



Monetary Policy Statement

March 2016

Policy Targets Agreement

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. Price stability

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 Government's economic objective is to promote a growing, open and competitive economy as the best means of delivering permanently higher incomes and living standards for New Zealanders. Price stability plays an important part in supporting this objective.

2. Policy target

a) In pursuing the objective of a stable general level of prices, the Bank shall monitor prices, including asset 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 (CPI), as published by Statistics New Zealand.

b) For the purpose of this agreement, the policy target shall be to keep future CPI inflation outcomes between 1 per cent and 3 per cent on average over the medium term, with a focus on keeping future average inflation near the 2 per cent target midpoint.

3. Inflation variations around target

a) For a variety of reasons, the actual annual rate of CPI inflation will vary around the medium-term trend of inflation, which is the focus of the policy target. Amongst these reasons, there is a range of events whose impact would normally be temporary. Such events 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 will respond consistent with meeting its medium-term target.

4. Communication, implementation and accountability

a) On occasions when the annual rate of inflation is outside the medium-term target range, 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 outcomes remain consistent with the medium-term target.

b) In pursuing its price stability objective, the Bank shall implement monetary policy in a sustainable, consistent and transparent manner, have regard to the efficiency and soundness of the financial system, and seek to avoid unnecessary instability in output, interest rates and the exchange rate.

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



Hon Bill English

Minister of Finance



Graeme Wheeler

Governor Designate
Reserve Bank of New
Zealand

Dated at Wellington 20 September 2012

Monetary Policy Statement

March 2016

Projections finalised on 25 February 2016. Data finalised on 2 March 2016. Policy assessment finalised on 9 March 2016.



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ISSN 1770-4829

Chapter 1

Policy assessment



The Reserve Bank today reduced the Official Cash Rate (OCR) by 25 basis points to 2.25 percent.

The outlook for global growth has deteriorated since the December *Monetary Policy Statement*, due to weaker growth in China and other emerging markets, and slower growth in Europe. This is despite extraordinary monetary accommodation, and further declines in interest rates in several countries. Financial market volatility has increased, reflected in higher credit spreads. Commodity prices remain low.

Domestically, the dairy sector faces difficult challenges, but domestic growth is expected to be supported by strong inward migration, tourism, a pipeline of construction activity and accommodative monetary policy.

The trade-weighted exchange rate is more than 4 percent higher than projected in December, and a decline would be appropriate given the weakness in export prices.

House price inflation in Auckland has moderated in recent months, but house prices remain at high levels and additional housing supply is needed. Housing market pressures have been building in some other regions.

There are many risks to the outlook. Internationally, these are to the downside and relate to the prospects for global growth, particularly around China, and the outlook for global financial markets. The main domestic risks

relate to weakness in the dairy sector, the decline in inflation expectations, the possibility of continued high net immigration, and pressures in the housing market.

Headline inflation remains low, mostly due to continued falls in prices for fuel and other imports. Annual core inflation, which excludes the effects of transitory price movements, is higher, at 1.6 percent.

While long-run inflation expectations are well-anchored at 2 percent, there has been a material decline in a range of inflation expectations measures. This is a concern because it increases the risk that the decline in expectations becomes self-fulfilling and subdues future inflation outcomes.

Headline inflation is expected to move higher over 2016, but take longer to reach the target range. Monetary policy will continue to be accommodative. Further policy easing may be required to ensure that future average inflation settles near the middle of the target range. We will continue to watch closely the emerging flow of economic data.

Graeme Wheeler

A handwritten signature in black ink, appearing to read 'G Wheeler'.

Governor

Chapter 2

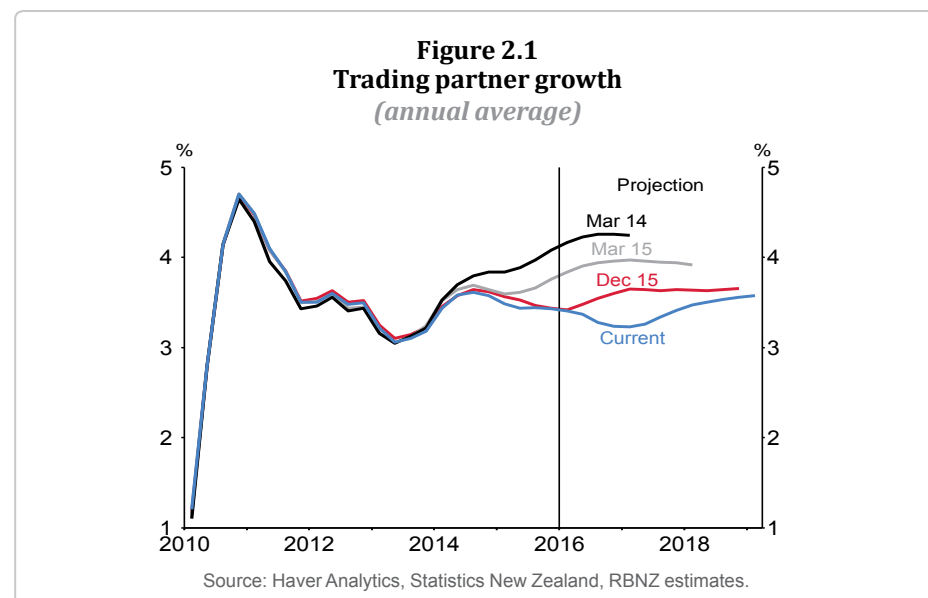
Key policy judgements



At the January Official Cash Rate (OCR) review, the Bank kept the OCR unchanged at 2.5 percent. In doing so, we noted that some further easing may be needed for inflation to settle near the middle of the 1 to 3 percent medium-term target range. Our commentary in recent months has noted that the balance of risks is skewed to the downside. Two of the key risks noted have been that the global environment would weaken further and that recent low inflation would lead to further falls in inflation expectations.¹

In this *Statement*, we project growth in our trading partners to average 3.4 percent per annum over the next three years. This is lower than projected in December, and has been revised down successively over the past two years, reflecting weaker-than-expected economic data (figure 2.1). Financial market pricing and volatility would suggest an even more pessimistic view of global activity, pointing to downside risk.

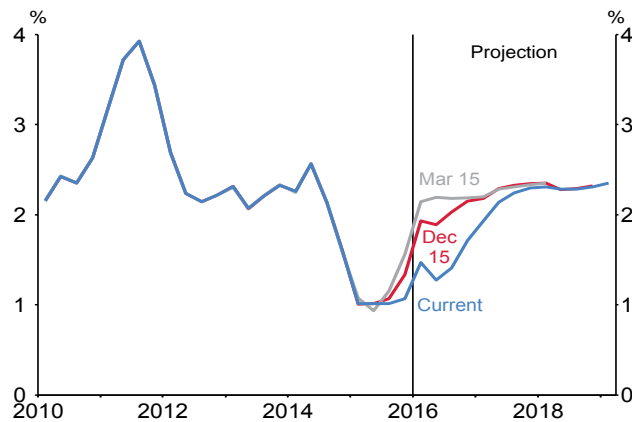
The outlook for global inflation is also soft, and lower than projected in December (figure 2.2). So, by implication, is the outlook for New Zealand's imported inflation. While supply of some commodities –



especially oil – has played an important part in lowering world commodity prices, successive downward revisions to the global growth outlook make it increasingly evident that weak demand is important. This contribution of weaker demand is a key reason why we expect commodity prices to be subdued for a sustained period. This is important for the prices of both New Zealand's exports and imports.

¹ See Wheeler, G (2016), 'The global economy, New Zealand's economic outlook and the Policy Targets Agreement', Speech to the Canterbury Employers' Chamber of Commerce, 3 February.

Figure 2.2
Trading partner inflation
(annual)



Source: Haver Analytics, RBNZ estimates.

Weak global demand has contributed to the slowing in New Zealand's GDP from an annual rate of around 4 percent in 2014 to about 2½ percent currently. A key channel has been a fall in dairy prices, which contributed to a more-than-10 percent fall in the terms of trade from their 40-year high in 2014. That said, New Zealand's growth continues to be supported by very stimulatory interest rates, net immigration, construction activity, tourist spending and foreign student arrivals, and strong growth in real incomes reflecting the low rate of increase in living costs.

Weak global conditions have contributed directly to low New Zealand inflation. CPI inflation was 0.1 percent over 2015, with prices in the tradables basket falling 1.8 percent in the year. The drop in prices for both oil and other commodities has played an important part.

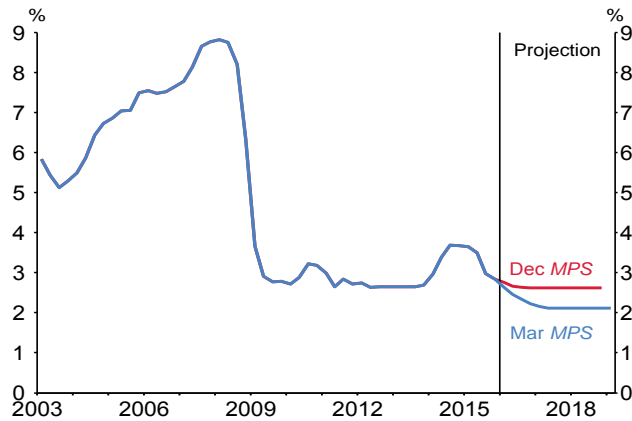
Faced with one-off price level shifts, such as the one driven by oil prices, the Policy Targets Agreement (PTA) directs the Bank to focus on the medium-term trend in inflation. This is because monetary policy takes 18 to 24 months to have its peak effect on inflation. Reacting sharply to low headline inflation risks causing unnecessary volatility in the economy and adding to financial stability risks. Of concern at present are high prices in the Auckland housing market and the associated debt.

At the same time, low headline inflation has contributed to falls in measures of inflation expectations. As discussed in box D in chapter 4, this amounts to an increase in how long firms and households expect it will take for inflation to settle near the midpoint of our target range. A fall in expectations is concerning, because it will dampen wage- and price-setting behaviour over the time horizon relevant for monetary policy.

Given the weaker world conditions and lower inflation expectations, the Bank judges it appropriate for monetary policy to be more stimulatory than projected in December (figure 2.3). This stimulus is needed to support continued expansion in the New Zealand economy, and is expected to contribute to GDP growth of around 3 percent per annum over the next two years. Notwithstanding rapid labour force growth through net immigration, this rate of output growth will put increasing pressure on productive resources, and so prices and wages. Consequently, we expect inflation to increase gradually towards the midpoint of the 1 to 3 percent target range over the projection (figure 2.4).

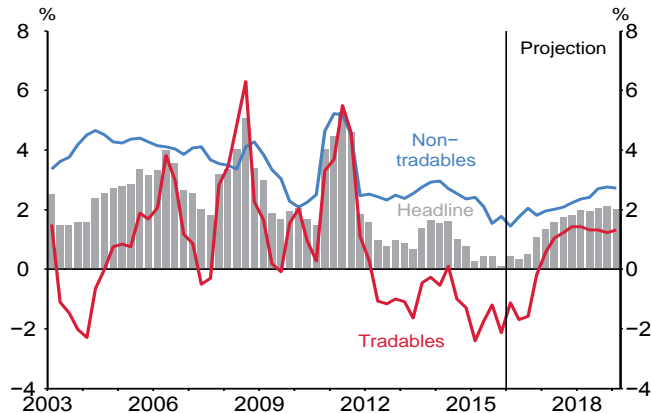
Our assessment of the outlook and the appropriate policy response depends on a number of judgements. These judgements are about how

Figure 2.3
90-day interest rate



Source: RBNZ estimates.

Figure 2.4
CPI inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

the forces acting on the economy will develop, and how those forces will flow through the New Zealand economy. The key judgements follow.

- Trading partner growth continues at around its current modest rate, with no sharp downturn.
- Net immigration adds a further 3.3 percent to the working age population over the projection, while the effects on capacity pressure and inflationary pressures remain modest.
- Inflation expectations remain anchored at 2 percent, even though a number of measures have fallen recently.
- House price inflation moderates, and consumption growth recovers to an annual rate a little under 4 percent.

If things unfold differently, the Bank will revise its projection for monetary policy settings to ensure medium-term price stability is maintained.² Some key risks to these judgements – albeit not an exhaustive list – are discussed below.

A weaker world

The projection is built on a view of modest global growth and persistently low commodity prices. However, financial market volatility and falls in international government bond yields reflect investors' view that there is downside risk to the global economic outlook.

² See McDermott, J (2016), 'Forward guidance in New Zealand', speech to the Goldman Sachs Annual Global Macro Conference, Sydney, 4 February.

For New Zealand, a weaker global growth scenario could mean lower world commodity prices and inflation. That, in turn, would weaken the outlook for domestic incomes and demand, and for imported inflation. In the dairy sector in particular, a more-extended period of low prices would add to pressure already on farm balance sheets. Lower world inflation could also lead foreign central banks to ease policy further, offsetting the downward pressure on the TWI from lower export prices.

Another concern would be if funding costs for New Zealand's banks increased sharply in this volatile global environment, passing into higher borrowing costs for households and businesses. In the case of either lower world commodity prices or higher funding costs, a lower OCR may be required to ensure inflation trends towards the midpoint of the target range, and inflation expectations remain well anchored near 2 percent.

Higher net immigration

Net immigration is at an extremely high level and is boosting labour supply, consumption, and housing demand. However, the pick-up in domestic inflationary pressure has been more muted than in the previous migration cycle. Helping to explain this difference, as discussed in chapter 4, is that the world environment is currently weaker and the share of younger migrants is larger than we saw in the early-2000s migration cycle.

Turning points in migration are difficult to forecast, with arrivals much harder to predict than departures. A stronger-than-assumed net inflow is plausible. Given the above assessment, this would result in stronger GDP growth but may have a smaller effect on inflationary pressures than in previous migration cycles. At the same time, given the shortage of housing in the Auckland region, we would expect stronger house price inflation.

Weaker wage- and price-setting behaviour

While inflation expectations remain well anchored at 2 percent, a range of measures have fallen in response to low headline inflation. This is likely to be moderating wage and price setting at present, and is one of the considerations behind both the inflation and interest rate projections in this *Statement*. Should recent declines in measures of inflation expectations continue, or should we see signs that the perceived target is shifting below 2 percent, further monetary easing would be needed.

Higher house prices and consumption growth

Given continued pressure in the housing market, and price increases over the past year in regions outside Auckland, a plausible scenario is that house price inflation remains elevated for longer than assumed in this projection. While adding to housing market imbalances, this could lead to stronger household spending. Stronger consumption growth would add to capacity pressure, and so non-tradables inflation over the projection. In that case, interest rates might not need to be as stimulatory as in the current projection for inflation to settle near the target midpoint.

Box A

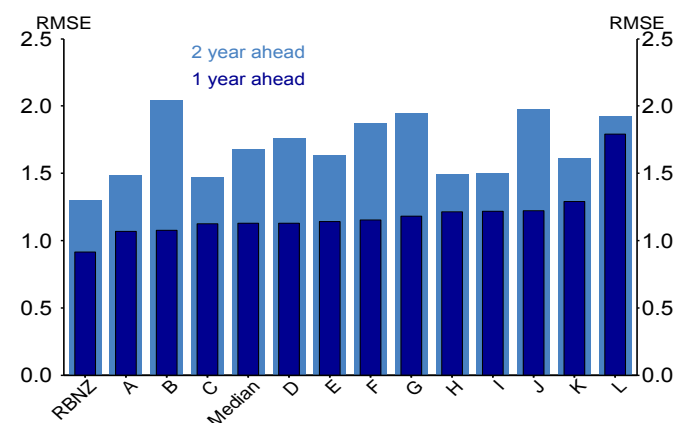
Past decisions and data developments

After lowering the OCR by 100 basis points over 2015 to 2.5 percent, the Bank held the OCR unchanged at the January Review, noting that some further policy easing may be required over the coming year. In public communications, we have noted a range of key risks in recent months. A weaker global growth outlook, worsening of financial market conditions, drop in dairy prices, or drop in inflation expectations would put further downward pressure on the growth and inflation outlook. Upside risks to growth included the possibility of higher-than-expected net immigration, and stronger household spending in response to high house price inflation.

New Zealand output growth has continued to recover from the weakness over the first half of 2015, but the global outlook has worsened and survey measures of inflation expectations have fallen. Annual CPI inflation for the December quarter was 0.1 percent – lower than our December *Statement* estimate of 0.3 percent. The downside surprise came from the tradables side, while domestically generated inflation was slightly higher than anticipated.

Forecasting inflation has been particularly challenging in the years since the Global Financial Crisis (GFC), both abroad and in New Zealand. A review of the accuracy of the Bank and 12 other forecasters at forecasting New Zealand inflation shows that on a like-for-like basis, all forecasters over predicted inflation one year and two years ahead (forthcoming). Figure A.1 shows a measure of forecast accuracy for each forecaster in the sample, where a lower score implies more accurate forecasts.

Figure A.1
CPI inflation forecast errors, 2011-14



Sources: NZIER, RBNZ estimates.

Note: Each bar shows the root mean squared error of inflation forecasts for an individual forecaster (or for the median of all external forecasters in the sample).

In this environment, it has been important – and valuable – to examine why data turned out differently than expected. On the tradables side, a persistently higher-than-assumed exchange rate has played an important part. On the domestic side this involved investigating changes to the inflation process. This work explains why, for a period, non-tradables inflation was turning out lower than what measures of capacity pressure and inflation expectations led forecasters to expect. We have now built the results of that analysis into our forecasts, and formally into our forecasting models. In particular, forthcoming empirical work shows that low past inflation out-turns are weighing more on pricing decisions than was the case prior to the GFC.

Table 2.1
Key forecast variables

		GDP growth Quarterly	CPI inflation Quarterly	CPI inflation Annual	TWI	90-day bank bill rate
2014	Mar	1.3	0.3	1.5	80.1	3.0
	Jun	0.9	0.3	1.6	81.5	3.4
	Sep	0.9	0.3	1.0	80.1	3.7
	Dec	0.9	-0.2	0.8	77.5	3.7
2015	Mar	0.2	-0.2	0.3	77.9	3.6
	Jun	0.3	0.4	0.4	76.1	3.5
	Sep	0.9	0.3	0.4	69.8	3.0
	Dec	0.7	-0.5	0.1	72.1	2.8
2016	Mar	0.7	0.2	0.4	72.3	2.6
	Jun	0.8	0.3	0.3	70.9	2.5
	Sep	0.8	0.5	0.5	70.4	2.3
	Dec	0.7	0.1	1.1	70.0	2.2
2017	Mar	0.7	0.4	1.3	69.8	2.2
	Jun	0.7	0.6	1.6	69.5	2.1
	Sep	0.8	0.7	1.7	69.3	2.1
	Dec	0.8	0.2	1.8	69.2	2.1
2018	Mar	0.7	0.6	2.0	69.2	2.1
	Jun	0.7	0.6	2.0	69.2	2.1
	Sep	0.6	0.7	2.0	69.2	2.1
	Dec	0.5	0.2	2.1	69.2	2.1
2019	Mar	0.5	0.5	2.0	69.3	2.1

Chapter 3

International developments



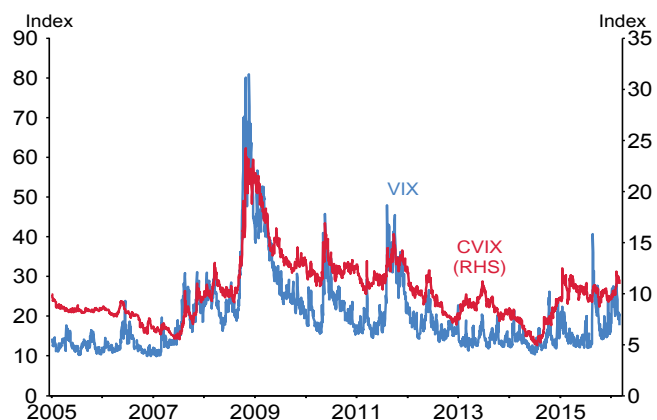
Financial market conditions have deteriorated significantly in 2016 as concerns deepened about the outlook for world growth and inflation. Adding to existing concerns about Chinese growth and oil markets are worries about growth prospects for the United States and euro area, weakness in the European banking sector, and the challenges global monetary policy may face in lifting demand. These concerns have contributed to equity prices falling significantly and interest rates on some major countries' government bonds falling to record lows. Overall, financial market pricing suggests that monetary policy will be significantly more stimulatory than previously expected.

Despite very stimulatory monetary policy settings, economic growth in New Zealand's trading partners has been lower than expected. Indicators of real economic activity have softened further since late 2015, suggesting lower global growth and inflation ahead. However, to date, indicators of the real economy in many countries point to less deterioration in growth than do financial market movements. In part, the divergence is because financial market pricing has focused increasingly on downside risks to growth.

Global financial conditions

Global financial market conditions have deteriorated since the December *Statement*. Greater uncertainty about the growth outlook has led to a significant rise in volatility across most asset classes (figure 3.1), with the effect amplified by reduced liquidity in markets. Nonetheless, volatility remains below the levels seen during the Global Financial Crisis (GFC). Over 2015, key concerns had been about Chinese growth and oil markets. Over 2016, market participants have also been worried about the outlook for growth in the United States and euro area, the European financial sector, and the effectiveness of monetary policy in major economies.

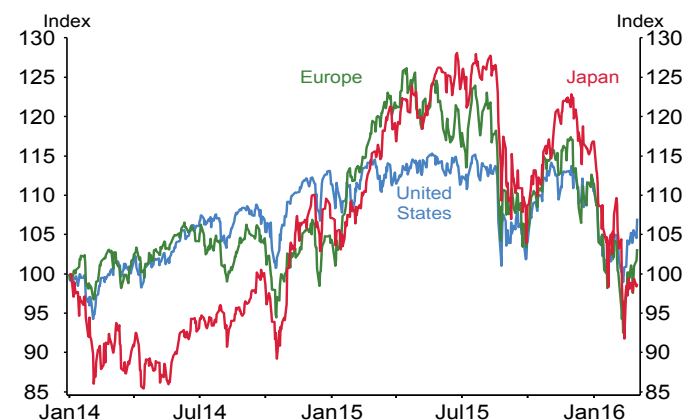
Figure 3.1
Financial market volatility



Source: Bloomberg.

Note: The VIX index shows the market's expectation of 30-day volatility in the S&P 500 index, while the CVIX is the weighted average of implied three-month volatility across nine major currency pairs.

Figure 3.2
Major equity indices



Source: Bloomberg.

Note: Indices shown are US S&P 500, Japan Nikkei 225, and Europe Stoxx 600. 1 January 2014 = 100.

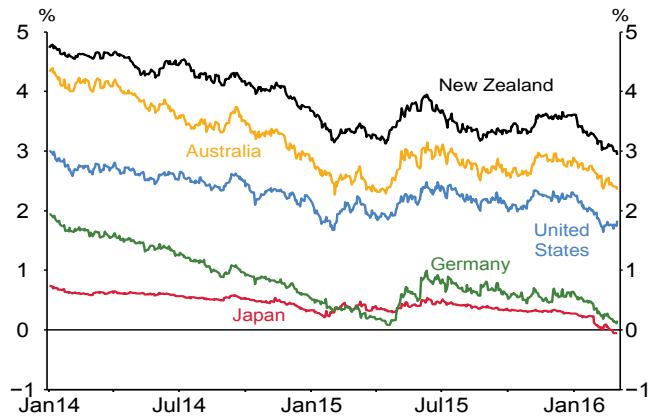
Investors' risk appetite has dropped significantly, leading to large-scale sales of risky assets and buying of government bonds. While this initially reflected downside risks to Chinese growth and uncertainty about China's foreign exchange policy, concern about the risks to global growth soon spread more widely.

Global equity markets have fallen significantly this year, though have recovered slightly from their lows in late February (figure 3.2). United States equity indices are now down around 3 percent for the year to date, and equity indices in Japan and Europe are down around 7 and 15 percent. Chinese equity indices are down 23 percent.

Further indicating the reduced risk appetite, credit spreads for corporate bonds have continued to widen, particularly in the United States high-yield sector. Such spreads have increased by about 80 basis points over 2016, and more than 400 basis points from their 2014 lows. The largest widening of spreads has been concentrated in the energy sector, although spreads have widened to some extent across all sectors.

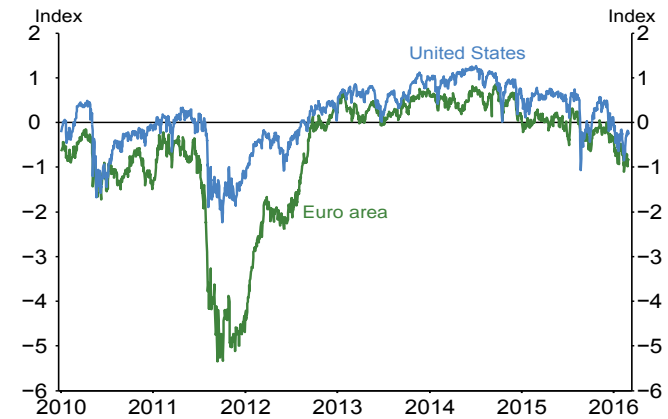
Commodity prices have also fallen further since the December *Statement*. The Bloomberg Commodity Index is down about 3 percent, driven in large part by oil prices. Brent oil prices fell as low as USD27 per barrel in mid-January, but have since risen to around USD37 per barrel. This is still about 8 percent lower than at the time of the December *Statement*. As broader commodity prices have continued to fall over the past year, and as global growth has slowed, markets have tended

Figure 3.3
10-year government bond yields



Source: Reuters.

Figure 3.4
Bloomberg financial conditions indices



Source: Bloomberg.

Note: The Bloomberg Financial Conditions Indices track the overall level of financial stress in the money, bond, and equity markets to help assess the availability and cost of credit. A positive value indicates accommodative financial conditions, while a negative value indicates tighter financial conditions.

to place increasing weight on demand-side factors for the weakness in commodity prices. As a result, international agencies have revised down their medium term commodity price forecasts. The drop in commodity prices has moved inflation further below many central banks' targets, and contributed to a lower outlook for global inflation. Market-based measures of inflation expectations have fallen significantly over the past year across a number of countries.

Government bond yields have fallen further this year (figure 3.3). Ten-year yields have fallen to record lows in the United Kingdom, Japan, and New Zealand, while United States' 10-year Treasury yields have fallen back to levels last seen at the start of 2015.

A key source of concern about the outlook has been the tightening of financial conditions internationally (figure 3.4). Financial conditions in the

United States have tightened since 2014 as the US dollar appreciated, quantitative easing ended, and markets started to anticipate a policy tightening cycle. Increased credit spreads and equity market falls have added to the tightening. Market participants are concerned that the tightening, along with the 25 basis point increase in the United States federal funds target rate, is weighing materially on growth. Despite these concerns, there is little indication that households and firms are facing reduced access to credit, and at present financial conditions (as measured by the Bloomberg index) are much looser than during the GFC and European sovereign debt crisis.

Financial conditions have also tightened in the euro area. The euro has appreciated in 2016. Bank profitability has fallen as interest rates in several countries have fallen below zero and increased regulatory

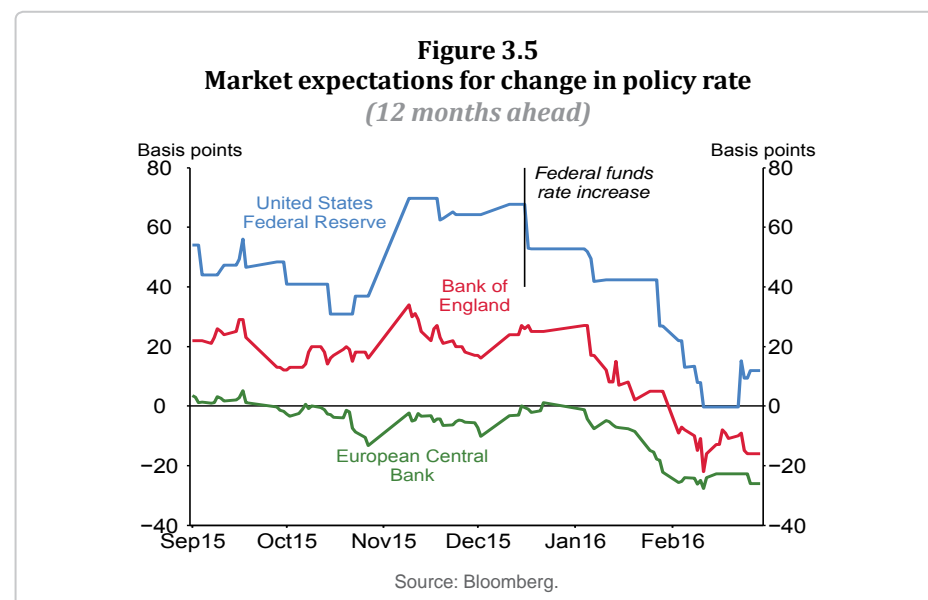
requirements have affected bank operations. Consequently, financial stocks have performed poorly over the past year. The Eurostoxx bank index is down 25 percent since the start of 2016 and 40 percent since the middle of 2015. Credit default swap spreads for European banks indicate a higher probability that banks may default on debt.

Financial stocks in the United States and Japan have come under pressure, though less than in Europe. Record low interest rates mean overall financial conditions are less tight than during previous periods of stress. However, a risk is that lower bank equity prices cause slower lending growth and so stall the economic recovery.

Together with a weaker world outlook for growth and inflation, increased downside risks have led financial market pricing to anticipate that monetary policy will be more stimulatory, and will remain so for longer. In the United States, market expectations for further policy tightening have been pushed back significantly (figure 3.5). In December about two increases of 25 basis points were priced in for 2016, whereas now the next 25 basis point increase is not priced in until early 2017.

The European Central Bank reduced its deposit rate to -0.3 percent in December, and markets expect more policy easing over the next year. Market pricing in the United Kingdom implies a small probability that the next policy rate move will be a cut – a significant change from last year when markets expected that the Bank of England would, after the United States Federal Reserve, be the next major central bank to raise its policy rate. Market pricing implies 33 basis points of cuts to the policy rate in Australia over the next 12 months.

The Bank of Japan surprised markets in late January, by announcing a move to negative interest rates on some excess reserves. In part this was to offset the strengthening in the Japanese yen since late 2015 as



global risk aversion increased. Since then, further strengthening of the yen has increased market expectations of easing this year through one, or a combination of, more-negative interest rates and increased asset purchases.

These trends in global monetary policy are important for New Zealand, particularly for the New Zealand dollar exchange rate, because interest rate differentials are an important driver of bilateral currency moves. If markets change their expectations for offshore central banks to ease monetary conditions further – or tighten by less – this could limit depreciation of the New Zealand dollar. Further, falls in international long-term bond yields have contributed to the recent fall in New Zealand 10-year government bond yields, with smaller effects on short-term rates.

Trading partner outlook

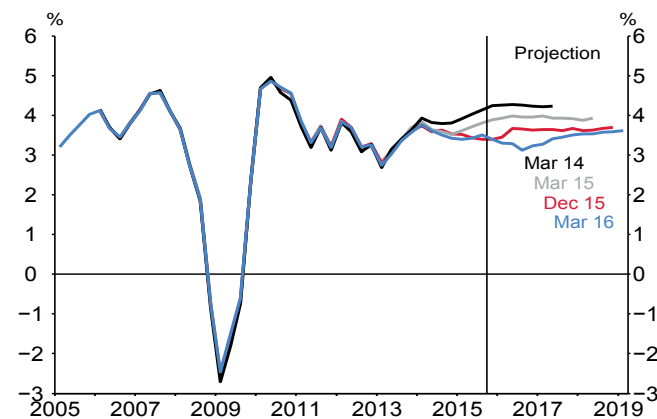
Economic growth in New Zealand's trading partners slowed to an estimated annual rate of 3.5 percent over 2015. This rate was much weaker than expected a year earlier. Forecasts for 2016 growth have also deteriorated substantially over the past year (figure 3.6). The slowdown has been broad-based across New Zealand's trading partners, despite more accommodative current and expected monetary policy settings.

Over 2015, global growth was supported by growth in the services sector, with consumption growth increasing in many countries. Growth in global trade volumes and industrial production were weak.

Since late 2015 indicators of growth in global output have softened, in particular for the services sector. However, so far the deterioration has been less sharp than indicated by financial market moves this year. In part, the divergence between economic indicators and financial market moves reflects that the *risks* to growth are increasingly skewed to the downside.

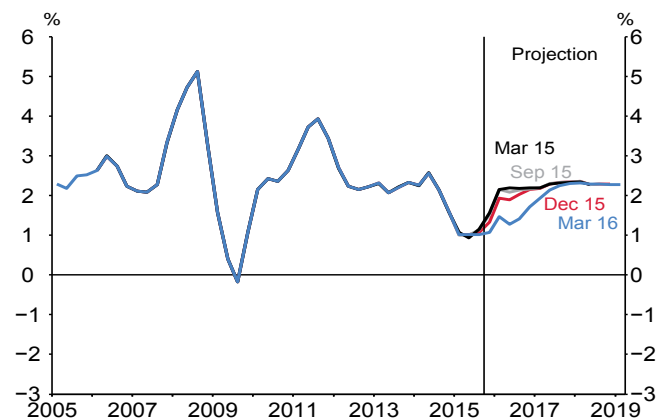
CPI inflation in New Zealand's trading partners remains subdued, at 1.1 percent in the year to the December quarter, and was much weaker than expected over the second half of 2015. The weakness is largely due to the substantial decline in oil prices since the start of 2014, though measures of core inflation are also subdued across a number of trading partners, consistent with significant spare capacity remaining. The outlook for CPI inflation has also deteriorated substantially over this time (figure 3.7), as oil prices are expected to remain low and inflationary pressures remain weak.

Figure 3.6
Trading partner growth
(annual)



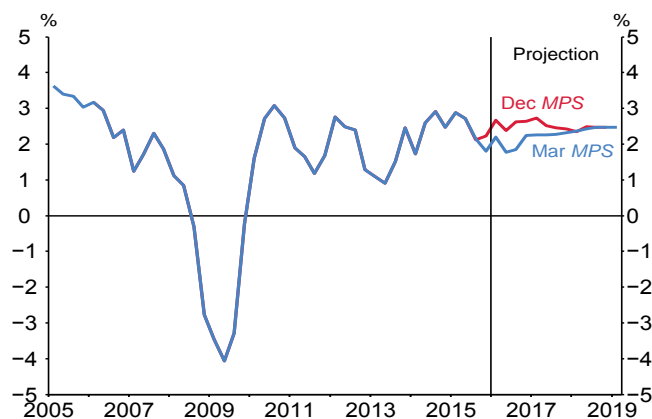
Source: Haver Analytics, Statistics New Zealand, RBNZ estimates.

Figure 3.7
Trading partner inflation
(annual)



Source: Haver Analytics, Statistics New Zealand, RBNZ estimates.

Figure 3.8
United States growth
(annual)



Source: Haver Analytics, RBNZ estimates.

The United States economy grew at a rate close to average over 2015, though growth slowed in the December quarter. Consumer spending made a key contribution to growth over the year, supported by further improvement in the labour market, strong growth in real disposable income, and increasing net wealth. Construction has grown strongly as housing market conditions continue to improve. Industrial output was broadly unchanged. However, growth in private business investment has declined, particularly in the oil and gas sector. Net exports were a drag on GDP growth, reflecting the stronger US dollar and weak demand from emerging markets.

The United States economy is forecast to continue to grow at an average pace in 2016 – slower than expected at the time of the December *Statement* (figure 3.8). The weaker outlook reflects slower quarterly consumption and GDP growth in the December quarter, as well as softening of some indicators of economic activity. A decline in the

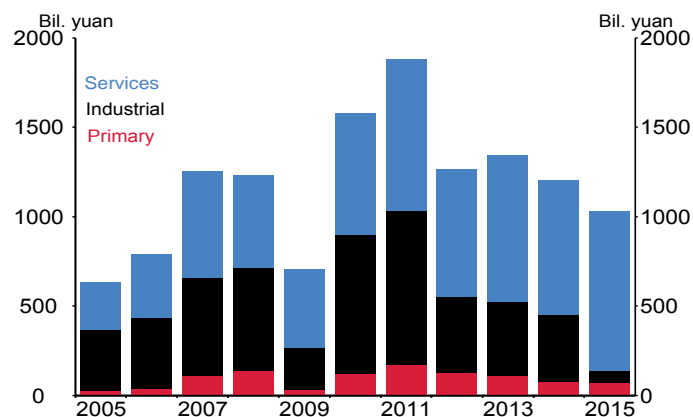
non-manufacturing ISM index, an indicator of service sector activity, from cyclically high levels, has increased concerns that weakness in manufacturing and other industrial sectors is spilling over to the wider economy. However, the favourable conditions supporting growth in 2015 are expected to underpin a pick-up in consumption spending in 2016. There is a risk that financial market volatility weighs on economic output through reduced confidence and tightening credit conditions. While consumer confidence has eased this year, most firms and households still have easy access to credit and can borrow at rates that are close to historical lows.

Growth in the euro area continued to gradually increase over 2015, driven by household and government spending. Growth in 2015 was stronger than expected, but the outlook has deteriorated in recent months and is now broadly unchanged from a year ago.

Growth in China moderated to 6.8 percent in the year to the December quarter, from 7.2 percent a year earlier. The slowing was driven by lower growth in the industrial and real estate sectors, where there is excess capacity following several years of high investment. Indeed, the industrial sector weakened significantly, weighing on global output, trade, and commodity prices. By contrast, the services sector remained strong (figure 3.9), with consumption increasing around 7 percent over the year. Monetary policy has eased over the past 12 months with the aim of supporting growth, and total social financing growth has increased over the past year after adjusting for the impact of the local government debt restructuring programme.

Growth in the Chinese economy is projected to moderate gradually, with conditions in the industrial and real estate sectors unlikely to improve quickly. The risk of a sharp slowdown in Chinese growth remains elevated, and as noted above is a key focus for financial markets.

Figure 3.9
Contribution to change in Chinese GDP
(annual)



Source: Haver Analytics, RBNZ estimates.

The Australian economy grew by 3 percent over the year to the December 2015 quarter. Low interest rates and the depreciation in the Australian dollar supported activity. The depreciation has helped increase competitiveness, especially for services exports. Strong increases in the volume of resource exports also continued to support growth, though slowing mining investment continues to drag on activity. In other sectors, investment growth is expected to remain weak in the near term. In the household sector, consumption growth increased over 2015 supported by increasing employment, although wage inflation remains subdued. Housing construction grew strongly over 2015, and building approvals remain at a high level even though they have eased recently. House price inflation has moderated in recent months, especially in Sydney and Melbourne.

Concerns are centred on a rapid build-up in corporate debt (which is likely to continue as credit growth outpaces nominal GDP growth), ongoing capital outflows and downward pressure on the renminbi, and the need for structural reform.

Any sharp slowing in Chinese growth could have significant implications for global growth, and for the Asia-Pacific region especially. This is important for New Zealand, given that the Asia-Pacific region accounts for most of New Zealand's exports. Weak external demand is already weighing on growth in New Zealand's Asian trading partners. If China and Japan are excluded, growth in Asia has slowed substantially over 2015, from an annual rate of 3.9 percent in the December 2014 quarter to 3.3 percent in the December 2015 quarter.

Chapter 4

Current domestic conditions



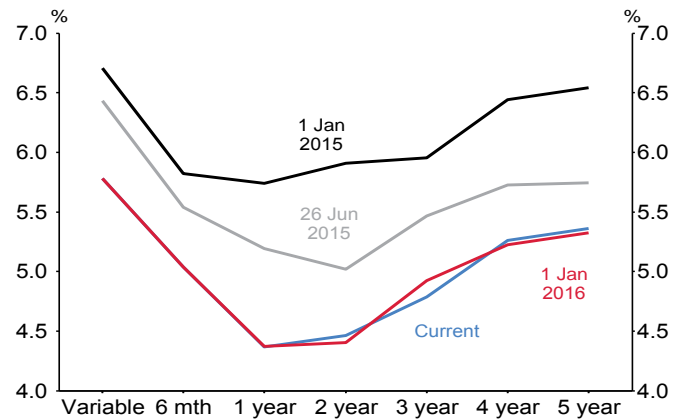
Momentum in the New Zealand economy picked up over the second half of 2015, after slowing through the first half of the year. The slowing in the first two quarters of 2015 stemmed from weakening global demand which, along with strong supply in specific commodity markets, contributed to substantial falls in New Zealand's export prices and weighed on national income. The pick-up over the second half of the year was supported by falls in the exchange rate in 2015 and low interest rates. With GDP growth strengthening, spare capacity in the economy began to decrease over the end of 2015.

Despite strengthening GDP growth, inflation has been weak. Weak global demand has contributed to falls in global commodity prices and low global inflation, both of which have reduced the cost of products that New Zealand imports. Measures of inflation expectations have fallen in response to low headline inflation. However, inflation expectations are still consistent with the Bank's inflation target.

Domestic financial market developments

Domestic monetary conditions eased through 2015, with interest rates and the exchange rate falling substantially. Domestically, the OCR was reduced by 100 basis points, and interest rates abroad also declined as the outlook for global growth and inflation deteriorated. A result was a continued reduction in New Zealand mortgage rates, with some fixed-term rates falling to record-low levels. Over 2016, mortgage rates have remained broadly unchanged (figure 4.1). While the New Zealand dollar TWI has depreciated since the start of 2016 as market volatility has increased, it remains higher than assumed at the time of the December *Statement*.

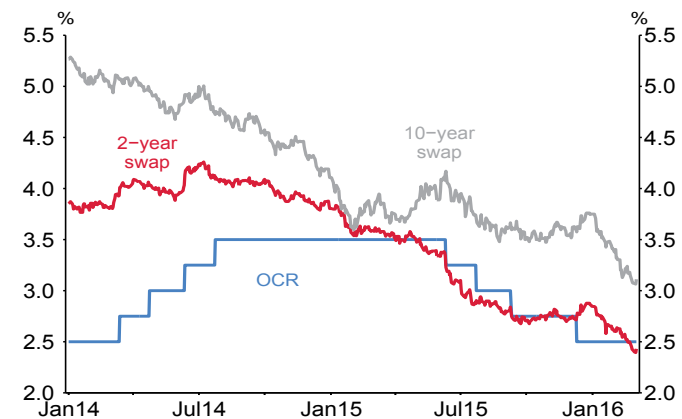
Figure 4.1
Mortgage interest rates



Source: interest.co.nz, RBNZ estimates.

Note: Each rate shown is the average of the carded rates on offer from four banks: ANZ, ASB, BNZ, and Westpac.

Figure 4.2
OCR and wholesale interest rates

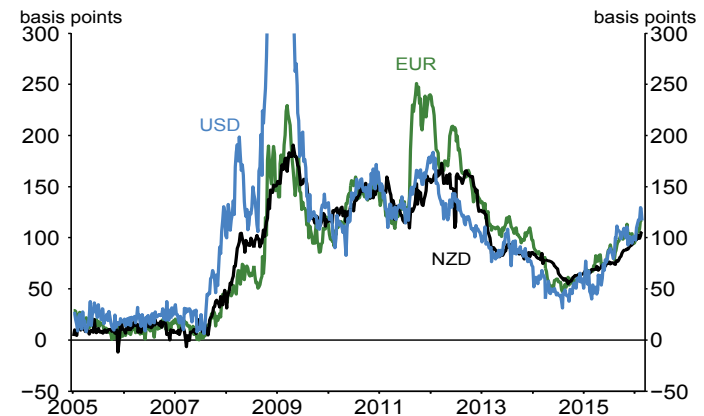


Source: Bloomberg

New Zealand's wholesale interest rates have fallen in 2016, largely driven by falls in global interest rates. The 2-year and 10-year swap rates have declined by around 30 and 60 basis points (figure 4.2). Market-implied expectations of the OCR have fallen, reflecting both international conditions and New Zealand-specific factors, such as falls in dairy prices.

While indicators suggest short-term funding has become modestly cheaper for New Zealand banks in 2016, the cost of funding through longer-term wholesale borrowing has risen with the pick-up in financial market volatility (figure 4.3). The increase in longer-term wholesale costs this year adds to the increasing trend since mid-2014, which reflects a mix of global regulatory changes, concerns about commodity markets and emerging economies, and broader financial sector risks. To date, strong domestic deposit growth has limited the need for New Zealand banks to borrow at these higher rates. However, acceleration in credit

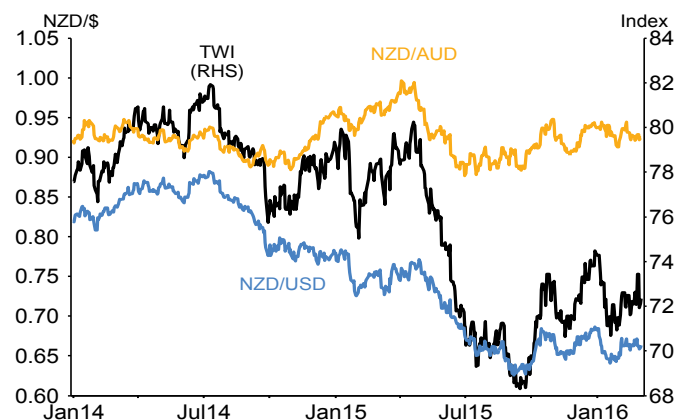
Figure 4.3
Indicative long-term funding costs
(spread over 3-month bank bill)



Source: Bloomberg, RBNZ estimates.

Note: Five-year AA corporate bond spreads swapped into New Zealand dollars using 5-year cross-currency swaps.

Figure 4.4
New Zealand dollar exchange rates



Source: RBNZ.

growth over the past year might increase banks' reliance on higher-cost long-term wholesale funding, leading to higher New Zealand mortgage rates. Moreover, continued financial market volatility may contribute to further increases in funding costs.

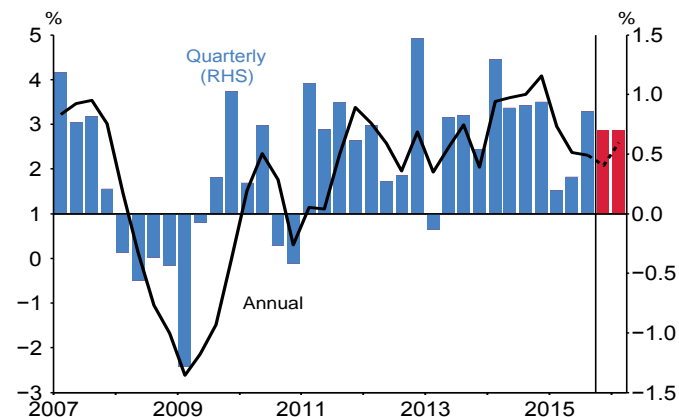
The downward momentum in the New Zealand dollar exchange rate has faded in the past six months. The New Zealand dollar trade weighted index (TWI) fell from nearly 82 in mid-2014 to a low of 68 in September 2015, but has strengthened 6 percent to around 72 (figure 4.4). The TWI currently is around 4 percent higher than forecast at the December *Statement*. Despite increased global risk aversion and lower world dairy prices, there has been upward pressure on the New Zealand dollar exchange rate due to an expectation that international monetary policy will be more stimulatory than previously expected.

Output growth

The New Zealand economy grew by 0.9 percent in the September 2015 quarter, after growing by only 0.5 percent over the first half of the year. The September quarter strength was driven by the manufacturing and services sectors. Net exports also improved, in a large part reflecting earlier exchange rate depreciation. Recent indicators suggest the strength continued over the December quarter, suggesting annual GDP growth of 2.1 percent over 2015 (figure 4.5).

Nonetheless, economic growth has slowed significantly since the 4.1 percent annual rate of expansion at the end of 2014 (see box B). The key change since early 2014 is that export prices have fallen, and are currently at a low level relative to history (figure 4.6). This has weighed on

Figure 4.5
GDP growth
(s.a.)



Source: Statistics New Zealand, RBNZ estimates.

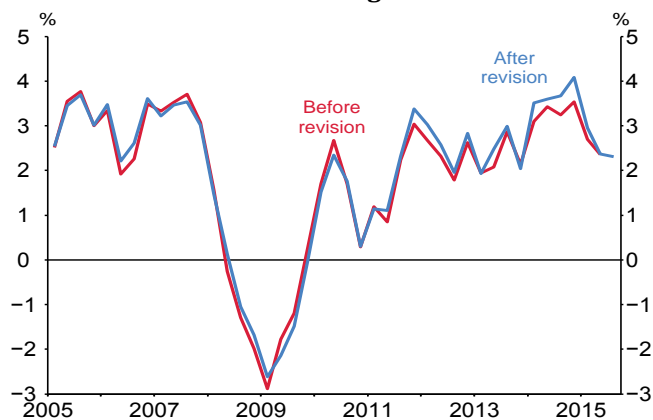
Box B

Recent revisions to GDP growth

Since the December *Statement*, historical GDP data were revised as part of the annual System of National Accounts benchmarking process. These data revisions are important background to the data outturns and interpretation of current momentum discussed in this chapter.

The revisions suggest that the decline in domestic momentum over early 2015 was more pronounced than previously thought (figure B.1). Annual GDP growth in 2014 was revised higher, and is now estimated to have peaked at around 4 percent. In the September 2015 quarter, annual GDP growth slowed to just over 2 percent. Both consumption and business investment growth slowed more over 2015 than previously thought, suggesting the economy has responded to slower growth in national incomes to a greater extent.

Figure B.1
Annual GDP growth



Source: Statistics New Zealand.

Figure 4.6
Real export prices
(world terms, s.a.)



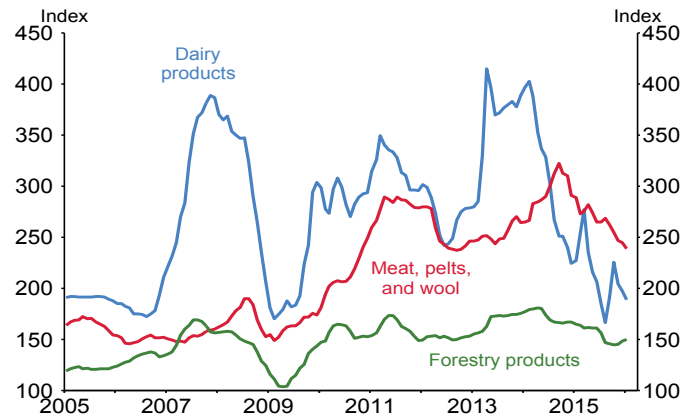
Source: Statistics New Zealand, RBNZ estimates.

domestic demand over 2015, and in particular on growth in consumption and business investment.

Prices for a range of New Zealand's commodity exports continued to decline over 2015 and into 2016, with falls in dairy and meat prices the most substantial (figure 4.7). Falls in commodity prices continue in part to reflect supply developments in specific commodity markets. However, the sustained period of low commodity prices indicates that weak demand is also contributing significantly.

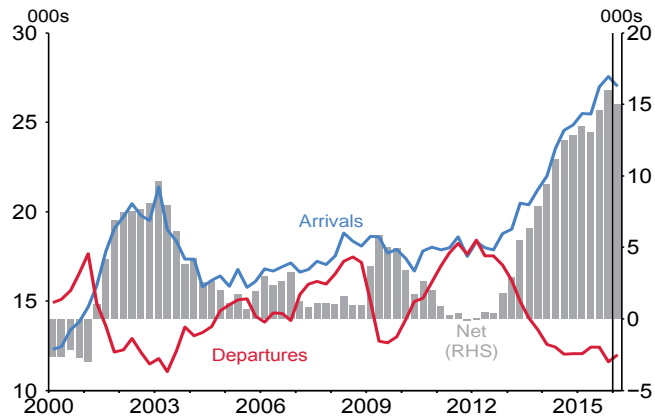
Compared to the time of the December *Statement*, the risk of dry conditions negatively affecting the agricultural sector has reduced. However, NIWA expects El Niño conditions to persist over coming months.

Figure 4.7
ANZ commodity price indices
(s.a.)



Source: ANZ Bank.

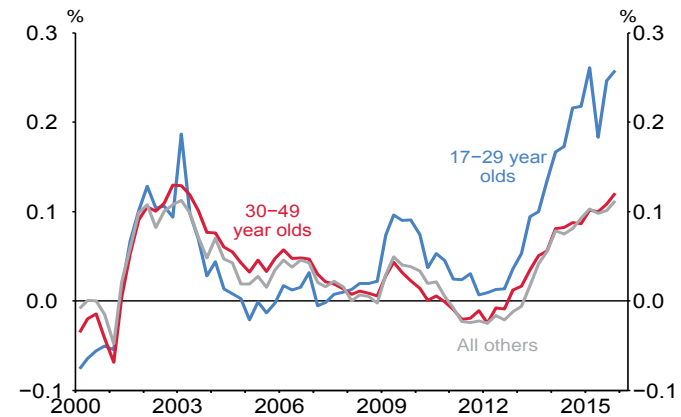
Figure 4.8
Net immigration
(quarterly, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

Note: The data shown are for permanent and long-term working-age migration.

Figure 4.9
Net immigration by age group
(quarterly, s.a.)



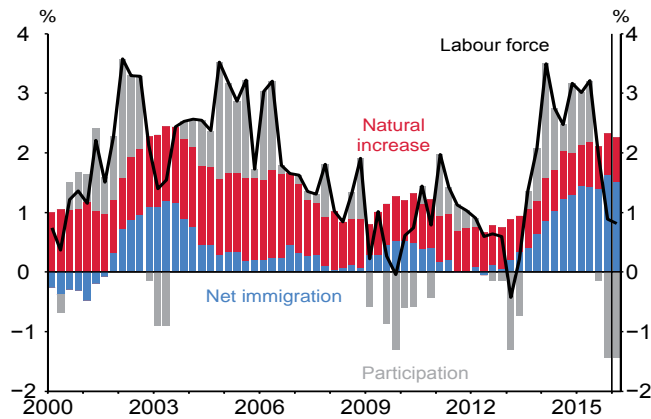
Source: Statistics New Zealand.

Note: The data shown are for permanent and long-term working-age migration as a share of working-age population.

Net immigration increased further over the second half of 2015. This increase mostly reflected increased arrivals (figure 4.8). Net permanent and long-term immigration of working age people was 56,950 in 2015, contributing 1.6 percent to the working age population.

An important factor behind migrants' choices to migrate to or from New Zealand is the relative weakness of offshore economies and labour markets. This is reflected in a large increase in migrant arrivals on work visas, and fewer departures of New Zealanders. The number of migrants on student visas has also increased, partly related to a policy change in 2013 that allows migrants on student visas to work up to 20 hours per week. Notably, net arrivals of younger migrants are very strong (figure 4.9), in contrast to the previous migration cycle in the mid-2000s when the age composition was more evenly distributed.

Figure 4.10
Contributions to labour force growth
(annual, s.a.)



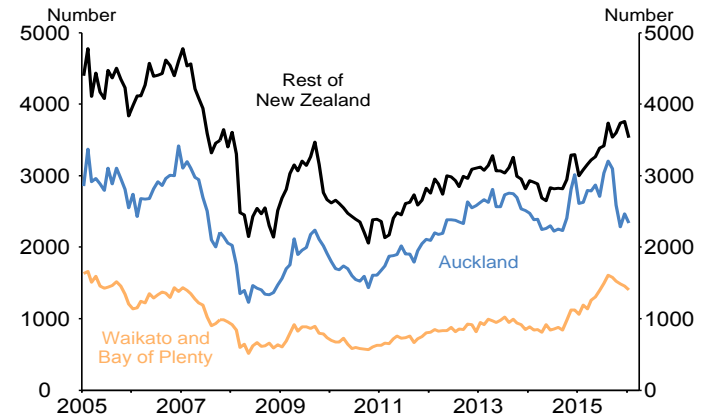
Source: Statistics New Zealand, RBNZ estimates.

Note: The data shown are for permanent and long-term working-age migration.

High net immigration has contributed strongly to supply capacity in the economy. With such a large net inflow compared with past cycles, the impact on labour supply has been substantial (figure 4.10).

Net immigration has supported domestic activity through consumption and the housing market. However, the broader pick-up in domestic activity has been more muted compared to previous migration cycles. Weak global conditions have improved the attractiveness of the labour market in New Zealand, but have also offset the boost from net immigration by dampening economic activity through other channels. In particular, substantial falls in export prices have dampened business investment and consumption. The younger composition of migrants also implies a smaller boost to domestic demand than in past cycles, as younger migrants are likely to have lower incomes, wealth, and spending.

Figure 4.11
House sales
(monthly, s.a.)

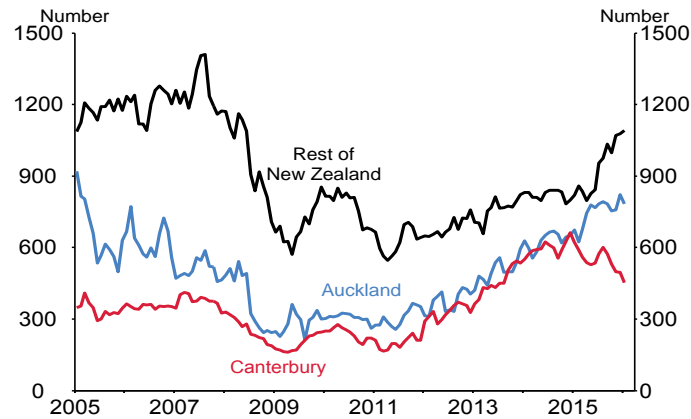


Source: REINZ

High net immigration, combined with limited housing supply in the Auckland region and low interest rates, has supported increases in house prices. House price inflation has slowed following the introduction of tax policy measures and macro-prudential policy measures applying to investor lending in the final quarter of 2015. The slowing in house price inflation has mainly been concentrated in Auckland, but has also occurred to some extent in the Waikato. House sales have fallen in Auckland and some surrounding regions, but have remained relatively stable across the rest of New Zealand (figure 4.11). It is too early to tell whether this moderation in house price inflation will be sustained.

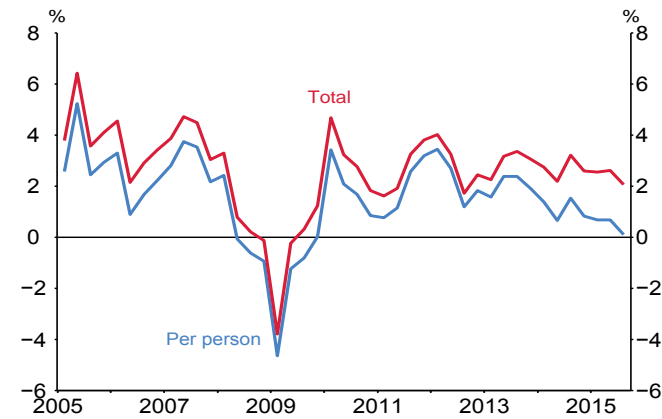
Construction growth slowed towards the end of 2015, but issuance of non-residential and residential building consents indicates strong growth over 2016 (figure 4.12). High house prices, strong population growth and housing shortages, particularly in Auckland, are supporting construction growth (figure 4.13). Issuance of dwelling consents has slowed in

Figure 4.12
Residential building consents
(3-month moving average, s.a.)



Source: Statistics New Zealand.

Figure 4.14
Consumption growth
(annual)



Source: Statistics New Zealand.

Figure 4.13
Construction growth
(annual)



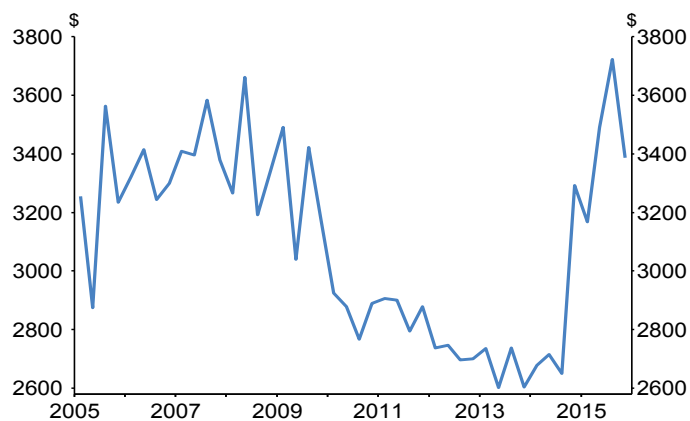
Source: Statistics New Zealand, RBNZ estimates.

Canterbury, as the residential rebuild is estimated to have peaked in early 2015.

Aggregate consumption growth has weakened over 2015 despite high house prices and low interest rates. Consumption growth on a per-capita basis has been even weaker (figure 4.14). Falls in export prices have contributed to weaker growth in disposable incomes and lower consumer confidence, with households wary about the economic outlook. Saving has reduced as households partly smooth their spending through this period of lower income growth.

Consumption growth has been weaker than the growth in retail trade volumes. High spending by international visitors helps to explain this difference. Strong visitor arrivals have contributed to strength in services exports since mid-2014. The lower exchange rate is improving the

Figure 4.15
Average spend per international visitor



Source: Statistics New Zealand.

competitiveness of New Zealand's service export industries. Average spend by visitors increased strongly over 2015 (figure 4.15).

As well as boosting services exports, the lower exchange rate has supported net exports by making domestic goods and services more attractive relative to imports. The sharp fall in import volumes in the September quarter also stems from weaker business investment. Business investment growth softened over 2015 in response to lower export prices, which reduced business confidence and national income growth.

Capacity pressure

The labour market tightened over the last quarter of 2015. Employment as a share of the working age population increased in the December quarter, after slowing sharply over early 2015. The unemployment rate fell from 6 to 5.3 percent in the December quarter, due to strong employment growth and a fall in labour force participation (figure 4.16).

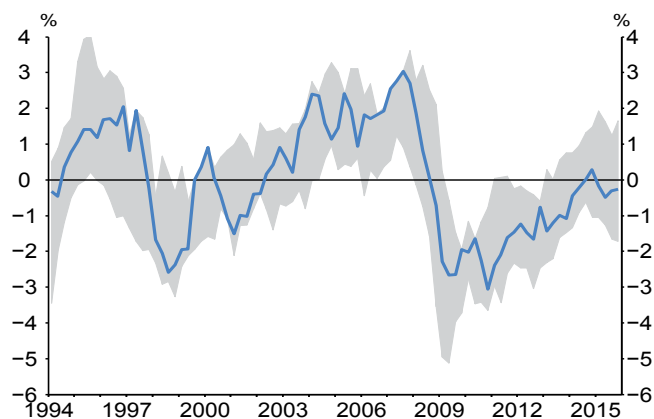
Wage growth remains low in nominal terms, despite the tightening in capacity pressures, reflecting low inflation expectations. However, limited increases in the cost of living mean that growth in the purchasing power of wages has been high relative to history.

Figure 4.16
Unemployment rate
(share of labour force, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

Figure 4.17
Output gap and indicator range
(share of potential output)



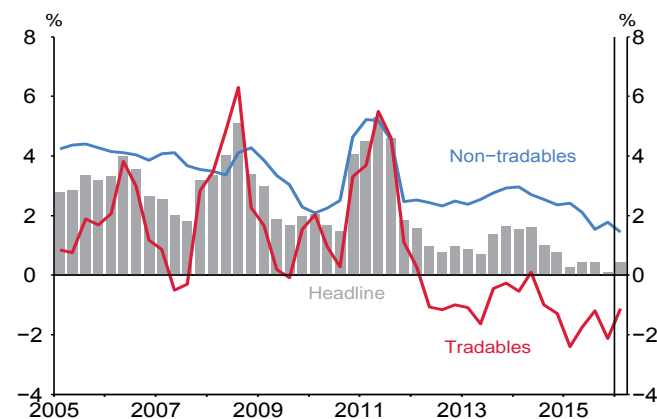
Source: RBNZ estimates.

Strengthening GDP growth over the second half of 2015 has increased pressures on productive capacity. The output gap is currently estimated to be closing towards zero (figure 4.17). The majority of our indicators of the output gap increased in the December quarter. Most indicators sit in a tight range, between -0.5 and 0.7, with the range widened by indicators that are at the extremes.

Pricing and inflation

In the December 2015 quarter, annual CPI inflation was 0.1 percent. This is low relative to the 2.2 percent average since 2002 when the target range became 1 to 3 percent. Annual tradables inflation was -2.1 percent, and annual non-tradables inflation was 1.8 percent (figure 4.18).

Figure 4.18
CPI inflation
(annual)

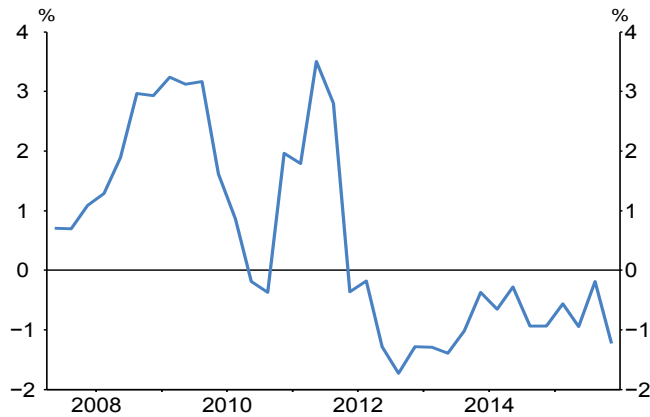


Source: Statistics New Zealand, RBNZ estimates.

Annual non-tradables inflation has been moderating since 2014. Over 2015, weaker capacity pressure and low inflation expectations contributed to low non-tradables inflation. Non-tradables inflation has also been dampened by declines in prices of specific components. For example, reductions in ACC levies in the September 2015 quarter reduced prices for vehicle licensing and subtracted 0.6 percentage points from non-tradables inflation. On the other hand, housing-related costs have supported non-tradables inflation over 2015.

Tradables inflation since 2012 has been below its historical average, largely reflecting the high exchange rate. Since 2015, low tradables inflation has also reflected falls in global commodity prices. Domestic petrol prices fell 13.7 percent over the last six months of 2015 and subtracted 1 percentage point from annual tradables inflation. Low prices for oil, together with spare capacity globally, have led to more weakness than expected in the prices of other commodities that New Zealand

Figure 4.19
Tradables inflation excluding vehicle fuels
(annual)

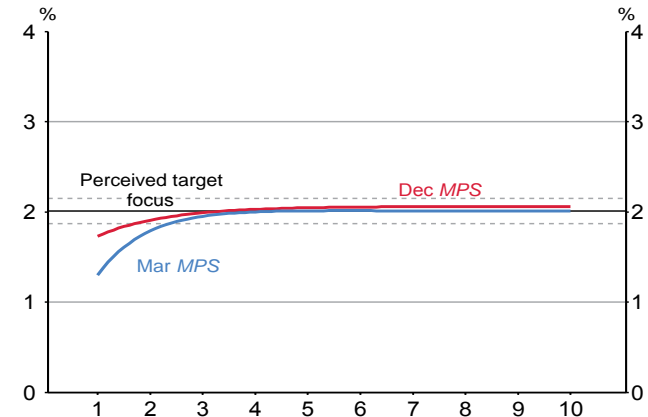


Source: Statistics New Zealand.

imports. Indeed, even excluding the effect of falls in petrol prices, tradables inflation remains low (figure 4.19). The New Zealand dollar TWI has risen almost 6 percent since its trough in September 2015, further reducing the cost of imported goods.

Measures of inflation expectations have fallen recently, likely influenced by the sustained period of low headline inflation (figure 4.20). As box D highlights, expectations settle at a perceived target that is in line with the 2 percent mid-point specified in the PTA. Nevertheless, the broad-based fall is concerning because this is likely to influence wage- and price-setting behaviour of businesses and households, putting downward pressure on wages and prices at horizons relevant for monetary policy. This is one factor requiring lower interest rates. As inflation picks up, the dampening influence of inflation expectations on wages and prices is expected to fade.

Figure 4.20
Inflation expectations curve
(annual, by number of years ahead)



Source: ANZ Bank, Aon Consulting, Consensus Economics, RBNZ estimates.

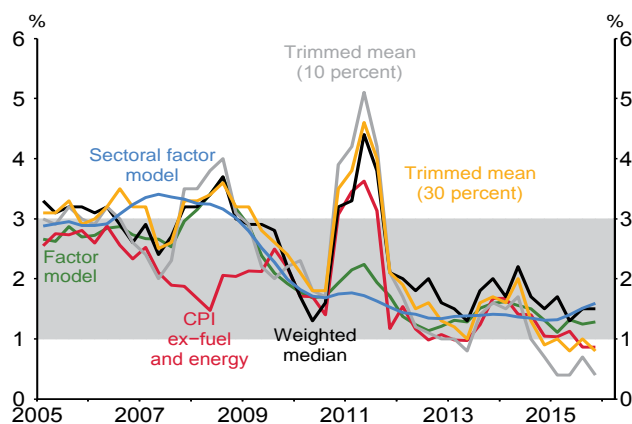
Note: The perceived target focus is where the inflation expectations curve trends towards in the long run. The dotted grey lines reflect a band that is close to the perceived target focus (calculated as +/-1 standard deviation of the perceived target focus since the 2012 PTA).

Low CPI inflation and falls in inflation expectations have contributed to subdued core inflation relative to history across a range of measures the Bank considers (figure 4.21).¹ Each of these measures has its own advantages and limitations, but can assist in extracting information from inflation out-turns by looking through temporary volatility in prices.² This helps the Bank examine the strength of the underlying inflationary pressures in the economy. This is particularly useful at a time when, as in the current environment, sector-specific and temporary price movements are complicating the interpretation of inflation out-turns.

1 Some of the measures regularly examined by the Bank can be found in table 4.1.

2 For an explanation of the core inflation measures the Reserve Bank uses and their advantages and limitations, see Ranchhod, S (2013), 'Measures of New Zealand core inflation', Reserve Bank of New Zealand *Bulletin* Vol. 76, No. 1.

Figure 4.21
Measures of core inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Box C

Insights from outreach

In the March quarter, the Reserve Bank talked to businesses throughout New Zealand to update our understanding of general business conditions in key sectors of the economy. In particular, we talked to businesses in the housing and construction, tourism and agricultural sectors. Our contacts noted some weakening in the Auckland housing market over recent months, although it was too soon to tell if this weakness would be sustained. Growth in the tourism sector was very strong and likely to be a key driver of economic activity over 2016, with average spend by tourists increasing over 2015. Contacts in the agricultural sector noted the risk of drought over the start of 2016 had reduced. Improved weather conditions have led to improved grass growth and many farmers are responding by reducing de-stocking.

In addition, the Bank presented on monetary policy and related topics to the following sectors and regions:

Business groups (5): Auckland, Hamilton, Wellington, Christchurch, Dunedin.

International economists (3): Wellington, Sydney, Melbourne.

International banking: Auckland.

International and local debt capital markets: Wellington.

Manufacturers and exporters: Christchurch.

Box D

A history of inflation and inflation expectations

Since the implementation of the first PTA in 1990, annual CPI inflation has averaged 2.1 percent (figure D.1). This compares to an average of 10 percent in the 25 years prior. Variability in inflation has also noticeably reduced.³ Since the start of inflation targeting, there have been notable times when inflation temporarily diverged from the target band, both on the upside and downside. These divergences have largely stemmed from changes in tax policies and movements in oil prices.

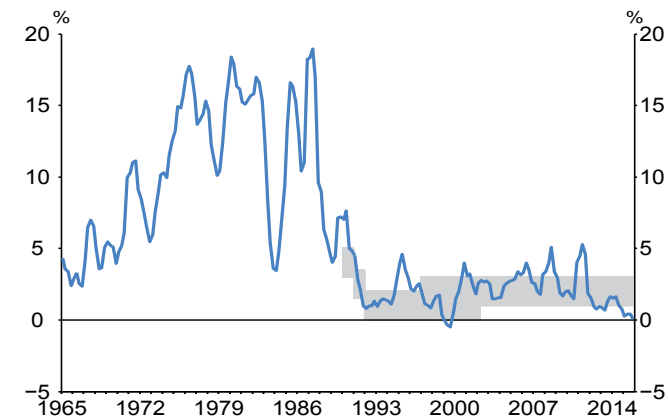
An important feature of inflation targeting is the requirement that inflation expectations remain well anchored. Inflation expectations have an important influence on wage- and price-setting behaviour and therefore monetary policy. Well-anchored expectations help ensure inflation trends back towards a specific level or range. They also indicate whether the Bank's current policy strategy is perceived as credible. The Bank constantly monitors the evolution of the perceived target, as material moves above or below the midpoint of the target range can be costly to correct.

The Bank monitors a broad range of measures of inflation expectations.⁴ Over recent years, inflation expectations across this range have trended downwards, and now imply a perceived target of close to 2 percent (figure D.2). The perceived target is close to the midpoint of the Bank's 1 to 3 percent target range, suggesting the Bank's policy strategy is seen as credible, and policy actions are expected to promote medium-term price stability consistent with the PTA.

3 See Wheeler, G (2014), 'Reflections on 25 years of inflation targeting', a speech delivered to a Reserve Bank of New Zealand and *International Journal of Central Banking* conference in Wellington, 28 Nov.

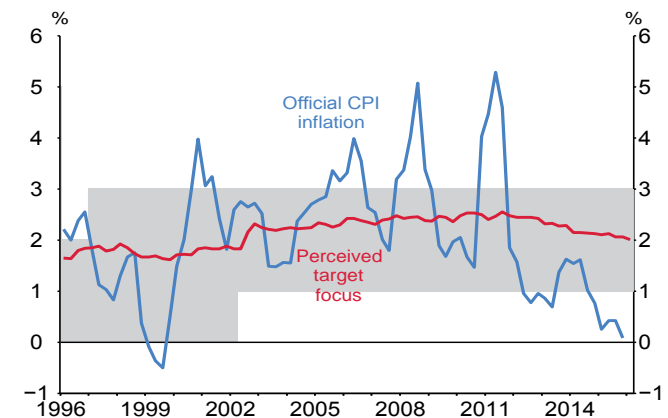
4 See Lewis, M (forthcoming), 'Inflation expectations curve: a tool for monitoring inflation expectations', Reserve Bank of New Zealand *Analytical Note*, AN2016/01 and Lewis M, McDermott J and Richardson A (forthcoming), 'Inflation expectations and the conduct of monetary policy', Reserve Bank of New Zealand *Bulletin*, Vol.79, No.4.

Figure D.1
Inflation
(annual)



Source: Statistics New Zealand.

Figure D.2
Perceived target and inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Note: The perceived target is where the inflation expectations curve trends towards in the long run.

Table 4.1
Measures of inflation, inflation expectations, and asset prices

	Jun	2014 Sep	Dec	Mar	2015 Jun	Sep	Dec	2016 Mar
Inflation (annual rates)								
CPI	1.6	1.0	0.8	0.3	0.4	0.4	0.1	
CPI non-tradables	2.7	2.5	2.4	2.4	2.1	1.5	1.8	
CPI tradables	0.1	-1.0	-1.3	-2.4	-1.8	-1.2	-2.1	
Sectoral factor model estimate of core inflation	1.4	1.3	1.3	1.3	1.4	1.5	1.6	
CPI trimmed mean (10 percent)	1.7	1.0	0.7	0.4	0.4	0.7	0.4	
CPI weighted median	2.2	1.7	1.5	1.7	1.3	1.5	1.5	
GDP deflator (expenditure)	4.3	1.1	-2.2	-0.9	0.2	0.4		
Inflation expectations								
ANZ Bank Business Outlook - inflation one year ahead (quarterly average to date)	2.6	2.5	2.3	1.7	1.7	1.7	1.7	1.4
RBNZ survey of expectations - inflation two years ahead	2.4	2.2	2.1	1.8	1.9	1.9	1.9	1.6
AON Hewitt Economist Survey - inflation four years ahead	2.3	2.2	2.2	2.1	2.1	2.2	2.1	2.0
AON Hewitt Economist Survey - inflation seven years ahead	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1
Long-run inflation expectations ¹	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0
Asset prices (annual percentage changes)								
Quarterly house price index (CoreLogic)	6.9	4.8	6.4	9.0	11.2	14.7		
REINZ Farm Price Index (quarterly average to date)	15.3	3.7	1.2	2.0	2.1	-0.4	-2.5	4.3
NZX 50 (quarterly average to date)	14.6	12.7	12.6	16.5	12.6	11.4	10.8	6.7

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.



Chapter 5

The macroeconomic outlook

The outlook for inflationary pressure has weakened since the December *Statement*, despite stronger economic growth over the second half of 2015. The weaker outlook for inflationary pressure in New Zealand predominantly reflects external developments. As discussed in chapter 3, the global economic outlook has weakened over the past year, and financial market volatility reflects a heightened risk that global growth will weaken further. Since December, the outlook for trading partner growth and inflation has continued to decline, and consequently the outlook for policy interest rates among the major central banks is generally for further easing and, in the case of the US, less rapid tightening. In addition, a broad range of commodity prices has continued to fall.

Lower commodity prices affect the New Zealand economy in a number of ways. New Zealand's export prices are projected to remain subdued compared with recent history, as a weaker outlook for global demand and falling production costs dampen the prices of New Zealand's commodity exports (figure 5.1). In addition, lower commodity prices and continued low global inflation are weighing on the outlook for New Zealand import prices. Import prices are projected to be significantly weaker than at the time of the December *Statement*, reflecting both a weaker commodity price outlook and a trend of weaker-than-expected prices for oil products and other imports over the past year (figure 5.2).

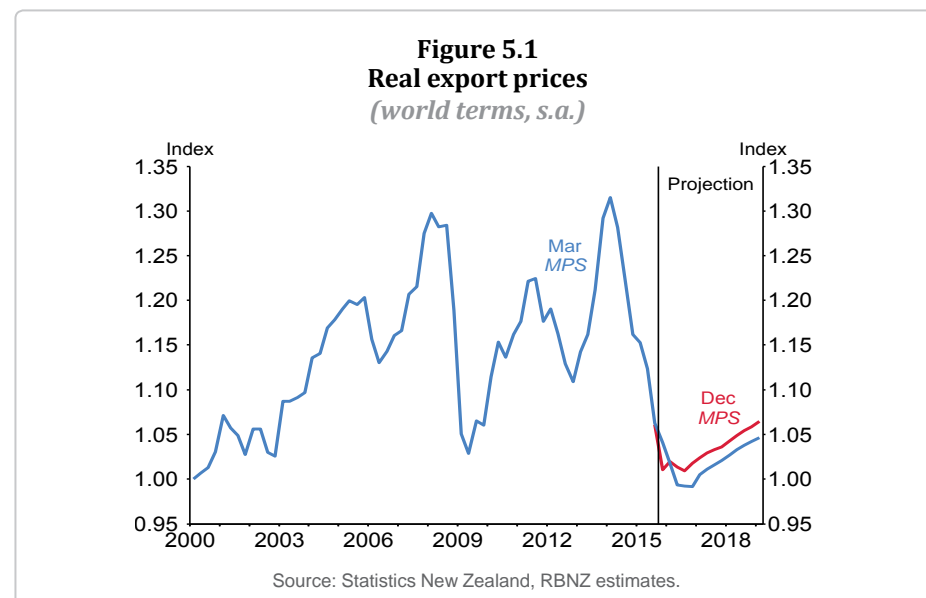
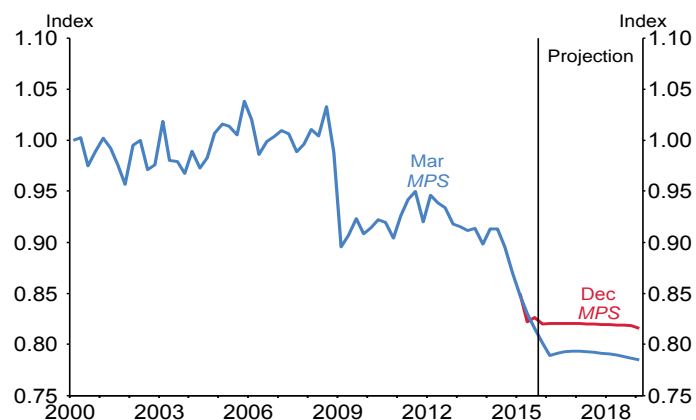


Figure 5.2
Real import prices
(world terms, s.a.)

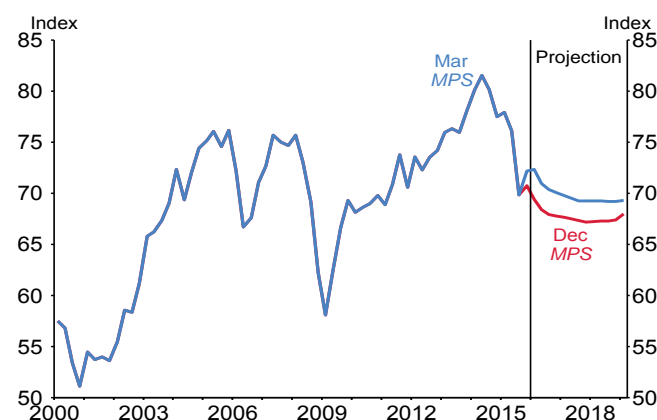


Source: Statistics New Zealand, RBNZ estimates.

The terms of trade are projected to be slightly higher than in the December *Statement*, with the outlook for import prices softening more than export prices. The central projection assumes that prices of internationally traded commodities will recover steadily over coming years as global economic conditions begin to improve, contributing to an increase in the terms of trade from 2017 onwards.

The weaker outlook for international interest rates means a greater projected differential between New Zealand's and other economies' interest rates. This contributes to a stronger outlook for the New Zealand dollar TWI than in the December *Statement* (figure 5.3). The exchange rate is assumed to depreciate gradually over the projection period, as the global economic outlook improves and New Zealand's interest rate differential narrows.

Figure 5.3
New Zealand dollar TWI

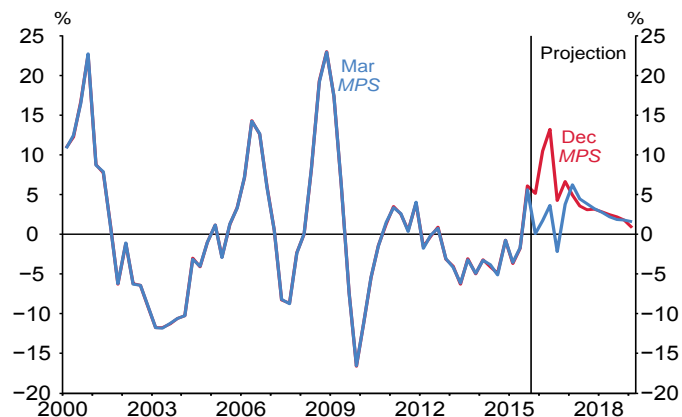


Source: RBNZ estimates.

The weak global environment is weighing on the outlook for tradables inflation. The higher exchange rate and lower commodity price outlooks mean import price inflation is now expected to be substantially lower over 2016 than in the December *Statement* (figure 5.4). Correspondingly, tradables inflation is also projected to be lower over 2016 (figure 5.5). While import price inflation is projected to increase over the latter half of the projection, the lower level of import prices continues to weigh on tradables inflation over the medium term.

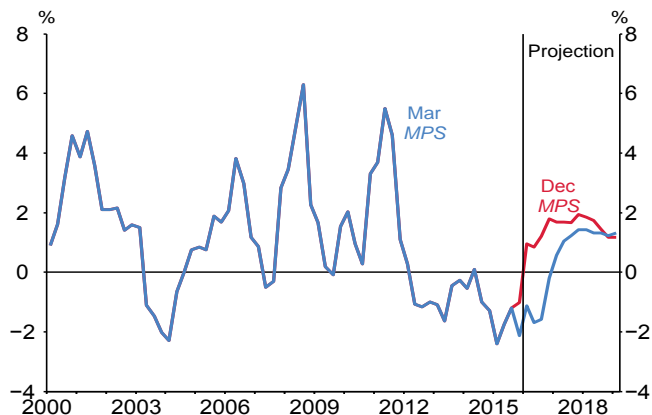
The weak global outlook is expected to dampen New Zealand growth through a range of channels. Subdued external demand, together with the upward pressure on the exchange rate noted above, reduces the outlook for net exports. The higher exchange rate and lower export prices weigh on domestic incomes and spending. While lower import prices boost the purchasing power of consumers and firms, they also

Figure 5.4
Import price inflation
(annual, New Zealand dollar terms)



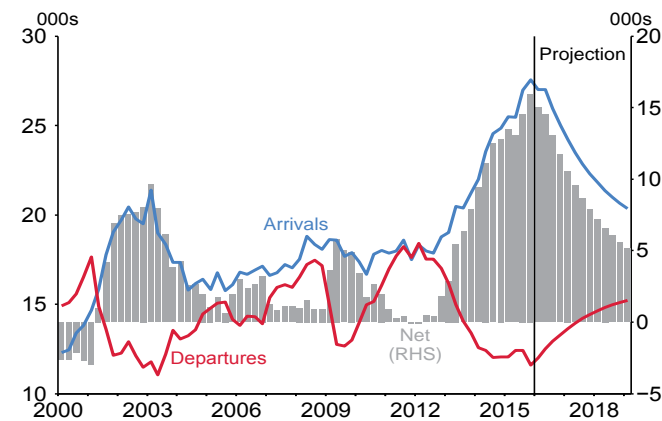
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.5
Tradables inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.6
Migration
(quarterly, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

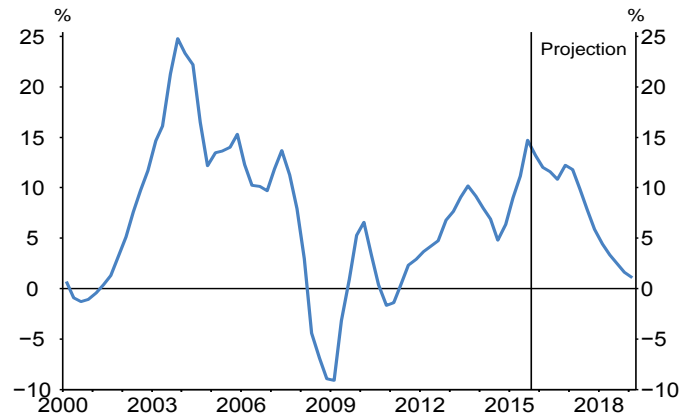
Note: The data shown are for permanent and long-term working-age migration.

encourage some expenditure switching from domestic goods and services towards imports.

As noted in chapter 4, subdued global economic conditions have also contributed to the high level of net immigration. Net immigration is assumed to decline over the projection, albeit to an elevated level compared with history, consistent with an improvement in global conditions over the next three years (figure 5.6). This large net inflow contributes to strong labour force growth, and increases the economy's supply capacity over the projection.

In addition to boosting supply capacity, strong net immigration boosts domestic demand in this projection – particularly demand for housing. However, the boost to capacity and inflationary pressures from high net

Figure 5.7
House price inflation
(annual)



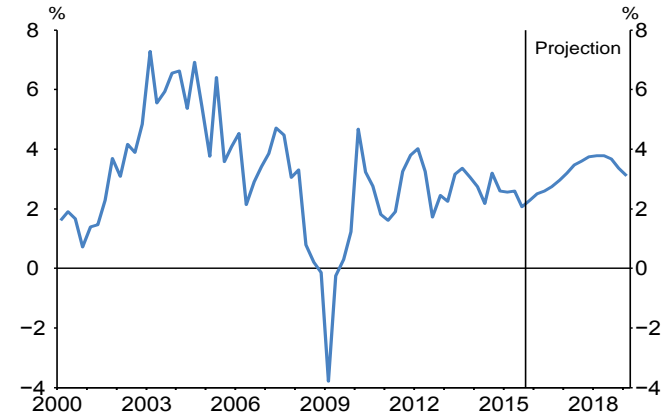
Source: CoreLogic, RBNZ estimates.

immigration is being offset by the dampening impact of weak economic conditions abroad.

House price inflation is projected to remain elevated over the next 18 months, reflecting high net immigration, a shortage of supply in Auckland, and low mortgage interest rates (figure 5.7). Over the remainder of the projection, house price inflation slows as net immigration falls, affordability constraints bite, and increasing residential construction begins to address housing shortages.

Consumption growth is projected to increase over the coming three years (figure 5.8). Stimulatory interest rates and a gradual recovery in export prices contribute to an increase in consumption growth from current rates. In addition, rapid population growth, high house prices, and growth in real labour incomes continue to support consumption over the projection.

Figure 5.8
Consumption growth
(annual)

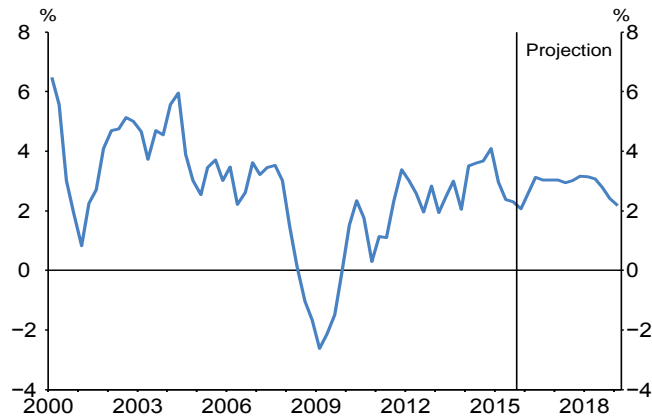


Source: Statistics New Zealand, RBNZ estimates.

Residential investment is projected to remain elevated over the projection, growing at an average rate of 6 percent per year as existing housing shortages and high house prices support additional construction. Business investment is projected to grow at a moderate pace, as businesses find that scope to increase production is increasingly constrained by physical capital. Additional government capital expenditure of \$1 billion over the next five years announced in the *Half Year Economic and Fiscal Update 2015* will provide some support to growth over the projection.

Overall, annual GDP growth is projected to remain around 3 percent over much of the projection, after recovering from weakness over the first half of 2015 (figure 5.9).

Figure 5.9
GDP growth
(annual)



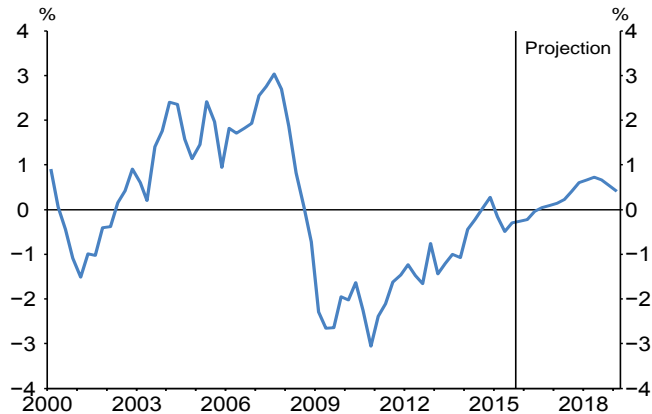
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.11
Non-tradables inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.10
Output gap
(share of potential output)

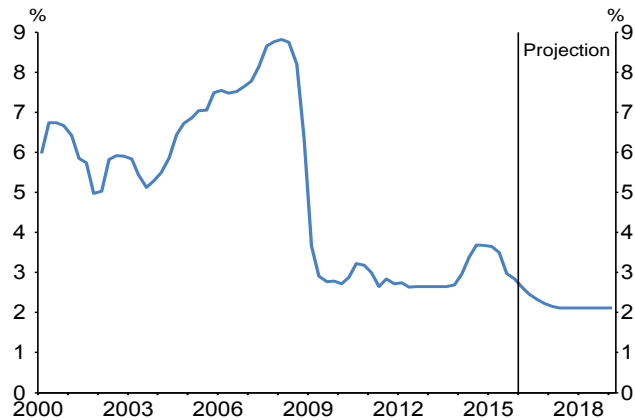


Source: RBNZ estimates.

Capacity pressures are projected to increase steadily over the next three years (figure 5.10), as annual GDP growth of around 3 percent exceeds potential GDP growth of around 2½ percent. Non-tradables inflation is projected to rise from its current rate, as capacity pressures build and the dampening effect of sector-specific factors fade (figure 5.11).

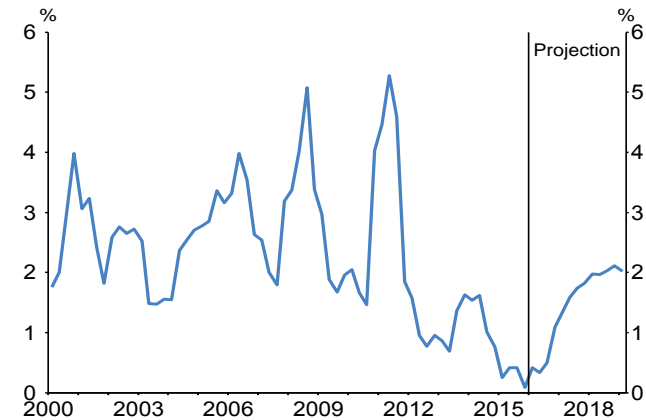
The outlook for inflationary pressure is weaker than at the time of the December *Statement*, mainly reflecting the subdued global economic outlook. External weakness is expected to weigh on inflation both directly (through persistently lower import prices) and indirectly (by dampening domestic economic activity). In addition, as discussed in chapter 4, a range of measures of inflation expectations have declined over the past year. This further reduces the outlook for inflationary pressure for a given level of nominal interest rates.

Figure 5.12
90-day interest rate



Source: RBNZ estimates.

Figure 5.13
CPI inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

In that environment, 90-day interest rates are projected to decline over the first half of the projection and then remain low, consistent with the weak outlook for inflationary pressure (figure 5.12).

CPI inflation is projected to increase from late 2016, as increasing pressure on productive resources sees non-tradables inflation rise, and increasing import prices translate into higher tradables inflation. CPI inflation returns within the 1 to 3 percent target band in late 2016 and settles near 2 percent in the second half of the projection horizon (figure 5.13).

Risk analysis

As discussed in chapter 2, the projection described in this chapter is based on judgements about how key variables will evolve, and on historical relationships. The projection represents the Bank's central view of how the forces acting on the economy might play out. However, the path that key variables ultimately take will differ from the projection for a range of reasons, including changes in economic relationships, the wide range of uncertainty around key assumptions, and unforeseen developments.

The following scenarios illustrate some key risks that could influence economic outcomes over the next three years, and what they could mean for inflationary pressure and monetary policy.

The risks are that:

- current subdued global economic conditions mean that imported inflationary pressure remains low for even longer;
- investors' reduced risk appetite results in higher funding costs for New Zealand banks and higher mortgage interest rate spreads; and
- house price inflation remains elevated for a longer period, and translates into stronger domestic demand.

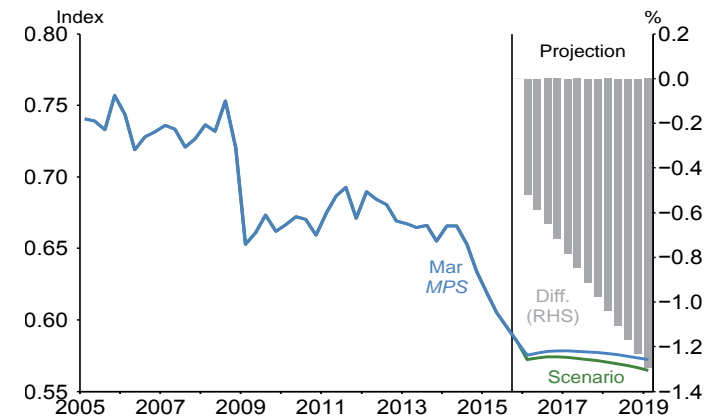
Lower imported inflationary pressure

A key channel from weak international conditions to New Zealand inflationary pressure is through import costs. Over the past year, import costs have remained subdued despite significant exchange rate depreciation, as the international price of New Zealand's imports has fallen sharply.

In the central projection, New Zealand import costs increase over the next three years as global inflation increases and the New Zealand dollar exchange rate depreciates. However, given the low level of commodity prices and current subdued rate of global inflation, a weaker outlook for world import prices is plausible. In addition, more-stimulatory monetary policy in New Zealand's key trading partners could result in less exchange rate depreciation than assumed in the central projection.

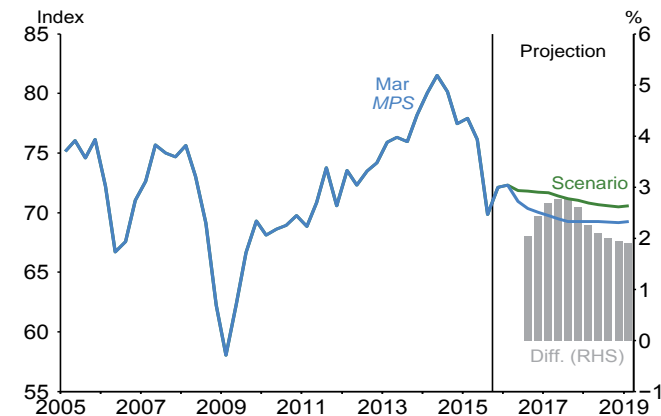
This scenario considers the implications of a more prolonged period of low world prices for New Zealand's imports (figure 5.14), stemming from low commodity prices and continued economic slack in major

Figure 5.14
Real import prices
(world terms, s.a.)



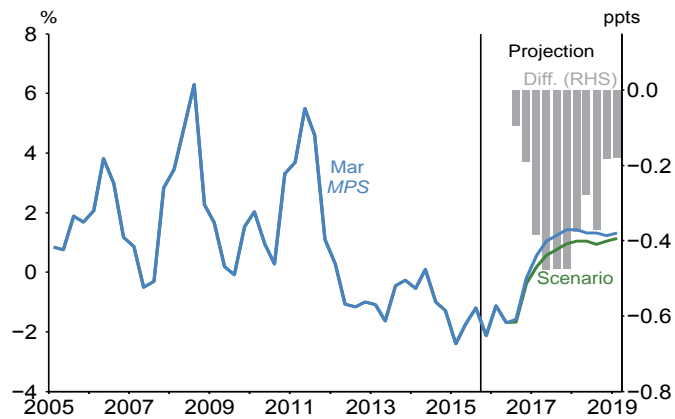
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.15
New Zealand dollar TWI



Source: RBNZ estimates.

Figure 5.16
Tradables inflation
(annual)



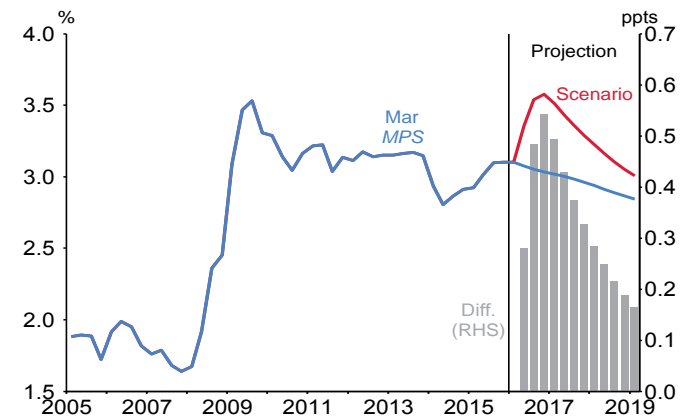
Source: Statistics New Zealand, RBNZ estimates.

economies. Consistent with the softer international inflation outlook in the scenario, we assume a more prolonged period of low global interest rates would prevent the New Zealand dollar TWI from depreciating (figure 5.15).

Together, these developments result in a weaker outlook for the New Zealand dollar price of imports. This, in turn, translates into a persistently weaker outlook for tradables inflation (figure 5.16).

In this scenario, monetary policy responds in order to offset the decline in inflationary pressure. Interest rates would need to be about 40 basis points lower than in the central projection for inflation to settle at a rate similar to that in the central projection (figure 5.21).

Figure 5.17
Floating mortgage to 90-day interest rate spread



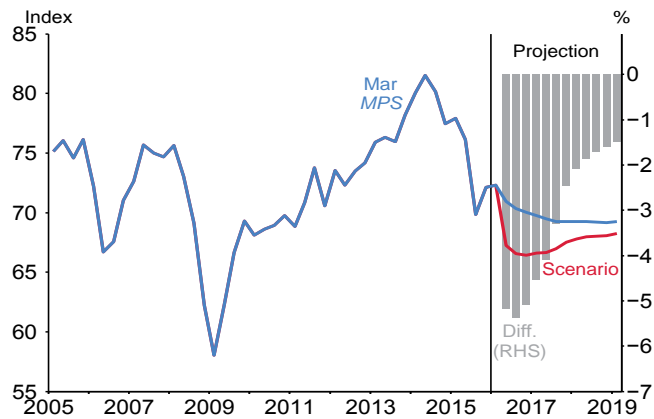
Source: RBNZ estimates.

Reduced risk appetite in financial markets

Another channel through which international developments could impact New Zealand is reduced risk appetite in financial markets. As discussed in chapter 3, lower risk appetite means the corporate sector is paying more to borrow relative to the interest rate on government bonds. For banks specifically, their wholesale funding costs increase as markets charge a higher price as compensation for the perceived risk of lending to them.

In this scenario, a further increase in financial market volatility, and consequent reduction in investors' risk appetite, sees funding costs for New Zealand banks increase. These higher costs result in mortgage interest rates rising relative to wholesale interest rates, with the

Figure 5.18
New Zealand dollar TWI

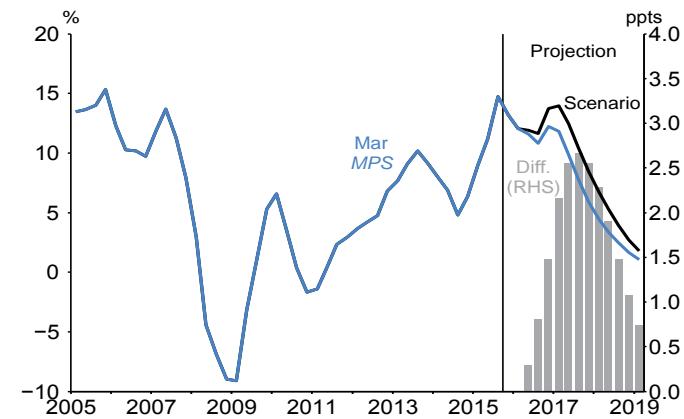


Source: RBNZ estimates.

spread between the floating mortgage rate and the 90-day interest rate increasing significantly (figure 5.17). The New Zealand dollar TWI depreciates sharply in this scenario, partly due to a lower outlook for domestic interest rates, and partly as investors seek to move funds to traditional safe-haven economies (figure 5.18). In addition, firms and households become less confident about the economic outlook, dampening investment and consumption.

A lower 90-day interest rate path is needed to prevent an increase in mortgage interest rates that would dampen domestic demand and inflationary pressures. To see CPI inflation settle near 2 percent in the medium term, the 90-day interest rate would need to be about 50 basis points lower than in the central projection (figure 5.21).

Figure 5.19
House price inflation
(annual)



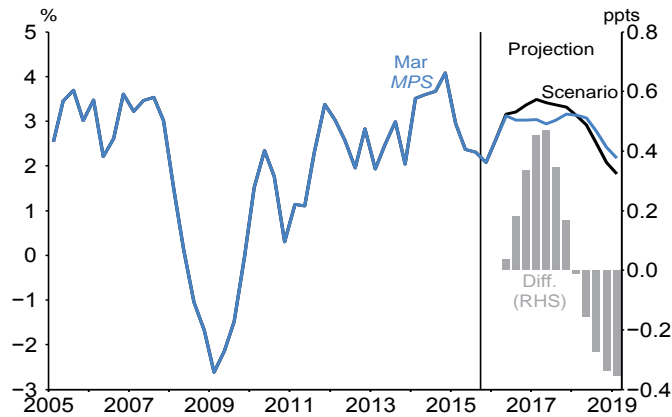
Source: CoreLogic, RBNZ estimates.

Higher house price inflation and domestic demand

In the central projection, annual GDP growth increases to around 3 percent in 2016, and remains close to this rate until late 2018. A risk to the central projection is that house price inflation remains elevated for a longer period, and that higher house prices result in domestic demand gaining momentum more quickly.

In this scenario, annual house price inflation remains around its current rate for a longer period before easing (figure 5.19). If stronger house price inflation translated into additional growth in residential construction activity and consumption expenditure, domestic demand could be stronger than in the central projection. This scenario assumes that annual GDP growth accelerates further over the second half of 2016 and 2017, peaking at 3.5 percent (figure 5.20).

Figure 5.20
GDP growth
(annual)



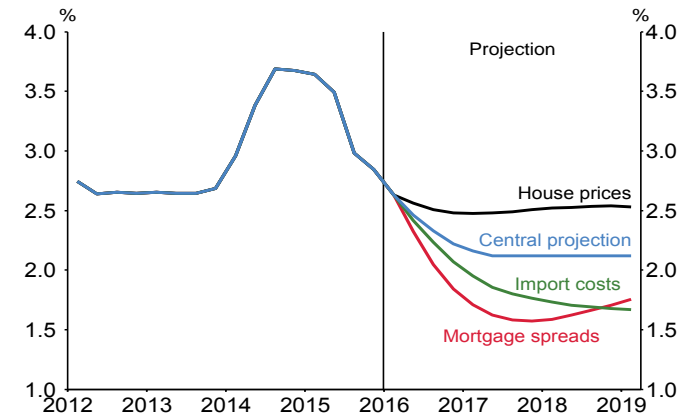
Source: Statistics New Zealand, RBNZ estimates.

Stronger GDP growth sees capacity pressure build more quickly than in the central projection, resulting in higher non-tradables inflation. In this scenario, stronger inflationary pressure means that less monetary policy stimulus would be required. Compared to the central projection, the 90-day interest rate would need to be about 40 basis points higher (figure 5.21).

Summarising the policy implications

In each of these scenarios, the Bank's policy response would differ from that shown in the central projection. Depending on economic developments, more or less monetary stimulus may be required in order for inflation to settle near 2 percent in the medium term (figure 5.21).

Figure 5.21
Scenario 90-day interest rate paths



Source: RBNZ estimates.

It is important to note that the scenarios in this chapter represent only small deviations from the central projection compared to the range of historical experience. For example, a substantial downturn in the global economy would warrant a larger monetary policy response than shown in the lower imported inflationary pressure scenario. In addition, combinations of unforeseen economic developments can impact the economy at the same time, further increasing the likelihood of a larger deviation from the central projection.

Box E

Upcoming Reserve Bank *Monetary Policy Statements* and Official Cash Rate releases

As discussed above and in chapter 2, the Bank will continue to assess developments and can update our policy assessment as required at the following dates.

28 April 2016	OCR
9 June 2016	OCR and <i>MPS</i>
11 August 2016	OCR and <i>MPS</i>
22 September 2016	OCR
10 November 2016	OCR and <i>MPS</i>
9 February 2017	OCR and <i>MPS</i>

The Reserve Bank reserves the right to make changes, if required, due to unexpected developments. In that unlikely event, markets and media would be given as much warning as possible. Announcements are made at 9.00am on the day concerned and posted to the website shortly after. *MPS* releases are associated with a media conference and webcast.

Table 5.1
Composition of real GDP growth
(annual average percent change, seasonally adjusted, unless specified otherwise)

March year	Actuals							Projections			
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Final consumption expenditure											
Private	-0.8	1.5	2.3	3.2	2.4	3.1	2.6	2.4	2.9	3.6	3.5
Public authority	3.9	-0.5	1.9	1.7	-0.1	2.3	2.3	2.0	0.6	1.8	1.7
Total	0.4	1.0	2.2	2.9	1.8	2.9	2.6	2.3	2.3	3.2	3.1
Gross fixed capital formation											
Residential	-21.2	-9.0	1.6	3.0	15.4	13.0	11.6	7.2	13.2	2.5	-1.6
Other	-2.3	-10.5	4.3	6.8	3.0	5.5	9.0	2.8	3.3	5.9	3.7
Total	-7.3	-10.2	3.7	6.0	5.7	7.2	9.6	3.9	5.8	5.0	2.3
Final domestic expenditure	-1.4	-1.5	2.5	3.5	2.6	3.8	4.1	2.7	3.2	3.6	2.9
Stockbuilding ¹	-0.3	-0.7	0.7	0.3	-0.3	0.2	0.0	-0.5	0.4	-0.0	-0.0
Gross national expenditure	-1.8	-1.9	3.3	4.0	2.2	4.0	4.2	2.3	3.3	3.6	2.9
Exports of goods and services	-2.8	4.1	2.8	2.2	3.1	-0.1	4.2	6.0	0.6	1.9	2.6
Imports of goods and services	-3.6	-9.2	11.4	6.7	1.3	8.1	7.4	2.6	1.2	3.7	3.3
Expenditure on GDP	-1.5	1.9	1.0	2.7	2.7	1.6	3.2	3.3	3.2	3.1	2.6
GDP (production)	-1.3	-0.5	1.4	2.5	2.3	2.8	3.6	2.3	3.1	3.1	2.6
GDP (production, March qtr to March qtr)	-2.6	1.5	1.1	3.0	1.9	3.5	3.0	2.6	3.0	3.1	2.2

¹ Percentage point contribution to the growth rate of GDP.

Table 5.2
Summary of economic projections
(annual percent change, unless specified otherwise)

March year	Actuals							Projections			
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Price measures											
CPI	3.0	2.0	4.5	1.6	0.9	1.5	0.3	0.4	1.3	2.0	2.0
Labour costs	3.1	1.3	2.0	2.1	1.8	1.7	1.8	1.8	1.8	1.9	2.1
Export prices (in New Zealand dollars)	7.2	-7.7	7.8	-2.7	-4.9	11.6	-9.0	-3.5	4.3	5.4	4.2
Import prices (in New Zealand dollars)	17.4	-11.1	3.4	-1.8	-4.1	-3.3	-3.5	1.7	6.2	2.7	1.5
Monetary conditions											
90-day rate (year average)	6.7	2.8	3.1	2.7	2.6	2.7	3.6	3.0	2.3	2.1	2.1
TWI (year average)	65.6	66.6	69.0	72.2	74.0	77.6	79.3	72.6	70.3	69.3	69.2
Output											
GDP (production, annual average % change)	-1.3	-0.5	1.4	2.5	2.3	2.8	3.6	2.3	3.1	3.1	2.6
Potential output (annual average % change)	1.8	1.3	1.4	1.7	2.0	2.3	2.6	2.6	2.7	2.6	2.5
Output gap (% of potential GDP, year average)	-0.5	-2.3	-2.3	-1.6	-1.3	-0.9	-0.0	-0.3	0.1	0.5	0.6
Labour market											
Total employment (seasonally adjusted)	-1.2	-0.4	1.6	0.6	0.2	3.7	3.2	1.1	2.3	2.4	1.5
Unemployment rate (March qtr, seasonally adjusted)	5.2	6.2	6.5	6.8	6.2	6.0	5.8	5.5	5.4	4.9	4.9
Trend labour productivity	1.1	1.0	1.0	1.0	0.9	0.7	0.7	0.6	0.6	0.7	0.7
Key balances											
Government operating balance (% of GDP, year to June)	-2.1	-3.3	-9.0	-4.3	-2.0	-1.2	0.2	0.0	0.3	0.6	1.4
Current account balance (% of GDP)	-7.0	-1.5	-2.8	-3.2	-3.6	-2.5	-3.4	-3.2	-4.6	-4.4	-3.9
Terms of trade (SNA measure, annual average % change)	-1.9	-4.5	7.9	1.6	-4.3	11.7	-0.3	-4.0	-4.2	2.4	2.7
Household saving rate (% of disposable income)	-2.1	1.3	2.2	2.4	2.0	1.8	-0.7	-0.2	0.4	0.5	0.8
World economy											
Trading partner GDP (annual average % change)	0.3	1.2	4.5	3.5	3.2	3.4	3.5	3.4	3.2	3.5	3.6
Trading partner CPI (TWI weighted)	1.6	2.2	3.2	2.7	2.3	2.3	1.0	1.5	1.9	2.3	2.3