



Monetary Policy Statement

February 2019

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ISSN 1770-4829

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February 2019

Projections and data finalised on 7 February 2019.

Policy assessment finalised on 13 February 2019.



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Policy Targets Agreement

Context

The Government's economic objective is to improve the wellbeing and living standards of New Zealanders through a sustainable, productive and inclusive economy. Our priority is to move towards a low carbon economy, with a strong diversified export base, that delivers decent jobs with higher wages and reduces inequality and poverty.

Monetary policy plays an important role in supporting the Government's economic objective. The Government expects monetary policy to be directed at achieving and maintaining stability in the general level of prices over the medium term and supporting maximum sustainable employment.

This agreement between the Minister of Finance and the Governor of the Reserve Bank of New Zealand (the Bank) is made under section 9 of the Reserve Bank of New Zealand Act 1989 (the Act). The Minister and the Governor agree as follows:

1 Monetary policy objective

- a) Under Section 8 of the Act the Reserve Bank is required to conduct monetary policy with the goal of maintaining a stable general level of prices.

- b) The conduct of monetary policy will maintain a stable general level of prices, and contribute to supporting maximum sustainable employment within the economy.

2 Policy target

- a) The price stability target will be defined in terms of the All Groups Consumers Price Index (CPI), as published by Statistics New Zealand.
- b) For the purpose of this agreement, the policy target shall be to keep future annual CPI inflation between 1 and 3 percent over the medium-term, with a focus on keeping future inflation near the 2 percent mid-point.
- c) The Bank will implement a flexible inflation targeting regime. In particular the Bank shall, in pursuing the policy target:
 - i. have regard to the efficiency and soundness of the financial system;
 - ii. seek to avoid unnecessary instability in output, employment, interest rates, and the exchange rate; and
 - iii. respond to events whose impact on inflation is expected to be temporary in a manner consistent with meeting the medium-term target.

3 *Transparency and accountability*

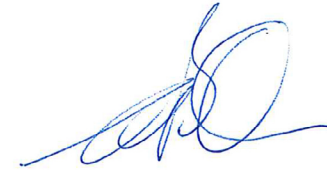
- a) The Bank shall implement monetary policy in a transparent manner. In addition to the requirements of section 15 of the Act the Bank shall in its *Monetary Policy Statement* (MPS):
- i. explain what measures it has taken into account in respect of meeting the requirements of section 2(c) and explain how these matters have been taken into account in its implementation of monetary policy; and
 - ii. when inflation outcomes, and/or expected inflation outcomes, are outside of the target range explain the reasons for this; and

iii. explain how current monetary policy decisions contribute to supporting maximum levels of sustainable employment within the economy.

- b) The Bank shall be fully accountable for its judgements and actions in implementing monetary policy.



Hon Grant Robertson
Minister of Finance



Adrian Orr
Governor Designate
Reserve Bank of New Zealand

Dated at Wellington this 26th day of March 2018

Monetary Policy Statement in pictures

February 2019



Official Cash Rate is 1.75 percent

The official interest rate remains at 1.75 percent. We expect to keep the OCR at this level through 2019 and 2020.



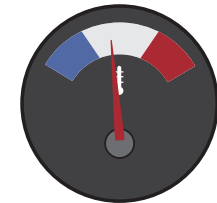
Low interest rates needed to support economic growth and inflation



Tailwinds from a strong global economy are easing



Economic growth is supporting job creation



Inflation remains below the target mid-point

We are monitoring a number of risks, and overall these appear evenly balanced for the Official Cash Rate (OCR). If any of these risks materialise we may need to change the OCR, to ensure inflation returns to our target of 2 percent per year and to support maximum sustainable employment.

LATEST ANNUAL STATISTICS

Economic growth: 2.6 percent (Q3 2018) • Inflation: 1.9 percent (Q4 2018) • Employment growth: 2.3 percent (Q4 2018)

Low interest rates needed to support economic growth and inflation

The Reserve Bank has kept the official interest rate at low levels. Low interest rates help to stimulate the economy by encouraging consumers to spend, and businesses to invest and hire more people. This lifts economic activity and supports inflation.

Inflation is near our 2 percent target, partly due to the large increases in petrol prices over 2018 which have now reversed. Therefore, to keep inflation close to target, the economy needs continued support from monetary policy.



Tailwinds from a strong global economy are easing

The New Zealand economy relies a lot on trade with the rest of the world. In recent years, healthy growth in the global economy has supported demand for our exports.

The New Zealand dollar has weakened since 2017. This means that New Zealanders get better prices for their exports (helping to boost export incomes), but it also means that the cost of imports has risen.

There are signs that growth in the global economy is starting to slow down, in part because of uncertainty around trade policies. Global growth is expected to slow over the next few years, which may reduce demand for our exports.



Economic growth is supporting job creation

The New Zealand economy is expanding at a solid pace, but more slowly than before. Demand for labour has remained strong, and the number of people unable to find a job has fallen over the past year. There are 60,000 more people employed than a year ago. Employment is near its sustainable level.

Government spending on hospitals, housing, and transport infrastructure will boost economic activity and job growth. Low interest rates will also encourage consumers to spend and businesses to invest, further supporting the economy.

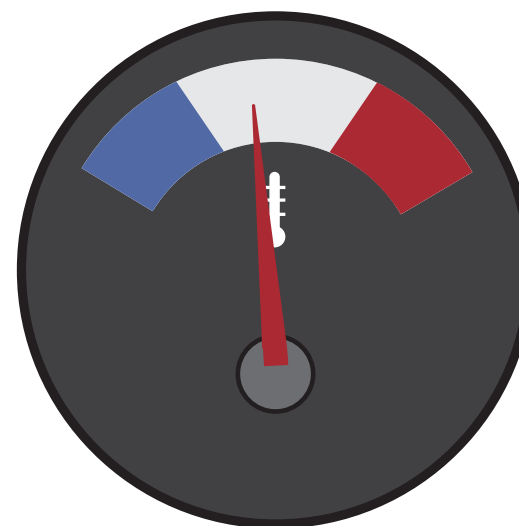
There is a risk that economic growth could slow down further over the next year if a global slowdown reduces demand for our products. Should that happen, we could lower interest rates to support employment and ensure inflation remains around 2 percent.



Inflation remains below the target mid-point

Over the second half of 2018, an increase in petrol prices pushed inflation very close to our 2 percent target. However, petrol prices have fallen over the last few months, meaning that inflation is likely to be below target this year. Other consumer prices are rising only slowly, despite rising costs for businesses. Strong competition is making it harder for businesses to raise prices.

With high government spending and low interest rates, the economy should continue to grow, and price pressure should increase. Wages are likely to rise as competition for workers increases. We expect a gradual increase in inflation, but shrinking profit margins might mean that businesses raise their prices more quickly than we expect. Faster increases in inflation would cause us to raise interest rates sooner.



Chapter 1

Policy assessment



Tena koutou katoa, welcome all.

The Official Cash Rate (OCR) remains at 1.75 percent. We expect to keep the OCR at this level through 2019 and 2020. The direction of our next OCR move could be up or down.

Employment is near its maximum sustainable level. However, core consumer price inflation remains below our 2 percent target mid-point, necessitating continued supportive monetary policy.

Trading-partner growth is expected to further moderate in 2019 and global commodity prices have already softened, reducing the tailwind that New Zealand economic activity has benefited from. The risk of a sharper downturn in trading-partner growth has also heightened over recent months.

Despite the weaker global impetus, we expect low interest rates and government spending to support a pick-up in New Zealand's GDP growth over 2019. Low interest rates, and continued employment growth, should support household spending and business investment. Government spending on infrastructure and housing also supports domestic demand.

As capacity pressures build, consumer price inflation is expected to rise to around the mid-point of our target range at 2 percent.

There are upside and downside risks to this outlook. A more pronounced global downturn could weigh on domestic demand, but inflation could rise faster if firms pass on cost increases to prices to a greater extent.

We will keep the OCR at an expansionary level for a considerable period to contribute to maximising sustainable employment, and maintaining low and stable inflation.

Meitaki, thanks

Adrian Orr

A handwritten signature in blue ink, appearing to be 'A. Orr', with a long horizontal line extending to the right.

Governor

Chapter 2

Key policy judgements



- Considerable monetary stimulus and an improving global economy over the past few years have contributed to rising employment and a pick-up in underlying inflation. Employment is estimated to be near its maximum sustainable level.
- However, tailwinds to growth have eased. Trading-partner growth is starting to slow, partly because of trade tensions and tighter financial conditions. Domestically, GDP growth has slowed and business confidence is low.
- Monetary stimulus remains necessary to support growth. Monetary and fiscal stimulus are expected to lift GDP growth during 2019, contributing to higher capacity pressure and employment. As capacity pressure builds, and the dampening effect of past low headline inflation fades, inflation is projected to increase towards the target mid-point.
- The outlook is subject to numerous uncertainties and judgements. Two key judgements are that firms continue to adjust prices only gradually as costs increase and that global demand does not deteriorate significantly.

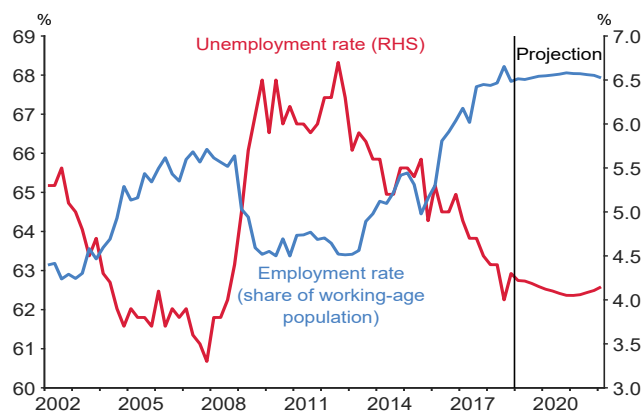
Capacity pressure and employment

The domestic economy has grown in line with productive capacity over the past few years. Most measures of capacity pressure have increased. International economic conditions have improved over this time and domestic monetary policy has been stimulatory.

Employment growth has been spurred by demand for labour, particularly in the construction and service sectors. Looking through recent volatility in the unemployment rate, the labour market has continued to tighten over the past year, even with considerable growth in the supply of labour (figure 2.1). Our assessment is that employment is near its maximum sustainable level (see chapter 4).

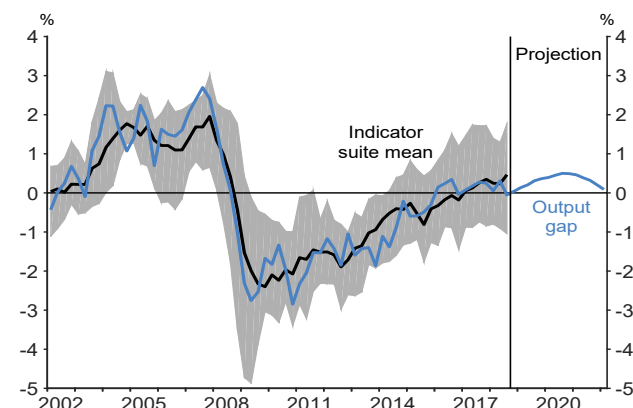
Business surveys, and our own discussions with firms, highlight an increase in capacity pressure over the past few years. Firms report high levels of capacity utilisation and difficulty finding skilled and unskilled labour. Cost pressures have increased as a result, especially since imported inflation picked up in 2017.

Figure 2.1
Employment and the unemployment rate
(s.a.)



Source: Stats NZ, RBNZ estimates.

Figure 2.2
Output gap and indicator suite
(share of potential output)



Source: Stats NZ, RBNZ estimates.

Note: Shaded area indicates the range between maximum and minimum values from a suite of indicators of the output gap.

With GDP growth slowing, our estimate of the output gap has been broadly flat over the past two years. This is in contrast to most other measures of capacity pressure that have been tightening over this time, including labour market measures (figure 2.2). There is a risk that capacity pressure has increased by more than our estimate of the output gap suggests.

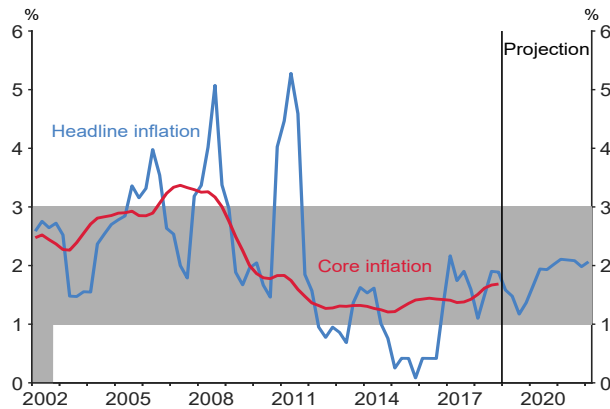
Inflation

Measures of core inflation have picked up over the past year, with most approaching 2 percent. Inflation has increased across a broader range of goods and services than has been seen for some time. Annual CPI inflation remained at 1.9 percent in the December 2018 quarter, even as the contribution to inflation from petrol prices declined (figure 2.3).

This rise in inflation has been consistent with the recent tightening in the labour market. However, underlying inflation remains lower than would normally be associated with the economy operating around its productive capacity. Firms' pricing behaviour seems to have embedded past low inflation. A competitive environment has meant that firms have not been able to fully pass on cost increases by raising prices. As a result, firms report that their profitability has declined.

Wage inflation remains subdued. However, low consumer price inflation from 2012 to 2016 means that real wage growth has been above its historical average since 2012. The tightening of the labour market and announced minimum wage increases are expected to lift nominal wage inflation over the projection, adding to the cost pressures currently faced by firms.

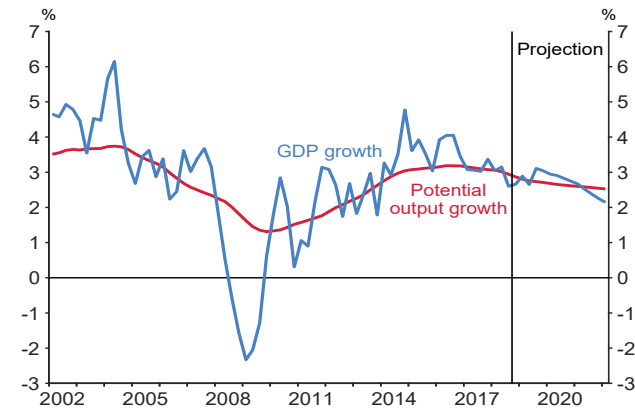
Figure 2.3
Inflation
(annual)



Source: Stats NZ, RBNZ estimates.

Note: Core inflation is the sectoral factor model measure. See chapter 5 for a full set of core inflation measures.

Figure 2.4
GDP growth
(annual)



Source: Stats NZ, RBNZ estimates.

Over the projection, the extent that firms pass on cost increases is expected to remain limited. We assume firms will set their prices consistent with capacity pressure and average past inflation. Given this assumption, and that inflation has been low, further increases in capacity pressure are needed to ensure inflation settles close to the target mid-point in the medium term.

Growth

Monetary and fiscal stimulus are expected to drive a further rise in capacity pressure. However, the recent easing in domestic growth, together with slowing global growth, weigh on this rise in capacity pressure.

Annual GDP growth slowed to 2.6 percent in the September 2018 quarter, slightly below our estimate of potential output growth (figure 2.4). We assume that slower growth since 2016 mostly reflects weaker demand, partly related to the softer housing market and slower growth in construction activity. Elevated population growth is still supporting potential output growth. However, there is a risk that growth in potential output has slowed by more than we assume, contributing to the slowdown in GDP growth.

Low house price inflation is weighing on consumption growth. Annual consumption growth has slowed from around 6 percent two years ago to 3.3 percent in the September 2018 quarter. While household income is expected to be supported by the tightening labour market and a higher minimum wage, consumption growth is expected to moderate further. This is consistent with moderating population growth and low house price inflation over most of the projection.

Growth in residential investment has also slowed, after several strong years. Activity in Canterbury has fallen. Elsewhere, constraints such as access to usable land, labour, and finance are holding back further growth. The KiwiBuild housing programme is expected to add to residential investment from the second half of 2019 as related policies, such as land for housing, start to alleviate constraints in the sector.¹

Business confidence remains low. Policy uncertainty and reduced profitability have weighed on confidence. Global concerns around trade tensions and trading-partner growth may have also contributed. The implications of low business confidence for future demand partly depend on how it affects firms' investment behaviour. Support for investment is coming from firms' desire to increase capacity and to use labour more efficiently, as the labour market tightens and labour costs increase. However, low business confidence is expected to keep investment growth around its historical average.

Fiscal stimulus is expected to support growth. The Families Package increased household incomes from July 2018. Government consumption and investment are expected to support growth over 2019, consistent with the plans outlined in Treasury's *Half Year Economic and Fiscal Update* 2018.

Global economic conditions

Improved global economic conditions provided support to growth in New Zealand over the past two years, but this is waning. Tighter financial conditions and policy uncertainty are slowing real activity in the major economies. As a result, trading-partner growth is expected to slow in

2019, mainly because of lower growth forecasts for China and other Asian economies (see box C). In addition, the risk of a sharper global slowdown has increased.

Softer global conditions affect New Zealand through several channels. Two key channels are the prices of our imports and exports, and the New Zealand dollar exchange rate.

Commodity prices have declined, affecting export and import prices. Dairy prices declined over the second half of 2018, but have recently recovered somewhat. Oil prices fell from USD 80 per barrel four months ago to around USD 60 currently. We assume oil prices will stay around this level over the projection period. Lower commodity prices are reducing imported inflation, which may ease some of the cost pressures faced by firms.

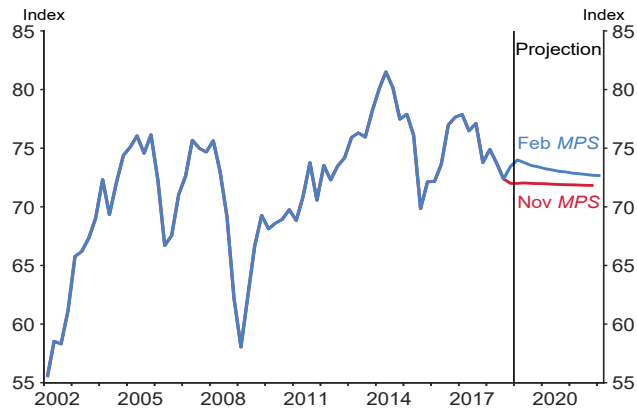
The New Zealand dollar exchange rate has appreciated. This is consistent with a decline in market participants' expectations of overseas policy interest rates over the past three months. We expect the Trade-Weighted Index (TWI) to stay around 73 over the next three years, higher than assumed in the November *Statement* (figure 2.5). Consistent with this, net exports are expected to contribute less to growth than previously assumed.

Monetary policy

The objectives for monetary policy set out in the *Policy Targets Agreement* (PTA) are to keep future annual CPI inflation between 1 and 3 percent over the medium term, and to contribute to supporting maximum sustainable employment. In addition, the Bank is directed to avoid unnecessary volatility in output, employment, the exchange rate, and interest rates, and to have regard to the efficiency and soundness of

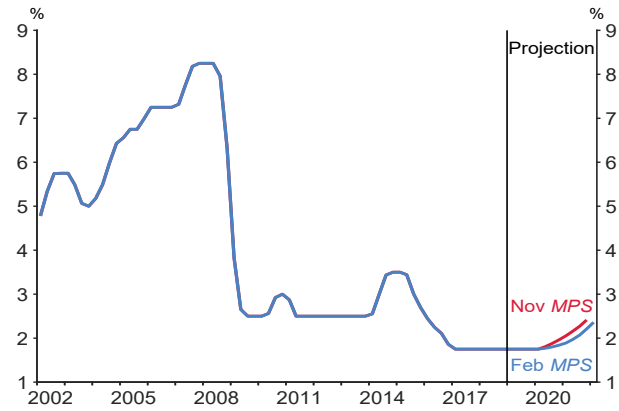
¹ See 'The implications of KiwiBuild for monetary policy', available via <https://www.rbnz.govt.nz/research-and-publications/research-programme/additional-research> for more details around the Bank's KiwiBuild assumptions.

Figure 2.5
New Zealand dollar TWI



Source: RBNZ estimates.

Figure 2.6
Official Cash Rate



Source: RBNZ estimates.

the financial system. Box B sets out how the Bank thinks about balancing these objectives.

Given softer GDP growth and weaker momentum in the global economy, stimulatory monetary policy remains appropriate to ensure inflation continues to rise towards the target mid-point over the medium term. We expect to keep the OCR at around the current level for the foreseeable future (figure 2.6).

This on-hold stance, along with continuing low long-term interest rates globally, has contributed to historically low domestic wholesale interest rates. While upward pressure on bank funding costs may offset this to an extent, retail lending rates have fallen over the past six months.

Monetary and fiscal stimulus underpin growth over the next year. GDP growth is expected to be 3 percent over 2019, exceeding potential

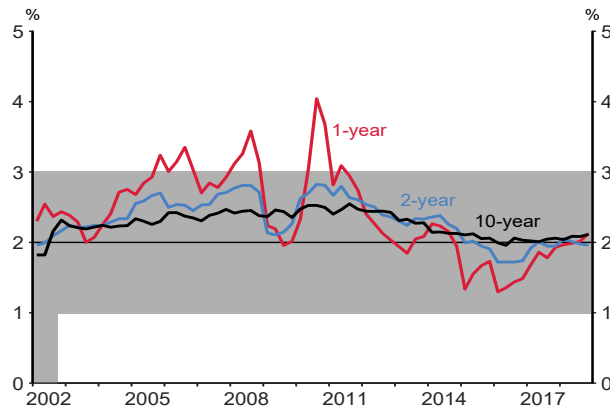
output growth, causing capacity pressure to build further. As a result, we expect to start seeing evidence that employment is above its maximum sustainable level.

Annual CPI inflation is forecast to reach 2 percent in late 2020, as domestic inflationary pressure rises. Survey measures of inflation expectations remain anchored at close to 2 percent across all horizons (figure 2.7).

Risks

The outlook for monetary policy is contingent on the key judgements and risks outlined in table 2.1. Recent developments highlight two risks in particular that could shift the outlook for monetary policy. The first risk is that inflation could increase faster than projected due to faster

Figure 2.7
Inflation expectations
(annual)



Source: RBNZ estimates.

Note: Inflation expectation measures are estimates drawn at each time horizon from the RBNZ inflation expectations curve, based on surveys of businesses and professional forecasters.

pass-through of higher costs to prices. The second risk is that GDP growth could fall further due to a more pronounced global slowdown.

Scenario 1: Inflation increases faster due to cost pressures

With the economy tightening, firms may pass cost increases through to prices faster than we expect, resulting in higher inflation. Firms have reported increasing costs, but to date price increases have been modest. If margins continue to be squeezed, firms may need to respond by raising prices more significantly.

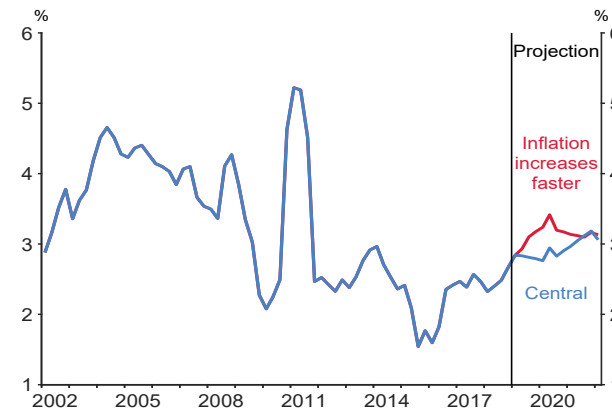
In this scenario, firms set their prices in a forward-looking manner, rather than based on past inflation. As a result, inflation rises faster than projected. In particular, non-tradables inflation increases by 0.5

percentage points more by early 2020 than in the central projection (figure 2.8). Stronger inflationary pressure means that a period of sustained positive capacity pressure is no longer necessary for underlying inflation to settle near 2 percent. As a result, there is less need for monetary stimulus. By late 2020, the OCR is around 50 basis points higher than in the central projection, and inflation converges back to around 2 percent in late 2021 (figure 2.10).

Scenario 2: A more pronounced global slowdown

A second risk to the projections is a more substantial global slowdown than in the central projection. Recent trade policy uncertainty and financial market volatility suggest a risk that global demand may soften by more than assumed. For example, a slowdown in Chinese growth would have significant direct impacts on demand for New Zealand's

Figure 2.8
Non-tradables inflation
(annual)



Source: Stats NZ, RBNZ estimates.

exports and also have repercussions through its effect on our other trading-partner economies.

In this scenario, softer global growth reduces demand for our exports. Global softness is also assumed to affect consumer and business confidence, which has a dampening effect on consumption and investment growth. Annual GDP growth in New Zealand falls to 2.2 percent in the March 2020 quarter (figure 2.9). We assume the New Zealand dollar exchange rate does not depreciate, as the New Zealand economy performs relatively well compared to trading-partner economies and foreign central banks increase monetary stimulus. Additional monetary stimulus is needed to limit the fall in domestic growth, and ensure inflation and employment move towards target. The outlook for the OCR is around 50 basis points lower by mid-2020 (figure 2.10).

Figure 2.9
GDP growth
(annual)

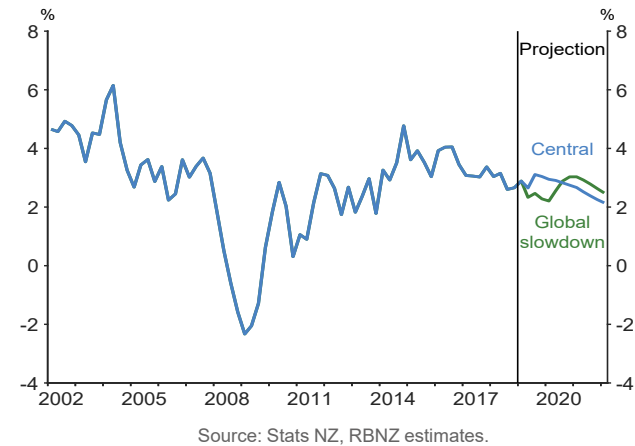


Figure 2.10
Official Cash Rate

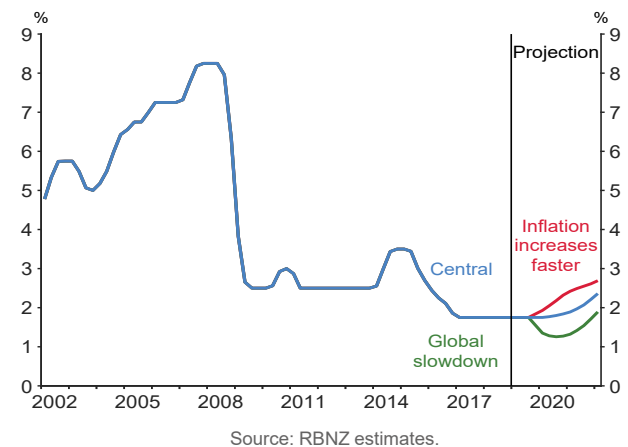


Table 2.1

Key judgements and risks

Overarching narrative	Key judgements	Risk to OCR ¹
Global growth eases, but remains robust	GDP growth in our major trading partners averages slightly under 3.4% over the projection. Trade restrictions have a modest impact on the global growth outlook, but there are risks of a more pronounced slowdown.	↓
	Central banks pause their withdrawal of monetary stimulus, with overseas interest rates remaining broadly steady relative to New Zealand. The New Zealand dollar TWI remains around 73 over the projection.	↔
Global inflationary pressure rises gradually	Inflationary pressure in our major trading partners edges up gradually.	↔
	Import price inflation in world terms is slightly below its post-2000 average over the projection.	↔
	Dubai oil prices remain near current levels, around USD 60 per barrel.	↔
	Whole milk powder prices remain around USD 3000 per metric tonne over the projection.	↔
New Zealand GDP growth rises above trend, as fiscal and monetary stimulus support demand	GDP growth exceeds potential growth as temporary softness unwinds. Low business confidence does not translate to persistently lower growth.	↓
	Annual house price inflation subsides from around 3% in 2018 to around 2% from 2020.	↔
	Household consumption growth slows as both house price inflation and net immigration decline.	↔
	Net immigration continues to ease, slightly reducing aggregate demand.	↔
	Export volumes continue to grow, and growth in import volumes declines due to the depreciation of the exchange rate seen since mid-2017.	↓
	KiwiBuild adds to residential investment gradually from mid-2019. Government spending supports GDP growth over 2019.	↔
Capacity pressure builds as demand growth outstrips supply	Employment is near its maximum sustainable level and the output gap is close to zero.	↑
	Labour force participation remains around 71% of the working-age population.	↔
	The unemployment rate declines to around 4% and the output gap increases to 0.5% of potential output in 2020.	↔
Inflation rises gradually to the 2 percent target mid-point	Annual non-tradables inflation increases gradually, as capacity pressure increases and the dampening effect of past low inflation slowly fades.	↑
	Annual tradables inflation is negative over 2019, but recovers thereafter to slightly below average levels.	↔
	Pass-through of lower petrol prices into other consumer prices is modest.	↔
	Wage inflation rises from around 2% in 2018 to 2.5% by late 2021. Minimum wage changes are mostly absorbed in firms' margins and have a small impact on CPI inflation.	↑

¹ Risk indicators refer to balance of risks to the OCR from each of the individual key judgements. ↔ Balanced risks | ↑ Upside risks | ↓ Downside risks

Box A

Recent monetary policy decisions

The Bank has kept the OCR at 1.75 percent since the start of 2017, and has held the view that monetary policy would remain accommodative for a considerable period.

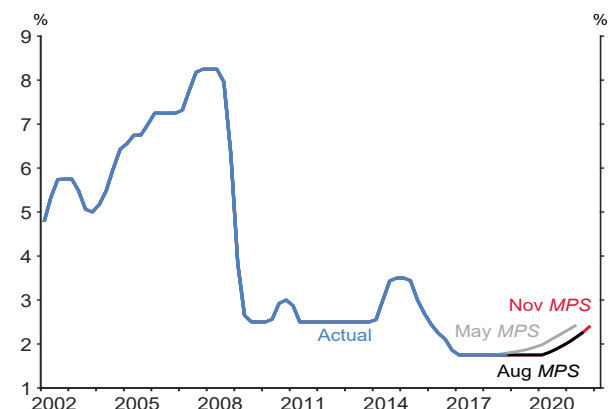
Through 2017, weaker GDP growth and softness in the housing market weighed on the outlook for inflationary pressure. Measures of core inflation remained low, even as the labour market tightened. Additional fiscal stimulus and improving global conditions underpinned the growth outlook. Imported inflation increased, temporarily lifting annual CPI inflation to 2 percent.

There was no clear reason to deviate from the stimulatory monetary policy stance, as the impacts of economic developments on the OCR were largely offsetting.

The primary objective for monetary policy – to keep future annual CPI inflation between 1 and 3 percent over the medium term – was augmented in March 2018 with a second objective to contribute to supporting maximum sustainable employment. With underlying inflation below 2 percent and employment around its maximum sustainable level, the stance and outlook for monetary policy was initially unchanged by the newly specified objectives. Stimulatory monetary policy remained necessary to support employment and lift inflation towards the target midpoint.

While the OCR remained at 1.75 percent at the time of the August 2018 *Statement*, the outlook for the OCR was lowered to be flat for longer (figure A.1). This was in response to further soft GDP growth,

Figure A.1
Official Cash Rate



Source: RBNZ estimates.

lower business confidence, and increasing concerns around global developments. There was concern that domestic conditions could deteriorate and that inflation could remain low. While inflationary pressure had increased slightly, this had taken longer than expected and wage inflation remained low.

The outlook for the OCR remained unchanged in the November 2018 *Statement*. However, the risks were more balanced than expressed in the August *Statement*, mainly because inflationary pressure was building. The labour market continued to tighten, and data released after the projections had been finalised confirmed the extent of this tightening. The Bank noted that the timing and direction of any future OCR move remained data dependent.

Box B

A balanced approach to inflation and employment

The Reserve Bank of New Zealand operates under a flexible inflation targeting regime. Under this regime, the Bank seeks to balance its price stability objective with its role of helping to stabilise the economic cycle. This box sets out how the Bank thinks about its dual inflation and employment objectives when determining the appropriate future path for the OCR.

With the March 2018 PTA, and now legislated in the *Reserve Bank of New Zealand Act 1989* (the Act), the Bank's economic stabilisation role is reflected in its objective to support maximum sustainable employment. Before the amendments to the Act passed in December 2018, price stability was the primary objective laid out in legislation, creating an ordering of objectives with price stability taking priority over other secondary considerations laid out in the PTA. In practice, the Bank has always had regard to developments in the labour market. Under the amended Act, maximum sustainable employment is now equal alongside price stability in legislation as an objective of monetary policy.

The Bank has one main 'instrument' for monetary policy – the OCR – so balancing multiple objectives requires a number of judgements. This is particularly the case when opposite monetary policy responses would be required to meet the Bank's inflation and employment objectives. In such cases, the Bank must determine both:

- the trade-off between inflation and employment (which requires an assessment of the current state and structure of the economy); and

- given any trade-off, how much to tolerate one objective deviating from target relative to the other.

In the long run, there is no trade-off between the Bank's price stability and maximum sustainable employment objectives. The sustainable level of employment is mostly determined by structural factors, such as demographics and skill levels, which monetary policy cannot affect. However, in the short and medium term, there may be a trade-off between the two objectives, which is determined by the economic relationship between inflation and employment. In determining the appropriate policy path, the Bank must estimate the strength of this relationship.

In addition, the Bank must decide between policy paths that would result in different combinations of outcomes across its two objectives. The Bank takes a balanced approach to its objectives, meaning that we consider outcomes for both objectives together when determining the appropriate stance of monetary policy. However, weighing up outcomes for inflation and employment is not straightforward. Inflation and employment are fundamentally different concepts, and assessing maximum sustainable employment involves a number of judgements.

Despite these challenges, there are some general principles that the Bank uses as a starting point in determining the appropriate interest rate path.

Firstly, if the Bank's projections for the inflation gap (inflation minus the 2 percent target mid-point) and the employment gap (employment minus an estimate of its maximum sustainable level) are of the same sign, then the Bank faces no trade-off. In this case, we would choose either a higher or lower interest rate path in order to move both variables closer to target.

However, if the forecasts for the two gaps are not of the same sign (i.e. away from target in opposite directions), then the Bank faces a more difficult situation. In this situation, the Bank would typically take a balanced approach to the objectives by:

- letting inflation overshoot the target mid-point for a time when employment is projected to be below its long-run sustainable level; or conversely,
- letting inflation undershoot the mid-point for a time when employment is projected to be above its sustainable level.

The rationale is that if one goal variable is deviating from target in one direction, the Bank should be willing to allow the other goal variable to deviate slightly from target in the opposite direction, in order to balance outcomes across the two objectives.¹

While the approach discussed here helps provide a starting point for determining the appropriate interest rate path, there are a number of additional considerations that complicate the simple approach described above. For instance:

- the Bank may have to weigh differing outcomes for its objectives across different time horizons (for instance, if a given policy path may reduce the credibility of the Bank's inflation target, resulting in poorer outcomes over a long time period);

- estimates of where employment is relative to its maximum sustainable level are uncertain and based on a range of measures;
- when setting monetary policy, the Bank must have regard to the efficiency and soundness of the financial system, and seek to avoid unnecessary instability in a range of other macroeconomic variables;
- the Bank will not react with policy to offset expected temporary influences on inflation over the forecast horizon (e.g. indirect tax changes); and
- risks to inflation and employment may be skewed in one direction, in which case the Bank may lean against this by setting interest rates in a way that causes both inflation and employment to move in the opposite direction to the risks.

¹ For more discussion, see Qvigstad, J (2006), 'When does an interest rate path "look good"? Criteria for an appropriate future interest rate path', Norges Bank *Working Paper*, April; and Svensson, L (2014), 'How to weigh unemployment relative to inflation in monetary policy?', *Journal of Money, Credit and Banking*, Supplement to Vol. 46, No. 2, October.

Chapter 3

International and financial markets developments



- Global growth has begun to slow. This slowing in momentum is expected to weigh on growth in New Zealand.
- Financial conditions have tightened in many countries since the November 2018 *Statement*. Uncertainty and volatility in financial markets has increased.
- The balance of risks to the global economic outlook remains to the downside. Uncertainty about both the economic slowdown and trade tensions has risen sharply.
- Financial conditions in New Zealand have eased over the past year. Wholesale and retail interest rates have fallen, and the New Zealand dollar exchange rate has depreciated. This will support growth in the New Zealand economy and help to offset some of the softening in global demand.

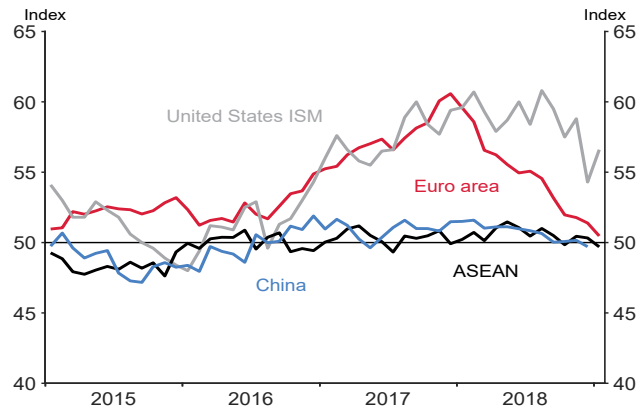
Momentum slowing in the global economy

Momentum in global growth has eased over the past six months. GDP growth has been slowing in China, Europe, and Australia (see box C). Manufacturing PMIs, which are timely indicators of economic activity, also show slowing growth across many major economies (figure 3.1).

Trade tensions between the United States and China have risen sharply and are expected to weigh on growth (figure 3.2). The outlook for growth has moderated since the November *Statement*, largely as a result of lower growth forecasts for China and other Asian economies. However, the effect on the New Zealand economy of any recently implemented trade restrictions is expected to be small.

Slower growth has also pushed commodity prices lower (figure 3.3). Oil prices have fallen by more than 10 percent since the November *Statement*. The fall has been driven by weaker demand, strong US shale oil production, and the United States granting exemptions to its sanctions on Iran, meaning more nations are able to access Iranian supply. However, prices have recovered somewhat from their December lows, partly driven by OPEC-agreed production cuts.

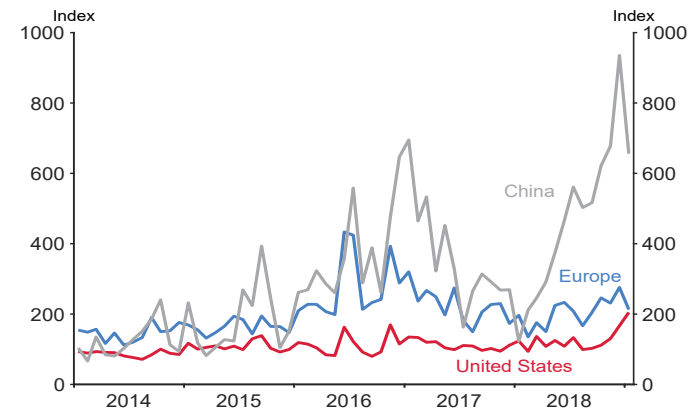
Figure 3.1
Manufacturing Purchasing Managers' Indices



Source: Haver Analytics.

Note: ASEAN is the Association of Southeast Asian Nations. ISM is the Institute for Supply Management.

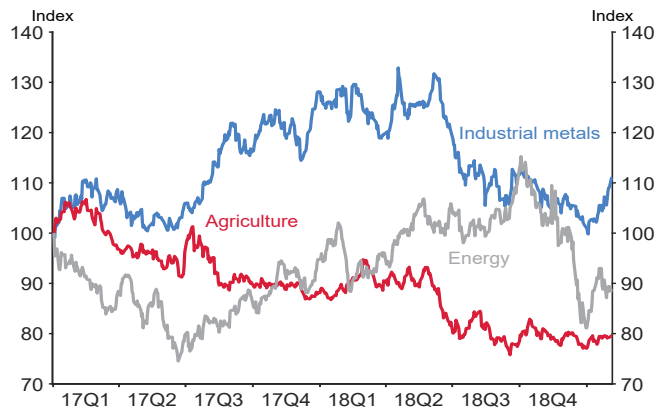
Figure 3.2
Global uncertainty indices



Source: Bloomberg.

Note: These measures are based on the frequency of news coverage about policy-related economic uncertainty. For more details on their construction, see www.policyuncertainty.com

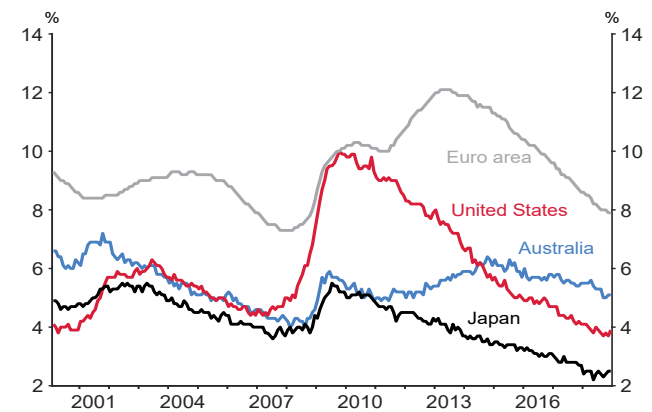
Figure 3.3
Commodity prices



Source: Bloomberg.

Note: Series are indexed to 100 at the start of 2017.

Figure 3.4
Global unemployment rates
(s.a.)



Source: Bloomberg.

Despite slowing global growth, unemployment rates are historically low and continue to trend down in many economies (figure 3.4). Wage growth has picked up in the United States and euro area, which could increase inflationary pressure.

Global financial conditions continue tightening

International financial conditions have tightened since the November *Statement*. Markets have become increasingly concerned about the slower growth outlook, and heightened uncertainty from US-China trade tensions has reduced risk appetite.

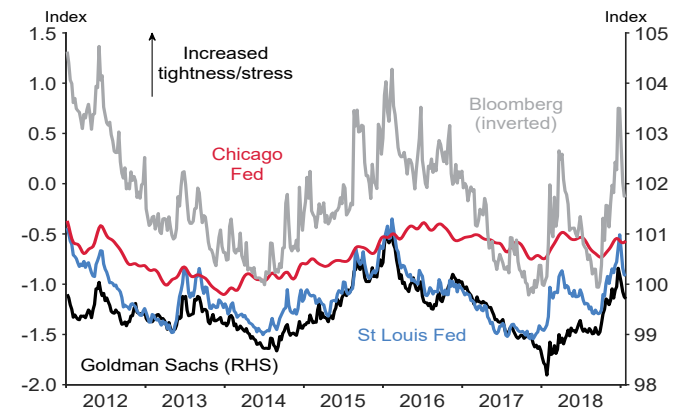
Equity prices fell in late 2018 as investors switched into safer assets such as government bonds. In January, some of the tightening in US financial conditions reversed (figure 3.5). This came after the Federal Reserve signalled more flexibility around its monetary policy plans, emphasising the data dependency of any future tightening.

Equity markets have also experienced increased volatility in recent months, with prices declining, particularly in growth-sensitive sectors such as technology stocks. This increased uncertainty is prompting investors to demand greater compensation for risk in equity and credit markets.

US government bond yields have declined as growth expectations have reduced and as expected policy rates declined. Corporate yields rose slightly as wider credit spreads more than offset the lower government bond yields (figure 3.6).

The impact of international conditions on New Zealand is expected to dampen growth. Tighter financial conditions, trade tensions and policy uncertainty may cause global growth to slow more than we expect.

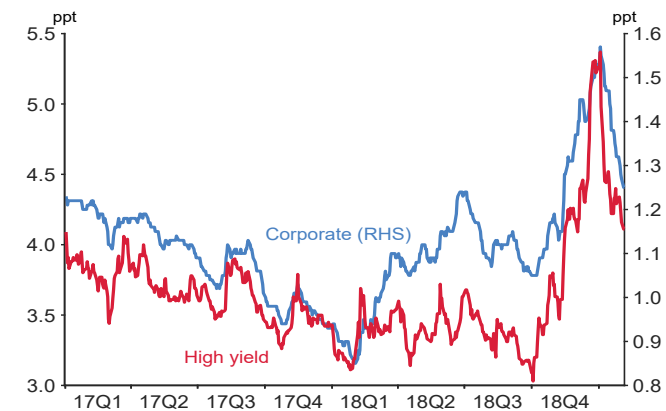
Figure 3.5
US financial conditions



Source: St Louis Fed, Chicago Fed, Bloomberg, Goldman Sachs.

Note: Indices are constructed from combinations of money and bond market spreads, exchange rate movements, and equity market valuations.

Figure 3.6
US corporate to government bond spreads



Source: Bloomberg.

Global growth risks remain to the downside

There are a large number of political risks, such as the ongoing Brexit negotiations and the trade dispute between the United States and China, which have the potential to disrupt financial markets and global growth. Some of these political risks, such as the US government shutdown, are likely to have only a small economic impact. However, these events could have a broader indirect impact through financial market channels and increasing uncertainty.

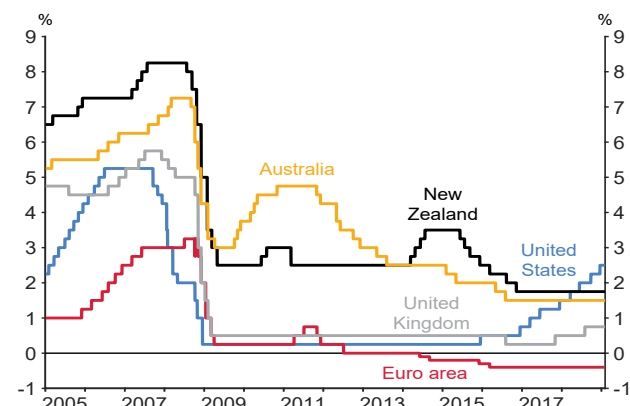
Many major economies have limited policy space to react to future downturns. Most central banks have policy rates at historically low levels (figure 3.7). The unwinding of large central bank balance sheets may have far-reaching implications for financial markets. In addition, government debt levels are high in many economies, limiting the fiscal response to any future downturn.

These international and financial market risks are in the context of growing global indebtedness, particularly corporate debt in both emerging markets and advanced economies. High debt levels and elevated asset prices increase the vulnerability of borrowers and debt markets to rising interest rates, particularly if driven by a sudden rise in risk spreads. The rise of leveraged loans in the corporate sector, that is, loans to highly indebted corporations with minimal creditor protections, is a particular concern. As such, a significant disruption in financial markets or the global growth outlook could have wide-reaching effects.

New Zealand financial conditions have eased

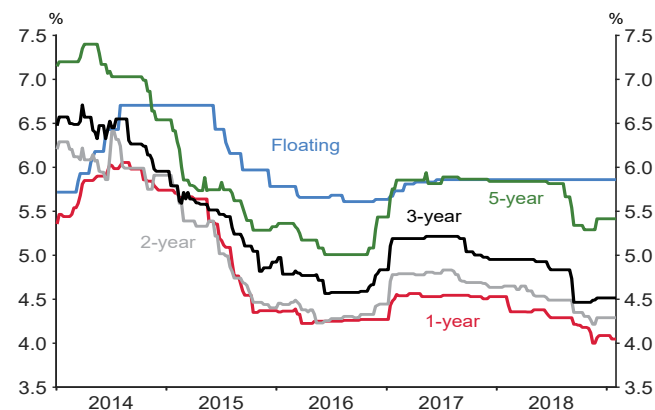
In New Zealand, financial conditions have eased over the past year despite little change in bank funding costs and the OCR remaining on hold. Wholesale interest rates have fallen across the curve, in line with

Figure 3.7
Central bank policy rates



Source: Bloomberg.

Figure 3.8
Mortgage rates



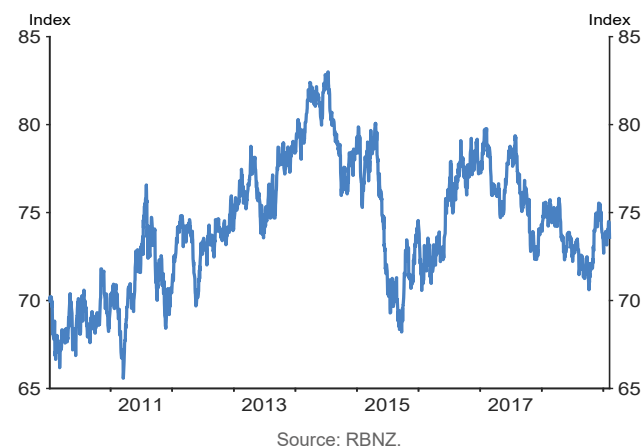
Source: interest.co.nz, RBNZ estimates.

Note: The rate shown for each term is the average of the latest rate on offer from ANZ, ASB, BNZ, and Westpac.

lower international yields, and retail mortgage rates have continued to decline (figure 3.8). Over the past few months, bank funding costs have risen slightly, in line with wider global credit spreads, although banks remain well funded.

The New Zealand dollar exchange rate has depreciated over the past year, partly reflecting earlier strength in the global economy. This will support growth in the New Zealand economy. However, the exchange rate has appreciated over the past few months as the outlook for global policy interest rates has declined (figure 3.9). The exchange rate is an important channel through which global developments influence the New Zealand economy, and the recent appreciation is one factor contributing to a softer outlook for GDP growth and inflation relative to the November *Statement*.

Figure 3.9
New Zealand dollar TWI



Box C

Economic developments in New Zealand's major trading partners

United States

In the United States, annual GDP growth remains robust at around 3.0 percent, supported by low and falling unemployment. Household spending is growing strongly and inflation remains around 2 percent. The boost to demand from tax cuts in early 2018 has been partly offset by the impact of trade tensions. Economic growth is expected to slow over the projection, as financial conditions tighten and the impact of the fiscal stimulus fades.

Since 2015, the Federal Reserve has raised its target policy interest rate from a low of between 0 and 0.25 percent to between 2.25 and 2.50 percent currently. In addition, the Federal Reserve has been reducing the size of its balance sheet by letting up to USD 50 billion of assets mature each month. The Federal Reserve had previously signalled that further interest rate increases were likely to occur given robust economic growth. However, it has recently emphasised that any future policy decisions would be dependent on how the economic data evolve.

China

In China, GDP growth was 6.6 percent in 2018, continuing a downward trend from a peak of around 14 percent in 2007. The slower growth partly reflects government policies aimed at reducing financial stability risks, such as the restrictions on shadow banking credit growth. Authorities

have shifted focus to achieving high-quality growth driven primarily by the private sector.

Key risks to growth are the trade tensions with the United States and the possibility of a significant slowdown in investment. Household consumption growth is down over the past couple of years, in part due to policies that have tightened credit conditions, as well as a cooling housing market. Debt levels are very high, with corporate debt around 160 percent of GDP.

In response to recent weakness, China's policy makers have provided support for economic activity. For example, the People's Bank of China has cut reserve requirements five times since early 2018 and injected additional liquidity into the banking sector to maintain lending. Targeted fiscal stimulus measures have also been introduced, for example infrastructure spending and cuts to personal income tax to encourage spending.

Australia

In Australia, annual GDP growth is around 3 percent, unemployment is around 5 percent, and inflation is just under 2 percent. Ongoing economic growth and the tightening labour market are expected to lift wage growth and inflation to the 2-3 percent target range over time.

Until recently, growth in household consumption was steady, despite slow growth in household income. As in many countries, wage inflation has been somewhat slow given labour market tightness.

House prices have been falling in Australia's major cities, with prices in Sydney more than 10 percent below their peak. The housing market softening has been sparked in part by tightening in lending standards

and increasing housing supply. A key risk is lower consumption growth as a result of the softening housing market, high household indebtedness, and low wage growth.

Other trading partners – Asia and the euro area

The global growth outlook for New Zealand's other main trading partners remains relatively robust. Asian economies are leading global growth. Asia, excluding China and Japan, has grown around 4.4 percent in 2018. However, risks are to the downside due to the trade conflict between the United States and China as well as the reduced outlook for China's growth.

Economic growth in the euro area remains moderate at around 1.9 percent, supported by stimulatory monetary policy. Euro area unemployment has been falling since 2013, and wage inflation has been rising since 2016. As underlying inflation remains subdued, the European Central Bank continues to provide monetary stimulus, with its official deposit rate at -0.4 percent.

Chapter 4

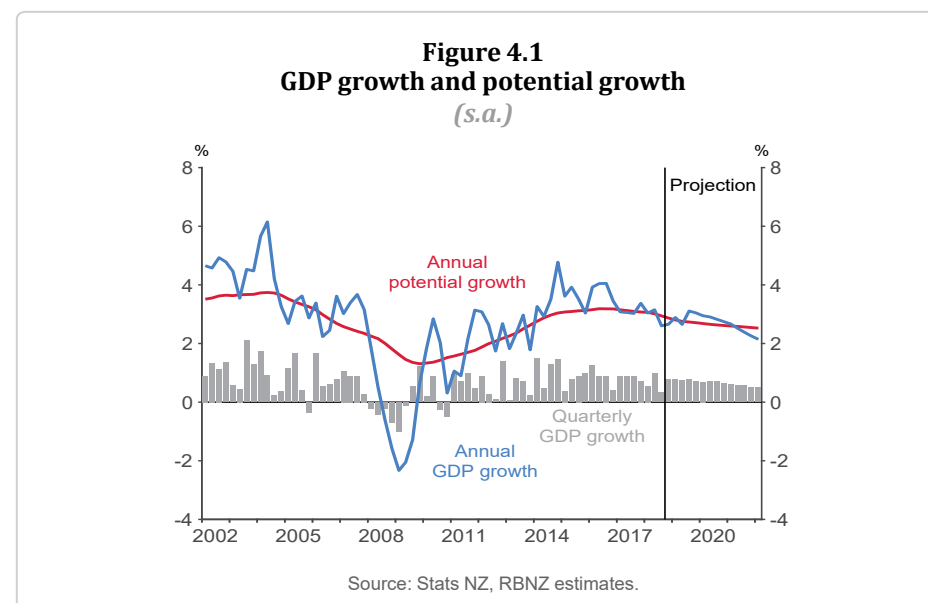
Domestic activity and employment



- GDP growth has slowed since its most recent peak in 2016. Despite slower growth, there are signs that capacity pressure in the economy has continued to build.
- The labour market has continued to tighten over the past year. A range of indicators show that employment is near its maximum sustainable level.
- Global economic conditions are softening, but fiscal and monetary stimulus are projected to support growth and increase capacity pressure over the medium term.

Domestic activity

Economic growth has slowed since its last peak in 2016, but there have been upward revisions to GDP growth over 2017 (see box D). In the September 2018 quarter, annual GDP growth was 2.6 percent, lower than our estimate of the economy's potential growth rate (figure 4.1).



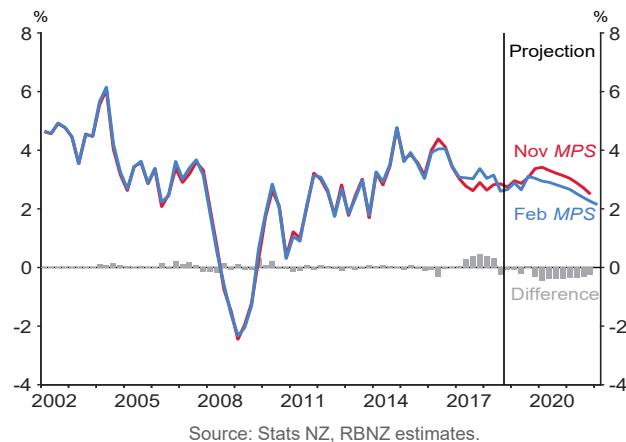
Box D

Revisions to GDP growth and potential output

Since the November *Statement*, historical GDP data have been revised higher as part of the annual National Accounts benchmarking process. GDP growth rates over 2017 have been higher than previously estimated (figure D.1). The level of production GDP was revised up by 0.3 percent in the June 2018 quarter. The expenditure measure of GDP was also revised upwards, primarily due to revisions in private consumption. In contrast, business investment and government consumption were revised significantly lower.

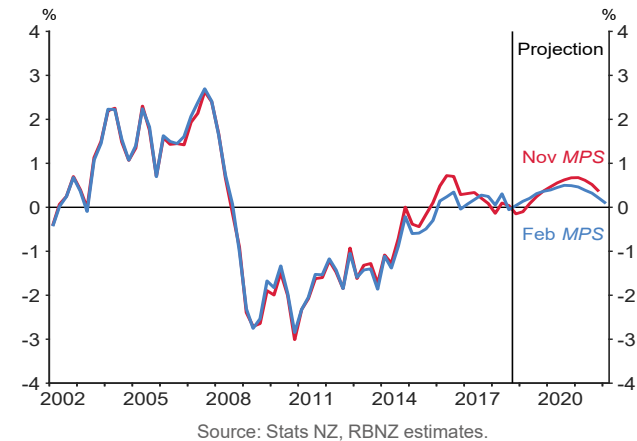
The revision to GDP implies that productivity growth may have been stronger in recent years than previously thought. Stronger productivity in recent years implies there may be a more modest recovery in

Figure D.1
GDP growth
(annual)



productivity growth over the projection than we had previously assumed. Consequently, we have revised down the assumed growth rate of potential output over the medium term.

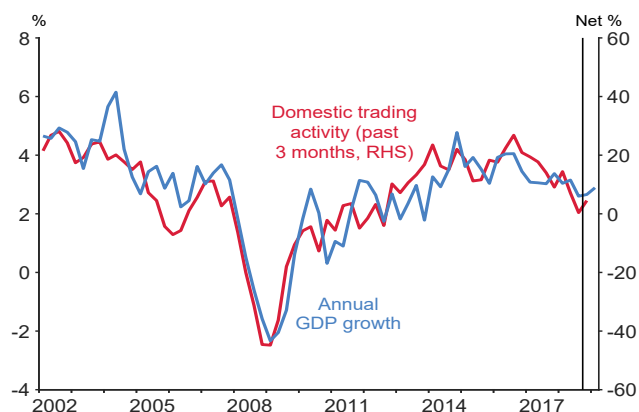
Figure D.2
Output gap
(share of potential output)



GDP growth is projected to be lower in the medium term compared to the November *Statement*. This reflects the lower growth assumed in potential output. The change in medium-term GDP growth does not directly affect the monetary policy outlook, because potential growth has been revised down by the same amount.

The revision to GDP does not significantly change the Bank's estimate of the output gap (figure D.2). The Bank uses a suite of indicators to infer the current level of capacity pressure in the economy. The GDP revisions bring the profile of the output gap over recent history more in line with the Bank's other indicators of capacity pressure.

Figure 4.2
GDP growth and domestic trading activity
(s.a.)



Source: Stats NZ, NZIER, RBNZ estimates.

Note: Domestic trading activity measures the net percentage of firms that reported an increase in their own activity over the past three months.

The slowing in GDP growth since 2016 is consistent with declines in survey measures of activity (figure 4.2). Firms are reporting compressed margins, declining profitability, and lower investment intentions. Recent information from business surveys is consistent with the projected stabilisation in GDP growth over the end of 2018.

GDP growth is expected to increase slightly over 2019. Increased government spending and stimulatory monetary policy are expected to support growth, offsetting softer global economic conditions. Over the medium term, growth in the economy's potential is expected to moderate from high levels, reflecting the expected slowdown in population growth and hence labour supply. Lower potential growth means that less GDP growth is required to sustain capacity pressure over time.

The risks to aggregate demand over the medium term are to the downside, particularly given increasing risks to global demand (see chapter 3). However, there is also a risk that capacity pressure is building more than we anticipate, given recent momentum in the labour market and rising domestic inflation.

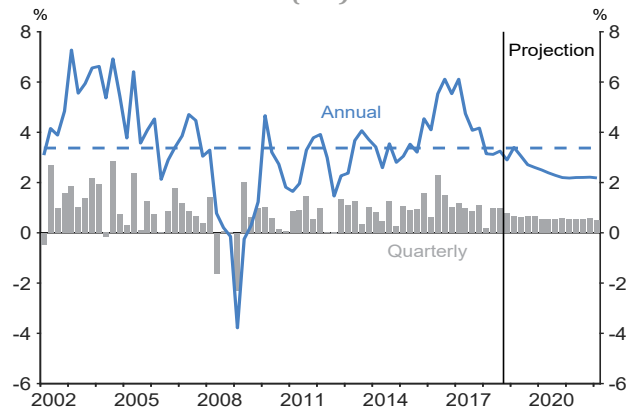
Fiscal stimulus

Fiscal policy is expected to support growth over 2019. Higher growth in government consumption and investment is expected to support GDP growth. The Families Package supports household consumption, and the KiwiBuild programme contributes to residential investment. Increases in the minimum wage are expected to support household incomes, but also increase costs for firms.

Growth in household consumption has dropped considerably from its 2016 peak (figure 4.3). The slowdown in the housing market has weighed on both household spending and consumer confidence. The Families Package has been supporting household income since mid-2018. Over the projection, solid employment growth and wage increases support further strong labour income growth. However, consumption growth is expected to moderate further over the projection, as low house price inflation and slowing population growth weigh on consumer spending.

Residential investment has contributed strongly to growth for several years and the level of residential investment remains elevated. However, it has been growing more slowly than potential output since 2016 (figure 4.4). A range of capacity-related constraints mean that many construction firms cannot expand production enough to keep up with demand. Firms report that labour shortages, credit constraints, and a lack of land with suitable infrastructure are limiting further growth in the sector. These

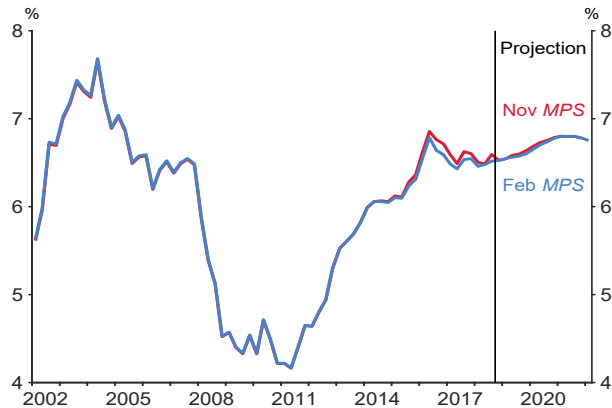
Figure 4.3
Consumption growth
(s.a.)



Source: Stats NZ, RBNZ estimates.

Note: The dashed line represents the average realised rate of growth since 2000.

Figure 4.4
Residential investment
(share of potential output, s.a.)



Source: Stats NZ, RBNZ estimates.

constraints are expected to limit residential investment growth in the near term.

The Government's KiwiBuild programme is expected to contribute to residential investment over the projection. The net contribution of KiwiBuild is expected to increase over time as programmes within KiwiBuild, such as Land for Housing, start to ease capacity constraints in the sector.

Monetary stimulus

Accommodative monetary policy has flowed through into easier financial conditions. Fixed-term mortgage rates have fallen and the exchange rate has depreciated over the past year (see chapter 3).

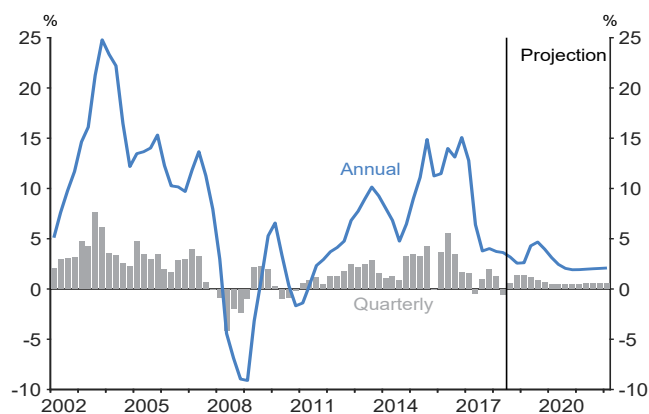
House price inflation is expected to increase slightly over 2019 (figure 4.5). The near-term pick-up in house price inflation is supported by lower fixed-term mortgage rates, and the recent easing of loan-to-value ratio restrictions. Over the medium term, annual house price inflation is projected to fall to around 2 percent.

The Bank's proposed changes to bank capital requirements, if implemented, may place some upward pressure on mortgage rates over time (see box E).

External conditions

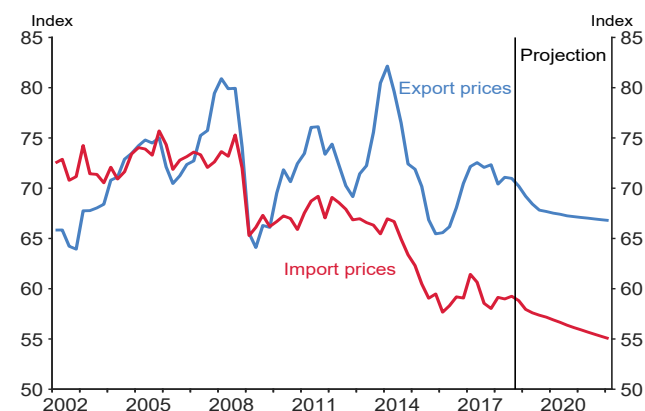
The weaker exchange rate since 2017 and ongoing growth in global demand are expected to support export volumes. However, compared to the November *Statement*, global economic conditions are expected to provide less support to domestic growth.

Figure 4.5
House price inflation
(s.a.)



Source: CoreLogic, RBNZ estimates.

Figure 4.6
Import and export prices
(real world terms)



Source: Stats NZ, RBNZ estimates.

Note: Indices are measured relative to the world price level ('real terms') and in a basket of trading-partner currencies ('world terms').

Global growth has begun to slow, and this has contributed to softer commodity prices. In particular, international oil prices have declined since the November *Statement*. New Zealand's export prices are expected to decline in real terms over the projection, reflecting softer dairy and meat prices (figure 4.6).

Import volumes have grown rapidly for several years, but are expected to grow more slowly over the projection as:

- the exchange rate depreciation since 2017 drives a substitution towards domestic goods and services; and
- the composition of growth becomes relatively less import-intensive, as growth in household consumption slows.

A downside risk is that further weakness in global growth constrains export demand, particularly for services. Additionally, import volumes may continue to grow strongly, reducing the medium-term GDP growth outlook.

Investment and capacity pressure

Business investment growth has weakened over the past year, consistent with the weaker terms of trade in 2018 and heightened trade and policy uncertainty (figure 4.7).

Over the projection, higher GDP growth, increasing capacity constraints, and rising real labour costs should encourage firms to invest in capital, substituting away from labour-intensive production. However, there is

Figure 4.7
Business investment growth
(annual)

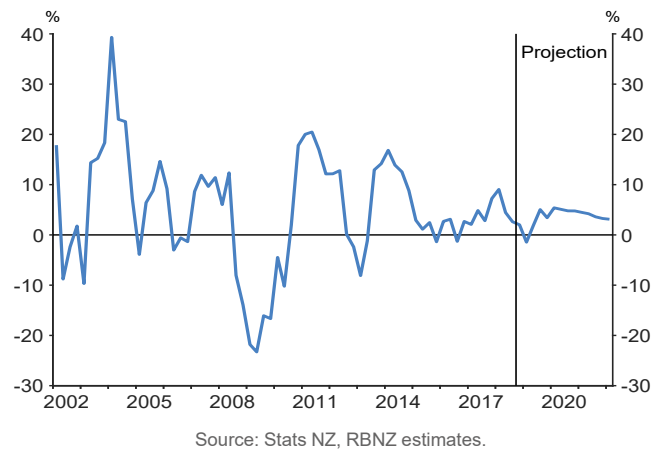
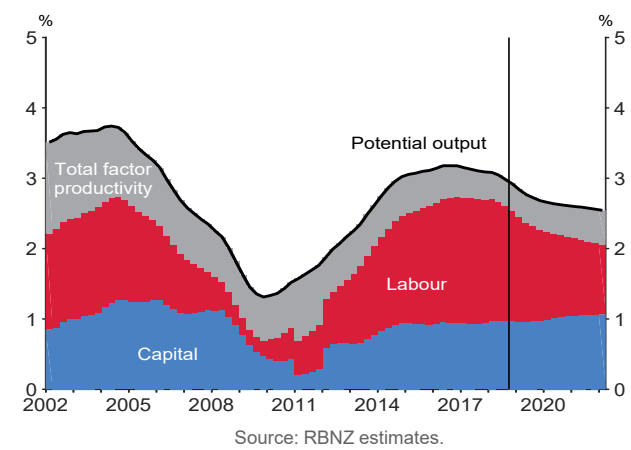


Figure 4.8
Composition of potential output growth
(annual)



a risk that the recent decline in business investment growth is more prolonged than we anticipate, particularly if global uncertainty intensifies.

The economy appears to be operating around its capacity. Upward revisions to GDP growth suggest that the output gap has been broadly flat since 2016 (see box D). Currently, the majority of the Bank's indicators of capacity pressure suggest that the output gap is slightly positive. In business surveys, firms report that shortages of labour and capital are constraining their expansion, consistent with information from the Reserve Bank's business visits in late 2018.

Over the medium term, capacity pressure is expected to build further as fiscal and monetary stimulus support an increase in GDP growth. Potential growth is expected to moderate over the projection, meaning that less GDP growth is needed over time in order to maintain capacity pressure. Declining growth in the labour force more than offsets slightly

increasing growth in productivity and continued strong growth in the capital stock (figure 4.8).

Maximum sustainable employment

The Reserve Bank interprets maximum sustainable employment as the highest utilisation of labour resources that can be maintained without creating an acceleration in inflation. A broad range of indicators suggests employment is near its maximum sustainable level (table 4.1).

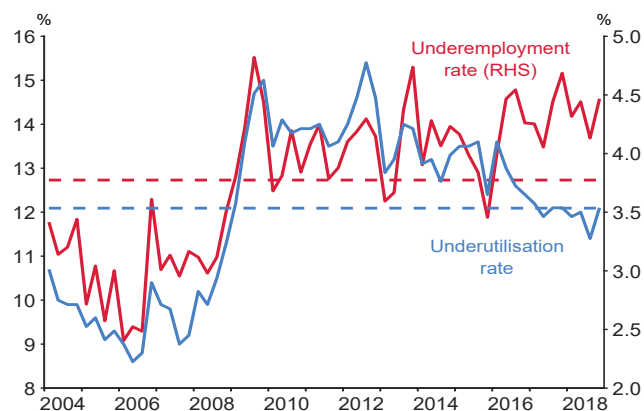
Almost all of the indicators that we monitor suggest a tightening in labour market conditions over the past year. Most of our indicators suggest that employment is near its maximum sustainable level, but there is a wide range around this.

Table 4.1
Summary of indicators of employment and maximum sustainable employment

Indicator type	Employment below MSE	Employment at MSE	Employment above MSE
Indicator suite	Employment rate gap (filled jobs)	Unemployment rate gap (structural model) Unemployment rate gap (reduced-form model)	Employment rate gap (total employment)
Unemployment	Underemployment rate Youth unemployment rate (15-19 years)	Range of NAIRU estimates Underutilisation rate Māori and Pacific unemployment rate Youth unemployment rate (20-24 years)	Medium-term unemployment
Business surveys		QSBO overtime worked	QSBO difficulty finding labour QSBO labour as limiting factor
Flows data		Job-finding rate Job-separation rate	
Other			Vacancy rate

Note: The job-finding rate is the proportion of unemployed people in the previous quarter, who transitioned to employment in the current quarter. The job-separation rate is the proportion of employed people in the previous quarter who transitioned to unemployment in the current quarter. NAIRU stands for Non-Accelerating Inflation Rate of Unemployment. The vacancy rate is calculated by taking the number of vacancies divided by the sum of vacancies and employment. QSBO stands for the *Quarterly Survey of Business Opinion*.

Figure 4.9
Underutilisation and underemployment rate
(s.a.)



Source: Stats NZ, RBNZ estimates.

Note: Dashed lines are post-2004 averages. The underemployment rate is expressed as a percentage of those employed. The underutilisation rate is expressed as a percentage of the extended labour force. For definitions of underutilisation, the extended labour force, and related concepts, see Statistics New Zealand (2016), *Introducing underutilisation in the labour market*.

A few indicators suggest employment is still below its maximum sustainable level. For example, the underutilisation rate is near its post-2004 average, and underemployment remains above its post-2004 average (figure 4.9).

Several indicators suggest that the labour market is above its maximum sustainable level. For example, medium-term unemployment has fallen steadily to its lowest level since the global financial crisis (figure 4.10).¹ In addition, several business survey-based measures, such as those from

¹ Medium-term unemployment is defined as the number of people who have been unemployed for 1-12 months, expressed as a share of the labour force. This is more closely linked to the cyclical position of the economy, and is better correlated with wage growth than the headline unemployment rate.

Figure 4.10
Medium-term unemployment
(share of the labour force, s.a.)



Source: Stats NZ, RBNZ estimates.

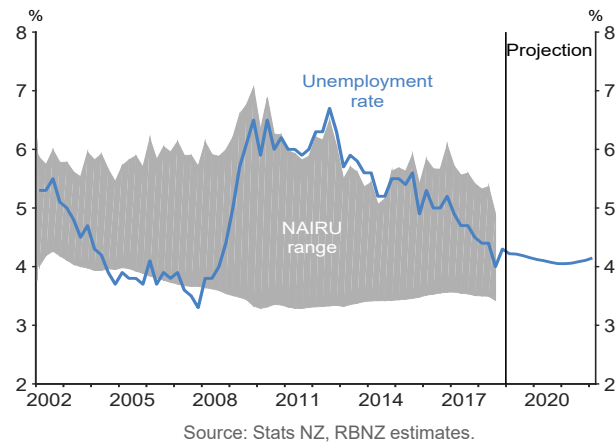
Note: Dashed line is the post-2000 average. Medium-term unemployment is defined as the number of people who have been unemployed for 1-12 months.

the QSBO, continue to indicate a very tight labour market, highlighting a risk that the labour market is tighter than our current assessment.

Over the medium term, labour force growth is expected to moderate from a high rate. This reflects our expectation that net immigration will continue to decline, and that the labour force participation rate will remain steady at around 71 percent. New outcomes-based migration data are yet to be incorporated into our projections, but indicate that the migration contribution to supply and demand may have been weaker in recent years.

With employment growth continuing to outstrip labour force growth, the labour market is expected to tighten further. The unemployment rate was

Figure 4.11
Unemployment rate and range of NAIRU estimates
(s.a.)



4.3 percent in the December 2018 quarter, and is expected to fall slightly further over the projection (figure 4.11).

Over the medium term, employment is expected to rise slightly above its maximum sustainable level, supported by fiscal and monetary stimulus. This is consistent with our output gap projection, as economic output is expected to exceed its sustainable level, resulting in increased capacity pressure and inflation.

The risks to our labour market projection are balanced. The recent slowdown in GDP growth could weigh on labour demand more than we have assumed, resulting in lower employment growth and lower wage inflation.

Alternatively, the labour market may be tighter than we anticipate, particularly given the shortages noted by firms and business surveys. A

tighter labour market could drive wage inflation higher, and could push CPI inflation above the target mid-point.

The maximum sustainable level of employment is not directly observable and can vary over time. This makes estimates of maximum sustainable employment uncertain. We will continue to monitor the employment market, wage, and CPI inflation developments, and update our assessment of maximum sustainable employment accordingly.

Box E

Monetary policy implications of higher bank capital requirements

The Reserve Bank is consulting on a proposal to raise the proportion of regulatory capital with which banks are required to operate.¹ Final decisions are expected to be announced in the third quarter of 2019, with any changes implemented over a proposed five-year transition period.

This box outlines the potential implications for monetary policy of the proposed changes to bank capital requirements.

Proposed changes to bank capital requirements

Sufficient bank capital is an essential component of a sound and efficient financial system. In adverse conditions, sufficient capital allows banks to absorb financial losses while continuing to provide credit and other essential services to the real economy. Following considerable investigation and consultation, changes we are proposing would:

- see banks replace their more complex capital instruments with shareholder equity or retained earnings (Tier 1 capital); and
- constrain differences between the internal models approach (used by the big four banks) and standardised approach (used by all other locally incorporated banks) used to measure banks' capital requirements.

¹ More information, including the consultation paper, a non-technical summary, and background papers related to the consultation can be found on the Bank's website: <https://www.rbnz.govt.nz/news/2019/01/bank-capital-review-background-papers-released-consultation-extended>

Under the proposal, over five years or so, banks' Tier 1 capital ratios would rise from the current industry average of around 12 percent of risk-weighted assets, to somewhere above 16 percent for banks deemed systemically important, and above 15 percent for all other banks.² The quality of bank capital (for financial stability purposes) would also improve.

How might this affect economic performance?

The impact of banks being required to fund their operations with more (and higher-quality) capital will have both transitory and long-term effects on the economy. The transitory impacts of a change in capital requirements would be spread over at least the transition period. However, market prices, such as lending rates, could adjust more quickly.

Transition phase

All other things unchanged, bank funding costs would rise as a result of their higher capital requirements, because the cost of equity (in terms of investors' required rate of return) is usually higher than debt. This could lead banks to increase lending rates, lower deposit rates, and/or tighten credit standards in order to retain their expected return on equity.

However, in reality, the impact on the lending and deposit rates will be affected by a range of offsetting forces.

² The current ratio of 12 percent factors in the expected impact of proposed changes to the internal models approach used by the big four banks. In practice, relative to current levels the proposal would see the four largest banks increase their levels of high-quality capital by around 60 percent on average, with smaller banks facing a 20 percent average increase.

The extent that banks will be able to pass on their potentially higher funding costs – in the form of higher lending rates and lower deposit rates – will be constrained by:

- competition from both within the banking sector and alternative sources of funding (for example, capital markets); and
- other interest rates in the economy being broadly unchanged, or lower, as risk premia in New Zealand decline.

Long-term effects

The increased stability of the banking system should reduce the risk premium associated with investing in New Zealand. This results in a reduction in the expected frequency and severity of economic disruption associated with systemic financial crises.

The cost of both equity and debt funding for banks would also decrease. A higher proportion of equity funding (lower leverage) means that banks' return on equity will be less variable, and so investors' required rate of return should decline. A larger equity cushion also reduces the probability of bank creditors facing losses, meaning that creditors should demand less compensation for credit risk.

In the long run, bank lending rates are likely to be slightly higher. How much higher depends on a range of factors, such as how much the cost of equity and debt for banks declines, the degree to which risk premia in New Zealand fall, and how competitive pressures affect banks' ability to pass on costs to customers in the form of higher lending rates or lower deposit rates. The Bank expects that the spread of banks' lending rates to the rates at which they borrow will settle in the range of around 20 to

40 basis points higher as a result of the proposed changes, although the exact effect is uncertain.

Higher bank capital requirements could also improve the government's fiscal position. A higher share of bank equity funding would likely increase tax revenue from the banking sector since debt funding is tax-deductible while equity funding is not. The value of any perceived implicit public guarantee of the banking system would also be reduced as the system becomes safer, improving the government's credit profile.

Implications for monetary policy

If implemented, changes to bank capital requirements are likely to affect economic conditions through a number of channels. However, these impacts are likely to be outweighed by other factors impacting the business cycle, such as global economic conditions.

If additional support to demand is required during the potential transition to higher levels of bank capital, monetary policy would be able to respond as needed. This will be assisted by the proposed long transition period.

Chapter 5

Costs and prices



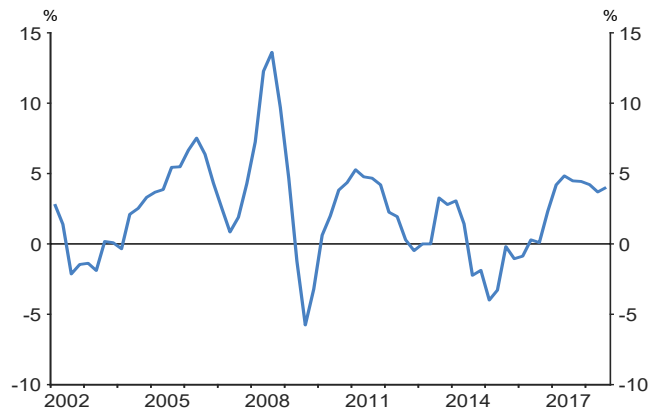
- Inflationary pressure is increasing gradually. Over the past year, measures of core inflation have increased to be close to or slightly below the 2 percent target mid-point.
- Annual CPI inflation was unchanged at 1.9 percent in the December 2018 quarter. A drop in petrol prices was offset by a broad-based rise in inflation across non-tradable items. Weakness in petrol prices is expected to keep CPI inflation low over the next year.
- Over the medium term, increasing capacity pressure is expected to lift underlying inflation to 2 percent. There is a risk that increased cost pressure could pass through to prices by more than we expect.

Capacity constraints and cost pressure

Firms are facing increasing cost pressure, partly as a result of capacity constraints. Producer price inflation measures show that input price inflation has been elevated in recent years (figure 5.1). Business surveys indicate that more firms are experiencing increases in their input costs than in recent years. At the same time, the share of firms that report raising their prices has only increased slightly in recent quarters, suggesting that firms' margins may be declining (figure 5.2).

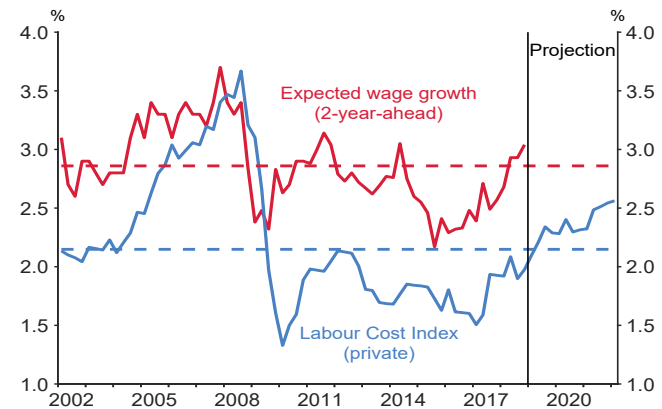
Wage inflation is expected to increase over the projection as capacity pressures build and the labour market tightens further. The tight labour market and increases in the minimum wage have led firms to expect higher wage rises in the future, although actual wage inflation has remained relatively subdued to date (figure 5.3). Over the projection, higher headline inflation is expected to result in larger cost-of-living adjustments. Higher wages are expected to boost labour incomes and support household consumption (see chapter 4).

Figure 5.1
Producer price inflation for inputs
(annual)



Source: Stats NZ.

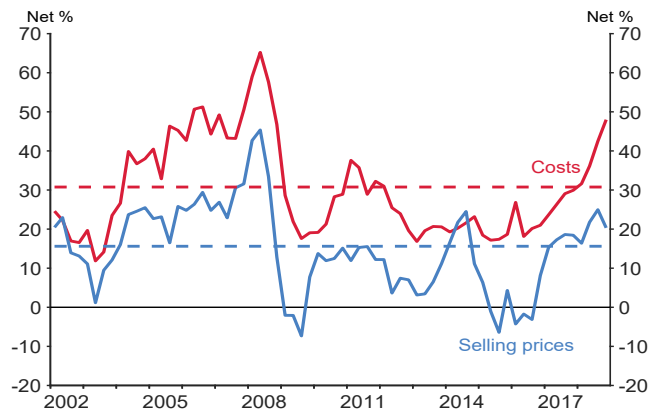
Figure 5.3
Wage inflation and expectations
(annual)



Source: Stats NZ, RBNZ survey of expectations, RBNZ estimates.

Note: Dashed lines are post-2000 averages.

Figure 5.2
Firms' costs and selling prices
(s.a.)



Source: NZIER, RBNZ estimates.

Note: Dashed lines are post-2000 averages. These measures show the net percentage of firms that reported an increase in costs or selling prices over the past three months.

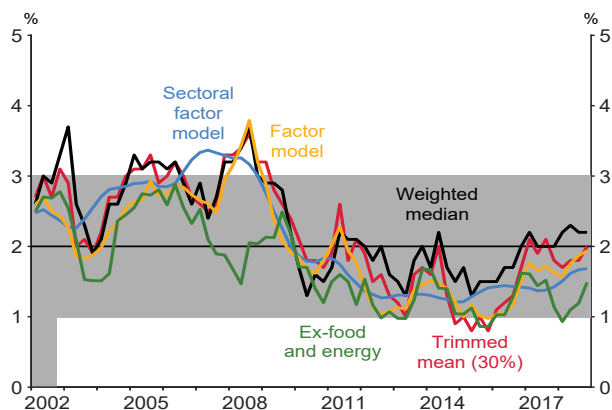
Pass-through of costs to inflation

Looking through the temporary volatility from fuel prices, underlying inflation is increasing only moderately (figure 5.4). Underlying inflation is expected to remain contained, despite the build-up of cost pressure. There are several factors underlying this assessment.

Firstly, firms report that they have been unable to maintain their margins by increasing prices. Businesses have identified competition (both local and international) and long-term fixed-price contracts as factors restricting their ability to raise prices.¹

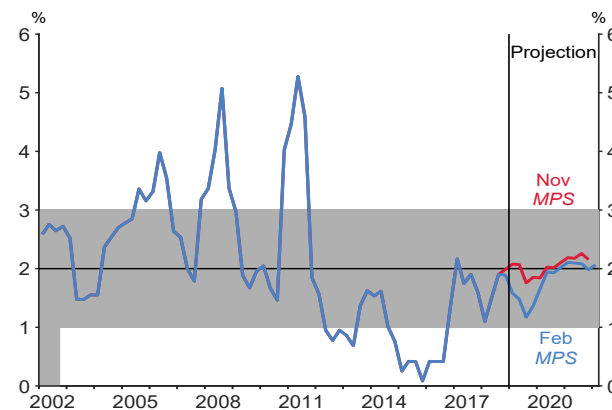
¹ See box C, 'Summary of recent business visits', November 2018 *Monetary Policy Statement*.

Figure 5.4
Core inflation measures
(annual, excluding GST)



Source: Stats NZ, RBNZ estimates.

Figure 5.5
CPI inflation
(annual)



Source: Stats NZ, RBNZ estimates.

Secondly, low inflation outturns over recent years are expected to continue to weigh on firms' pricing behaviour. Firms appear to have been influenced by past low headline inflation when making pricing decisions, and this effect is assumed to dissipate only gradually over the projection period.

Finally, inflation expectations are well-anchored at all horizons. This suggests there is limited risk of a sharp acceleration in underlying inflation.

Consumer price inflation

Annual CPI inflation remained steady at 1.9 percent in the December 2018 quarter (figure 5.5). Annual non-tradables inflation increased, while annual tradables inflation slowed due to a decline in fuel prices during

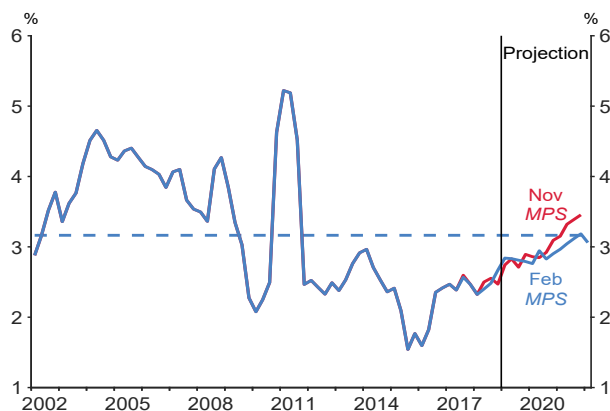
the quarter. Measures of core inflation have increased only gradually and remain below 2 percent on average.

Annual CPI inflation is expected to decline in the near term, reflecting recent declines in petrol prices. Over the medium term, CPI inflation reaches 2 percent as tradables inflation rises, and increasing capacity pressure generates domestic inflation.

Domestic inflation

Non-tradables inflation remains below average, despite limited spare capacity in the economy, and employment being near its maximum sustainable level. Annual non-tradables inflation is expected to rise in the March 2019 quarter, when the effect of the Government's fees-free policy for first-year tertiary students drops out of the calculation. This policy is estimated to have reduced non-tradables inflation by around 0.3

Figure 5.6
Non-tradables inflation
(annual)



Source: Stats NZ, RBNZ estimates.

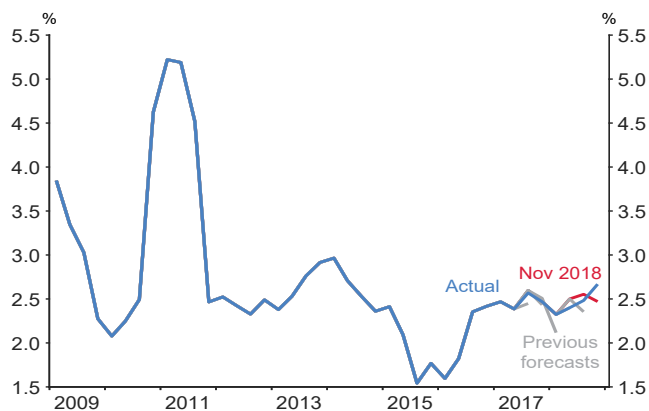
Note: Dashed line is the post-2000 average.

percentage points over 2018. Over the medium term, increasing capacity pressure is expected to drive the increase in non-tradables inflation, supported by accommodative monetary and fiscal policy settings (figure 5.6).

Risks to the domestic inflation outlook are to the upside. The main source of risk stems from increasing cost pressure. Over the projection, we have assumed that firms will continue to be slow to increase prices, as previous low inflation continues to weigh on pricing behaviour. However, cost pressure is expected to build further, and some measures suggest that capacity pressure is tighter than we assume. In addition, minimum wage increases are expected to add to costs. Further cost increases could force firms to become more forward looking in their pricing behaviour. This would result in higher domestic inflation than we expect.

Non-tradables inflation has tended to be stronger than we expected over the past 18 months (figure 5.7). There is a risk that domestic inflationary pressure is stronger than we currently estimate, and that domestic inflation could be higher than expected over the projection.

Figure 5.7
Non-tradables forecast surprises
(annual)



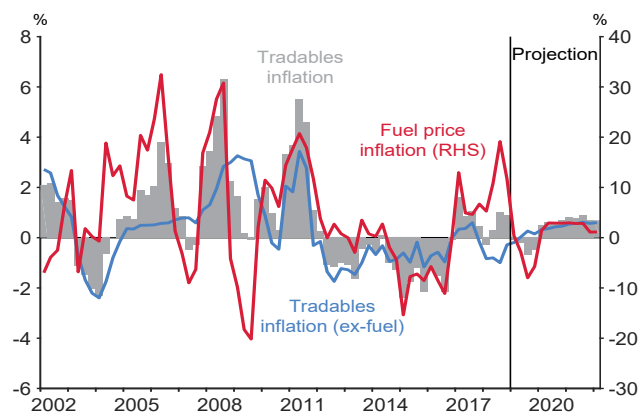
Source: Stats NZ, RBNZ estimates.

Imported inflation

Tradables inflation has picked up since 2016, largely reflecting higher petrol prices. However, at the end of 2018, international oil prices declined, and this has led to a sharp fall in petrol prices. This fall is expected to weigh on tradables inflation over the next year (figure 5.8).

Excluding fuel, tradables inflation has remained low, despite the depreciation of the New Zealand dollar over 2017. Over the projection, ex-fuel tradables inflation is expected to increase as the weaker New

Figure 5.8
Tradables inflation
(annual)



Source: Stats NZ, RBNZ estimates.

Zealand dollar passes through more fully into import prices, and domestic input costs increase.

The New Zealand dollar TWI has increased slightly in recent months and is expected to remain around its current level over the projection. Relative to the November *Statement*, the stronger exchange rate results in a slightly weaker outlook for ex-fuel tradables inflation.

Risks to the tradables inflation outlook are broadly balanced. Oil prices might bounce back from recent declines, resulting in higher tradables inflation and input costs. Higher domestic cost pressures could also feed through into tradables inflation by more than expected. Global uncertainty has resulted in tighter financial conditions and commodity price volatility. This has weighed on tradables inflation in New Zealand. Continued deterioration in the global outlook could see the negative impact on tradables inflation increase.

Chapter 6

Statistical appendix



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Table 6.1
Key forecast variables

		GDP growth Quarterly	CPI inflation Quarterly	CPI inflation Annual	TWI	OCR
2017	Mar	0.9	1.0	2.2	77.9	1.8
	Jun	0.9	0.0	1.7	76.5	1.8
	Sep	0.9	0.5	1.9	77.1	1.8
	Dec	0.7	0.1	1.6	73.8	1.8
2018	Mar	0.6	0.5	1.1	74.9	1.8
	Jun	1.0	0.4	1.5	73.7	1.8
	Sep	0.3	0.9	1.9	72.4	1.8
	Dec	0.8	0.1	1.9	73.4	1.8
2019	Mar	0.8	0.2	1.6	74.0	1.8
	Jun	0.7	0.3	1.5	73.8	1.8
	Sep	0.8	0.6	1.2	73.5	1.8
	Dec	0.7	0.3	1.4	73.4	1.8
2020	Mar	0.7	0.5	1.7	73.3	1.8
	Jun	0.7	0.6	1.9	73.1	1.8
	Sep	0.7	0.6	1.9	73.0	1.8
	Dec	0.6	0.4	2.0	73.0	1.8
2021	Mar	0.6	0.6	2.1	72.9	1.9
	Jun	0.6	0.6	2.1	72.8	2.0
	Sep	0.6	0.6	2.1	72.8	2.1
	Dec	0.5	0.3	2.0	72.7	2.2
2022	Mar	0.5	0.6	2.1	72.7	2.4

Table 6.2
Measures of inflation, inflation expectations, and asset prices

	Jun	2017 Sep	Dec	Mar	2018 Jun	Sep	Dec	2019 Mar
Inflation (annual rates)								
CPI	1.7	1.9	1.6	1.1	1.5	1.9	1.9	
CPI non-tradables	2.4	2.6	2.5	2.3	2.4	2.5	2.7	
CPI tradables	0.9	1.1	0.5	-0.3	0.3	1.0	0.9	
Sectoral factor model estimate of core inflation	1.4	1.4	1.4	1.5	1.6	1.7	1.7	
CPI trimmed mean (30 percent)	1.9	2.1	1.8	1.7	1.8	1.8	2.0	
CPI weighted median	2.0	2.0	2.0	2.2	2.3	2.2	2.2	
GDP deflator (expenditure)	3.1	3.8	3.3	1.3	2.1	1.0		
Inflation expectations								
ANZ Business Outlook - inflation one year ahead (quarterly average to date)	2.0	1.9	2.2	2.1	2.2	2.2	2.2	
RBNZ Survey of Expectations - inflation two years ahead	2.2	2.1	2.0	2.1	2.0	2.0	2.0	
RBNZ Survey of Expectations - inflation five years ahead		2.1	2.1	2.1	2.1	2.2	2.1	
RBNZ Survey of Expectations - inflation 10 years ahead		2.1	2.0	2.1	2.2	2.1	2.2	
Long-run inflation expectations ¹	2.0	2.0	2.1	2.0	2.1	2.1	2.1	
Asset prices (annual percent changes)								
Quarterly house price index (CoreLogic NZ)	6.4	3.8	4.0	3.7	3.6			
REINZ Farm Price Index (quarterly average to date)	5.2	9.5	9.7	2.6	3.8	5.6	3.4	
NZX 50 (quarterly average to date)	7.6	6.6	17.5	17.5	16.8	17.3	8.3	7.8

¹ Long-run expectations are extracted from a range of surveys using a Nelson-Siegel model. Source: ANZ Bank, Aon Consulting, Consensus Economics, RBNZ estimates.

Table 6.3
Measures of labour market conditions
(seasonally adjusted, changes expressed in annual percent terms)

	2017			2018		
	Sep	Dec	Mar	Jun	Sep	Dec
Household Labour Force Survey						
Unemployment rate	4.7	4.5	4.4	4.4	4.0	4.3
Underutilisation rate	12.1	12.1	11.9	12.0	11.4	12.1
Labour force participation rate	71.0	70.9	70.8	71.0	71.0	70.9
Employment rate (percentage of working-age population)	67.7	67.8	67.7	67.8	68.2	67.8
Employment growth	4.1	3.7	3.1	3.7	2.8	2.3
Average weekly hours worked	33.8	33.7	34.0	34.1	33.5	32.8
Number unemployed (thousand people)	128	121	120	122	110	120
Number employed (million people)	2.59	2.60	2.62	2.63	2.66	2.66
Labour force (million people)	2.72	2.73	2.74	2.76	2.77	2.78
Extended labour force (million people)	2.81	2.82	2.84	2.86	2.88	2.90
Working-age population (million people)	3.82	3.84	3.87	3.89	3.90	3.93
Quarterly Employment Survey						
Filled jobs growth	2.5	1.8	1.2	1.2	1.2	1.3
Average hourly earnings growth (private sector, ordinary time)	2.0	3.1	4.0	3.3	3.6	3.7
Other data sources						
Labour cost index growth, private sector	1.9	1.9	1.9	2.1	1.9	2.0
Labour cost index growth, private sector, unadjusted	3.6	3.6	3.5	3.5	3.5	3.6
Net permanent and long-term working-age immigration (quarterly, thousand people)	13.5	14.3	13.7	13.1	11.8	10.0
Change in All Vacancies Index	6.9	6.1	6.6	7.5	8.4	

Note: The All Vacancies Index is produced by MBIE as part of the Jobs Online report, which shows changes in job vacancies advertised by businesses on three internet job boards. The unadjusted labour cost index (LCI) is an analytical index which reflects quality change in addition to price change (whereas the official LCI measures price changes only). For definitions of underutilisation, the extended labour force, and related concepts, see Statistics New Zealand (2016), *Introducing underutilisation in the labour market*. Net permanent and long-term working-age immigration is the discontinued intentions-based measure.

Table 6.4
Composition of real GDP growth
(annual average percent change, seasonally adjusted, unless specified otherwise)

March year	Actuals							Projections			
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Final consumption expenditure											
Private	3.2	2.3	3.7	3.0	3.8	5.8	4.0	3.2	2.7	2.3	2.2
Public authority	1.7	-0.2	2.1	3.3	2.3	2.1	2.8	2.4	2.3	0.8	1.2
Total	2.9	1.7	3.3	3.1	3.5	4.9	3.7	3.0	2.6	1.9	2.0
Gross fixed capital formation											
Residential	3.0	17.6	15.1	8.2	7.1	8.5	1.0	3.3	4.0	5.0	3.0
Other	6.8	1.6	8.0	7.8	2.9	1.8	6.0	2.4	3.9	4.3	3.3
Total	6.0	5.0	9.7	7.9	4.0	3.5	4.7	2.6	3.9	4.5	3.3
Final domestic expenditure	3.5	2.4	4.7	4.2	3.6	4.6	4.0	2.9	2.9	2.6	2.3
Stockbuilding ¹	0.3	-0.3	-0.2	0.5	-0.3	0.1	-0.3	0.2	0.0	0.0	0.0
Gross national expenditure	4.0	2.0	4.4	4.4	3.1	4.8	3.9	3.3	2.6	2.6	2.3
Exports of goods and services	2.3	3.1	0.1	4.6	6.1	1.4	2.9	3.7	3.3	2.6	2.6
Imports of goods and services	6.7	1.3	8.1	7.5	2.3	5.1	7.1	4.5	2.2	2.0	2.4
Expenditure on GDP	2.7	2.5	2.0	3.5	4.2	3.7	2.6	3.0	3.0	2.8	2.3
GDP (production)	2.3	2.2	2.6	3.7	3.6	3.7	3.1	2.8	2.9	2.8	2.3
GDP (production, March qtr to March qtr)	3.1	1.8	3.3	3.6	3.9	3.1	3.0	2.9	2.9	2.7	2.1

¹ Percentage point contribution to the growth rate of GDP.

Table 6.5
Summary of economic projections
(annual percent change, unless specified otherwise)

March year	Actuals							Projections			
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Price measures											
CPI	1.6	0.9	1.5	0.3	0.4	2.2	1.1	1.6	1.7	2.1	2.1
Labour costs	2.1	1.8	1.7	1.8	1.8	1.5	1.9	2.1	2.3	2.3	2.6
Export prices (in New Zealand dollars)	-2.6	-4.8	11.5	-9.2	-0.3	3.9	3.3	1.5	0.6	2.1	2.1
Import prices (in New Zealand dollars)	-1.7	-4.0	-3.1	-3.4	1.1	0.6	2.0	1.1	1.2	1.0	0.9
Monetary conditions											
OCR (year average)	2.5	2.5	2.5	3.4	2.9	2.0	1.8	1.8	1.8	1.8	2.2
TWI (year average)	72.2	74.0	77.6	79.3	72.6	76.5	75.6	73.4	73.5	73.0	72.7
Output											
GDP (production, annual average % change)	2.3	2.2	2.6	3.7	3.6	3.7	3.1	2.8	2.9	2.8	2.3
Potential output (annual average % change)	1.7	2.1	2.5	3.0	3.1	3.2	3.1	2.9	2.7	2.6	2.6
Output gap (% of potential GDP, year average)	-1.6	-1.5	-1.4	-0.7	-0.3	0.2	0.2	0.1	0.3	0.5	0.3
Labour market											
Total employment (seasonally adjusted)	0.6	0.2	3.7	3.2	2.0	5.7	3.1	2.3	1.7	1.6	1.2
Unemployment rate (March qtr, seasonally adjusted)	6.3	5.7	5.6	5.5	5.3	4.9	4.4	4.2	4.1	4.1	4.1
Trend labour productivity	1.0	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.8	0.9	0.9
Key balances											
Government operating balance (% of GDP, year to June)	-4.3	-2.0	-1.2	0.2	0.7	1.5	1.9	0.5	1.0	1.2	1.8
Current account balance (% of GDP)	-3.2	-3.7	-2.5	-3.5	-2.6	-2.6	-3.1	-3.3	-3.1	-2.6	-2.4
Terms of trade (SNA measure, annual average % change)	1.6	-4.3	11.7	-0.3	-3.0	2.7	4.6	-1.5	-1.1	0.8	1.1
Household saving rate (% of disposable income)	2.3	0.4	0.3	-1.0	-0.6	0.1	-1.4	-1.9	-1.2	0.1	1.6
World economy											
Trading-partner GDP (annual average % change)	3.4	3.3	3.5	3.7	3.4	3.4	3.8	3.7	3.5	3.3	3.3
Trading-partner CPI (TWI weighted)	2.7	2.3	2.2	1.0	1.2	1.9	1.9	2.0	2.0	2.2	2.2