, and that, all else equal, growth for the March quarter will be correspondingly weaker.

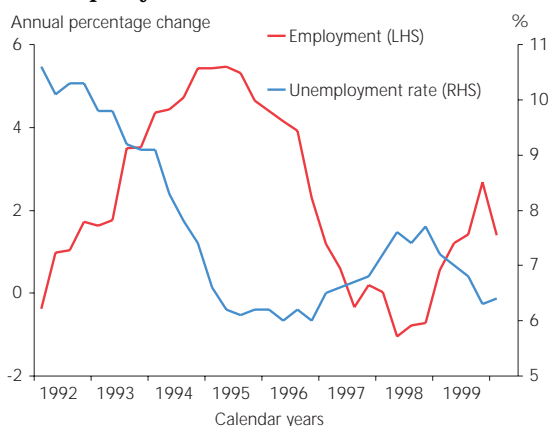
Any such Y2K or primary sector effects notwithstanding, other indicators of economic activity for the first half of this year suggest that, although some slowing in overall growth relative to that in the second half of last year is likely to have occurred early this year, overall demand appears still to be trending at quite strong levels. Retail sales, imports and sur-

Figure 4
Quarterly value of merchandise exports
(seasonally adjusted)



⁴ As reported by respondents to Statistics New Zealand's Household Labour Force Survey for the March 2000 quarter.

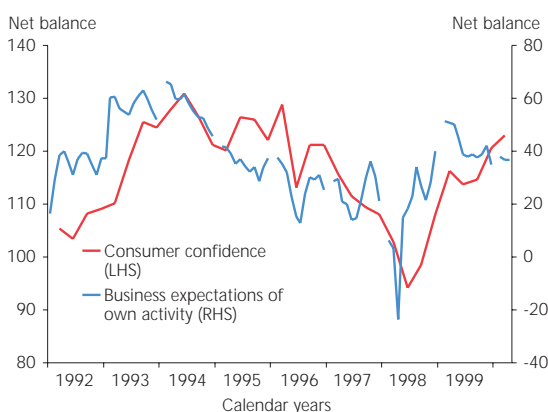
Figure 5
Employment growth and the unemployment rate



veyed capacity utilisation have held up. Our business contacts suggest that, with the passing of Y2K without incident, they are beginning to increase investment to improve productivity and lift capacity, and business borrowing growth has picked up quite strongly. Merchandise exports (Figure 4) and visitor arrivals continue to grow quite strongly. Employment is trending up, and the unemployment rate has fallen quite quickly over the past year (Figure 5).

Consumer confidence is running at high levels, supporting the idea that households view general economic conditions as favourable. Similarly, surveys of firms' expectations of their own sales and output are holding up at levels indicative of moderate growth (Figure 6). Surveyed business confidence

Figure 6
Consumer confidence and business expectations of their own output⁵

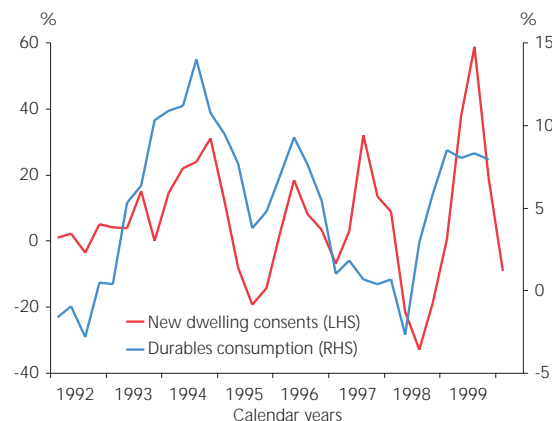


⁵ Sources: WestpacTrust-McDermott-Miller, National Bank of New Zealand.

about prospects for the economy more generally are more pessimistic, but these measures tend to be less reliable about actual developments than own-output expectations.

Although these indicators suggest, on balance, growth continuing overall in the economy at fairly healthy rates, the growth is not uniform across the economy. As mentioned above, sectors exposed to external demand are growing strongly. Residential construction, on the other hand, has weakened sharply in recent months, with the rate of issue of consents for new dwellings having fallen steeply since No-

Figure 7
Dwelling consents and durables consumption (annual percentage change)

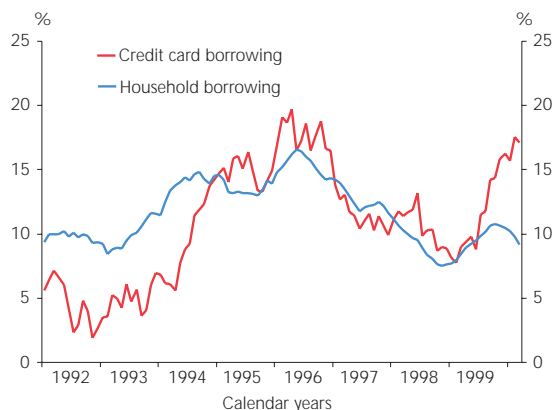


vember last year. This development should see a weakening in durables consumption growth also over the near term (Figure 7). Housing market activity more generally, and house price inflation, remain subdued.

Household borrowing patterns are consistent with this apparent relative weakness in the housing market compared with more general goods and services consumption. Growth in household borrowing for housing is weak, while growth in credit card borrowing is considerably stronger (albeit boosted by the rapid uptake and use of 'loyalty' cards), and approaching levels last seen during 1996 when private consumption was growing quickly (Figure 8, overleaf).

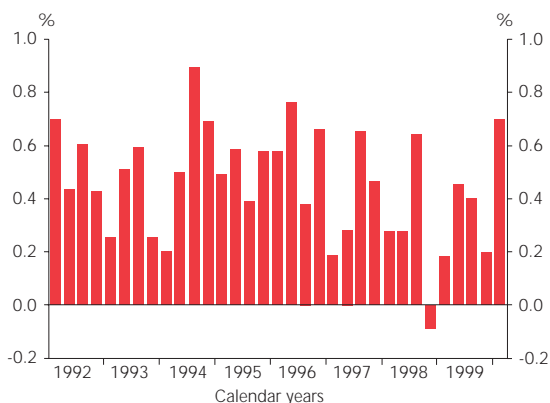
Taking all these indicators together, we estimate that GDP will grow by around 1½ to 2 percent over the first half of this

Figure 8
Household borrowing and credit card borrowing⁶
(annual percentage change)



year – a rate of around 3 to 4 percent per annum⁷. This rate is a little below the trend rate we have seen over the past year or so, and below the very high rate seen in the second half of 1999.

Figure 9
CPI⁸
(quarterly percentage change)



⁶ Source: RBNZ.

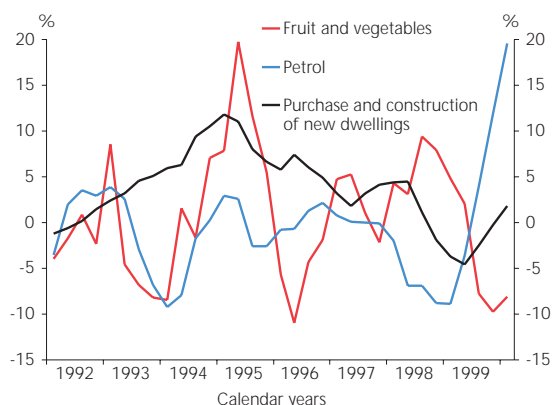
⁷ Calendar 2000 being a leap year presents a minor technical issue for the estimation of GDP growth in the March 2000 quarter, as that quarter contains an extra day compared to non-leap-year March quarters. At the time of writing, Statistics New Zealand had not decided how they would adjust for the leap day in 2000, if at all. The treatment of the leap day therefore presents a special risk around the estimates presented here; at this stage, we do not expect the effects of any leap day adjustment to be material in terms of the effect on medium-term inflationary pressure.

⁸ CPIX until June 1999 quarter, CPI thereafter.

The CPI increased by 0.7 percent for the March 2000 quarter, and 1.7 percent for the year to March 2000⁹. This result was very close to expectations, and follows rather weaker quarterly CPI results over the past year or so (Figure 9).

Increases in the prices of petrol, fruit and vegetables, and used cars made major contributions to tradeables inflation for the quarter, offset to some degree by a large, mostly seasonal, fall in international airfares. Non-tradeables inflation

Figure 10
CPI petrol, fruit and vegetables, and purchase and construction of new dwellings
(annual percentage change)



included large contributions from the annual rise in tertiary fees, and purchase and construction of new dwellings (though this large contribution was mostly the result of a high weight on this item in the CPI, rather than a particularly large increase in the item itself).

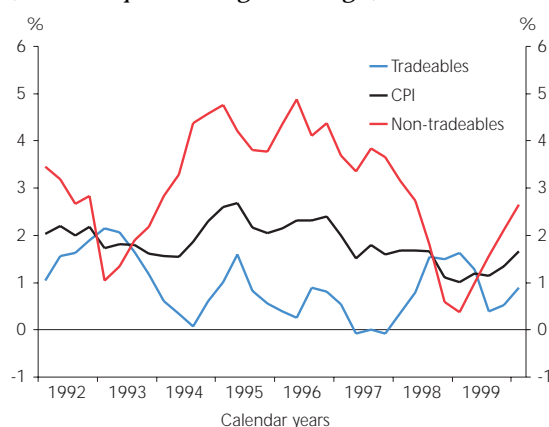
As shown in Table 3 (opposite), measures of consumer price inflation based on various transformations of the CPI regimen – tradeables, non-tradeables, weighted median and trimmed mean inflation – all recorded increases of similar magnitude to the CPI itself. This suggests that, even though large movements in certain CPI items such as those mentioned above could be identified for the March quarter, the rise in quarterly CPI inflation was reasonably widespread through the CPI regimen.

⁹ This figure is the price stability target measure, as calculated by Statistics New Zealand. The measure is the annual percentage change in the CPI adjusted to exclude interest rates and section prices prior to the September 1999 quarter.

Table 3
Derivative series of the CPI
(quarterly percentage change)

	CPI ¹⁰	Tradeables	Non-tradeables	Weighted Median	Trimmed Mean
Mar-99	0.2	0.2	0.2	0.0	0.2
Jun-99	0.5	0.0	0.9	0.1	0.2
Sep-99	0.4	0.0	0.8	0.3	0.3
Dec-99	0.2	0.3	0.2	0.1	0.2
Mar-00	0.7	0.6	0.7	0.5	0.7

Figure 11
Tradeables and non-tradeables inflation¹¹
(annual percentage change)



Taking a view on the current and near-term trends in inflation is a key part of the Bank's overall monetary policy assessment. In the *March Statement*, we devoted some time to explaining the Bank's interpretation of the surprisingly low December quarter CPI result. We suggested that the inflation results for the December and other recent quarters argued for some open-mindedness about the nature of the inflation process in New Zealand and about the current state of inflation pressure, but that we were cautious about the existence

Table 4
Overseas official interest rates

	Change since mid-June 1999 (basis points)	Change since March Statement (basis points)	Level as at 9 May (%)
United States	+125	+25	6.00
Australia	+125	+50	6.00
United Kingdom	+100	0	6.00
European Central Bank	+125	+50	3.75
Canada	+75	+25	5.25

¹⁰ CPIX up to and including June quarter 1999, CPI thereafter.

of a "new paradigm" in New Zealand. The rise in CPI inflation in the March quarter (not least because it met our expectations) suggests that this caution remains appropriate.

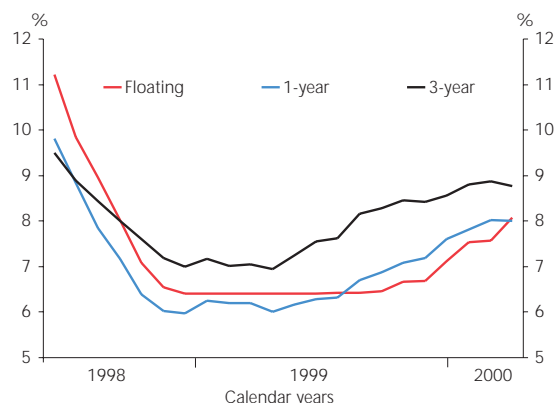
We explain our assessment of inflation trends at the end of this chapter, as that assessment is an important part of the 'starting-point' information relevant for the medium-term economic outlook. However, we first note developments in financial markets since March, including the reactions of financial markets to the key items of data discussed above.

Developments in domestic and international financial markets

Since the *March Statement*, short-term interest rates have continued rising, both in New Zealand and in major trading partners (Table 4). The Bank raised the OCR by 25 basis points on 19 April, continuing the tightening of monetary policy begun in November last year, in response to the growing risks of rising inflation in New Zealand. Actual and expected monetary policy tightening in New Zealand has been reflected in rising residential mortgage rates, for both floating-rate and fixed-rate mortgages (Figure 12, overleaf).

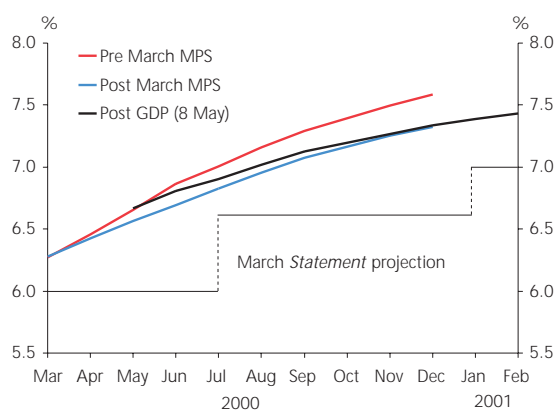
¹¹ Source: RBNZ. Annual CPIX until June 1999 quarter and annual CPI inflation thereafter (adjusted by SNZ to exclude interest and section prices from the September 1999 quarter to the June 2000 quarter).

Figure 12
Residential mortgage rates¹²



Market expectations of future tightening in New Zealand showed little reaction to the December quarter GDP data proving stronger than the Bank had expected, and to the Bank's increase in the OCR in April. Markets had already taken the view that more tightening than projected in the March *Statement* would be required over the next year or so, and the strong GDP data was consistent with this assessment. As Figure 13 shows, interest rate expectations implicit in forward contracts fell only about 20 basis points in response to the March *Statement*, despite the interest rate track projected in the *Statement* being about 70 basis points below market expectations immediately before the *Statement*.

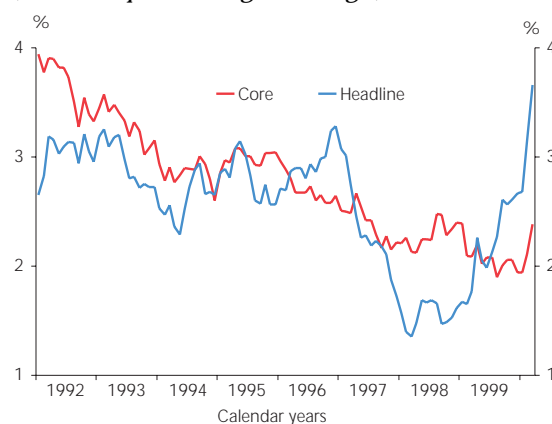
Figure 13
Market expectations of interest rates and March *Statement* projection¹³



¹² Source: RBNZ.

¹³ Source: RBNZ.

Figure 14
US CPI¹⁴
(annual percentage change)

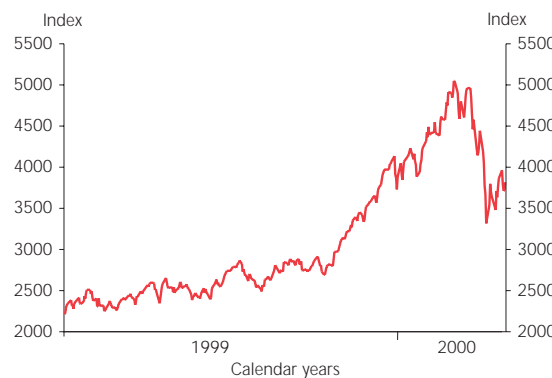


However, since March, expectations of further monetary policy tightening over the near term in major trading partners – especially the US – have been heightened. In the US, evidence seems to be accumulating that fast growth is beginning to lead to imbalances, with core inflation picking up (Figure 14) and the current account deficit growing further.

Share market volatility in the US has increased substantially since March. The volatility of the NASDAQ index (Figure 15), for example, has neared the highs seen in late-1998, when uncertainty about the outlook for the world economy was particularly marked.

At the time of the April OCR review, the Bank noted that financial markets had taken the view that global growth and inflation prospects had not been materially adversely affected by equity market volatility, but that we would continue to

Figure 15
US NASDAQ equity price index¹⁵



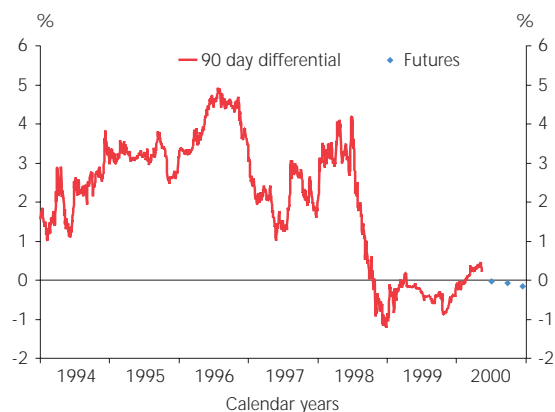
¹⁴ Source: Datastream.

¹⁵ Source: Datastream.

monitor the situation closely. As we discuss later, the risk of a sharp downturn in US equity prices significantly slowing trading-partner growth remains. At this stage, though, this risk has not materially affected our policy assessment.

As strong growth data and reasonable certainty about further tightening have been a feature of both the US and New Zealand economies since March, the net effect on expected short- and longer-term interest rate differentials has been quite

Figure 16
90-day interest rate differential, NZ minus US



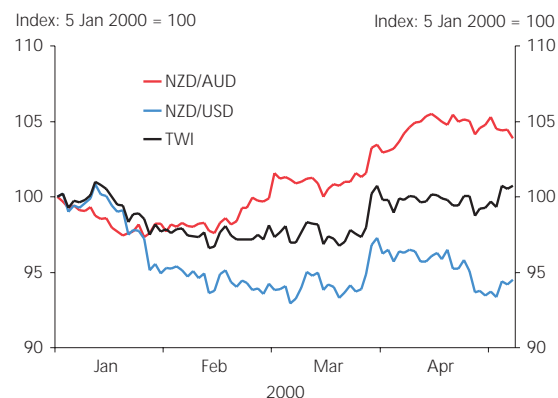
small (Figure 16). The short-term differential remains much smaller than in the mid-1990s.

Consistent with this lack of movement in interest rate differentials, the value of the New Zealand dollar against the US dollar has been fairly stable over the period. The Australian dollar, by contrast, has fallen several percent against the US dollar over the period, as recent economic data in Australia have been weaker than expected. The overall result has been that the New Zealand dollar exchange rate has appreciated slightly on a trade-weighted basis since the *March Statement* (Figure 17).

While New Zealand short-term interest rates have continued rising since the beginning of the year, longer-term rates are at levels similar to those at the time of the *March Statement*.

The Bank's assessment is that, with the total rise in short- and longer-term interest rates since the second half of last year, interest rates are now at levels that probably imply little pressure on demand in either direction. The exchange rate, on the other hand, is still at levels the Bank views as stimula-

Figure 17
NZD/USD, NZD/AUD, and TWI¹⁶



tory, although we remain fairly cautious about the level of stimulus. We return to this issue in Chapter 4.

Capacity constraints, inflation trends and the state of the business cycle

The Bank estimates that the output gap currently is mildly positive. In other words, the level of utilisation of the economy's capital, labour and natural resources has now moved a little beyond the point where normally there would be inflationary pressures. This emergence of a positive output gap, while consistent with a year and a half or so of strong economic growth, has occurred more quickly than anticipated in the *March Statement*.

The Bank's assessment of the current level of the output gap – being an important influence on our views about inflationary pressure over the medium term – is based on a wide range of data and information, and is subject to continuous review. Box 1 (overleaf) discusses our approach to estimating the output gap in more detail.

The second strand of the Bank's assessment about the economy's starting point, for the purposes of making medium-term projections and supporting the immediate monetary policy decision to be taken, is measurement of the current state of inflation. Here, the Bank is principally interested in picking up the trends that reflect business-cycle or medium-term influences. Detecting these persistent movements usually requires 'smoothing through' quarterly fluctuations, which

¹⁶ Source: RBNZ.

can be large, as well as looking at a range of inflation measures or indicators in an attempt to discern common trends.

Some of these inflation measures are showing signs of a rising trend. Figures 18 and 19 show four such measures, each of which also rose during the sustained pick-up in inflation in the mid-1990s.

Other indicators of inflation are more subdued. Wage inflation and house price inflation, for example, appear still to be either flat or declining, and are likely to reflect, respectively, the sluggish labour and housing markets recently.

Figure 18
Cyclical inflation measures¹⁷

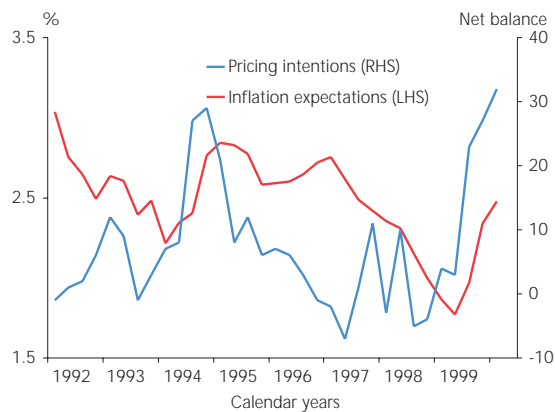
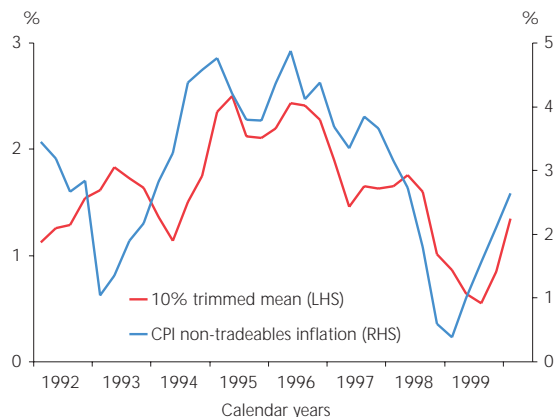


Figure 19
More cyclical inflation measures¹⁸
(annual percentage change)

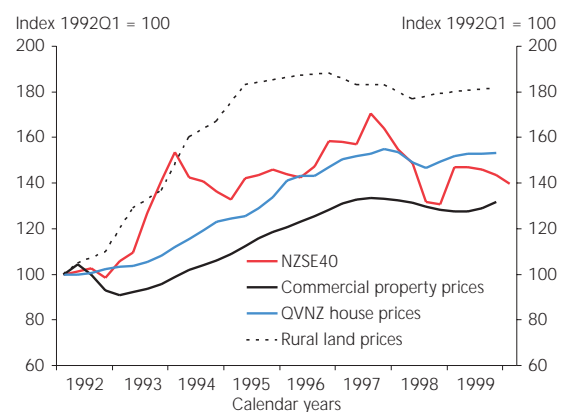


Overall, although the data on inflation are mixed, the Bank's assessment is that an upward trend in inflation is nevertheless becoming apparent in some of the more important measures and indicators. This is consistent with a strengthening economy, and with the negative output gap evident in 1998-99 having closed, as discussed above.

One feature of the current business cycle which distinguishes New Zealand from other developed countries with strong growth currently, such as the US and Australia, is the absence of asset price inflation. Strongly rising property prices were a plainly evident feature of the previous upswing in New Zealand. For example, the sustained rise in CPI inflation in the mid-1990s was accompanied by house price inflation that ran at a rate of about 10 percent per annum for three years. By contrast, at the moment, equity and property prices are showing little movement (Figure 20).

Questions remain about how the trends in growth and inflation seen to date will evolve over the next two to three years. That evolution will depend on the level of demand pressure in the economy going forward, the composition of that demand pressure across the economy, and the extent to which it will lead to inflation pressure. We address these questions in the following two chapters.

Figure 20
New Zealand asset prices¹⁹



¹⁷ Sources: NZ Institute of Economic Research, National Bank of New Zealand.

¹⁸ Source: RBNZ.

¹⁹ Sources: Datastream, Quotable Value New Zealand, Statistics New Zealand.

Box 1 Potential output and the output gap²⁰

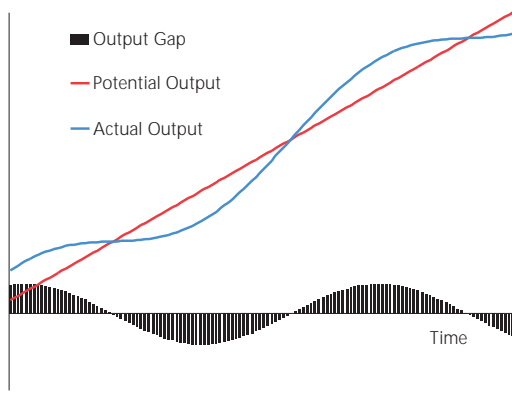
There are long lags between monetary policy actions and inflation outcomes. As a result, indicators of future inflationary pressures play an important role in guiding monetary policy.

The deviation of actual output from a smoothly evolving, or trend, level of output can be one such indicator of the degree of persistent domestic inflation pressure. We refer to such a trend level of output as “potential” output. It should be noted that, in this context, “potential” is not meant to be taken literally – it does not necessarily imply zero unemployment and 100 percent utilisation of plant, land etc. Rather, potential output is simply the level of output at which, all else equal, there is no pressure on inflation in either direction.

This definition of potential output leads to the definition of the “output gap” as the difference between actual output and potential output. Figure 21 shows this idea diagrammatically.

The value of this idea derives from the empirical observation that, all else equal, when actual output exceeds

Figure 21
Actual output, potential output, and the output gap



²⁰ A more comprehensive discussion of the estimation of potential output and the output gap and their use in policy formulation can be found in Conway, Scott & Claus (2000) “The output gap: measurement, comparison and assessment”, Reserve Bank Research Paper #44, forthcoming.

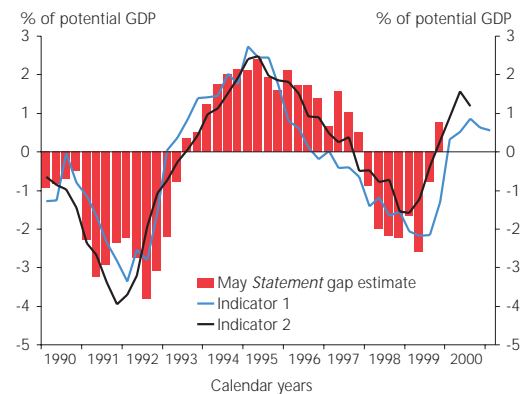
potential output, inflation tends to rise, and when actual output falls short of potential output, inflation tends to fall. Measures of the output gap thus play an important role in a forward-looking inflation-targeting framework.

Given that measures of actual output are readily available, making the output gap concept operational for monetary policy purposes requires only a measure of potential output. However, measuring potential output is not straightforward. Potential output cannot be observed directly, but only inferred on the basis of observable variables. Moreover, conceptually, potential output should grow over time, as the economy grows (as suggested by the upward slope of the line representing potential output in Figure 21).

A number of approaches can be used to measure potential output. These include

- structural methods that estimate a production function for the economy, based on the “factors of production”: labour, capital, and technology;
- time-series techniques that decompose actual output into a trend component that reflects potential output, and a cyclical component that reflects the output gap; and
- using indicators that appear to follow cycles corresponding to the cycles in inflation, such as capacity utilisation or other ‘business cycle’ measures (examples shown in Figure 22).

Figure 22
Indicators of the business cycle²¹

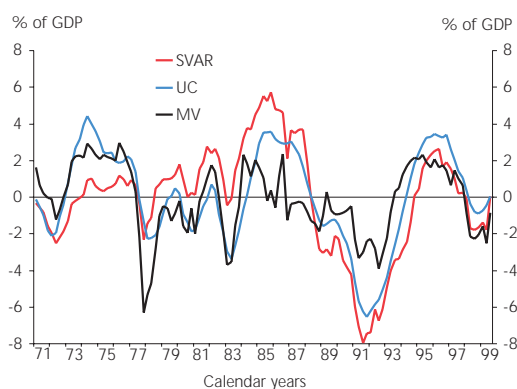


²¹ Source: RBNZ.

All these approaches have a number of problems, affecting particular approaches to different degrees. The problems include revisions to the observed data (such as GDP), sensitivity to the addition of new data to the sample, uncertainty about the statistical assumptions required, and estimating the level of a given indicator variable that corresponds to neutral inflation pressure. As a result, significant uncertainty is inherent in all measures of the output gap.

By looking at the measures based on all these approaches, the Bank acquires a sense of the range within which the actual output gap is likely to lie. As can be seen in Figure 23, which shows historical estimates of the output gap using three different time-series techniques (including our preferred “multivariate filter” measure), the range can be wide. However, at least over the 1990s, the estimates have tended to move in the same direction. In addition, the Bank’s research into the role of these measures suggests that, all else equal, incorporating them into policy assessments tends to improve policy outcomes.

Figure 23
Estimates of the output gap²²



²² Source: RBNZ. SVAR is a measure based on a Structural VAR approach; UC is a measure based on an unobserved-components approach, and MV is a measure based on a multivariate filter approach. See Conway, Scott and Claus (2000) for details.

The evolution of inflation provides a check on whether our assessments of spare capacity are about right or not. A rising inflation rate, for example, suggests, all else equal, that the output gap was probably positive a few quarters ago.

In addition, a range of other factors, such as wage costs and import prices, are also informative about inflation trends. Estimates of potential output and the output gap take their place within a broad inflation-targeting framework, and are always viewed in context with other indicators of inflation pressures such as these. Provided that they are used in this way, and not accorded spurious accuracy, they have a valuable role to play.

Monetary policy is about balancing the likelihood of rising or falling future inflation pressure in the presence of a range of different uncertainties, including uncertainty about potential output and the level of the output gap. Of course, monetary policy is not a one-shot game, and as information about the current state of the economy is progressively revealed, policy adjustments can be made accordingly. Eight OCR resets a year should be sufficient to accommodate reassessments of the state of the economy, including those about the output gap, even when relevant information is revealed only with lags and with a degree of uncertainty.

3 Medium-term macroeconomic outlook

As discussed in the previous chapter, current economic conditions in New Zealand feature fairly strong domestic and trading-partner growth, with some stimulus from the exchange rate still evident. Moreover, pressure on the economy's productive resources seems to be emerging, and there are some signs that inflation is beginning to rise.

Given this starting point, this chapter discusses the Bank's outlook for the influences on growth and inflationary pressure over the next three years or so, and a track for monetary conditions consistent with the maintenance of price stability, given that outlook.

All economic projections are subject to uncertainty, and the range of plausible outcomes over the medium term is wide. The projection presented here is a 'central' one: based on our updated assessment discussed in this and the previous chapter, the Bank sees the range of plausible outcomes as likely to lie 'in the neighbourhood' of this central projection. Importantly, the range of plausible outcomes includes a variety of monetary conditions paths consistent with price stability, given the influences on inflationary pressure we see currently.

The projection is also a conditional one: when new or unexpected developments happen, incorporating them into the projection will imply a new track for monetary conditions. Monetary policy is thus an adaptive process. OCR decisions

are taken in light of the central projection relevant at the time, the associated risks to the central outlook, and the policy options that seem most salient (Chapter 4 discusses these policy issues in more detail). Given the Bank's four regular *Monetary Policy Statements* each year in which current economic conditions, the outlook, and the level of the OCR are comprehensively reassessed, plus an additional four OCR reviews between *Statements*, there is plenty of scope for monetary policy to respond to unexpected events.

Domestic growth outlook

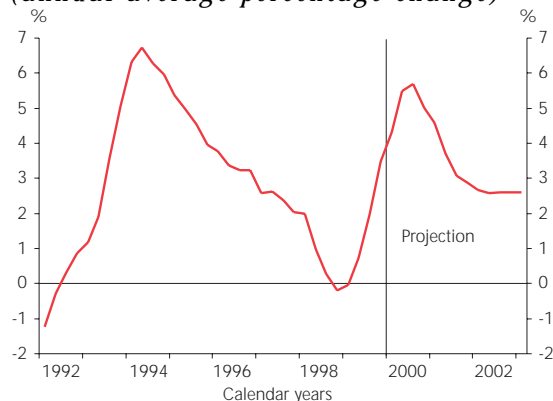
Our updated central projection shows GDP growth running at an annual rate of around 4 percent per annum over the next year or so, before falling to between 2½ and 3 percent per annum further out. *Annual average* growth, as shown in Figure 24, is projected to be rather higher than 4 percent over this calendar year, because of the very strong growth in the second half of 1999. Given the recent surprisingly strong growth, we now project a more cyclical growth outlook than in previous *Statements*. In the Bank's assessment, the stronger growth has led to an earlier closure of the negative output gap than anticipated, with correspondingly weaker growth prospects – closer to the sustainable rate of growth – indicated further out.

Table 5
Trading-partner growth forecasts, based on April *Consensus* forecasts

Country	1998	1999	2000f	2001f
Australia	4.8	4.4	4.1	3.6
United States	4.3	4.1	4.6	3.1
Japan	-2.5	0.3	1.0	1.5
United Kingdom	2.2	2.1	3.2	2.7
Germany	2.2	1.5	2.8	2.8
Italy	1.5	1.4	2.7	2.7
France	3.4	2.7	3.7	3.3
China	7.8	7.1	7.4	7.6
Hong Kong	-5.1	2.9	5.8	4.6
Indonesia	-13.2	0.2	4.2	5.0
Malaysia	-7.5	5.4	6.6	6.3
South Korea	-5.8	10.7	7.8	6.0
Taiwan	4.6	5.7	6.7	6.1
Thailand	-10.2	4.2	5.3	5.2
14 country index	0.8	3.5	4.1	3.5

f = forecast

Figure 24
GDP growth
(annual average percentage change)



The principal influences on this growth profile over the projection period are continued robust trading-partner growth, some tailing-off or reversal of the short-lived factors boosting growth in the second half of 1999, and an overall tightening of monetary conditions in the first part of the projection period as inflation pressures rise.

Consensus forecasts published in April suggest overall trading-partner growth of around 4 percent for the next two years (Table 5). We expect this strong trading-partner outlook to continue to provide solid demand for New Zealand exports and continued improvement in the world prices of NZ commodity exports. It is notable that these updated trading-partner forecasts show marked upward revisions compared to previous forecasts – an event which has been recurring for at least a year. We discuss this issue in more detail in Chapter 4.

This external outlook is almost as strong as in the mid-1990s. US and Australian growth, though expected to slow somewhat, is nevertheless forecast to continue at high levels, and a consolidation of the recovery in European growth is anticipated. Growth in Asian economies outside Japan is now expected to run at almost pre-crisis levels. *Consensus* forecasters continue to predict a mild recovery in Japan.

With the strong 'V-shaped' recovery in trading-partner growth following the Asian financial crisis, it appears that spare capacity in trading partners overall has been almost fully absorbed. At this stage, international forecasters still expect low and stable inflation in New Zealand's trading partners over the next few years. Monetary policy in the majority of New Zealand's developed-country trading partners is expect-

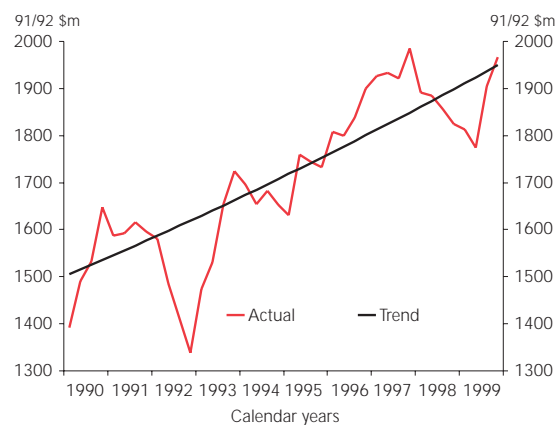
ed to continue on a tightening track over the next few quarters.

As already discussed, however, recent data suggest some risk to this outlook, especially in the US. Overall, we assess the risks around these international projections as roughly balanced. It is too early to tell whether recent international equity market volatility will persist, or what the effects might be, but a combination of fragile equity prices and rising inflation in the US could complicate the management of monetary policy there considerably. We discuss this issue further in Chapter 4.

Given the strong trading-partner outlook, export growth is expected to continue to underpin growth in the New Zealand economy. The effects of the stimulatory exchange rate over the past two years or so are being felt on exports, but this stimulus is projected to diminish gradually over the medium term, as we anticipate a mild appreciation in the exchange rate over the projection period.

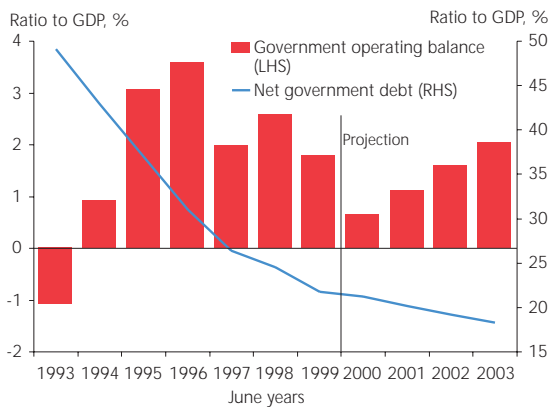
The contribution of pastoral exports growth to the overall export growth outlook is expected to moderate over the next few years, after the recovery from drought seen this season. Production of meat and dairy products in the 1999-2000 season appears to have returned to 'normal' or trend levels, and a slower rate of growth is thus anticipated going forward. However, we expect increased farm investment, rebuilding of herd and flock numbers, and ongoing farm productivity growth, to support pastoral export growth over the next few years.

Figure 25
Quarterly real agricultural and primary food manufacturing production
(seasonally adjusted)



Based on the Treasury's forecasts prepared for the *Budget Policy Statement*, we anticipate that the effect of fiscal policy on domestic demand growth will not be material. The Government operating surplus is projected to rise gradually through the projection period (Figure 26). This projected gradual rise in the surplus contrasts with the very steep rise seen from 1993 to 1996, which placed some restraint on domestic demand growth at the time. At this stage, we have not incorporated any effect on inflationary pressure from announced changes in various regulatory policies.

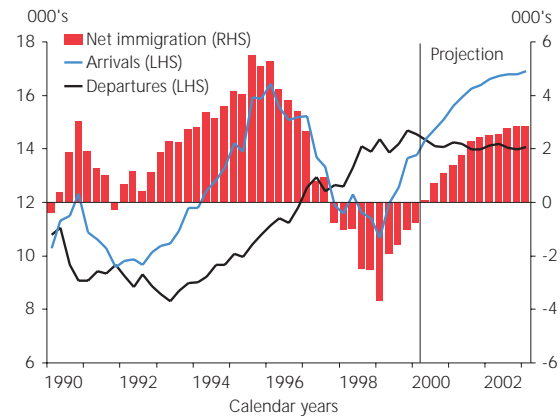
Figure 26
Government operating balance and net government debt²³



The strengthening economy, reduced unemployment and increased rural incomes are projected to lead to steady growth in household consumption over the next few years. However, we expect the weakness in the housing market to persist over the medium term, as net migration is projected to remain weak (albeit returning to positive levels – Figure 27), and as interest rates are projected to rise. The limited gains in house prices projected, and the already-high stock of household debt, are expected to temper rapid consumption and residential investment growth. The household savings rate is projected to remain at roughly its current low levels.

We expect business investment growth to pick up and remain fairly strong over the medium term, as firms invest in capacity to meet the increased demand for their products.

Figure 27
Net immigration, long-term departures and arrivals



The recovery in the primary sector is also likely to see increased investment in processing capacity, especially in the forestry industry where the supply of logs will increase dramatically over the next few years.

Steady consumption growth and strong investment growth is reflected in fairly robust projected growth of imports over the next two to three years as a whole, with a continuation of the trend rise in the import penetration ratio evident for the past two decades. Despite the exchange rate remaining low for the past two years or so (albeit with less passthrough into domestic import prices than historical experience might have suggested), little effect on the penetration ratio has been evident thus far. Over the next few quarters (and abstracting from the frigate import in the December quarter), however, we expect some softening in import growth. This mainly reflects that Y2K is no longer a motivation for computer (as well as other) imports, and the tailing-off of the step-up in car imports following the removal of tariffs.

We anticipate that strong export growth and near-term softening of import growth will lead to a marked reduction in the current account deficit over the coming year. We also expect some contribution to the reduction in the deficit from a rise in the world prices of New Zealand commodity exports with trading-partner growth, and from some unwinding of the rise in international oil prices through last year. Over most of the projection period, we project the current account deficit to run at around 5 percent of GDP, a rather smaller deficit than has prevailed recently.

²³ Historical source: The Treasury. Adjusted by the RBNZ over the projection period.

Medium-term inflationary pressure and monetary conditions projection

The overall growth projection discussed above is close to the anticipated rate of expansion of the economy's supply capacity over this calendar year. As explained in the previous chapter, there is evidence that part of the strong growth in the second half of last year was fairly short-lived, and indicator information for the first few months of this year suggests rather milder growth rates currently. We project the rate of potential output growth to pick up to about 3 percent per annum, as a return to net immigration and a gradually rising participation rate expand the labour force, and as strong business investment and ongoing technological improvements boost productivity.

Reflecting these projections for actual and potential growth, the mildly positive output gap we see currently is not expected to rise materially over the coming year. This is consistent with the leading indicators of the output gap shown in Box 1 in the previous chapter. Further out, the output gap is projected to close gradually, reflecting projected growth running slightly below the potential rate (which, as noted, itself rises a little through the period).

This expected gradual slowing of growth and closure of the positive output gap is conditional on a projected continued tightening of monetary conditions. Based on the information available at this stage, it seems likely that domestic inflation pressure would rise persistently in the absence of the tightening. Indeed, given our assessment, discussed in the previous chapter, that a positive output gap has emerged in the economy a little faster than anticipated in the March *Statement*, the risk of domestic inflation rising over the medium term now seems greater than in March.

However, we do not currently see demand and inflationary pressures over the projection period as likely to become extreme. In particular, we project that those pressures will be rather weaker than in the mid-1990s, suggesting that, given the price stability target, less monetary restraint than seen in that period is likely to be required over the next two to three years. Currently-projected peaks in interest rates and in the exchange rate are rather lower than the peaks seen in the previous upswing.

Based on the assessment discussed in this and the previous chapter, 90-day interest rates are assumed to continue rising,

peaking at around 7½ percent within the projection period, and reaching that level by the first half of calendar 2001. This rise in interest rates is projected to put a mild degree of restraint on demand, particularly on household expenditure. The TWI is assumed to appreciate gradually through the period, reaching a level of around 59 by the end of 2001, and gradually removing this source of stimulus from the tradeables sector. This assumed TWI track is similar to the March *Statement* track, while the 90-day interest rate track is 25 to 50 basis points higher on average through the period.

The milder projected appreciation of the TWI over the projection period compared to the 1993-96 appreciation is consistent with the quite different outlook for interest rates: the much smaller interest rate differential that exists currently between New Zealand and overseas interest rates is expected to persist. Forward interest rate contracts currently suggest an expected peak in US short-term interest rates of around 7 percent in this cycle, some 100 basis points higher than the previous peak in the US. As noted, we currently project New Zealand short-term interest rates to peak a little higher than this, but still at least 250 basis points lower than the previous peak in New Zealand. Overall, the peak interest rate differential is currently expected to be some 350 basis points lower than in the previous upswing.

Conditional on the assessment in this and the previous chapter, and on the assumed monetary conditions track, our inflation projection shows annual CPI inflation running at between 1½ and 2 percent per annum over the next three years or so – close to the midpoint of the target range, and consistent with price stability. Over the early part of the projection period (the first year or so), the CPI inflation projection is also influenced by import price movements, and in particular, an expected gradual fall in international oil prices and the appreciation of the exchange rate. International oil prices have already fallen substantially from their highs reached last year, and forward prices indicate an expectation in the commodity markets that oil prices will continue to fall gradually.

The Bank's interpretation of recent developments discussed in Chapter 2, and the medium-term projection discussed in this chapter, are obviously subject to some risk. The next chapter elaborates on the important risks to the inflation outlook apparent at this point, along with the more important policy issues relevant to the Bank's OCR decision supported by this *Statement*.

4 Policy issues

Policy implementation

Recent economic developments have given the Bank confidence that the OCR rises since November 1999 have been justified. Monetary conditions have become less stimulatory as the economy has gathered momentum. Our projections suggest that the economy will continue to expand at a rate that will place modest upward pressure on inflation over much of the projection period. For this reason, monetary conditions are projected to continue to tighten, to ensure that inflation remains low and reasonably stable, and that the growth is prolonged.

However, many of the uncertainties outlined in March regarding the medium-term outlook remain salient, and will be so for some time yet. In broad terms, these uncertainties include assessments of:

- the momentum in the domestic economy;
- likely developments in the global economy, including equity prices in our trading partners;
- exchange rate developments and their implications for monetary policy;
- the degree of excess demand in the economy;
- the degree of stimulus or restraint monetary conditions are providing the economy; and
- how best to balance interest rate and inflation variability.

Although recent OCR moves appear timely, the future path for monetary policy remains open to many influences. In addition, given a particular economic outlook and the risks associated with it, there are a variety of paths for short-term interest rates consistent with the maintenance of medium-term price stability.

Monetary policy decisions thus boil down to deciding how much to move the OCR and when. Some relevant considerations include the risk of breaches of the inflation target range, the frequency and average size of OCR moves, and the desirability of policy evolving in a consistent and reasonably predictable direction. A very important factor in these considerations is uncertainty, which tends to imply caution. However, the desire to be cautious must be balanced against the risk of making policy adjustments 'too little, too late', and hence accentuating business cycle fluctuations rather than moderating them.

The Bank makes policy decisions adaptively, reflecting the uncertain world. As new information comes to hand, the Bank periodically reassesses the appropriateness of the OCR setting for maintaining price stability. This implementation strategy was outlined in February 1999 when the move to an OCR regime was first announced, with the details reproduced in Box 2 (overleaf).

The prospect of more subdued inflation pressure

Our central projection features a stronger performance of the externally-exposed sectors of the economy (ie those exporting or competing with imports) compared to those sectors more reliant on domestic spending (ie residential investment and consumption). Such an outlook implies an expansion in net exports and a reasonably quick decline in the current account deficit. Key factors leading to this view include the robust trading-partner outlook and current stimulus from the exchange rate, at the same time as a reduced household appetite for debt, a slowdown in residential construction following the surge in 1999, and less domestic spending 'catch-up.'

The implications of such a pattern of growth for inflationary pressure are unclear at this stage. As seen in the United States at present and New Zealand in the mid-1990s, household wealth perceptions – due to strongly rising domestic asset prices – can be a key component in sustaining demand and persistent consumer price inflation pressures. However, as noted in Chapter 2, New Zealand asset prices, at present at least, are showing little movement. If, as the current upswing unfolds, asset price inflation remains subdued, those persistent inflation pressures may be relatively weak, thus warranting less monetary tightening than otherwise.

In addition, this projection includes a robust international growth performance. As Figure 28 (overleaf) shows, *Consensus* projections for trading partner economic growth over calendar 2000 have been steadily increasing since early 1999. The question remains, will *Consensus* predictions overshoot the mark, and if so, when?

Box 2 Monetary policy implementation: changes to operating procedures

Extract from press release, Reserve Bank of New Zealand,
8 February 1999

The Official Cash Rate will be reviewed at approximately six-weekly intervals. Six-weekly review is broadly in line with the practice in other central banks, where key policy-making bodies typically meet either monthly (for example, Australia, the United Kingdom) or six-weekly (the United States).

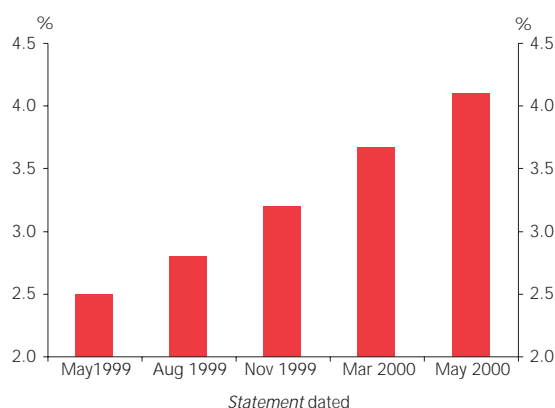
Full economic and inflation projections will continue to be done each quarter. These will, as at present, be published in our *Monetary Policy Statements*. In each *Monetary Policy Statement*, both the Official Cash Rate for the coming period and the date of the next review will be announced – that review will be approximately halfway to the next *Monetary Policy Statement*.

Any change at one of the intra-quarter reviews will be announced in an explanatory statement, which will be released at 9am on a Wednesday. At this stage, we envisage that the quarterly reviews, with the transparency and discipline that the formal projections process helps provide, will be the main opportunity for substantial changes in the stance of policy.

However, the intra-quarter review will allow us to react to major surprises in the data that have come out since the previous published projections. It will also, for example, give us the ability to adjust the Official Cash Rate gradually if we are uncertain about the strength of emerging trends, the durability of recent exchange rate changes, or the like.

Adjustments to the Official Cash Rate will be made in multiples of 25 basis points. The Reserve Bank will, of course, reserve the right to make unscheduled adjustments to the Official Cash Rate, but this facility would be used only in clearly exceptional circumstances.

Figure 28
Consensus projections of trading-partner growth for calendar 2000



On a number of occasions, the Bank has cited the risk of a sharp correction in United States equity prices damaging prospects for the global trade environment and New Zealand exports. Given the recent gyrations in equity prices, some caution surrounding the persistently upgraded *Consensus* view on trading-partner economic performance may be called for. In addition, signs of slower growth are beginning to emerge in Australia and considerable uncertainty exists about how

the imminent introduction of GST and the Sydney Olympics are affecting current and expected activity levels. Finally, in the absence of a 'self-induced' slowdown in these economies, the monetary authorities there may well need to apply more monetary restraint to contain emerging inflation pressures.

The risk of higher inflation and a repeat of history

The reasonably benign inflation outlook in this projection remains conjecture. In fact, the evidence to date suggests that the current expansion is unfolding in a fashion rather similar to the early-1990s experience. Similarities exist with regard to the pace of the recovery, domestic and net-export spending patterns, and the level of real monetary conditions currently. In addition, the economy has recovered from a shorter recession, with less spare capacity in the labour force in particular, and with fiscal policy not likely to provide the same restraint on demand as it did in the early-1990s. Net migration, though still negative, appears to have turned around, and in the past, cyclical upturns in net immigration

have coincided with sizeable economic upswings. In this regard, it may not be just the *level* of net immigration that matters for demand pressures, but also the swings. For example, if current building intentions were based on, say, continued net emigration of 10,000 people per annum, and in the event only a net 5,000 people departed, building activity would have to increase so as to meet the unexpected demand.

Meanwhile, the trade-weighted exchange rate has remained at a low level, adding demand stimulus to the export and import-competing sectors of the economy. As always, what lies behind the low exchange rate must be considered when assessing the implications for inflation pressures. For example, to the extent that the 1998 decline in the exchange rate in part offset the fall in the world prices of New Zealand's commodity exports and the negative impact of the Asian financial crisis, monetary policy did not have to respond. However, as the domestic economy recovers, along with the growth in New Zealand's trading partners and commodity prices, a continued low exchange rate may eventually necessitate higher-than-otherwise interest rates.

A balanced inflation outlook

Given the low inflation environment at present, and the many uncertainties that exist with regard to the outlook, we see the risks to the inflation outlook as being roughly balanced. This view, of course, is predicated on a projected modest tightening in monetary conditions beyond this point.

Just as there are risks of lower-than-expected inflation, it is also clear that risks of higher-than-expected inflation exist. Assessed with the benefit of hindsight, monetary policy responded too slowly to the recovery in the early 1990s, leading to an eventual build-up of considerable inflation pressure. The Bank certainly wants to avoid a repeat of these events.

Equally, though, we do not want to 'fight the last battle.' The OCR moves since November have been substantial and quite rapid. The magnitude of the effects of interest rate rises on domestic spending – given the greater household debt-load in this upswing – is unclear and has not yet had time to become apparent. Moreover, given the volatile nature of economic data in a small, open economy, it seems sensible for policy not to be unduly reactive to surprises in single pieces of data. As usual, the Bank will remain vigilant and respond to any changing inflation pressures.

Appendix 1

Chronology

Listed below are recent events of particular relevance to monetary policy and inflation.

2000

- 15 March: The Reserve Bank released its twenty-fifth *Monetary Policy Statement*. The news release accompanying the *Statement* is reproduced in Appendix 2.
- 27 March: Production GDP figures were released showing that the New Zealand economy grew 2.2 percent in the December 1999 quarter.
- 17 April: CPI statistics were released for the March quarter, showing that the CPI increased by 0.7 percent over the quarter. The price stability target measure, as calculated by Statistics New Zealand, was 1.7 percent for the year to March 2000.
- 19 April: The Reserve Bank raised the Official Cash Rate by 25 basis points to 6 percent. The accompanying news release is reproduced in Appendix 2.

Appendix 2

Reserve Bank statements on monetary policy

The following are reports or texts of official statements on monetary policy issues made by the Bank during the period under review in this *Monetary Policy Statement*.

OCR raised to 5.75 percent

15 March 2000

The Reserve Bank today increased the Official Cash Rate (OCR) from 5.25 percent to 5.75 percent with the release of the March 2000 *Monetary Policy Statement*.

Reserve Bank Governor Don Brash said: "Even after today's adjustment to the OCR, we see monetary conditions as providing stimulus to the economy, though less than previously. Today's announcement reflects the fact that the economy has been growing since the middle of 1998, to the point where, in our judgement, the spare capacity evident over the past two years or so has been almost completely used up.

"Inflation presents no immediate threat. Indeed, recent surprisingly low inflation data raise the possibility that the onset of inflationary pressures may be weaker, or more delayed, than earlier experience would suggest. But the downward pressure on inflation from surplus productive capacity in the economy has now all but gone. Were monetary conditions to remain as stimulatory as in recent months, the risk of inflation becoming a problem would increase, and potentially require more marked increases in the OCR later on.

"In that sense, today's action is fully consistent with the recent amendment to the Policy Targets Agreement, which requires the Bank to "avoid unnecessary instability in output, interest rates and the exchange rate". In other words, moderate action now reduces the risk of having to take more vigorous action later.

"Looking further ahead, there is considerable uncertainty as to how much the strong economic growth that we expect – supported by robust demand from our trading partners, a low exchange rate, and a recovery from two years of drought – will eventually flow through into inflationary pressure. Our current projections suggest that monetary policy will need to restrain demand somewhat over the next two years, although less so than at this stage of previous business cycles. Whether we will actually need more or less tightening than that depends on how the economy develops compared to what we now project.

"One important issue will be how the exchange rate evolves, *and why*. If the exchange rate remains at a low level because of weak commodity prices, for example, there may be no need to adjust monetary policy. But if the exchange rate remains low despite improving commodity prices, then overall demand pressures may grow, and may require more tightening in monetary policy than now projected. At the moment the Bank is reserving its judgement on this," Dr Brash concluded.

OCR set at 6 percent

19 April 2000

The Reserve Bank today increased the Official Cash Rate (OCR) by 0.25 percent to 6 percent.

This increase came with the Reserve Bank's scheduled April OCR review.

Reserve Bank Governor Don Brash said today, "The risks of rising inflation are gradually increasing. The New Zealand economy has now been growing robustly for almost two years, supported by trading partner economic growth and stimulatory

monetary conditions. Locally, the December quarter GDP numbers confirmed that the economy grew strongly in the second half of last year. That growth was broadly based, although boosted by the agricultural sector's recovery from two serious droughts.

"Taken as a whole, recent indications are that growth prospects here and abroad remain at least as strong as we expected last month, and that the economy's surplus capacity appears to have been more or less exhausted.

"The Reserve Bank has been gradually raising the OCR over the last six months or so. These moves have been consistent with our own projections – reaffirmed most recently in the March *Monetary Policy Statement* – suggesting that firmer monetary conditions will be needed if we are to give ourselves the best chance of solid growth continuing without inflation problems emerging. Today's move should be seen in this light.

"Sharemarkets internationally have been quite volatile. At this stage, financial markets appear to have taken the view that global growth and inflation prospects have not been materially adversely affected and continue to expect further increases in official interest rates in most major economies over the next few months. But naturally we will continue to monitor these international markets closely," Dr Brash concluded.

The next scheduled OCR announcement will be on 17 May with the release of the May *Monetary Policy Statement*.

Appendix 3: Summary Tables¹

Table A

CPI inflation projections and monetary conditions

(CPI is in percentage changes)

	CPI* Annual	TWI	90-day bank bill rate	MCI	
				Nominal	Real
1996	Mar.	64.2	8.7	750	800
	Jun.	64.6	9.7	900	900
	Sep.	65.6	10.0	1000	1025
	Dec.	67.1	8.9	1000	1000
1997	Mar.	68.4	7.5	900	975
	Jun.	68.0	7.2	900	950
	Sep.	64.8	8.1	750	775
	Dec.	63.9	7.9	650	700
1998	Mar.	61.2	9.0	550	600
	Jun.	58.5	9.1	325	400
	Sep.	57.1	6.8	-25	25
	Dec.	56.0	4.6	-325	-225
1999	Mar.	57.6	4.5	-200	-125
	Jun.	59.1	4.7	-50	50
	Sep.	56.7	4.8	-250	-150
	Dec.	54.4	5.4	-400	-350
2000	First Half Average	54.5	6.2	-300	-250
	Second Half Average	56.3	7.0	-75	-25
2001	First Half Average	57.2	7.4	50	125
	Second Half Average	57.8	7.5	125	175
2002	First Half Average	58.2	7.5	150	200
	Second Half Average	58.6	7.4	175	225

⁽¹⁾ Notes for these tables are in Appendix 4

* The target measure shown is annual underlying inflation until the September quarter 1997, annual CPIX inflation from the December 1997 quarter until the June 1999 quarter, and annual CPI inflation thereafter (adjusted by SNZ to exclude interest and section prices from the September 1999 quarter to the June 2000 quarter).

Table B

World outlook

(Annual average percentage change, unless specified otherwise)

March year	Actuals										Projections		
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003			
World GDP	3.5	4.4	4.2	4.4	3.2	1.0	4.0	4.0	3.4	3.5			
World CPI inflation	1.9	2.2	2.4	2.6	2.6	1.4	1.4	1.9	1.9	1.9			
Domestic													
Import prices	-2.7	-1.8	-0.7	-3.4	0.8	3.7	3.1	-0.5	-1.8	-0.1			
Export prices	-1.2	-2.1	-2.8	-4.2	0.1	3.3	3.8	0.0	-1.7	-0.2			
Terms of trade	1.5	-0.3	-2.2	-0.8	-0.6	-0.5	0.8	0.5	0.0	-0.1			
March quarter													
World 90-day rate (level, %)	3.7	6.5	5.7	5.5	5.5	4.7	5.9	6.6	6.2	5.8			
World bond rate (level, %)	6.2	8.0	6.4	6.8	5.6	5.1	6.6	6.3	6.4	6.3			

e = estimate

Table C

Composition of real GDP growth

(Annual average percentage change, unless specified otherwise)

March year	Actuals							Projections			
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003	
Final consumption expenditure											
Private	3.4	6.0	4.1	3.7	3.0	1.4	3.2	3.1	2.3	2.9	
Public authority	-1.1	-0.7	3.3	2.5	5.3	0.0	7.9	-0.4	0.7	0.5	
Total	2.4	4.6	3.9	3.5	3.4	1.1	4.1	2.4	2.0	2.4	
Gross fixed capital formation											
Market sector:											
Residential	17.1	12.2	-0.1	4.0	1.8	-15.1	18.0	-8.1	3.2	6.3	
Business	22.5	17.6	14.2	4.6	0.8	4.6	6.6	13.1	6.5	4.0	
Non-market government sector	-3.9	28.4	2.3	32.4	12.7	-9.5	11.6	-2.2	5.4	9.1	
Total	18.2	17.2	9.6	7.0	2.4	-1.3	9.2	7.1	5.9	4.9	
Final domestic expenditure	5.1	7.0	5.1	4.3	3.2	0.6	5.2	3.5	2.9	3.0	
Stockbuilding ⁽¹⁾	1.1	0.0	-0.7	-0.3	0.1	-1.0	1.5	-0.2	-0.2	-0.1	
Gross national expenditure	6.2	6.9	4.3	3.9	3.3	-0.4	6.7	3.3	2.7	3.0	
Exports of goods and services	7.9	8.4	2.6	3.7	3.9	2.2	5.9	7.3	5.5	5.0	
Imports of goods and services	8.0	14.3	7.4	7.2	4.8	3.3	11.0	2.4	5.2	5.7	
Expenditure on GDP	6.2	5.3	2.9	2.7	3.0	-0.8	4.9	5.0	2.7	2.7	
GDP (production)	6.3	5.4	3.8	2.6	2.0	0.0	4.3	4.6	2.7	2.6	
GDP (production, March qtr to March qtr)	6.9	4.6	3.8	1.2	1.1	1.7	5.1	3.5	2.6	2.6	
Potential output	2.8	3.6	3.7	3.3	2.8	2.6	2.6	2.8	3.1	3.2	
Output gap (% of potential GDP, year average)	0.3	2.0	2.0	1.4	0.6	-2.0	-0.4	1.3	0.9	0.2	

e = estimate

⁽¹⁾ Percentage point contribution to the growth rate of GDP

Table D

Household income and consumption

(Annual average percentage change)

March year	Actuals							Projections			
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003	
Compensation of employees	4.4	6.4	5.9	5.6	3.2	0.2	4.2	6.4	3.7	4.2	
Entrepreneurial income	13.5	8.7	11.3	1.6	-0.6	4.8	5.1	7.1	3.9	4.2	
Other income	3.1	1.8	7.3	4.2	2.6	1.7	4.7	6.6	3.8	4.2	
Total income	5.2	5.4	7.1	4.6	2.5	1.3	4.5	6.6	3.8	4.2	
Less income tax	6.0	7.2	6.7	1.9	0.6	-4.1	4.5	10.2	3.8	4.2	
Nominal disposable income	5.0	4.8	7.2	5.3	2.9	2.6	4.5	5.7	3.8	4.2	
Consumption deflator	1.7	2.0	2.8	1.6	1.2	2.0	1.3	1.7	1.7	1.8	
Real disposable income	3.2	2.8	4.3	3.7	1.7	0.6	3.2	4.0	2.0	2.3	
Real household consumption	3.2	6.0	4.0	3.7	3.0	1.4	3.3	3.2	2.2	2.8	
Household savings rate ⁽¹⁾	3.3	0.3	0.6	0.6	-0.7	-1.5	-1.6	-0.8	-0.9	-1.4	

e = estimate

⁽¹⁾ Percentage of disposable income

Table E
Fiscal accounts
(\$billion)

June year	Actuals					Projections				
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003
Revenue										
Direct taxation	17.6	19.8	21.3	20.5	21.3	20.3	21.8	23.5	24.7	25.9
Indirect taxation	10.1	10.4	11.0	11.4	11.7	11.9	12.2	12.6	13.1	13.7
Non-tax revenue	2.5	3.4	2.8	2.9	2.6	4.2	2.4	2.2	2.3	2.4
Total revenue	30.2	33.6	35.1	34.8	35.6	36.4	36.5	38.3	40.0	42.0
Total expenses	29.6	30.4	31.7	33.0	34.2	35.8	36.3	37.7	38.8	40.2
Revenue less expenses	0.5	3.2	3.3	1.8	1.4	0.5	0.2	0.6	1.2	1.8
Net surplus attributable to SOEs and Crown entities	0.2	-0.6	0.0	0.1	1.2	1.2	0.5	0.7	0.6	0.7
Operating balance (% of nominal expenditure GDP)	0.8	2.7	3.3	1.9	2.5	1.8	0.7	1.2	1.9	2.5
	0.9	3.1	3.6	2.0	2.6	1.8	0.6	1.1	1.6	2.0
Net public debt (as at June 30) (% of nominal expenditure GDP)	35.4	32.6	28.6	25.3	24.1	21.7	22.4	22.5	22.2	22.1
	43.0	37.0	31.0	26.4	24.5	21.7	21.3	20.2	19.2	18.3

e = estimate

Table F

Investment

(Annual average percentage change)

March year	Actuals							Projections		
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003
Plant and machinery (excluding computers)	30.3	18.6	13.6	3.0	9.2	4.5	12.3	12.8	7.7	4.8
Transport equipment	29.2	12.7	8.8	-2.7	1.8	-3.4	6.1	13.5	4.8	3.1
Commercial buildings	17.2	20.8	5.5	13.5	-21.9	-1.2	0.7	7.7	4.5	0.9
Other	29.3	22.5	23.6	-3.7	-5.1	14.0	-3.0	17.3	3.3	2.9
	-5.1	1.4	19.1	12.5	5.5	0.2	-3.1	15.9	6.7	4.6
Market sector business investment (excluding computers)	22.5	17.6	14.2	4.6	0.8	4.6	6.6	13.1	6.5	4.0
	21.5	14.5	11.9	1.9	-4.0	0.6	2.1	13.6	4.7	2.9
Market sector residential investment	17.1	12.2	-0.1	4.0	1.8	-15.1	18.0	-8.1	3.2	6.3
Total market sector investment	20.9	16.1	10.4	4.4	1.0	-0.2	8.9	8.4	5.9	4.4
Government (non-market) investment	-3.9	28.4	2.3	32.4	12.7	-9.5	11.6	-2.2	5.4	9.1
Total investment (excluding computers)	18.2	17.2	9.6	7.0	2.4	-1.3	9.2	7.1	5.9	4.9
	17.4	14.9	7.6	4.8	-1.2	-5.0	6.0	6.5	4.4	4.2

e = estimate

Table G

Trade volumes and the current account

March year	Actuals							Projections				
	1994	1995	1996	1997	1998	1999	2000e	2001	2002	2003		
Trade volumes (Annual average percentage change)												
Exports of goods	6.9	7.2	0.8	6.6	6.7	-0.6	4.2	6.8	6.3	5.4		
Exports of services	11.3	12.5	8.1	-4.9	-4.9	12.2	11.4	9.0	3.3	3.8		
Total exports	7.9	8.4	2.6	3.7	3.9	2.2	5.9	7.3	5.5	5.0		
Imports of goods	12.1	15.6	7.1	7.7	5.4	3.5	14.5	2.2	4.8	5.6		
Imports of services	-5.3	9.1	8.2	5.3	2.5	2.5	-4.3	3.5	7.2	6.0		
Total imports	8.0	14.3	7.4	7.2	4.8	3.3	11.0	2.4	5.2	5.7		
Current account (\$ billion March year annual total)												
Merchandise trade balance	3.1	2.1	0.9	1.0	1.4	1.5	-0.7	2.2	3.0	3.2		
Services balance	-0.9	-0.6	-0.1	-0.5	-1.1	-1.2	-0.6	-0.5	-0.7	-1.0		
Investment income balance	-4.5	-6.0	-6.0	-7.3	-6.4	-6.4	-7.4	-8.1	-8.5	-9.1		
Transfers balance	0.4	0.3	0.3	0.8	0.6	0.5	0.4	0.4	0.5	0.5		
Current account⁽¹⁾	-1.9	-4.1	-5.0	-6.0	-5.5	-5.7	-8.3	-6.0	-5.8	-6.4		
(% of nominal production GDP)												
	-2.3	-4.7	-5.5	-6.3	-5.6	-5.8	-8.0	-5.4	-5.0	-5.4		

e = estimate

⁽¹⁾ Errors in adding up the current account are due to rounding

Table H

Labour market

March year	Actuals							Projections		
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Change in labour force:										
Natural increase (000's)	23.4	24.6	25.2	19.0	19.0	18.9	17.1	18.7	19.7	20.3
Net migration (000's)	6.5	9.2	13.0	9.1	-0.2	-6.4	-5.3	2.0	5.9	7.3
Increase in participation (000's)	28.2	9.4	30.5	0.4	-4.4	-2.1	-2.6	20.3	9.7	3.5
Total change in labour force (000's)	58.1	43.2	68.7	28.5	14.4	10.4	9.3	41.1	35.4	31.1
March quarter:										
Population of working age (000's)										
Labour force participation rate (%)	2671	2723	2781	2824	2853	2872	2890	2921	2960	3001
Total labour force (000's)	64.3	64.7	65.8	65.8	65.6	65.6	65.5	66.2	66.5	66.6
Total employment (000's)	1718	1761	1830	1858	1872	1883	1892	1933	1969	2000
Annual growth (%)	1555	1639	1711	1731	1732	1741	1766	1822	1859	1886
Unemployment (000's)	4.4	5.4	4.4	1.2	0.0	0.6	1.4	3.2	2.0	1.5
Unemployment rate (s.a.)	163	122	119	127	141	142	127	111	111	114
Annual growth (%)	9.1	6.6	6.2	6.5	7.2	7.2	6.4	5.4	5.3	5.4
Total hours worked	3.8	6.6	4.8	-2.1	-0.6	1.4	-0.1	4.6	1.8	1.4
Annual growth (%)	1.7	-0.4	-0.5	0.9	2.1	0.0	2.3	1.6	0.7	1.1
Labour productivity	1.3	2.1	3.6	4.0	2.6	2.7	2.1	3.2	3.5	3.6
Annual growth (%)										
OES private sector wages										
Annual growth (%)										

Appendix 4

Notes to the tables

CPI	Consumers Price Index
CPIX	Consumers Price Index excluding Credit Services. <i>Consumers Price Index</i> .
TWI	RBNZ. Nominal Trade Weighted Index of the exchange rate. Defined as: A geometrically-weighted index of the New Zealand dollar bilateral exchange rates against the currencies of Australia, Japan, the United States, and the United Kingdom, and against the euro.
90-day rate	RBNZ. Defined as: The interest yield on 90-day bank bills.
Nominal MCI	RBNZ. Defined as: $\{(90\text{day}-r_0) + (1/2)*[\log_n(\text{TWI}) - \log_n(\text{TWI}_0)]*100\}*100 + 1000$ where 90day and TWI are nominal rates and r_0 and TWI_0 are corresponding averages of daily rates for the December 1996 quarter, where $r_0 = 8.91$ and $\text{TWI}_0 = 67.11$.
Real MCI	RBNZ. Defined as: $\{(R90\text{day}-R_0) + (1/2)*[\log_n(\text{RTWI}) - \log_n(\text{RTWI}_0)]*100\}*100 + 1000$ where R90day and RTWI are the estimated real 90day interest rate and the real TWI exchange rate. R90day is calculated as the nominal 90-day rate less the annual (four-quarter) inflation rate in the CPIX prior to June quarter 1999, and less the CPI thereafter, adjusted for interest and section prices for the September 1999 to June 2000 quarters inclusive. RTWI is calculated as the TWI multiplied by New Zealand's GDP deflator (interpolated from annual data) and divided by the trade-weighted average of GDP deflators of our trading partners. R_0 and RTWI_0 are base levels for the December 1996 quarter, where $R_0 = 6.5$ and $\text{RTWI}_0 = 1$ (normalised). All input numbers are rounded to one decimal place.
World GDP	Reserve Bank definition. 14-country index, export weighted. Projections based on <i>Consensus Forecasts</i> . Seasonally adjusted.
World CPI inflation	RBNZ definition and estimate: TWI trading partners' CPI inflation (euro-zone proxied by Germany), weighted by TWI weights. Projections based on <i>Consensus Forecasts</i> .
Import prices	Domestic currency import prices. <i>Overseas Trade Indexes</i> .
Export prices	Domestic currency export prices. <i>Overseas Trade Indexes</i> .
Terms of trade	Constructed using domestic-currency export and import prices. <i>Overseas Trade Indexes</i> .
World 90-day rate	RBNZ definition and estimate: 80:20 weighted combination of US and Australian 90-day interest rates. Projections based on <i>Consensus Forecasts</i> .
World bond rate	RBNZ definition and estimate: 80:20 weighted combination of US and Australian 10-year interest rates. Projections based on <i>Consensus Forecasts</i> .
Private consumption	<i>System of National Accounts</i> .
Public authority consumption	<i>System of National Accounts</i> .
Residential investment	RBNZ definition: Private sector and government market sector residential investment. <i>System of National Accounts</i> .
Business investment	RBNZ definition: Total investment less the sum of non-market investment and residential investment. <i>System of National Accounts</i> .
Non-market investment	RBNZ definition: The <i>System of National Accounts</i> annual nominal government non-market/market investment ratio is interpolated into quarterly data. This ratio is used to split quarterly expenditure GDP Government Investment into market and non-market components.

Final domestic expenditure	RBNZ definition: The sum of total consumption and total investment. <i>System of National Accounts.</i>
Stockbuilding	Percentage point contribution to the growth of GDP by stocks. <i>System of National Accounts.</i>
Gross national expenditure	Final domestic expenditure plus stocks. <i>System of National Accounts.</i>
Export of goods and services	<i>System of National Accounts.</i>
Imports of goods and services	<i>System of National Accounts.</i>
GDP (production)	<i>System of National Accounts.</i>
Potential output	RBNZ definition and estimate. Refer to: Conway, P. and B. Hunt, (1997), 'Estimating Potential Output: a semi-structural approach', <i>Reserve Bank of New Zealand Discussion Paper, G97/9.</i>
Output gap	RBNZ definition and estimate: The percentage difference between real GDP (production, seasonally adjusted) and potential output GDP.
Compensation of employees	<i>Household Income and Outlay Accounts.</i>
Other income	<i>Household Income and Outlay Accounts.</i>
Nominal disposable income	<i>Household Income and Outlay Accounts.</i>
Consumption deflator	<i>System of National Accounts.</i>
Real disposable income	<i>Household Income and Outlay Accounts.</i>
Real household consumption	<i>System of National Accounts.</i>
Household savings rate	<i>Household Income and Outlay Accounts.</i>
Direct taxation	Historical source: The Treasury. Defined as total personal taxation, total company taxation and total withholding taxes. Adjusted by the RBNZ over the projection period.
Indirect taxation	Historical source: The Treasury. Adjusted by the RBNZ over the projection period.
Non-tax revenue	Historical source: The Treasury. Adjusted by the RBNZ over the projection period.
Total expenses	Historical source: The Treasury. Adjusted by the RBNZ over the projection period.
Net surplus attributable to SOEs and Crown entities	The Treasury.
Government operating balance	Historical source: The Treasury. Adjusted by the RBNZ over the projection period.
Net public debt	Historical source: The Treasury. Adjusted by the RBNZ over the projection period.
Plant and machinery investment	RBNZ definition: Market sector plant and machinery investment. <i>System of National Accounts.</i>
Plant and machinery investment (excluding computers)	RBNZ definition: Market sector plant and machinery investment excluding computer investment. <i>System of National Accounts.</i>
Transport equipment	RBNZ definition: Market sector transport equipment investment. <i>System of National Accounts.</i>
Commercial buildings	RBNZ definition: Market sector non-residential building investment. <i>System of National Accounts.</i>

Other investment	RBNZ definition: Market sector other construction and land improvement investment. <i>System of National Accounts.</i>
Total market investment	RBNZ definition: The sum of total business investment and total residential investment. <i>System of National Accounts.</i>
Total investment	<i>System of National Accounts.</i>
Total investment (excluding computers)	Total investment less computer investment. <i>System of National Accounts.</i>
Export of goods	<i>System of National Accounts.</i>
Export of services	<i>System of National Accounts.</i>
Import of goods	<i>System of National Accounts.</i>
Import of services	<i>System of National Accounts.</i>
Merchandise trade balance	<i>Balance of Payments.</i>
Services balances	<i>Balance of Payments.</i>
Investment income balance	<i>Balance of Payments.</i>
Transfers balance	<i>Balance of Payments.</i>
Current account balance	<i>Balance of Payments.</i>
Natural increase	Defined as the change in the population of working age minus net migration.
Net migration	Net arrivals of working age (15-64). <i>External Migration.</i>
Participation rate	<i>Household Labour Force Survey.</i>
Labour force	<i>Household Labour Force Survey.</i>
Total employment	<i>Household Labour Force Survey.</i>
Unemployment rate	<i>Household Labour Force Survey.</i>
Total hours worked	<i>Household Labour Force Survey.</i>
Labour productivity	Defined as GDP (production) divided by HLFS hours worked. This series is smoothed by taking a four-quarter moving average.
Wages	Private sector ordinary time average hourly earnings. <i>Quarterly Employment Survey.</i>
House prices	Average house price index, Quotable Value New Zealand.
Construction costs (residential)	RBNZ estimate: component of the Housing Group, <i>Consumers Price Index.</i>
Quarterly percentage change	$(\text{Quarter}/\text{Quarter}_{-1}) * 100$
Annual percentage change	$(\text{Quarter}/\text{Quarter}_{-4}) * 100$
Annual average percentage change	$(\text{Year}/\text{Year}_{-1}) * 100$

Source: Unless otherwise specified, all data conform to Statistics New Zealand definitions, and are not seasonally adjusted.