
Monetary Policy Statement¹

May 1998

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

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¹ Projections finalised on 8 May 1998. Text finalised on 20 May 1998.

1. Overview and policy assessment

Monetary conditions have now eased for six consecutive quarters as prospective inflation pressures have gradually dissipated. Monetary conditions are projected to continue to ease until around mid-1999, albeit at a more modest pace than over recent quarters. The more subdued pace of the projected easing reflects the many uncertainties about the path of inflation over the policy-relevant period, especially given the recent significant loosening in monetary conditions. A level of monetary conditions of around 350 on the Monetary Conditions Index (MCI) is now viewed as appropriate, a decrease of 150 points from the index level announced in the March *Economic Projections*.

The Bank's near-term outlook for the economy is similar to that presented in March, including a subdued international outlook, weak world commodity prices, and restrained domestic spending. Developments since March have led to a slightly longer period over which the economy is projected to operate below capacity. Increased business uncertainty, rising costs of capital, and reduced domestic demand appear to be delaying long-term investment plans. Consumer spending intentions also appear to have been set back by rising unemployment, weakening house price expectations, and a high household debt burden.

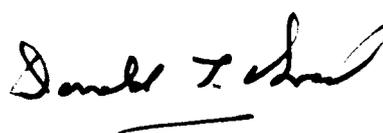
Internationally, the largest adjustment to our projections since March has been the substantial downgrade of growth prospects in Japan. For most of the rest of Asia, the views of international forecasters appear to be converging on a uniformly weak outlook. Outside of the Asian region, European growth prospects have generally improved, while for the United States and Australia, growth is projected to continue at a steady pace. Overall, the near-term outlook for demand in New Zealand's major export markets is expected to be relatively weak, but improving beyond 1998.

Despite the subdued short-term outlook, economic activity is projected to pick up in the second half of 1998 and in 1999. Household disposable income trends remain favourable, with a substantial tax cut bolstering increases

in real wages. The one-off gains from the demutualisation of AMP and the announced tariff cuts are also likely to stimulate consumer spending. Simultaneously, the significant depreciation of the New Zealand dollar has greatly enhanced the competitiveness of New Zealand exports, and will be coupled with a pick-up in international demand in 1999. The expansionary stance of fiscal policy, as well as the easing in the stance of monetary policy over the past year or so, are both expected to boost activity. Overall, economic activity is projected to accelerate over 1999, with the economy expected to have absorbed any spare capacity by late that year.

Several factors, such as the removal of tariffs on motor cars and weaker world oil prices, are expected to temporarily lower measured CPI inflation over 1998 and into 1999. Around mid-1999, inflation is expected to return to its underlying trend as these temporary effects drop out. As the forecast recovery continues, domestic price pressures can also be expected to emerge. It is in anticipation of these factors that monetary conditions are projected to begin tightening, albeit modestly, from mid-1999 onward.

Considerable uncertainties remain with these projections. Stronger inflation could be expected in the short term if importer margins cease declining, or if world prices are not as subdued as expected. Households may also respond more positively than forecast to the forthcoming tax cuts and AMP demutualisation. These uncertainties could be offset by a weaker outlook for the global economy, especially in the United States and Australia, as well as more subdued domestic consumption if the housing market turns down more sharply than allowed for. It is precisely because of uncertainties such as these that monetary policy aims for inflation outcomes near the centre of the target range.



Donald T Brash
Governor

Figure 1
Consumer price inflation
(annual percentage change)

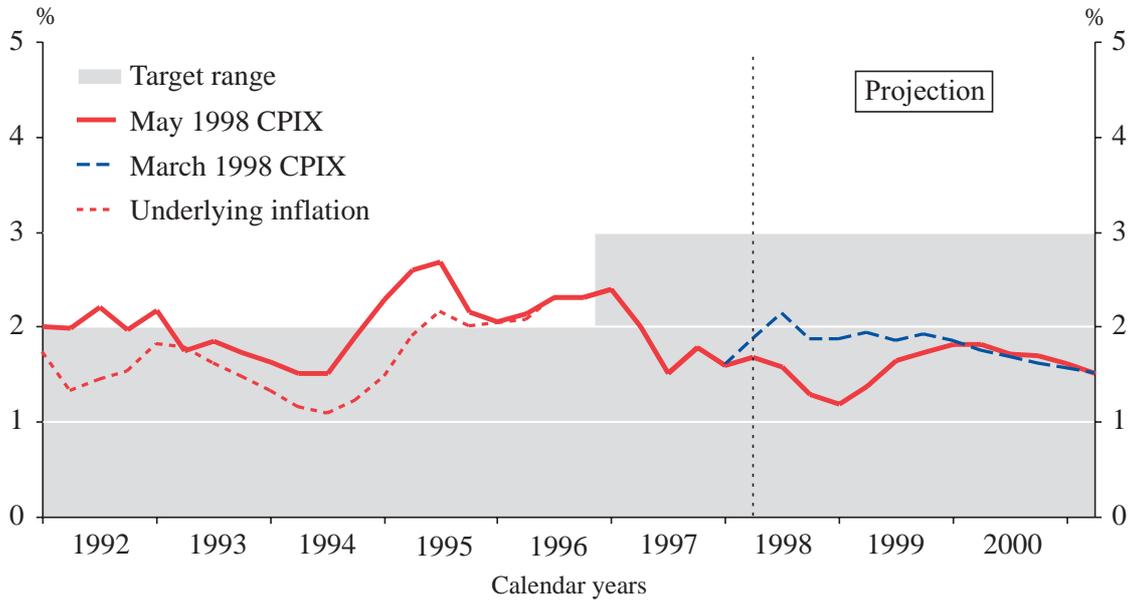


Figure 2
Nominal monetary conditions
(December 1996 quarter average = 1000)

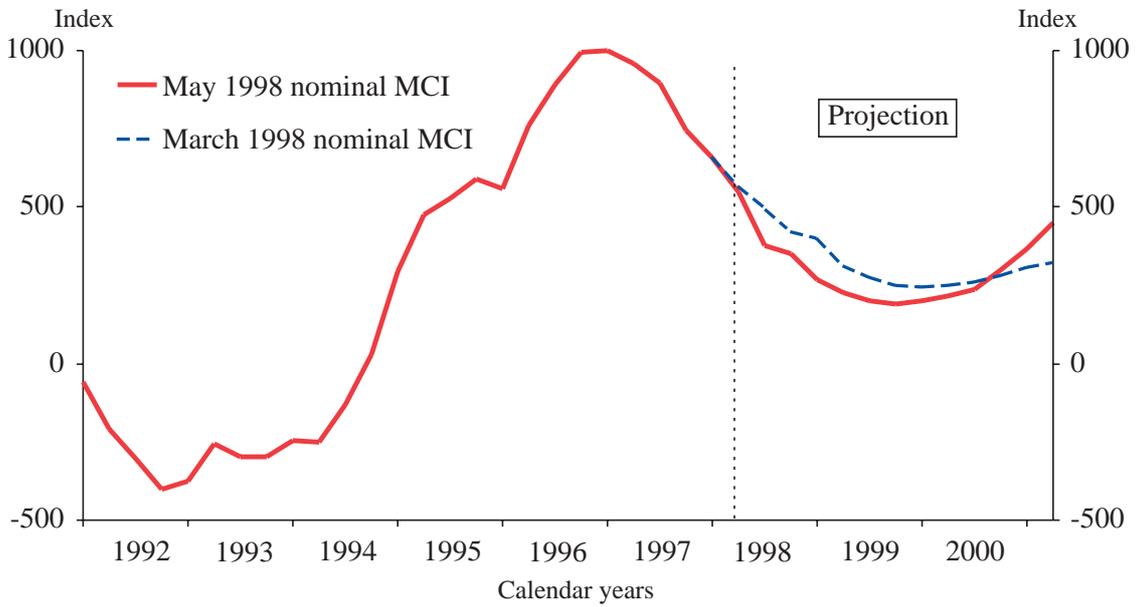


Table 1
Summary of economic projections
(Annual percentage changes, unless specified otherwise)

March year	Actuals	Projections			
	1997	1998e	1999	2000	2001
Price measures					
CPIX	2.0	1.7	1.4	1.8	1.5
Wages	4.0	2.9	2.8	2.9	2.8
Import prices	-4.6	6.5	1.6	-1.9	-1.8
Export prices	-6.3	5.5	4.9	0.1	-2.0
Monetary conditions					
Nominal MCI (March quarter level)	956	550	225	225	450
90-day rate (March quarter level)	7.5	8.9	8.0	6.8	7.5
TWI (March quarter level)	68.4	61.2	58.5	59.8	61.8
Output					
GDP (production)	1.6	2.7	3.0	4.3	2.9
GDP (production, year average)	2.7	2.5	2.2	4.0	3.5
Output gap (year average)	0.8	-0.4	-1.7	-0.3	0.7
Key balances					
Government operating balance (% of GDP)	2.0	2.7	1.4	1.7	2.3
Current account balance (% of GDP)	-4.7	-8.2	-7.8	-5.8	-5.5
Terms of Trade (year average)	-0.9	-1.4	1.7	2.9	0.3
Unemployment rate (year average level)	6.2	6.8	7.5	6.8	5.9
Household savings rate (year average level)	1.4	1.0	3.2	3.5	3.4
World economy					
Industrial production (year average)	2.5	3.7	1.3	3.4	2.8
World CPI inflation	2.3	2.6	1.7	2.2	2.2
Quarterly projections (quarterly percentage changes, unless specified otherwise)					
	Dec-97	Mar-98	Jun-98	Sep-98	Dec-98
CPIX	0.5	0.3	0.2	0.4	0.4
Nominal MCI (level)	656	550	375	350	275
GDP (production, seasonally adjusted)	0.5	0.2	0.4	0.7	1.0

e = estimate

2. Explaining the Monetary Conditions Index

Gauging the overall stance of monetary policy

In New Zealand, monetary policy affects economic activity and inflation through both interest rates and the exchange rate. This is typical of any economy whose financial markets are open to the world. Movements in domestic interest rates and the exchange rate will be closely intertwined and linked to current and prospective interest rate developments abroad. Moreover, with the economy open to international trade, movements in both interest rates and the exchange rate will affect economic activity and inflation.

For many purposes, it is useful to consider the interest rate and exchange rate channels of monetary policy separately. The Bank's projections, for example, are based on explicit tracks for interest rates and the trade-weighted exchange rate (TWI). The particular tracks shown, however, represent just one possible combination out of many that would be consistent with achieving the Bank's inflation target. The particular combination of interest rates and the exchange rate which eventuates is determined in financial markets, both here and abroad, and will reflect new information and shifting assessments regarding the outlook for the New Zealand and world economies.

To help judge whether different combinations of interest rates and the exchange rate are consistent with achieving the inflation target, particularly in the periods between the Bank's published economic projections, it is useful to have a summary measure of the overall stance of monetary policy. This is what the Monetary Conditions Index (MCI) provides. The MCI also provides a means of signalling the Bank's view of the appropriate stance of policy, but without taking a specific view on either interest rates or the exchange rate.

There are a number of possible ways of constructing an MCI. The Bank's MCI weights interest rate and exchange rate movements in proportion to their estimated average effects on spending in the economy. A lower exchange

rate will tend to stimulate export demand and redirect spending away from imports and towards domestic goods and services, while lower interest rates will tend to stimulate consumer and business spending. These effects on spending are regarded as being the most important for changes in the medium-term outlook for inflation. The MCI, therefore, does not take into account the more direct, but essentially short-term, impact on the CPI inflation rate of changes in the exchange rate or interest rates.

The Bank estimates that, on average, a 100 basis point movement in 'real' interest rates has approximately twice the impact on aggregate economic activity as a 1 percent change in the 'real' exchange rate.² On this basis, the MCI is constructed as a 2:1 weighted sum of interest rate and exchange rate changes. This 2:1 ratio is slightly lower than is found in a number of other relatively open economies, such as Australia, Canada, and Sweden, reflecting a relatively smaller sensitivity of activity to exchange rate movements in those countries.

The 2:1 ratio is by no means precise. The econometric estimates that the ratio is based on are subject to uncertainty, and results vary according to the estimation method, sample period, and so on. Moreover, it is recognised that even if the 2:1 ratio is reasonable on average, the correct ratio may well vary over the course of a business cycle.

Concerns have been expressed that the use of the TWI measure of the exchange rate in the MCI may be misleading insofar as it does not allow for the sharp appreciation of the New Zealand dollar against several Asian currencies over the past year. This issue was discussed in the March *Economic Projections*. Of course, the same type of question can be raised with regard to interest rates. For example, the use of the 90-day bank bill rate in the MCI may also be misleading to the extent that a rising

² 'Real' interest rates are defined as nominal interest rates adjusted for recent or expected inflation, while the 'real' exchange rate is defined as the nominal exchange rate adjusted for inflation differentials between New Zealand and its major trading partners.

proportion of household mortgages are now at fixed, rather than floating, rates (see section 6).

Given these sorts of uncertainties about the precision of the weights used in the MCI, it would not be sensible for the Bank to try, throughout each quarter, to hold actual monetary conditions extremely close to the level indicated as appropriate at the beginning of the quarter. Partly for this reason, the Bank has allowed considerable scope for actual monetary conditions to vary in the period between projections.

The evolution of monetary conditions

Since late 1996, monetary conditions, measured in terms of the MCI, have eased progressively as pressures on medium-term inflation have waned. In general, actual monetary conditions have tended to fall below the level indicated in the Bank's quarterly projections as appropriate for meeting the inflation target. On several occasions this has generated tension as markets have tested the Bank's tolerance of deviations, or as the Bank has sought to put the brakes on further easing of conditions.

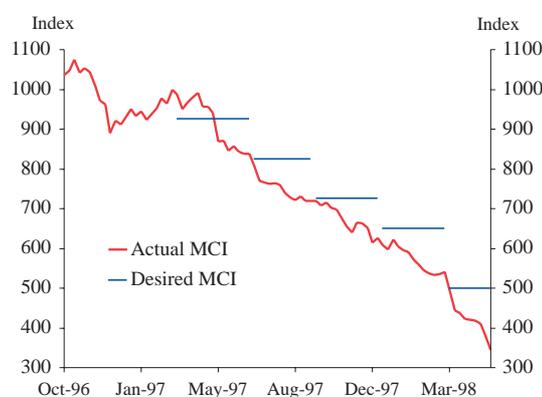
The tendency for financial markets to ease conditions more rapidly than indicated in the Bank's projections stems largely from the fact that financial markets reassess the outlook for the economy and monetary policy on a continuous basis, while the Bank makes a formal reassessment only quarterly. Consequently, markets are inevitably in the business of anticipating the Bank's next policy move. In such circumstances, they will naturally take into account the Bank's own projections of the direction that monetary conditions are likely to be going over time. In addition, markets will adjust interest rates and the exchange rate on the basis of new information on economic developments, well before the Bank formally incorporates this information into its quarterly projections.

Over the past year, new information on New Zealand's external economic environment has led to a progressive shading down of growth

and inflation prospects. Thus, markets have generally anticipated that the next step in monetary policy would be in the direction of easing conditions by more than had previously been indicated. By and large, markets have correctly anticipated how the Bank's projections and policy assessment would be affected by new information. Typically, therefore, the Bank's quarterly resets of desired monetary conditions have involved catching up to where markets have already moved actual monetary conditions (see Figure 3). This tendency for markets to successfully anticipate the Bank's reassessment of appropriate conditions reflects the fact that both the Bank and the markets share essentially the same information, and that the Bank's commitment and approach to inflation targeting are transparent and well understood.

It should also be stressed that although the MCI is useful between projections, it does not obviate the need for projections. The appropriate level of monetary conditions depends on the prospective extent of inflation pressures. These are influenced by short-term interest rates and the exchange rate, but also by a host of other factors. The role of the projections is to take account of all these factors. As these factors lead to a change in prospective inflation pressures, the appropriate level of monetary conditions will also change.

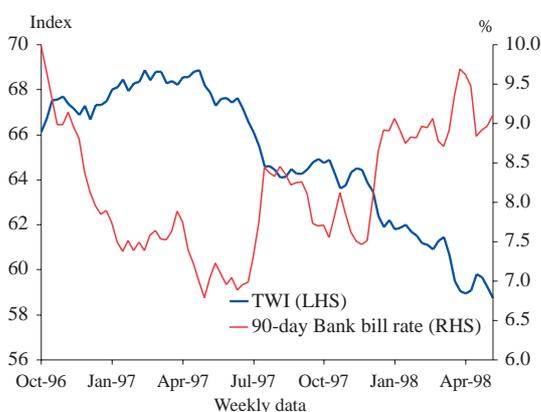
Figure 3
Actual and desired MCI



The mix of interest rates and the exchange rate

Since October 1996, monetary conditions have eased by more than 700 index points. Through the first part of the easing phase, which lasted until mid-1997, most of the 300 point easing of conditions took place through declining short-term interest rates. In the period from early July 1997 through to early May this year, monetary conditions eased by a further 400 index points or so. In contrast with the earlier period, however, the easing of conditions involved a sharp fall in the TWI exchange rate (by over 12 percent) together with a rise in short-term interest rates (by a little over 200 basis points). Thus, for the full period from October 1996 to early May this year, essentially all of the easing of monetary conditions came about through a depreciation of the New Zealand dollar (see Figure 4).

Figure 4
90-day interest rates and the TWI



The fact that a substantial portion of the easing of conditions has been in the form of currency depreciation is perhaps not surprising. Much of the firming of monetary conditions over the 1993-96 period came through a marked appreciation of the New Zealand dollar, to a level well above any reasonable assessment of its longer-term equilibrium value. Sooner or later, a significant reversal of the earlier run-up in the currency was, therefore, almost certain.

A key trigger for the slide in the currency, and the pronounced shift in the mix of conditions since July 1997, appears to have been the emer-

gence of the Asian financial crisis. The sharp deterioration in East Asian economic prospects raised the likelihood of a more pronounced slowing of growth and inflation pressures in the New Zealand economy. This, in turn, implied that monetary conditions in New Zealand were likely to ease sooner and to a greater extent than previously anticipated. This prospect, together with evidence of an increasing current account deficit, raised financial market perceptions of a near-term risk of a significant depreciation of the New Zealand dollar. With open capital markets, the increased currency risk has been reflected in a widening of short-term interest rate differentials versus the United States and Australia. Such a widening in short-term interest rate differentials has been further supported by the Bank's unwillingness to accommodate the speed of easing of monetary conditions implied by the exchange rate depreciation. In due course, however, as markets begin to sense that the New Zealand dollar has troughed, or is less likely to fall much further, interest rate differentials will tend to fall, leading to lower New Zealand interest rates.

The marked shift in the mix of monetary conditions has, in the Bank's view, shown the value of using the MCI. Because monetary policy works through both interest rates and the exchange rate, the Bank could not take a view of the appropriate level of interest rates without also considering what was happening to the exchange rate. Nor could it take a view of the appropriate level of the exchange rate without taking interest rate changes into account. The MCI provides a simple and transparent method for taking both interest rates and the exchange rate into account, while keeping the Bank and financial markets focused on the overall level of conditions relevant to the medium-term inflation outlook.

3. Demand influences

World outlook and exports

Overview

The outlook for world growth remains weak over 1998, although a pick-up is anticipated in 1999 and 2000. Prospects at the regional level continue to be disparate. The Asian economies are expected to struggle, with the outlook for Japan having deteriorated sharply in recent months. In contrast, the United States remains buoyant with growth rates that will keep the economy near capacity. The growth prospects for other key trading partners, such as Europe and Australia, also remain positive.

Our projection for exports reflects the cyclical nature of world demand, resulting in lower export growth over the near term, but a recovery in exports over 1999 and 2000. Improved competitiveness resulting from the fall in the real exchange rate will also contribute to a more positive outlook for exports, although growth prospects will vary across sectors.

World outlook

Based on *Consensus Forecasts*, annual average growth in a 14-country³ measure of industrial production is expected to slow from 4 percent in 1997 to rates of around 1.4 and 3 percent over calendar 1998 and 1999, respectively. Relative to the March *Economic Projections*, these projections show a weaker environment for exports over the current year, but a more pronounced pick-up subsequently.

In forming our view of world growth, we have taken the mean of the *Consensus Forecasts* of industrial production in 14 countries, rather than the subset of pessimists as in our December 1997 and March 1998 projections.⁴ The previous decision to use a subset of pessimists was

based on our view that events in Asia would lead to a significant deterioration in the world outlook, but that the speed of events would take time to be incorporated fully into the average view reported in *Consensus Forecasts*. It is now reasonable to assume that international forecasters have all had sufficient time to adjust their projections.

On a regional basis, Japan has received the biggest downgrade in economic prospects for 1998. Industrial production is now expected to decline by 3 percent during 1998 (a downward revision of 2 percentage points from the March *Economic Projections*). Weak consumer and business confidence, linked to structural concerns about the economy, especially the banking sector, are expected to curtail private household spending and constrain investment. In response to this negative outlook for Japan, the Japanese Government announced another stimulatory fiscal package in April. The effects of this package remain uncertain. The outlook for the bulk of the other Asian economies has stabilised around a very weak profile. Overall, *Consensus Forecasts* did not project a rapid recovery in the economies most affected, although they did expect to see moderate growth towards the turn of the century.

Prospects for the rest of the world are positive. Growth in the United States remains strong, although mounting inflation pressures may precipitate a tightening of monetary policy. The consensus projections are for the US economy to moderate over 1998. Similarly, the Australian economy is projected to continue growing at, or near, its capacity, bolstered by consumption and business investment. However, the impact of Asia is taking its toll on business confidence there, as has the recent labour unrest. The overall outlook for Europe is favourable, with uncertainties surrounding the monetary union starting to dissipate.

Export growth

Over the coming year, export growth is projected to deteriorate in the face of the weaker world growth outlook. The worsening outlook

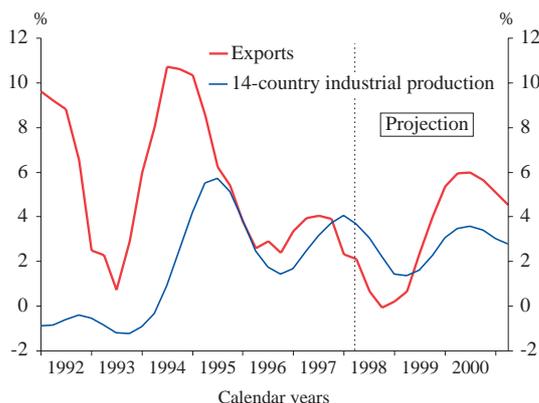
³ The 14-country measure comprises Australia, China, France, Germany, Hong Kong SAR, Indonesia, Italy, Japan, Malaysia, South Korea, Taiwan, Thailand, United Kingdom, and the United States.

⁴ The 'pessimist' subset was a simple arithmetic average of the three reputable forecasters projecting the lowest growth in each country.

for Japan, our second largest export market, is of particular concern. World prices are also projected to remain weak over the coming year.

However, the outlook for export volumes beyond the March 1999 year has been revised up slightly since the March *Economic Projections*, with annual growth rates over the years to March 2000 and 2001 expected to average around 5 percent (see Figure 5). The increased growth reflects the more pronounced cyclical upturn in world growth and the impact on export competitiveness from the decline in the real exchange rate.

Figure 5
Export growth and 14-country industrial production growth
(annual average percentage change)



The outlook across various export sectors remains diverse. Exports to markets in the United States and Australia appear to be strong, so far unscathed by events in Asia. Discussions with New Zealand exporters to Asia have suggested that they have been able to re-direct some of their exports to markets in Europe, the United States, and to new markets in Africa and the Middle East. However, tourism receipts and the exports of logs remain at risk. The downturn in Japan is leading to subdued construction activity, which may dampen demand for forestry exports. Similarly, tourism is expected to fall, with declining visitor numbers from Asia expected to more than offset increased arrivals from the United States and Europe. This declining trend is projected to reverse toward the year 2000.

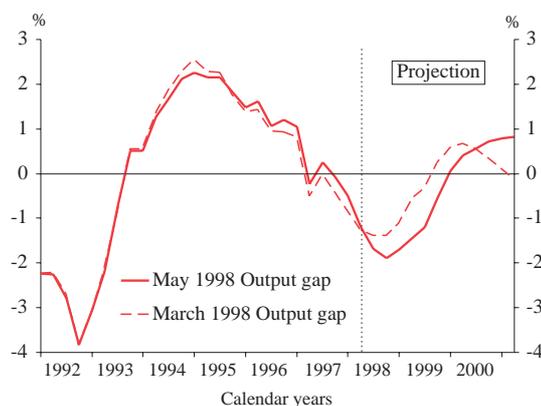
New Zealand's terms of trade are projected to improve modestly over the period, following several years of deterioration. World prices of exports are expected to remain relatively flat over the March 1999 year before rising modestly over the remainder of the period. However, the largest boost to the terms of trade comes from subdued world import prices given the projected slowdown in OECD industrial production.

Domestic Demand

Overview

Domestic demand conditions are expected to remain subdued over 1998 and into 1999, even though growth in household disposable income is boosted by tax cuts, rising real wages, and increased liquidity from the AMP share listing. Consumer enthusiasm for spending will be dampened by the high level of household debt servicing, reduced asset price expectations (house prices in particular), and rising unemployment. Business investment is also expected to be restrained over 1998, following a rise in the cost of capital, reduced expected demand, and low business confidence. Throughout 1998 and for most of 1999, demand is expected to remain below the economy's productive capacity (see Figure 6), leading to further downward pressure on inflation.

Figure 6
Output gap
(percent of potential GDP)



Beyond the March 1999 year, the outlook for domestic spending is more positive. Improved employment growth, household incomes, and improved export competitiveness will all bolster demand. Business investment is also projected to pick up due to a rise in anticipated demand and lower capital costs. As a result, by the end of 1999, excess capacity in the economy should have largely dissipated.

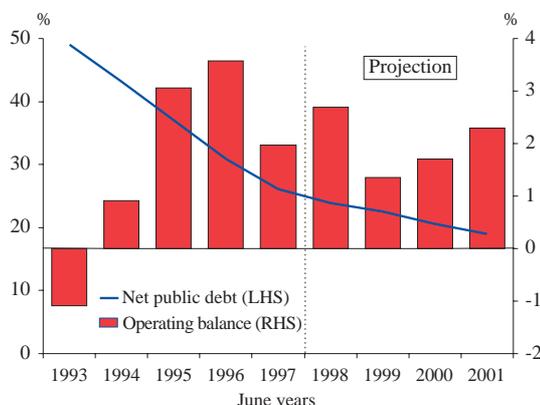
Fiscal policy

The fiscal projections are based on the Government's May 1998 Budget, but modified to reflect differing views on the macroeconomic outlook. We expect that fiscal policy will continue to stimulate demand over the projection period. The two main elements are:

- Tax cuts scheduled for July this year. Over the first year, these cuts are expected to boost household disposable incomes by around \$1 billion, or 1 percent of GDP.
- Spending initiatives, as announced in the Government's 1996 Coalition Agreement, and signalled in the May Budget. Up to the Fiscal year 2000, the Government has reduced its spending intentions slightly, from the \$5 billion announced in the Coalition Agreement to \$4.7 billion. However, we do not expect this to substantially reduce the degree of fiscal pressure on inflation.

Other Budget announcements, such as the tariff reforms and further benefit changes, could potentially influence the timing and strength of consumption and investment. Overall, the Government operating balance is expected to average around 2 percent over the projection period, similar to the outlook in the March *Economic Projections* (see Figure 7). The impact of fiscal policy on inflation depends on the change in the stance of fiscal policy, rather than the level of spending or operating surplus. As such, the policies announced in the May Budget remain consistent with our view that fiscal policy will have a stimulatory, albeit diminishing, impact on demand, as well as a direct impact on measured inflation.

Figure 7
The operating balance and net public debt
(percent of GDP)



Household influences

Although the growth in disposable income remains steady over the projection period, household spending will be restrained over the near term. The positive factors impacting on household disposable income include the tax cuts and real wage growth, as well as the liquidity effects of the AMP share listing. However, rising household debt levels, a weaker labour market, and reduced asset price expectations (especially house prices) are expected to constrain consumption growth to below that of disposable income. The net outcome is a projected rise in household savings rates, which will assist in the reduction of the current account deficit.

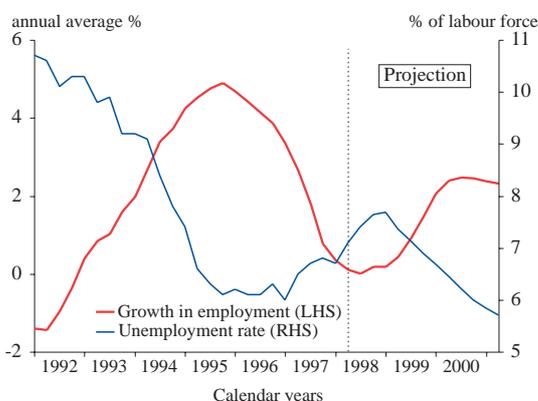
Household consumption growth remained reasonably robust over recent quarters, although more subdued growth is expected during the remainder of 1998 and into 1999. However, timing issues will be significant, with spending patterns likely to be influenced by the July tax cuts, the recent removal of motor vehicle tariffs, and the rise in household liquidity from the AMP share listing. These factors may tend to temporarily boost consumption and mask an underlying weak trend.

Over 1999 and 2000, annual consumption growth is expected to average around 2 percent, down considerably from the 4 to 5 percent growth rates averaged over recent years. Many

of the factors that underpinned the past strong consumption growth have now dissipated. The stimulatory factors included strong net migration, rising house and asset price expectations, rapidly declining unemployment, and increasing disposable incomes. These factors led to a strong rise in perceived wealth and fuelled rapid growth in credit, further boosting consumption.

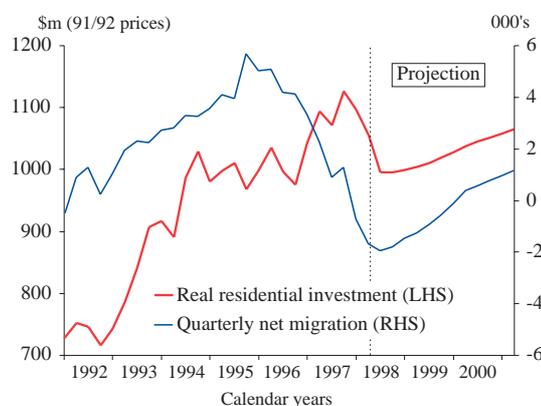
Developments in the housing market are especially important for consumer confidence as home equity is an important part of total wealth for many New Zealanders. The average house price is expected to decline by around 3 percent over the December 1998 year, impacting negatively on households' wealth perceptions and their appetite for debt (see section 6). Some of the key downward influences on house prices include low consumer confidence, high real mortgage interest rates and household debt levels, reduced net migration, and an abundant supply of residential dwellings. Job uncertainty will be another factor moderating consumption, with projections for employment growth subdued and the unemployment rate expected to peak at 7.7 percent in the December 1998 quarter, before falling gradually (see Figure 8).

Figure 8
Employment and unemployment



With the supply of residential properties relatively abundant, as a result of past strong investment, the outlook for residential construction is also weak over the remainder of 1998. Beyond the near term, rising net migration, improved employment prospects, continued growth in real disposable income, and a reduction in the availability of residential properties should result in renewed growth in residential investment levels (see Figure 9).

Figure 9
Residential investment and net migration⁵



Business developments

The outlook for business investment has deteriorated since the March *Economic Projections*. We now expect investment to evolve in a more cyclical fashion, that is, weaker over the short term but recovering into 1999 (see Figure 10).

Typically, investment expenditure tends to follow cyclical movements in the economy and is usually volatile. Investment during the December quarter was very weak, suggesting that firms have already cut back expenditure. Business contacts and leading indicators, such as cement sales and QSBO investment expectations, all suggest that firms will defer investment during 1998. Moreover, the costs of investment have risen, with interest rates having increased over the last quarter, and a falling exchange rate add-

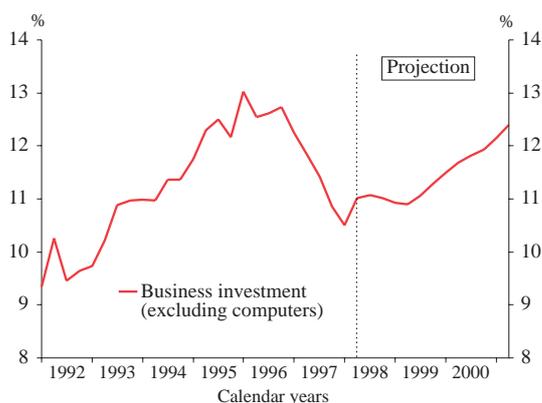
⁵ Net migration is the quarterly flow calculated on a working-age basis, seasonally adjusted.

ing to the cost of imported capital equipment. Overall, a strong bounce back in investment is unlikely over 1998.

Over 1999, however, investment is expected to pick up. Three key factors contribute to this outlook:

- Domestic and export demand conditions are expected to improve.
- The costs of investment are projected to decline, as interest rates fall and the exchange rate stabilises.
- Firms will resume investment in order to increase productivity and maintain competitiveness.

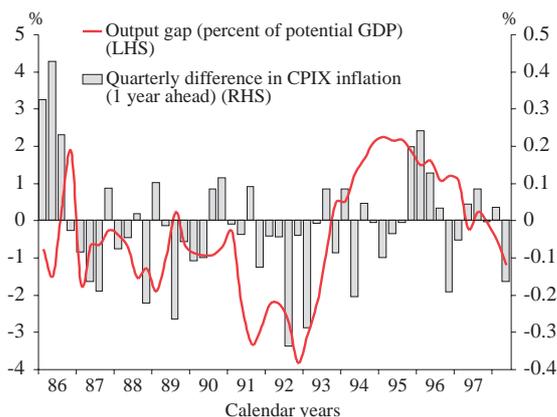
Figure 10
Business investment
(percent of GDP)



4. Meeting the demands

A useful way of assessing the ability of an economy to meet the demand for goods and services is to examine its 'potential output', defined as the level of output an economy can supply without generating higher or lower inflation. When an economy is operating above its potential, or capacity, it is said to have a positive output gap, and inflation can be expected to rise. Conversely, and relevant to this projection, when an economy is operating below its potential, or capacity, it is said to have a negative output gap and inflation can be expected to decline. Figure 11 highlights this broad relationship between developments in the output gap and subsequent inflation.

Figure 11
Output gap and future inflation developments



One concern with using the output gap approach to assess prospective inflation developments is that potential output is not directly observable and must therefore be estimated from past developments. The estimation is done statistically by decomposing production-based GDP into a trend (potential) and cyclical component. The deviation of actual GDP from its trend is used as a measure of the output gap.⁶ Another problem that arises from time to time, as with the December 1998 GDP release, is that official statistics are occasionally revised, altering the historical estimate of potential output. However, data revisions alone are unlikely to alter

significantly the Bank's view on the appropriate stance of monetary policy. The scale of any revision must be weighed against the long and uncertain lags that exist between demand and inflation developments, as well as the array of supporting evidence from actual price movements, labour and asset market developments, and the Bank's indicator models of short-term demand changes.

Although historical data enables us to estimate the current level of potential output, in order to decide on the future path of monetary conditions, a projection of potential output is needed. In forming a view, the Bank projects the future path for the three components of potential output: the supply of labour, growth in the capital stock (net investment), and technology developments (productivity). Over this projection period, potential output growth is expected to slow to an annual average of around 2.8 percent. The slowdown reflects primarily cyclical declines in capital formation (investment) and employment growth. Business investment, in particular, is expected to be more subdued over 1998 and into 1999, following several years of rapid growth. Technological developments remain a key source of potential output growth, with firms continuing to innovate.

⁶ See Conway P. and B. Hunt, (1997), 'Estimating Potential Output: a semi-structural approach', *Reserve Bank of New Zealand Discussion Paper G97/9*.

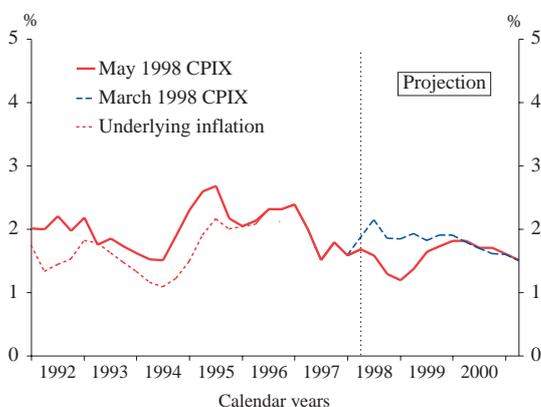
5. Inflation developments

Overview

In the year to March 1998, the CPI excluding Credit Services (CPIX) rose by 1.7 percent, slightly above the centre of the Bank's inflation target range (see Figure 12). The outlook is for inflation to remain within the middle part of the Bank's target range. Three distinct factors shape this inflation profile:

- In the short term, a number of specific price developments are expected to dampen CPIX inflation. These include weak house prices, the removal of passenger car tariffs, and lower world prices for some major imports (notably oil).
- The short-term inflation outlook is also affected, though in the opposite direction, by the significant depreciation of the New Zealand dollar, which will boost traded goods and services price inflation.
- The medium-term inflation profile is influenced primarily by the outlook for demand pressures in the economy. The negative output gap lasting through into 1999 will tend to exert a gradual downward pressure on price inflation, particularly in the non-tradeables sector. Upward pressures on inflation are projected to develop later as excess demand conditions re-emerge beyond 1999.

Figure 12
Annual inflation
March and May 1998 projections
(annual percentage change)



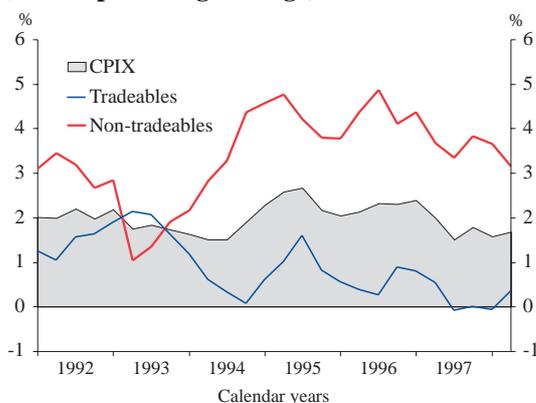
The projection for inflation to remain within the middle part of the target range is largely a reflection of the fact that our projections provide for adjustments to monetary conditions. In the current situation, for example, the most likely scenario in the absence of any adjustment to the stance of monetary policy would be for a much more prolonged economic downturn and a consequent fall in the inflation rate towards, or through, the bottom of the target range. In short, our approach to the projections means that as inflation pressures increase or decrease, most of this will be reflected in variations in monetary conditions rather than in the projected track for inflation.

In this projection the Monetary Conditions Index (MCI) is projected to decline from a level of 350 for the September 1998 quarter, to a low of 200 through most of calendar 1999. This is a slightly lower profile over most of the projection period than contained in the *March Economic Projections*, and reflects largely the more subdued outlook for activity and inflation pressures over the next year or so.

Recent inflation

The Consumer Price Index excluding Credit Services (CPIX) increased 0.3 percent over the March 1998 quarter, taking the annual inflation rate to 1.7 percent, up slightly from the 1.6 percent recorded over the year to December 1997. The March quarter outcome was slightly below our projection of 0.5 percent. The difference was largely a reflection of some exceptional price movements during the quarter that were not anticipated in our March projections.

Figure 13
CPIX inflation: tradeables & non-tradeables
 (annual percentage change)



In December 1997, the Governor of the Reserve Bank and the Treasurer signed a new Policy Targets Agreement (reproduced in Appendix 3). The new Policy Targets Agreement (PTA) defines the Bank's target price index as the CPIX. At the same time, the Bank indicated that it would cease calculation of its 'official' measure of underlying inflation. This decision partly reflected the fact that, in general, the main difference between the CPI and the Bank's underlying inflation measure was the Credit Services component. An additional consideration was some discomfort with the Bank calculating the benchmark measure of inflation against which the Bank's performance is judged.

Despite the decision to cease calculating the underlying inflation series, the Bank underlined its continuing commitment to account for inflation outcomes and, in particular, for temporary price disturbances that may distort or mask the on-going trend of inflation.

There are a number of different methods available for distinguishing between the on-going or 'core' inflation rate, and the effects of price disturbances that are likely to have only a transient impact. A method commonly used overseas is to re-calculate the CPI after excluding a range of prices that are considered to be particularly volatile or prone to supply shocks. By excluding such prices, it is hoped that a clearer picture of the more general trend of in-

flation will emerge. The most common exclusions are fresh fruit and vegetable prices and energy prices. The drawback with this approach is that transient shocks to the inflation rate can come from a great many sources. Recent examples in New Zealand have included airfare price 'wars', cuts in government subsidies for public housing and education, tariff cuts, restoration of child medical care subsidies, and so on.

An approach that allows for variations in the source of transient inflation disturbances is to place less weight on all extreme price changes compared to their standard weight in the CPI. The most common measures of this type – often described as 'robust' measures of inflation – are the 'weighted median' and various kinds of 'trimmed means'.

Table 2 shows inflation rates for the CPIX, tradeables and non-tradeables prices,⁷ the CPIX excluding fresh fruit and vegetable prices and energy prices (CPIX ex F&E), and three 'robust' measures of the general trend of inflation:

- A 10 percent trimmed mean (Trim10), which excludes the top and bottom 10 percent of price changes in each quarter.
- A 1 standard deviation trimmed mean (TrimSD), which excludes all price changes more than 1 standard deviation above or below the mean (ie roughly the 15 percent most extreme price changes).
- The weighted median (median), which is the middle price change (ie half the prices in the CPI, by regimen weight, rose by more than the median price change, and half by less).⁸

⁷ 'Tradeables' refers to prices determined primarily in international markets, while 'non-tradeables' refers to prices determined primarily in domestic markets.

⁸ See Roger S., (1995), 'Measures of underlying inflation in New Zealand, 1981-95', *Reserve Bank of New Zealand Discussion Paper G95/5* and Roger S., (1997), 'A robust measure of core inflation in New Zealand, 1949-96', *Reserve Bank of New Zealand Discussion Paper G97/7*.

Table 2
Measures of consumer price inflation
March quarter 1998

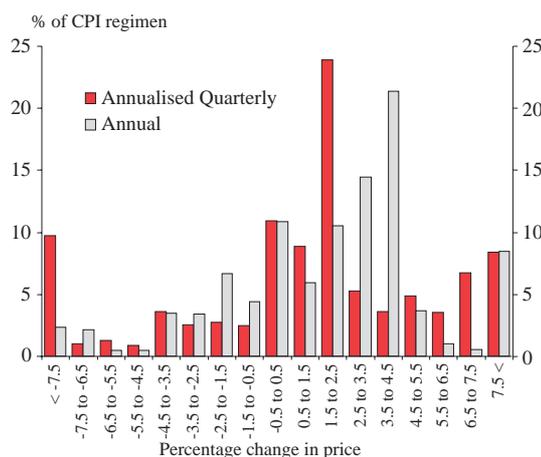
Inflation measure	Percentage changes	
	March 98 year	March 98 quarter
CPIX	1.7	0.3
Tradeables	0.4	0.1
Non-tradeables	3.2	0.4
CPIX ex F&E	1.6	0.0
Trim10	1.7	0.3
TrimSD	1.9	0.3
Median	1.9	0.4

The figures in Table 2 suggest that:

- Non-tradeables price inflation continues to substantially outpace tradeables inflation, despite the depreciation of the New Zealand dollar over the past year (see Figure 13). Nonetheless, the 2.8 percentage point differential between these inflation rates has narrowed (from 3.8 percent in the second half of 1997) as import price inflation picks up and domestic price pressures weaken.
- In the March 1998 quarter, fresh food and energy prices, on balance, boosted the CPIX inflation rate. The impact of higher fresh fruit and vegetable prices (up 11.1 percent) in the quarter, reflecting unusual weather (El Niño), more than offset the impact of lower petrol prices (down 2.1 percent), boosting the aggregate inflation rate by about 0.3 percent in the quarter.
- Taking into account a wider range of relative price disturbances, however, it appears that such shocks, on balance, slightly dampened the overall inflation rate during the quarter. More specifically, higher fresh produce prices plus an increase in tertiary education fees (up 8.7 percent) were more than offset by the combined effect of lower prices for petrol, international air travel (down 8.4 percent), and telephone toll charges (down 18.9 percent).

Overall, therefore, exceptional price changes over the past year have tended to dampen measured inflation more than they have boosted it. The robust measures show a slightly higher inflation rate than CPIX over the past year and in the March 1998 quarter. However, all of the measures of generalised inflation show inflation in the March 1998 year well within the target range. Figure 14 summarises the distribution of price changes for the March 1998 quarter. It can be seen that the largest proportion of price changes (by regimen-weight) are positive. However, some large price changes at both ends (tails) of the distribution also occurred.

Figure 14
Distribution of annual price changes
(March quarter 1998)



Inflation expectations are an important measure of price pressures precisely because they tend to capture the persistent elements that will be reflected in future or on-going inflation.⁹ Table 3 shows the results of four surveys of inflation expectations for the year ahead, taken during the March 1998 quarter. The different surveys show considerable dispersion of inflation expectations, with an average marginally above the core inflation measures shown in Table 2.

⁹ See Roger S., (1998), 'Core inflation: concepts, uses and measurement', *Reserve Bank of New Zealand Discussion Paper*, forthcoming.

Table 3
Year-ahead inflation expectations
March quarter 1998¹⁰

Survey organisation	Expected inflation in year ahead
Reserve Bank of New Zealand	1.7%
Aon Consulting	1.7%
National Bank of New Zealand	2.4%
Marketscope	4.0%

The inflation outlook

CPIX inflation is estimated at 0.2 percent in the June 1998 quarter, and 0.4 percent for the September 1998 quarter. These quarterly increases would take the annual rate of inflation to 1.6 percent in the June year, and 1.3 percent in the September year. We have revised down our estimate for June by 0.3 percentage points from the March *Economic Projections*. The key factors accounting for this revision are:

- The recently-announced removal of passenger motor vehicle tariffs from mid-May.
- Our expectation that drought-induced increases in fruit and vegetable prices will be reversed.
- Petrol discounting following the entry of *Challenge!* and the lower world price of oil. These influences are expected to be partially offset by a lower exchange rate and the two cent per litre increase in excise tax on petrol.
- A weaker outlook for house prices, which influence our projection for the construction costs components of the CPIX.

Over the medium term, the inflation outlook is little changed from the March *Economic Projections*, despite being lower over the remainder of 1998. Initially, lower inflation is projected because of a combination of lower fuel prices, a weak housing market, and the removal of tariffs on cars. The tariffs alone are estimated to

reduce annual inflation over the year to March 1999 by 0.4 percent, with most of the impact felt in the June 1998 and September 1998 quarters. In mid-1999, inflation picks up as the temporary price adjustments run their course. The inflation profile rises briefly above the mid-point of the target range, peaking at 1.8 percent over the years to December 1999 and March 2000, before returning to the mid-point by the end of the projection period.

Domestic inflation pressures are expected to decline slowly over most of the projection period, although non-tradeable inflation pressures may begin to re-emerge once the output gap turns positive at the end of 1999. Dampened demand over the first half of the projection period will be especially evident in the housing sector. There are signs that the recent modest decline in house prices will continue. Our projections include a further small fall in house prices into early 1999.

Inflation in the prices of tradeable goods and services will be affected by both the exchange rate and external demand. OECD industrial production growth is expected to decline over calendar 1998 in the wake of the continuing Asian crisis. Reduced demand from these countries will lower world prices and provide an offset to the effect of the lower exchange rate on domestic currency prices. Oil prices have fallen to quite low levels, although we expect they will return to around US\$16 to US\$17 per barrel by the middle of next year. Inflation in the tradeables sector will be further dampened by importers lowering their margins in response to weak demand.

¹⁰ The Reserve Bank of New Zealand conducts a survey of selected sectoral experts, Aon Consulting surveys local economists, the National Bank of New Zealand surveys business clients, and Marketscope surveys households.

6. Credit trends and developments

Overview

Developments in financial market intermediation provide an important source of information regarding the state of the economy and future inflation trends. For example, a rapid rise in credit demand may represent a future inflation risk if it enables spending to rise ahead of the economy's capacity to supply. Too rapid credit expansion may influence inflation either directly, as domestic production is stretched, or indirectly, as the result of a balance of payments deterioration and a consequent depreciation in the exchange rate.

In recent years, there has been a strong rise in credit demand from households, primarily for the purchase of residential properties. To help meet this demand, domestic financial intermediaries have obtained funding from foreign investors, who found yields in New Zealand dollar (NZD) financial assets attractive. Over the projection period, these trends are likely to unwind as households reassess their debt levels, investors' appetite for NZD exposure is reduced, and the housing market proves less credit-worthy. Signs of these developments are already evident.

Corporate sector borrowing has lagged behind that of household borrowing over the cycle. Since its peak in 1996, the growth in corporate borrowing has slowed. However, as the prospects for investment improve over 1999 and into 2000, New Zealand businesses will be well placed with solid cash-flows to increase their exposure to debt-financed investment.

Household credit developments and prospects

An outstanding feature of the recent credit cycle has been the strength of growth in credit to the household sector. A number of factors have contributed to this (see Figure 15).

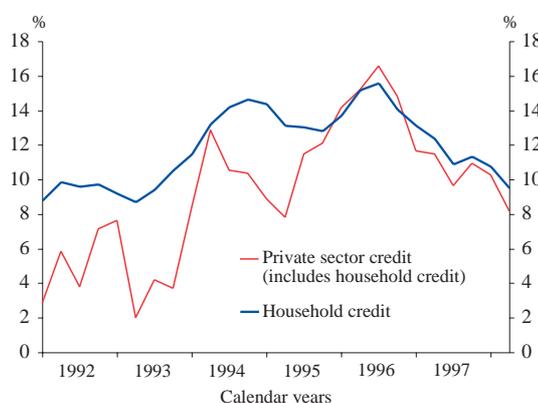
First, household confidence improved following a prolonged period of economic restructuring and the recession in the early 1990s. This was reflected in increased spend-

ing on credit-financed 'big ticket' items, like houses and cars. Population growth, boosted by immigration, also contributed to increased demand for mortgage credit.

Second, there was a strategic shift of emphasis by the largest banks toward household lending, as they successfully re-oriented their systems and skills towards profitable residential mortgage lending. This shift was driven in part by loan-loss experiences on business lending during the late 1980s and narrowing margins on prime corporate lending.

Third, a change in industry practice allowed more small business lending to be secured by home mortgages. An unknown proportion of lending secured on residential property (probably under 10 percent) is effectively lending to business.

Figure 15
Household and private sector credit growth¹¹
(annual percentage change)



Fourth, innovative practices like mobile mortgage lenders and lending by phone, and the entry to the housing loan market of new lenders, have created low cost means of distributing loan products, with competition rapidly narrowing costs across the market.

Finally, with attractive New Zealand dollar yields, foreign investors have shown a strong appetite for New Zealand fixed-term financial

¹¹ Household credit is total household claims of M3 institutions.

instruments, including securities issued by overseas borrowers (so-called Euro-kiwi and Samurai issues). This has caused downward pressure on fixed-term mortgage interest rates at a time when short-term interest rates have been higher than longer-term rates. This last factor has encouraged a substantial shift by New Zealand household borrowers and lending institutions away from floating rate loans to fixed rate term loans (see Table 4). There has also been an increase in the net funding by non-residents to New Zealand banks and other surveyed financial institutions.

Table 4
Proportion of fixed and variable rate mortgages
(share of major lenders' portfolios, end of August)

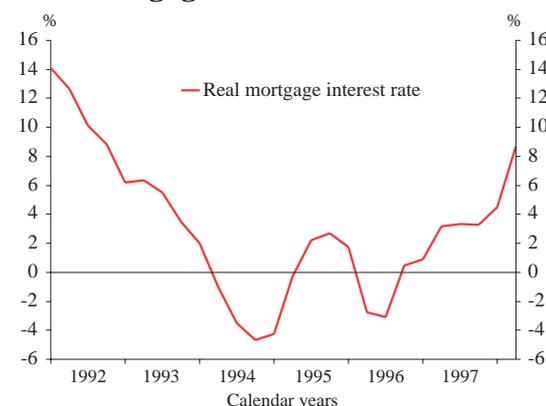
	Fixed ¹	Variable
1994	7%	93%
1995	20%	80%
1996	41%	59%
1997	52%	48%

¹ Fixed rate mortgages include capped rate mortgages.

From 1994 to late 1997, the strong flow of funds into the housing market contributed to pressure on house prices, fuelling expectations of ongoing house price increases. Set against these prospective price gains on a house, rather than against the CPI, mortgage interest rates may not have appeared high. Indeed, until quite recently the real cost of credit facing households expecting house price rises has probably appeared low, or even negative (see Figure 16).

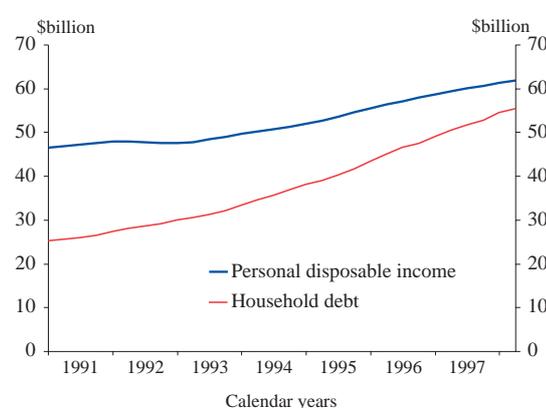
Just as a number of factors combined to create the housing credit cycle, several now point to more subdued conditions over the projection period. Net migration is now close to zero and projected to remain weak. Consumer confidence is low, and this is beginning to be reflected in weaker demand for credit from households. The ratio of household debt-to-disposable income has climbed from relatively modest levels of around 55 percent to around 90 percent, a ratio approaching those of several other industrialised economies, suggesting the period of 'catch up' may now be ending (see Figure 17).

Figure 16
Real mortgage interest rate¹²



Uncertainty about the economic outlook is also likely to cause lenders to be a little more cautious in extending credit. More recently, the entire mortgage interest rate structure (fixed and floating) has moved up by about one-half to one percentage point compared to 1997. Importantly, house prices have begun to weaken, and have fallen in some markets. Finally, while the shift to fixed-rate lending to the household sector has meant that monetary policy has lost some of its immediate bite, when it does bite, its grip may last longer. Overall, we expect a moderate growth rate of net lending to households for the remainder of 1998, probably in the mid- to low-single digit range.

Figure 17
Household debt and personal disposable income¹³



¹² Nominal first mortgage interest rate deflated by annual house price inflation. House price inflation is a *Valuation New Zealand* series.

¹³ Personal disposable income is from annual household income and outlay account data. Household debt is total household claims of M3 institutions.

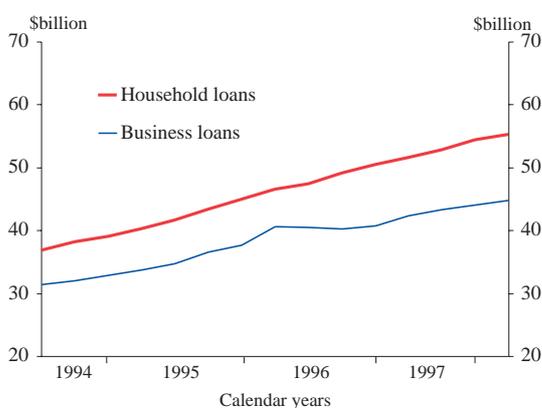
Business credit developments and prospects

Growth in lending to the business (including farming) and corporate markets has been less rapid than for households over the cycle (see Figure 18). Several reasons could account for this.

First, businesses have been profitable and have used retained earnings to fund a significant part of their expansion, not requiring major loans. Now, as activity slows, we might expect some increased borrowing to finance accumulating stocks and slower-paying debtors. This effect is unlikely to become evident in aggregate financial data, but banks have commented publicly on its influence in their loan portfolios. In general, business balance sheets are in good shape to support a moderate increase in levels of indebtedness, given the prospect of accelerating growth next year.

Second, farmers increased their borrowing strongly until 1996, as dairy farming returns and conversions, along with the knock-on effect of the purchase of land for forestry, drove up prices for agricultural land. Since then farm prices have slipped, and borrowing has slowed markedly as the outlook for farm revenues has worsened.

Figure 18
Household and business loans



Third, corporate borrowers are increasingly tapping the funding markets directly, by issuing commercial paper. Banks often support these issues by acting as underwriters, and in this way

provide the issuers with 'credit' (and liquidity) support, but normally not direct funding. A large proportion of corporate sector borrowing (possibly as much as half) occurs through channels outside those measured by the Bank's credit aggregates, ie directly from abroad or through the domestic capital market. Thus, while the trend revealed by the private sector credit aggregates is believed to be representative, credit data in the corporate market needs to be treated with caution.

In sum, although growth in net lending by domestic financial institutions to the business and corporate sectors has been much slower than has lending to households, there have been few reports of credit-worthy firms being unable to borrow. On the contrary, competition among lending institutions for sound business lending opportunities has been very keen, as attested by the narrow lending margins in the market.

By contrast, some firms, particularly those adversely affected by the Asian crisis and/or the drought, will have run up against credit constraints. Indications are that lenders are experiencing some, albeit modest, increase in debt servicing difficulties from what have been historically low levels. Firms exporting to some East Asian countries have found that buyers have experienced difficulties providing them with letters of credit, which normally assure that payment will be made. Local banks, faced with uncertainty about these countries' banking systems, have also been reluctant to confirm letters of credit. This will have been one of the factors behind the down-turn in exports to East Asian countries in the March quarter.

Looking ahead, the subdued outlook for economic activity, particularly investment, is likely to see the rate of credit expansion to the business and corporate sectors remain moderate. However, business profitability is projected to be reasonably sustained. Thus if, as expected, firms' demand for credit picks up in 1999 and beyond, the underlying cash-flows required to cover any increase in debt servicing will be sufficient to sustain a future rise in investment.

7. Uncertainties

This section discusses the uncertainties surrounding the inflation projection over the policy-relevant period. Although projected economic growth may still have some downside risk, the uncertainties surrounding the future path of inflation are more balanced. The inflation-restraining influences of possibly weaker-than-projected output growth could be outweighed by the effects of looser monetary conditions and stimulatory fiscal policy, and the liquidity impacts from events such as the share listing of AMP. The uncertainty about higher inflation is especially relevant given the recent significant depreciation of the New Zealand dollar, which could flow through to tradeables prices in particular, raising the inflation rate.

Lower inflation?

Policy reforms and structural change in particular industries are likely to temporarily affect inflation in the near term. These include changes affecting petrol retailing, excise taxes, tariffs, and the electricity sector. However, their effects on prices are expected to be largely one-off, and should have little influence on the medium-term inflation outlook. The main sources of risk of lower inflation over the medium term derive from uncertainty about the world economy, the difficulty exporters to East Asia may experience in finding alternative markets, and the possibility that house prices may fall by more than expected.

World uncertainties

A comparison of individual responses in the February and April *Consensus Forecasts* suggests that views on East Asia are becoming less diverse, as they converge on a very weak outlook for a number of countries for 1998 and 1999. The extent to which New Zealand can sustain exports overall will depend on developments in New Zealand's other trading partners, including Japan, Australia, and the United States.

Substantial downward revisions to Japanese growth in recent months highlight the uncertainties faced. Additionally, prospects for the US economy are also increasingly uncertain,

with many commentators arguing that mounting inflation pressures could lead to a progressive tightening in US monetary policy. In Australia, the impact of the Asian crisis is being felt more than was initially expected, which is raising some questions about whether the recent pace of domestic demand expansion in Australia will be sustained. In contrast, uncertainties about the prospects for Europe have been dissipating, now that it has been confirmed that 11 countries will join the European Monetary Union, which is to take effect on 1 January 1999. However, considerable uncertainty remains about how the single currency will affect the individual performance of these economies.

Domestic economy uncertainties

Household and business confidence is being adversely affected by both the uncertain international outlook and by signs that house prices have the potential to fall significantly. This *Monetary Policy Statement* assumes that the fall in house prices will be moderate during 1998, and that house prices will be underpinned by a fall in nominal interest rates during 1999. If the fall in house prices were to be deeper and more protracted than expected, consumer confidence could weaken further, and this would likely outweigh the stimulatory effects of lower interest rates. Overall, a weaker domestic spending profile would result, dampening inflation pressures.

Higher inflation?

Over the medium term, higher-than-expected inflation might result from higher import-price margins and stronger-than-expected effects from looser monetary conditions and the fiscal policy stimulus.

Import prices

The March 1998 *Economic Projections* noted the risk of higher inflation if the mix of monetary conditions continued to shift to a lower exchange rate and a higher interest rate profile. In this *Monetary Policy Statement*, the lower path of the TWI exchange rate relative to the March *Economic Projections* is largely offset by reduced world import prices and lower im-

porter margins. These factors have led us to revise up projected inflation for 2000/01 only slightly. However, a further fall in the exchange rate that is not offset by either lower world prices or import-price margins would lead to higher tradeables inflation. Of course, whether the increase in inflation were to become more general, and hence become a policy concern, would depend on whether the increase in import prices were to flow through to prices for domestically produced goods and services.

Prospects for import-price margins are a significant source of risk. In the last 12 months, reductions in importers' (or overseas exporters') profit margins have offset some of the exchange rate depreciation. These projections assume that margins are stable over the medium term, with prices reflecting a slow appreciation of the exchange rate from early 1999. However, these margins may again increase significantly as the economy expands during 1999-2000, adding to domestic price pressures.

Domestic liquidity and confidence

Finally, the pick-up in economic growth could be both quicker and stronger than projected due to the influence of expansionary monetary and fiscal policy and other positive factors. The overall expansion of fiscal policy, and the liquidity effects from the share listing of AMP (and potential developments regarding Tower Corporation and the Public Trust Office), combine to provide a boost to household liquidity. Moreover, the easing in monetary conditions has been substantial, falling from 1000 on the MCI in the December quarter of 1996 to a projected trough of around 200 in late 1999 (equivalent to a fall in nominal interest rates of 8 percentage points), which will act to boost economic activity.

Appendix 1: Chronology

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

1997

- 15 December: A new Policy Targets Agreement (PTA) was signed by Treasurer Winston Peters and Reserve Bank Governor Don Brash. The PTA is reproduced in Appendix 3.
- 16 December: The Reserve Bank released its seventeenth *Monetary Policy Statement*. The news release accompanying the *Statement* is reproduced in Appendix 2.

1998

- 20 January: The December 1997 quarter CPI was released. The CPIX rose 0.5 percent in the quarter and by 1.6 percent over the year to December.
- 23 February: The Reserve Bank issued a statement on current monetary conditions. The statement is reproduced in Appendix 2.
- 18 March: The Reserve Bank released its March 1998 *Economic Projections*. The accompanying news release is reproduced in Appendix 2.
- 27 March: The Reserve Bank issued a news release related to monetary conditions. The statement is reproduced in Appendix 2.
- 30 March: GDP production figures were released showing that the New Zealand economy grew 0.5 percent in the December quarter and by 2.3 percent in the year to December 1997.
- The Reserve Bank issued a statement on current monetary conditions. The statement is reproduced in Appendix 2.
- 17 April: The March 1998 quarter CPI was released. The CPIX rose 0.3 percent in the March quarter and by 1.7 percent in the year to March 1998.

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*.

New “more transparent” Policy Targets Agreement

15 December 1997

Treasurer Winston Peters and Reserve Bank Governor Don Brash this afternoon signed a new and “more transparent” Policy Targets Agreement (PTA). The PTA is required by the Reserve Bank of New Zealand Act 1989 and details the Reserve Bank’s inflation target.

Dr Brash commented: “All of the essential features of the previous PTA have been preserved, and in particular the commitment to keep consumer price inflation between 0 and 3 percent.

“The most significant change in the new PTA is that it now defines the Reserve Bank’s target in terms of 12-monthly increases in the All Groups Consumers Price Index excluding Credit Services (CPIX), as published by Statistics New Zealand. The previous PTA defined the target in terms of the All Groups Consumers Price Index *including* interest rates and the price of other credit services. This change is consistent with the recently-announced decision of Statistics New Zealand to exclude interest rates from the official CPI from 1999. The new PTA thus provides continuity between the current and future CPI measures.

“An important consequence of specifying the target measure in terms of the CPIX is that the principal difference between the CPI itself, the so-called headline measure of inflation, and the Reserve Bank’s measure of underlying inflation will disappear, namely interest costs. For this reason the Bank has decided to cease calculating and publishing its measure of underlying inflation with immediate effect. This helps to make the new arrangement even more transparent than in the past.

“We have previously expressed some discomfort with being responsible for calculating underlying inflation, the benchmark against which our monetary policy performance is assessed. Although no serious observer has ever suggested that the Reserve Bank has ‘fiddled the number’, there has been concern both inside and outside the Bank that it was the Bank which was making the calculation.

“The decision to move to the CPIX as the basic measure of inflation in the new PTA, and the related decision to cease publishing the underlying inflation measure, have no implications for the implementation of monetary policy. Nor do the decisions have any implications for monitoring the Reserve Bank’s performance. The Bank remains accountable for any actual, or projected, deviations from the official target range for inflation. The Bank must continue to explain any temporary impacts on prices arising from events which may mask the underlying trend of inflation in the CPIX, which is the proper focus of monetary policy,” Dr Brash concluded.

Current conditions “appropriate”

16 December 1997

The Reserve Bank today endorsed the recent market-led easing in monetary conditions.

That was announced with the release of the Reserve Bank’s December *Monetary Policy Statement* this morning.

Today's move took the form of a 75 point drop in the desired level of the Reserve Bank's Monetary Conditions Index (MCI) to 650, which is close to the current level of market conditions. This was the fourth easing by the Reserve Bank in the last 12 months.

Reserve Bank Governor Don Brash said "Today's result reflects a mix of factors affecting inflationary pressures. During 1997 economic activity and inflation appear to have been a little stronger than we expected. However, looking ahead, the impact of recent events in Asia is likely to moderate New Zealand's economic growth and inflation. This will occur primarily through reduced export prices and volumes, and reduced import prices.

"As a result, to maintain price stability, monetary conditions do not need to be as firm as we expected back in September. The markets appear to have taken a similar view in recent weeks, so monetary conditions now are broadly appropriate. The Reserve Bank is not looking for any further easing in actual conditions at this time.

"The Reserve Bank expects growth rates in the economy to pick up over the next 12 to 18 months, supported by next year's tax cuts, increased Government spending, increased business investment, and this year's easing in monetary conditions. That said, the situation in Asia continues to be volatile and uncertain, which increases the degree of uncertainty in current inflation projections," Dr Brash concluded.

Notes for briefing journalists at the release of the December 1997

Monetary Policy Statement

16 December 1997

Introduction

Good morning and welcome to this briefing on the Reserve Bank's December 1997 *Monetary Policy Statement*, the 17th we have issued.

As you will have seen already from reading that *Statement*, our view of the economy's future growth path has changed quite significantly since September. We now project that growth over the March 1998 year as a whole will be around 2.5 percent (previously 1.7 percent), over the year to March 1999 around 3 percent (previously 3.8 percent), and over the year to March 2000 around 3.9 percent (previously 4.3 percent). This slower growth than previously projected in the years to March 1999 and 2000 is largely explained by our current assessment of the adverse impact of the difficulties which several of our Asian trading partners are experiencing.

But the essential profile of the economy's growth has not been materially changed: growth in output increases through 1998 and into 1999, before slowing to about its sustainable growth rate through late 1999 and early 2000.

Implications for inflation and monetary conditions

Unfortunately, and despite the economy operating a little below our estimate of its sustainable capacity through much of 1997, inflation in sectors removed from international competition, so-called non-tradeables inflation, has remained remarkably persistent. This has been largely, but not exclusively, a result of continuing price pressures in the housing market and in some parts of the

public sector. As a result, and with the disinflationary benefit of a rising exchange rate now behind us, aggregate inflation is projected to be a little higher than previously over the next year or so.

Beyond the immediate future, several conflicting pressures are at work. Working to reduce inflation is the recent period of slower growth. This has created a situation of excess capacity in the economy in recent quarters, which is expected to persist throughout 1998 and assist in constraining inflation for most of the projection period. Working in the same direction is the projected weakness in some import and export prices as a result of the sharp downturn in activity in many parts of Asia.

On the other side, working to push up domestic prices, is the sharp fall in the New Zealand dollar exchange rate over the last six months or so, although we expect that the effect of this may be somewhat muted by some reduction in the margins of importers and distributors built up during the period of exchange rate *appreciation*.

Taking all factors into account, and on the basis of the monetary conditions projected, we project inflation moving back towards the middle of the target range, after a temporary increase.

Nominal monetary conditions are projected to remain around 650 on the MCI through 1998 and the first half of 1999, before firming gradually beyond that.

Risks and uncertainties

As always, financial markets should not treat our projection of monetary conditions beyond the next quarter as being set in stone. We, of course, provide a new assessment of desired conditions each quarter, and at that time weigh all of the new information which has come to hand. That enables us to make an assessment of the monetary conditions which then seem appropriate to keeping inflation moving towards the centre of our inflation target.

There are in fact two major uncertainties in the present situation, and those uncertainties point in diametrically opposite directions.

The first and most obvious risk is that the present difficulties in Asia turn out to be even more serious than we have assumed. As the *Statement* indicates, we have already departed from our usual practice of taking *Consensus Forecasts* for the six largest OECD countries as the basis for our assessment of the international environment: in particular, we have widened the group of countries factored into our view of the international environment to include 14 countries (including all our major Asian trading partners), and in addition have chosen a sub-set of the more pessimistic forecasters' views.

But, by the nature of the case, any compilation of forecasts will be a little out-of-date in a fast-changing situation. As each day seems to suggest that the Asian situation is worse than envisaged even a few days earlier, it is quite possible that we have still under-estimated the seriousness of the Asian situation. Between New Zealand's direct exposure to Asia and our indirect exposure through Australia and Japan, there is no doubt that a very significant part of our total trade may be affected by developments in Asia. Here, the risk seems to be that we may have under-estimated the disinflationary pressures to which we may be subject in the next few years, and, if this turns out to be the case, the inflation track may turn out to be lower than now projected. Putting the matter in another way, monetary conditions may need to be easier than now projected to keep inflation in the middle of the target range.

The second significant risk relates to the possibility that there will be a further change in the *mix* of monetary conditions in the direction of a lower exchange rate and higher interest rates than now assumed, perhaps as a result of financial market concern at the continuing increase in New Zealand's current account deficit. There has already been a significant depreciation of the New Zealand dollar, both against the US dollar and on a trade-weighted basis, over the last six months, though interestingly that depreciation has not been any greater since the beginning of the year than that of the Australian dollar, nor even much greater, against the US dollar, than that of major currencies such as the deutschemark or the yen. In other words, the 'depreciation of the New Zealand dollar' to date is more accurately thought of as an 'appreciation of the US dollar'. The New Zealand dollar certainly has not fallen in the way that many of the currencies in Asia have done.

But the current account deficit is projected to be significantly higher than we thought likely even as recently as September. At that time, we expected the current account deficit to peak at about 5.8 percent of GDP in the year to March 1998, trending down to 4.1 percent over the year to March 2000. We now project the deficit to average around 7.7 percent over the year to March 1998 (including the frigate imported this year) and, while trending down gradually, to still be at around 6.4 percent of GDP over the year to March 2000.

This markedly higher deficit is a result in part of slightly smaller trade and migrant transfer surpluses over the next few years, in part the result of a slightly higher services deficit over that period, but mainly the result of a significantly higher net deficit on investment income. That larger net deficit on investment income in turn is mainly the result not so much of higher profits earned by foreign companies operating in New Zealand as of a markedly lower projected track for the profits of New Zealand companies operating overseas, suggesting that New Zealand companies have been rather less successful in their investments overseas in the recent past than have foreign companies investing in New Zealand.

Whatever the reasons, the larger current account deficit could prompt a further change in the mix of monetary conditions and, if this were to happen, a lower exchange rate would tend to push prices up as compared with the track now projected. At the same time it is probably fair to note that the higher interest rates which could also result from reduced confidence in the New Zealand dollar might well prompt some downward movement in the housing components of the CPI, thus providing some offset to any exchange rate depreciation. If the exchange rate depreciation were large, however, it might still tend to push inflation above the track now projected, and require monetary conditions to be somewhat firmer than now projected.

Other issues

I want to cover a few other items.

First, despite some doubts which have been expressed about the way in which our Monetary Conditions Index is working, we are entirely happy with it. We are no more confident now than we were a year ago that we know with any degree of precision the comparative influence of interest rates and the exchange rate on medium-term inflation. Nor are we any more confident about the stability of that ratio over time. Clearly, our 'two-for-one' assumption is subject to very considerable uncertainty. That is why, even in the immediate aftermath of a new projection, we do not force monetary conditions to conform exactly with 'desired'. But the MCI reminds everybody that, in a small open economy, both interest rates and the exchange rate form important parts of the monetary policy transmission mechanism, and gives markets some guide to how we weight the relative importance of those channels. It is especially useful in helping public understanding

when, as often in the last 12 months and more, interest rates and the exchange rate are moving in opposite directions. While few other central banks use such an index in a formal sense at this time, it is clear that all central banks, even the Federal Reserve Board in the US, have to take exchange rate effects on inflation into account in determining the appropriate stance of monetary policy.

Secondly, some observers have suggested recently that the Reserve Bank tends to 'simply follow' where financial markets lead in terms of monetary conditions. It is certainly true that in recent times the market has tended to anticipate where the Bank wants monetary conditions to be so that, when each new quarterly projection is released, actual market conditions are often closely in line with the conditions which the Bank indicates as 'desired'. But as Dr Mervyn King, shortly to be Deputy Governor of the Bank of England, recently remarked, given a clear and publicly-known inflation target, a broad consensus on how the economy works, and access to the same information on the development of the economy, the central bank's conclusions about the appropriate stance of monetary policy should *not* be a surprise to the markets. Indeed, what *would* be surprising is if the central bank and the markets were at substantial or frequent variance. Of course, there will be times when the collective judgement of financial markets differs from that of the central bank, and on those occasions the central bank will need to make its own views known, as we ourselves do from time to time. But, as a rule, those occasions should be few and far between.

Thirdly, as we announced yesterday, a new Policy Targets Agreement has been signed by the Treasurer and me, and that defines the 0 to 3 percent target in terms of the CPI *excluding* credit services, or CPIX. That does not involve any change in the way in which monetary policy is formulated or implemented but, because interest rates were by far the most frequent reason for divergences between the official 'headline' rate of inflation and the Bank's measure of underlying inflation, moving to the CPIX has enabled the Bank to discontinue its underlying inflation series. Of course we will from time to time still need to give our best estimate of the impact of unusual or temporary disturbances on the CPIX, and from time to time need to explain divergences from the agreed inflation target range, as envisaged in the Policy Targets Agreement. But using the new index as the normal measure of the Bank's inflation performance can only further enhance the transparency of the monetary policy framework.

We are hopeful that, in 1999, we will be able to move to an index of consumption prices, involving not only the exclusion of interest rates from the measure of consumer price inflation but also the replacement of certain asset prices (such as new house and section prices) by an alternative measure of the price of actually using the *services* provided by those assets. The availability of this index, recently announced by the Government Statistician, will, we believe, be a marked advance.

Fourthly, a house-keeping matter. In the recent past, the timing of the release of our quarterly projections has seemed less than ideal in terms of the timing of the release by the Government Statistician of important data on the CPI, GDP and other matters. In some cases over the last year, indeed, the Bank's projections have been 'dated' within days of their release by data which has been unexpectedly at variance with the assumptions on which the Bank based its projections. For this reason, we are intending to change the dates on which we release our projections in 1998. We now plan to release *Economic Projections* in mid-March (as previously); our next *Monetary Policy Statement* in mid-May (some six weeks earlier than this year); our second *Economic Projections* for the year in mid-August; and our second *Monetary Policy Statement* for the year in mid-November.

Finally, let me respond to a criticism that I still hear occasionally, and that is that if only the Bank were not so single-minded in its focus on keeping inflation low, New Zealand would be able to

grow at a faster average rate, would have higher employment, or even would have a smaller balance of payments deficit. Getting sustainably higher economic growth, or more employment, or a lower balance of payments deficit are all worthy objectives. Unfortunately, there is not the slightest evidence, from New Zealand's own experience or from the experience of other countries, that they can be achieved by tolerating more inflation. If anybody thinks that they have such evidence, I'd be very keen to see it. So far nobody has produced any.

Monetary conditions easing too far

23 February 1998

David Archer, Chief Manager of the Reserve Bank's Financial Markets Department, said today that actual monetary conditions have eased too far over recent days.

"We would not be comfortable with any further easing in actual conditions at this stage, and would prefer to see conditions settle a little closer to the announced desired level."

Reserve Bank eases monetary policy again

18 March 1998

The Reserve Bank today announced a further easing of monetary policy. This is the fifth easing since late 1996, and came with the release of the Reserve Bank's March 1998 *Economic Projections*.

Today's move took the form of a 150 point drop in the desired level of the Bank's Monetary Conditions Index (MCI), to 500. This is a little lower than where actual monetary conditions have been in recent weeks.

Reserve Bank Governor Don Brash commented: "The economic outlook in Asia has deteriorated significantly since the Bank completed its last policy statement in December. Partly as a consequence, domestic consumer and business confidence have also fallen. These new developments make it appropriate for the Bank to ease monetary policy now by more than we had previously expected. Doing so should keep inflation near the centre of the target range, and should also reduce the risk of a sharp decline in economic activity.

"These effects are offset in part, but only in part, by the significant fall in the exchange rate in recent months, which will add directly to inflation in the short term. Looking further ahead, as we must do in setting monetary policy, Government tax cuts and the AMP demutualisation will also boost domestic spending. These conflicting forces each influence the way the Reserve Bank needs to run monetary policy to keep inflation within the 0 to 3 percent target range."

Dr Brash added that today's *Projections* came at a time of considerable uncertainty.

"These *Projections* suggest that further monetary policy easings are possible over the next year or so. But whether they take place will depend entirely on how the inflation outlook develops. For that, what happens in Asia and further abroad will matter a lot. But so too will events closer to home, including the extent to which households continue to increase their borrowings, and the willingness of international markets to continue to finance large current account deficits."

Notes for briefing journalists at the release of the March 1998

Economic Projections

18 March 1998

Economic circumstances have changed since December

Good morning.

Since we finalised our most recent *Monetary Policy Statement* in early December, it is our judgement that economic circumstances have changed quite significantly.

To be sure, since December the domestic economy has evolved more or less in line with our earlier expectations. In particular, inflation outcomes have been broadly in line with those we expected in December and we currently expect that output growth over the December 1997 and March 1998 quarters will also have been in line with our earlier view. But there have been three significant changes from what we had previously expected.

First, the exchange rate has fallen considerably more than projected.

Secondly, and perhaps most importantly, the outlook for world growth has been revised down substantially, largely because of developments related to the East Asian crisis. In these projections, we have again adopted a pessimistic view about world growth prospects. Although there are some positive signs emanating from East Asia – especially from Thailand and Korea – events in Indonesia are quite volatile, and Japan may be headed into outright recession. As a result, since December most observers have substantially lowered their estimates of growth in East Asia. Although prospects look solid for the US, Australia, and Europe, these prospects are not sufficient to offset the negative implications for New Zealand of lower Asian growth. As a consequence, we now believe that export growth will be substantially weaker than projected in December.

Thirdly, and no doubt in part related to the weaker international environment and media coverage of that, both consumer and business confidence have weakened significantly in recent months. This is likely to restrain domestic expenditure by more than we expected in early December. In addition, more subdued housing prices seem likely to alter households' views of their wealth, providing a further dampening influence on spending.

Overall, weaker export growth and weaker domestic demand tend to reduce output growth in the year to March 1999. This implies that aggregate supply will exceed aggregate demand by more than we had thought likely in December, and for a rather longer time.

Implications for inflation and monetary conditions

The implication of these changes – a lower exchange rate and weaker domestic and external demand than we had projected in December – is a slightly higher inflation track in the next two years but appreciably lower domestic inflationary pressures over most of the period covered by these projections.

As a result, we have lowered our assessment of desired monetary conditions for the June quarter from the 650 we projected in the December *Monetary Policy Statement* to 500, with a further easing in monetary conditions *conditionally* projected through the beginning of the year 2000. (I will come back to what I mean by 'conditionally' in a moment.)

Why, it might be asked, are we projecting such an easing given that the inflation track will be slightly *higher* than we projected in December? The reason is that, at this point, tighter monetary conditions would do little to prevent the near-term rise in inflation that we are projecting. Instead, taking a forward-looking approach, a loosening of monetary conditions now is warranted to offset the expected *disinflationary* consequences of the weaker profile for demand. Thus, today's easing, and the conditional easings projected for coming quarters, should serve to keep the inflation rate near the mid-point of the 0 to 3 per cent target range in the years to March 2000 and 2001.

Implications for the real economy

If things evolve in the way we now project, growth in GDP in the year to March 1999 (annual average) will be 2.8 percent, that in the year to March 2000 will be 4.2 percent, and that in the year to March 2001 will be 2.7 percent. This means that we are now projecting slightly lower growth in the year to March 1999 than we were in December (2.8 percent instead of 3.0 percent) but slightly stronger growth in the year to March 2000 (4.2 percent instead of 3.9 percent). Over the two years starting 1 April this year, therefore, the difference is negligible. (We did not previously project a GDP growth figure for the year to March 2001.)

Again if things evolve in the way we now project, we see government's operating balance as a share of GDP being slightly stronger than we did in December, with the balance of payments current account deficit being fractionally higher in the years to March 1998 and March 1999 but rather lower than previously projected in the following years.

At first sight it may appear that there is an inconsistency between the significant monetary policy easing envisaged in these *Projections* on the one hand and the slightly higher inflation outcomes and relatively robust economic growth on the other. But in fact there is no inconsistency.

In the absence of the monetary policy easing projected, economic growth would be considerably weaker than now projected for the years 2000 and 2001, and as a consequence inflation would be heading well below the middle part of the 0 to 3 percent inflation target. In fact, what we see in this situation is an illustration of how monetary policy exclusively focused on delivering price stability has the important ancillary benefit of smoothing business cycles also. While this inevitably means that we lean against a rapid expansion of demand when it looks likely that this will increase inflation, we also *ease* policy when this can be done without rekindling inflation, and this is particularly true if it looks as if inflation will head below the bottom of the 0 to 3 percent inflation target we have been set by Government.

Risks and uncertainties

You will have seen that, as usual, we have devoted a section of the document to a discussion of the risks and uncertainties in the projection. There are two risks which need to be particularly noted.

First, although the exchange rate has depreciated since the December *Monetary Policy Statement*, and that should ultimately help to improve our external position, the current account deficit is still expected to remain quite high over the projection period. While these *Projections* represent our best judgement about the likely course of the economy, financial market participants might take a different view. In particular, if concerns about the current account deficit increased, the currency might prove to be weaker than we are expecting. If so, interest rates would need to be higher than

we are now projecting to stem the inflationary consequences. As we note in the *Projections*, under some circumstances *overall* monetary conditions might need to remain tighter than now envisaged.

Secondly, it is possible that the outlook for demand could turn out to be different than we envisage. In this regard, a principal risk is the Asian crisis. The affected economies will begin to recover at some point, but when that will occur is still quite unclear. On the other hand, it is possible that growth in Europe and the US could provide a bigger offset to weak Asian demand than now expected.

The Bank will be watching these developments closely. And in that connection I need to stress that the track of future monetary conditions now projected is highly conditional. That has always been true, but it is particularly important to stress the point in a situation where the projected track shows quite a marked further change in monetary conditions. Because of the uncertainty involved, financial markets should understand that the Bank will resist vigorously any tendency to anticipate the easing now projected for the period beyond the June 1998 quarter.

We will not, of course, expect monetary conditions to be right on 500 on the Monetary Conditions Index at all times, any more than we have insisted on such a close correspondence between actual and desired monetary conditions in the past.

As I have indicated previously, our tolerance of deviations from the Bank's desired conditions will depend on the circumstances in which the deviation occurs. For example, we may be more willing to accept deviations which occur due to sharp adjustments in overseas exchange rates, where local interest rates and exchange rates take time to adjust. We are likely to be less complacent if monetary conditions change rapidly, and appear to be building some momentum, without any obvious developments which suggest that the future inflation track will be markedly different from that previously projected.

As a very approximate guide, we would expect actual monetary conditions to be within a range of plus or minus 50 MCI points from desired in the period immediately following a comprehensive inflation projection. As data comes to hand which may alter the inflation projection, and as our last comprehensive inflation projection recedes into history, we may well be more comfortable with a greater divergence between actual conditions and that now announced as desired.

Having said that, it is important to remember that we periodically reset the desired level of monetary conditions taking into account all new information, as well as changes in our views about what that information means for future inflation. Only in quite exceptional circumstances would we formally reset 'desired' monetary conditions other than in the context of that comprehensive quarterly review, but we may well, as indicated, become more tolerant of deviations of actual conditions from desired as new information suggests that that is warranted.

Criticisms of the Monetary Conditions Index

There have been two criticisms of the Monetary Conditions Index in recent months to which I would like to respond.

The first is that, because the Bank's measure of the New Zealand dollar exchange rate, the TWI, includes no Asian currencies except the Japanese yen, the exchange rate component of the MCI

significantly overstates the recent fall in the New Zealand dollar and therefore overstates the extent to which monetary conditions have eased in recent months. It is certainly true that the Bank's TWI does not include any of the currencies against which the New Zealand dollar has appreciated very sharply recently, but it does not follow that the TWI seriously overstates the extent to which the New Zealand dollar's recent depreciation affects New Zealand inflation, which is, of course, our only concern. Box 3, which starts on page 23, tries to deal with that issue. The key point is that we still believe that the TWI is a reasonable approximation of the extent to which movements in the New Zealand dollar affect our inflation rate.

Moreover, even if the fall in the TWI slightly overstates the impact which recent exchange rate movements are likely to have on our inflation rate, it is quite likely that there is an offsetting overstatement arising from the way in which interest rates are measured in the MCI. At the present time, we factor in the influence of interest rates on the inflation rate by including the 90 day interest rate in our MCI. But in the last year or two there has been a very strong increase in bank lending which is priced not off the 90 day interest rate but off interest rates further down the yield curve. Partly because of recent very strong capital inflow in the form of Eurokiwi bond issues, these longer-term interest rates have tended to be significantly lower than 90 day interest rates. What is relevant for my argument is that, in recent months, the 90 day interest rate has increased quite strongly and that has been incorporated into the calculation of our MCI. Had we been using a longer-term interest rate – perhaps a one year or three year interest rate, for example – the effect would have been to show a significantly greater easing in monetary conditions than that shown by the MCI as presently constructed.

Of course, this simply illustrates something which we have always recognised: the MCI is not perfect. It does not take account of a host of relevant financial market prices, including longer-term interest rates, share market prices, and forward exchange rates. But then we have never suggested for a moment that it is perfect, and I suspect that we will continue to fine-tune it in the years ahead. Criticism from market commentators will be helpful in that regard. One of the reasons for allowing actual monetary conditions to diverge from 'desired' is precisely this uncertainty about the precise weights to be given to different components of monetary conditions. But the MCI has the important benefit that it forces financial markets and the Reserve Bank to consider the impact of *both* interest rates and the exchange rate when assessing the influence of monetary policy on inflation, and we have no intention of abandoning it. When we prepare our quarterly inflation projections, we do not use the MCI as such, but rather look at each of the various factors which have a bearing on inflation over the policy-relevant period. The MCI is useful therefore primarily as a guide to financial markets *between* these quarterly projections; comparing the absolute level of monetary conditions as measured by the MCI over a long period of time has little meaning.

The second criticism of the MCI tends to come not so much from New Zealand financial market commentators as from the local business community and from overseas funds managers. How, it is sometimes asked, can you claim that monetary policy is easing when 90 day interest rates are high or rising? Or more simply, given reduced inflationary pressures, why isn't the Reserve Bank easing monetary policy?

My response to that criticism is that the Bank has been sanctioning a gradual easing of monetary policy for more than a year. One can debate, of course, whether we should have been easing more aggressively, though there is little evidence in the inflation outcomes so far that a more aggressive easing would have been warranted. But overall monetary conditions have been steadily easing, with a substantial fall in the exchange rate (some 10 percent from its peak on a TWI basis, some 18

percent against the US dollar) offset by some increase in short-term interest rates. The fall in the exchange rate will, in our judgement, provide more stimulus to the economy, and thus more upwards pressure on inflation, than the rise in short-term interest rates will dampen demand and inflationary pressures. In other words, in our judgement the overall impact of monetary policy over the last year has been to stimulate aggregate demand and thus to offset the disinflationary forces which are outlined in the *Projections*.

Given the slowing but still-strong domestic demand for credit, and the size of the balance of payments deficit, it is neither a source of surprise nor dismay that recent easing in monetary conditions has taken the form of a lower exchange rate and higher interest rates. No doubt as the demand for credit slows further, and the balance of payments deficit shrinks, the mix of monetary conditions will change again.

The last issue of *Economic Projections*

I mentioned in December that we were proposing to modify the timetable for issuing *Monetary Policy Statements* and *Economic Projections* from 1998, with our next *Monetary Policy Statement* published in mid-May (instead of late June, as in recent years), our next *Economic Projections* published in mid-August (instead of in September), and our final *Monetary Policy Statement* for the year published in mid-November (instead of in December). This change was essentially related to the timing of some key data releases by the Government Statistician.

We have now decided to discontinue publishing a document entitled *Economic Projections*. In other words, this March 1998 edition will be the last.

Instead, we propose to call all major published analyses of the inflation outlook *Monetary Policy Statements*. The Reserve Bank Act requires us to publish such *Statements* at least every six months, and in fact we will usually issue them at approximately quarterly intervals. It may be that there will be some variation in the content of the *Statements* from time to time, with some devoting more emphasis to some issues than others, but there will be no significant change in the frequency with which we comment on the inflation outlook.

We are making this change partly to reduce public and media confusion (until now we have effectively published inflation projections each quarter but only issued *Monetary Policy Statements* six-monthly) and partly to reflect the fact that the two documents have evolved over time to the point where they are, from the point of view of financial markets, of equal importance as statements of the Bank's view.

Markets over-react to policy easing

27 March 1998

Reserve Bank Governor, Don Brash, today responded to financial markets' increasing over-reaction to the policy easing announced by the Bank last week.

"Last week we eased monetary policy significantly. Monetary conditions adjusted fully to that move, and indeed have increasingly anticipated further policy easings to too great an extent.

"We have been waiting to see whether the easing in monetary conditions would moderate of its

own accord, and have been conscious that new data is due today and Monday. That moderation has not happened. We will of course be watching carefully what implications the emerging data will have for the inflation outlook. We may need to adjust the cash target”, Dr Brash warned.

“I am aware that many people will be puzzled by the idea that monetary conditions have eased too much when interest rates have risen. However, the exchange rate has fallen substantially. Monetary conditions are a combination of interest rates and the exchange rate, and the combination of the two has gone too far at this time”, Dr Brash said.

Confusion over interpretation of recent *Economic Projections*

30 March 1998

The significance of parts of the Reserve Bank’s 18 March *Economic Projections* have been misinterpreted by some, the Reserve Bank said today.

That’s come in a speech to a Stratford business audience by Reserve Bank Monetary Policy Implementation Manager Michael Reddell.

Mr Reddell said: “An impression seems to have formed that, when the Reserve Bank eased monetary policy on 18 March, we also specifically set out to push the exchange rate down and interest rates up. That is not correct.

“Both interest rates and the exchange rate influence inflation. Monetary policy can alter these two in combination, but whether one goes up and the other goes down, or *vice versa*, is beyond the control of the Reserve Bank. Rather, it is the result of trading in the financial markets, reflecting decisions taken by many thousands of people, both here and abroad.

“Following our latest easing (18 March), demand for New Zealand currency fell. This was because investors here and abroad concluded that this and possible future monetary policy easings mean the exchange rate will fall further, and that to avoid additional losses they should sell now. That is simply supply and demand at work.

“In response to the exchange rate falling, markets have also pushed up interest rates. If interest rates had not gone up, the exchange rate fall would have taken overall monetary conditions well below the level currently required by the Reserve Bank to maintain price stability over the medium term. Overall monetary conditions have, of course, still eased substantially since the release of the *Economic Projections*.”

Mr Reddell then said that there had also been some misunderstanding about the status of the Reserve Bank’s projections for interest rates and the exchange rate.

“Our projections for interest rates and the exchange rate are one scenario, based loosely on the way we think the economy and markets work. But that’s all they are. They don’t decide events and are not an instruction or even guidance to the markets. The Reserve Bank sets a target level for overall monetary conditions, but that’s all. The fact that we built into the projections some further exchange rate falls and, in the short term, further interest rate rises, rather than the other way around, simply reflected our sense of what might happen, as opposed to anything we specifically set out to achieve.”

Mr Reddell added that the impression that somehow the Reserve Bank had recently changed its approach to monetary policy was also wrong.

“The Reserve Bank is not putting less emphasis on price stability than previously – we have not gone soft on inflation. Nor have we changed the way we present our – highly conditional – future path for monetary conditions in the Bank’s quarterly policy statements. As in the past, our indications of where monetary conditions may go in the future are our best judgement, based on the information available when the *Projections* were done. The forward track in our projections has changed, because the world has changed. In other words, the economic outlook has changed, but our approach to it has not,” Mr Reddell concluded.

Appendix 3: Policy Targets Agreement

This agreement between the Treasurer and the Governor of the Reserve Bank of New Zealand (the Bank) is made under sections 9(1) and 9(4) of the Reserve Bank of New Zealand Act 1989 (the Act), and shall apply for the balance of the Governor's present term and for his next five year term, expiring on 31 August 2003. It replaces that signed on 10 December 1996.

In terms of section 9 of the Act, the Treasurer and the Governor agree as follows:

1. Price stability

Consistent with section 8 of the Act and with the provisions of this agreement, the Bank shall formulate and implement monetary policy with the intention of maintaining a stable general level of prices, so that monetary policy can make its maximum contribution to sustainable economic growth, employment and development opportunities within the New Zealand economy.

2. Policy target

- a) In pursuing the objective of a stable general level of prices, the Bank shall monitor prices as measured by a range of price indices. The price stability target will be defined in terms of the All Groups Consumers Price Index excluding Credit Services (CPIX), as published by Statistics New Zealand.
- b) For the purpose of this agreement, the policy target shall be 12-monthly increases in the CPIX of between 0 and 3 percent.
- c) Notwithstanding clause 2(a), the Treasurer and the Governor may agree to use an alternative index of consumer price inflation following the implementation of the changes to the calculation of consumer prices proposed by the Government Statistician to take effect during 1999.

3. Unusual events

- a) There is a range of events that can have a significant temporary impact on inflation as measured by the CPIX, and mask the underlying trend in prices which is the proper focus of monetary policy. These events may even lead to inflation outcomes outside the target range. Such disturbances include, for example, shifts in the aggregate price level as a result of exceptional movements in the prices of commodities traded in world markets, changes in indirect taxes, significant government policy changes that directly affect prices, or a natural disaster affecting a major part of the economy.
- b) When disturbances of the kind described in clause 3(a) arise, the Bank shall react in a manner which prevents general inflationary pressures emerging.

4. Implementation and accountability

- a) The Bank shall constantly and diligently strive to meet the policy target established by this agreement.
- b) It is acknowledged that, on occasions, there will be inflation outcomes outside the target range. On those occasions, or when such occasions are projected, the Bank shall explain in Policy Statements made under section 15 of the Act why such outcomes have occurred, or are projected to occur, and what measures it has taken, or proposes to take, to ensure that inflation comes back within that range.
- c) The Bank shall implement monetary policy in a sustainable, consistent and transparent manner.
- d) The Bank shall be fully accountable for its judgements and actions in implementing monetary policy.

Appendix 4: Summary tables

Table A
CPI inflation projections and monetary conditions
 (CPIX and CPI are percentage changes)

	CPIX		CPI		TWI	90-day rate	MCI		
	Quarterly	Annual	Quarterly	Annual			Nominal	Real	
1995	Mar.	0.5	2.6	1.2	4.0	59.8	9.4	474	414
	Jun.	0.6	2.7	1.0	4.6	60.8	9.1	527	458
	Sep.	0.4	2.2	0.2	3.5	61.7	9.0	590	579
	Dec.	0.6	2.1	0.6	2.9	61.9	8.5	557	578
1996	Mar.	0.6	2.1	0.5	2.2	64.2	8.7	759	765
	Jun.	0.8	2.3	0.8	2.0	64.6	9.7	890	886
	Sep.	0.4	2.3	0.6	2.4	65.6	10.0	997	1004
	Dec.	0.7	2.4	0.7	2.6	67.1	8.9	1000	1000
1997	Mar.	0.2	2.0	-0.3	1.8	68.4	7.5	956	979
	Jun.	0.3	1.5	0.1	1.1	68.0	7.2	897	955
	Sep.	0.7	1.8	0.5	1.0	64.8	8.1	746	802
	Dec.	0.5	1.6	0.6	0.8	63.9	7.9	656	750
1998	Mar.	0.3	1.7	0.2	1.3	61.2	8.9	550	669
	Jun.	0.2	1.6	0.3	1.5	59.0	9.1	375	525
	Sep.	0.4	1.3	0.3	1.3	58.7	9.1	350	550
	Dec.	0.4	1.2	0.4	1.1	58.4	8.5	275	475
1999	Mar.	0.5	1.4	0.2	1.1	58.5	8.0	225	425
	Jun.	0.5	1.6	0.1	0.9	58.7	7.6	200	375
	Sep.	0.5	1.7	0.2	0.8	58.9	7.3	200	325
	Dec.	0.4	1.8	0.3	0.7	59.4	7.0	200	300
2000	Mar.	0.4	1.8	0.3	0.8	59.8	6.8	225	300
	Jun.	0.4	1.7	0.3	1.0	60.2	6.7	225	325
	Sep.	0.4	1.7	0.4	1.3	60.8	6.8	300	350
	Dec.	0.4	1.6	0.5	1.5	61.3	7.1	375	400
2001	Mar.	0.4	1.5	0.6	1.9	61.8	7.5	450	475

Table B
World outlook
 (Annual average percentage change)

March year	Actuals										Projections		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001			
Industrial production	-0.9	-0.9	-0.4	5.5	2.5	2.5	3.7	1.3	3.4	2.8			
World CPI inflation	3.2	2.7	1.9	2.2	2.5	2.6	2.6	1.7	2.1	2.3			
Domestic													
Import prices	1.0	6.7	-2.7	-1.8	-0.7	-3.4	1.6	5.2	-1.5	-1.6			
Export prices	-1.3	9.3	-1.2	-2.1	-2.8	-4.2	0.2	7.0	1.4	-1.3			
Terms of trade	-2.3	2.4	1.5	-0.3	-2.2	-0.9	-1.4	1.7	2.9	0.3			
March quarter													
World 90-day rate	4.7	3.6	3.7	6.5	5.7	5.5	5.5	5.8	5.8	5.7			
World bond rate	7.8	6.7	6.2	8.0	6.4	6.8	5.6	6.3	6.4	6.2			

e = estimate

Table C
Composition of real GDP growth

(Annual average percentage change, unless specified otherwise)

March year	Actuals							Projections		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001
Final consumption expenditure										
Private	-2.0	0.3	3.2	6.1	4.1	4.1	3.4	2.1	2.5	2.7
Public authority	0.0	3.0	-1.1	-0.9	2.8	2.2	6.1	1.7	-0.6	3.1
Total	-1.6	0.9	2.3	4.6	3.9	3.7	3.9	2.0	1.9	2.8
Gross fixed capital formation										
Market sector:										
Residential	-15.3	2.8	17.1	12.2	-0.7	2.0	7.1	-8.3	2.8	3.5
Business	-20.7	5.3	20.3	16.1	14.1	4.9	-3.1	4.7	9.7	9.8
Non-market government sector	-3.5	-3.1	8.4	36.9	3.2	24.4	21.2	2.2	0.5	3.7
Total	-17.6	3.7	18.2	17.2	9.3	6.4	2.2	1.5	6.9	7.7
Final domestic expenditure	-4.6	1.3	5.0	7.0	5.0	4.3	3.5	1.9	3.0	3.9
Stockbuilding ⁽¹⁾	0.0	0.7	1.1	0.0	-0.7	-0.4	0.4	-0.2	0.4	0.0
Gross national expenditure	-4.6	2.0	6.1	6.9	4.2	3.9	3.8	1.7	3.3	3.8
Exports of goods and services	9.3	2.5	7.9	8.4	2.6	3.8	2.0	0.7	5.9	4.5
Imports of goods and services	-3.8	7.4	8.0	14.3	7.3	6.9	4.3	0.3	3.7	5.4
Expenditure on GDP	-1.1	0.8	6.1	5.3	2.7	2.9	3.1	1.9	4.0	3.5
GDP (production)	-1.2	1.2	6.2	5.4	3.6	2.7	2.5	2.2	4.0	3.5
GDP (production, March qtr to March qtr)	0.7	2.0	6.8	4.7	3.3	1.6	2.7	3.0	4.3	2.9
Potential output	0.4	1.4	2.8	3.6	3.9	3.8	3.7	3.5	2.6	2.4
Output gap (year average)	-2.6	-2.9	0.4	2.1	1.8	0.8	-0.4	-1.7	-0.3	0.7

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		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001
Compensation of employees	-1.1	2.4	4.4	6.4	6.6	5.5	2.7	2.7	5.2	5.2
Other income	0.2	-2.5	4.7	4.9	9.4	5.8	4.2	8.0	1.7	2.7
Total income	-0.5	-0.1	4.5	5.6	8.0	5.6	3.5	5.4	3.4	3.9
Nominal disposable income	2.4	-0.4	5.0	5.0	6.9	5.4	4.1	5.6	4.4	4.2
Consumption deflator	2.2	1.7	1.7	1.9	2.5	1.7	1.1	1.3	1.8	1.6
Real disposable income	0.2	-2.0	3.2	3.0	4.3	3.6	3.0	4.2	2.6	2.5
Real household consumption	-2.2	0.3	3.1	6.1	3.9	4.0	3.4	1.9	2.4	2.6
Household savings rate ⁽¹⁾	6.5	4.3	4.4	1.5	1.8	1.4	1.0	3.2	3.5	3.4

e = estimate

⁽¹⁾ Percentage of disposable income.

Table E
Fiscal accounts
(\$ billion)

June year	Actuals							Projections		
	1993	1994	1995	1996	1997	1998e	1999	2000	2001	
Revenue										
Direct taxation	16.6	17.6	19.8	21.3	20.5	21.7	21.6	22.8	23.9	
Indirect taxation	9.2	10.1	10.4	11.0	11.4	11.9	12.1	12.4	12.8	
Non-tax revenue	4.0	2.5	3.4	2.8	2.9	2.5	2.6	2.7	2.8	
Total revenue	29.8	30.2	33.6	35.1	34.8	36.0	36.4	37.8	39.5	
Total expenses	31.4	29.6	30.4	31.7	33.0	34.4	35.8	36.9	37.9	
Revenue less expenses	-1.6	0.5	3.2	3.3	1.8	1.7	0.5	1.0	1.6	
Net surplus attributable to SOEs and Crown entities	0.8	0.2	-0.6	0.0	0.1	1.1	0.9	1.0	1.1	
Operating balance (% of nominal expenditure GDP)	-0.8	0.8	2.7	3.3	1.9	2.8	1.5	2.0	2.7	
	-1.1	0.9	3.1	3.6	2.0	2.7	1.4	1.7	2.3	
Net public debt (% of nominal expenditure GDP)	37.1	35.4	32.6	28.6	25.3	24.3	24.3	23.4	22.3	
	48.7	43.1	37.1	31.1	26.3	24.1	22.8	20.9	19.1	

e = estimate

Table F
Investment
 (Annual average percentage change)

March year	Actuals							Projections		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001
Plant and machinery (excluding computers)	-22.9	15.6	25.8	19.4	12.7	3.8	3.3	7.4	11.6	9.8
Transport equipment	-24.6	14.5	25.0	13.7	7.6	-1.4	-4.3	4.0	11.2	9.8
Commercial buildings	-20.9	25.4	21.0	11.0	6.8	12.4	-23.4	4.3	5.4	8.6
Other	-38.4	2.1	26.1	26.9	22.8	-0.4	-6.7	-3.7	14.9	14.4
	9.5	-30.7	-7.4	-7.7	22.0	7.8	4.7	4.1	-3.4	3.4
Market sector business investment (excluding computers)	-20.7	5.3	20.3	16.1	14.1	4.9	-3.1	4.7	9.7	9.8
	-21.4	4.3	19.6	12.9	11.7	2.4	-7.8	2.5	9.1	9.8
Market sector residential investment	-15.3	2.8	17.1	12.2	-0.7	2.0	7.1	-8.3	2.8	3.5
Total market sector investment	-19.2	4.6	19.4	15.0	10.1	4.2	-0.7	1.4	8.1	8.4
Government (non-market) investment	-3.5	-3.1	8.4	36.9	3.2	24.4	21.2	2.2	0.5	3.7
Total investment (excluding computers)	-17.6	3.7	18.2	17.2	9.3	6.4	2.2	1.5	6.9	7.7
	-18.1	3.0	17.5	15.0	7.2	4.3	-1.3	-0.6	5.9	7.3

e = estimate

Table G
Trade volumes and the current account

March year	Actuals							Projections		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001
Trade volumes (Annual average percentage change)										
Exports of goods	10.3	0.6	6.9	7.2	0.8	6.9	4.8	0.6	5.2	4.3
Exports of services	5.9	9.5	11.3	12.5	8.1	-4.9	-7.2	1.2	8.5	5.3
Total exports	9.3	2.5	7.9	8.4	2.6	3.8	2.0	0.7	5.9	4.5
Imports of goods	-5.7	8.1	12.1	15.6	7.0	7.3	4.6	-0.2	4.0	5.7
Imports of services	3.0	5.1	-5.3	9.1	8.2	5.0	3.2	2.4	2.6	4.0
Total imports	-3.8	7.4	8.0	14.3	7.3	6.9	4.3	0.3	3.7	5.4
Current account (\$ billion March year annual total)										
Merchandise trade balance	3.6	3.4	3.1	2.1	0.9	0.9	0.8	1.9	3.2	3.1
Services balance	-1.4	-1.7	-0.9	-0.6	-0.2	-0.6	-1.5	-2.5	-2.1	-1.9
Investment income balance	-4.8	-3.9	-4.5	-6.0	-6.0	-7.1	-8.2	-8.2	-8.3	-8.6
Transfers balance	0.7	0.9	1.5	1.8	2.5	2.3	0.6	0.5	0.8	0.9
Current account	-1.9	-1.3	-0.8	-2.6	-2.8	-4.5	-8.2	-8.3	-6.5	-6.5
(% of nominal production GDP)										
(% of nominal production GDP ex migrants' transfers)	-2.6	-1.7	-1.0	-3.1	-3.1	-4.7	-8.2	-7.8	-5.8	-5.5
	-3.3	-2.6	-2.3	-4.7	-5.4	-6.2	-8.3	-7.8	-6.0	-5.8

e = estimate

Errors in adding up the current account are due to rounding

Table H
Labour market

March year	Actuals							Projections		
	1992	1993	1994	1995	1996	1997	1998e	1999	2000	2001
Change in labour force:										
Natural increase (000's)	17.5	13.7	15.4	16.1	16.3	16.7	19.7	16.1	16.2	16.2
Net migration (000's)	1.7	2.8	6.5	9.2	13.0	9.1	-0.2	-3.7	-0.1	3.0
Increase in participation (000's)	-10.0	-14.5	27.9	9.6	29.3	0.1	-3.6	13.8	11.0	7.3
Total change in labour force (000's)	9.1	2.1	49.8	34.8	58.6	25.9	15.9	26.1	27.1	26.5
March quarter										
Population of working age (000's)	2574	2600	2634	2673	2718	2757	2787	2805	2829	2858
Labour force participation rate (%)	63.8	63.2	64.3	64.7	65.7	65.7	65.6	66.1	66.5	66.8
Total labour force (000's)	1641	1643	1693	1728	1787	1813	1828	1855	1882	1908
Total employment (000's)	1460	1475	1532	1608	1671	1688	1691	1710	1753	1793
Annual growth (%)	-0.8	1.0	3.9	5.0	3.9	1.1	0.1	1.2	2.5	2.3
Unemployment (000's)	181	168	161	120	116	124	138	144	128	115
Unemployment rate	11.1	10.2	9.5	6.9	6.5	6.9	7.5	7.8	6.8	6.0
Unemployment rate (s.a.)	10.6	9.8	9.1	6.6	6.1	6.4	7.1	7.4	6.5	5.7
Total hours worked	0.4	2.8	3.4	6.2	4.3	-2.2	-0.5	2.3	2.3	2.1
Annual growth (%)										
Labour productivity	1.1	-0.5	2.2	0.0	-0.2	1.3	2.6	2.1	1.6	1.3
Annual growth (%)										
QES private sector wages (\$ per hour)	14.0	14.1	14.3	14.6	15.1	15.7	16.2	16.6	17.1	17.6
Annual growth (%)	2.8	0.7	1.4	2.1	3.7	4.0	2.9	2.8	2.9	2.8

e = estimate

Table I Short-term projections

(Quarterly percentage changes, unless specified otherwise)

Quarterly average	Actuals/Estimates						Projections					
	Dec-96	Mar-97	Jun-97	Sep-97	Dec-97	Mar-98	Jun-98	Sep-98	Dec-98	Mar-99		
Price measures												
CPIX	0.7	0.2	0.3	0.7	0.5	0.3	0.2	0.4	0.4	0.5		
CPI	0.7	-0.3	0.1	0.5	0.6	0.2	0.3	0.3	0.4	0.2		
Wages	0.6	1.4	1.0	0.6	0.4	0.9	1.0	0.3	0.4	1.1		
House prices	2.7	2.3	0.9	0.6	1.4	-1.0	-0.7	-0.5	-0.2	0.0		
Construction costs (residential)	0.4	0.2	1.0	1.4	1.4	0.5	0.2	0.0	0.1	0.2		
Import prices	-0.9	-0.7	0.1	2.5	0.6	3.2	1.6	0.2	0.2	-0.5		
Monetary conditions (level)												
Nominal MCI	1000	956	897	746	656	550	375	350	275	225		
TWI	67.1	68.4	68.0	64.8	63.9	61.2	59.0	58.7	58.4	58.5		
90-day rate	8.9	7.5	7.2	8.1	7.9	8.9	9.1	9.1	8.5	8.0		
Output and employment (seasonally adjusted)												
GDP (production)	0.8	-0.4	1.4	0.6	0.5	0.2	0.4	0.7	1.0	0.9		
Total employment	-0.5	0.0	0.1	-0.1	0.3	-0.2	0.0	0.1	0.3	0.8		

Appendix 5: Notes for the tables

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 of Australia, Japan, United States, United Kingdom and Germany.
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 90-day 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. 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.
Industrial production	Actuals sourced from OECD. Projections based on <i>Consensus Forecasts</i> . (Currently adjusted by a 14-country index over the projection period.) Seasonally adjusted.
World CPI inflation	RBNZ definition and estimate: TWI trading partners' CPI inflation, weighted by TWI weights. Projections based on <i>Consensus Forecasts</i> .
Import prices	Domestic-currency import prices. <i>Overseas Trade Index.</i>
Export prices	Domestic-currency export prices. <i>Overseas Trade Index.</i>
Terms of trade	Constructed using domestic-currency export and import prices, <i>Overseas Trade Indices</i> .
World 90-day rate	RBNZ definition and estimate: 80:20 weighted combination of US and Australian short-term (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 long-term (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: <i>System of National Accounts</i> annual nominal Government non-market/market investment ratio interpolated into quarterly data. This ratio is used to split real quarterly expenditure GDP Government Investment into market and non-market.
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 made by SNA 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	Reserve Bank of New Zealand 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</i> , G97/9.
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	Percentage of nominal GDP (expenditure), June year.
Net public debt	Historical source: The Treasury. Projection adjusted for the difference between The Treasury and RBNZ's operating balance forecasts.
Plant and machinery investment	RBNZ definition: market sector plant and machinery investment. <i>System of National Accounts</i> .
(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 (excluding computers)	<i>System of National Accounts.</i> 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, Valuation New Zealand.
Construction Costs (residential)	Component of the Housing Group, Consumer Price Index.
Quarterly percentage change	$(\text{Quarter}/\text{Quarter}_{-1}) * 100$
Annual percentage change	$(\text{Quarter}/\text{Quarter}_{-4}) * 100$
Annual average percentage change	Also defined as: annual average % change. $(\text{Year}/\text{Year}_{-1}) * 100$
Source:	Unless otherwise specified, all data conform to Statistics New Zealand definitions, and are not seasonally adjusted.