



Monetary Policy Statement

December 2015

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

December 2015

Projections finalised on 27 November 2015. Data finalised on 3 December 2015. Policy assessment finalised on 9 December 2015.



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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 2.5 percent.

Globally, economic growth is below average and inflation is low, despite highly stimulatory monetary conditions. Financial markets remain concerned about weaker growth in emerging economies, particularly in China. Markets are also focused on the expected tightening of policy in the United States and the prospect of an increasing divergence between monetary policies in the major economies.

Growth in the New Zealand economy has softened over 2015, due mainly to lower terms of trade. Combined with increases in the labour supply from strong net immigration, the slowdown has seen an increase in spare capacity and unemployment. A recovery in export prices, the recent lift in confidence, and increasing domestic demand from the rising population are expected to see growth strengthen over the coming year.

The New Zealand dollar has risen since August, partly reversing the depreciation that occurred from April. The rise in the exchange rate is unhelpful and further depreciation would be appropriate in order to support sustainable growth.

House price inflation in Auckland remains high, posing a financial stability risk. Residential building is accelerating, and recent tax and LVR measures are expected to reduce housing pressures. There are some early signs that Auckland house price inflation may be moderating.

CPI inflation is below the 1 to 3 percent target range, mainly due to the earlier strength in the New Zealand dollar and the 65 percent fall in world oil prices since mid-2014. The inflation rate is expected to move inside the target range from early 2016, as earlier petrol price declines will drop out of the annual calculation, and the lower New Zealand dollar will be reflected in higher tradables prices.

There are a number of uncertainties and risks to this outlook. In the primary sector, there are risks that dairy prices remain weak for longer, and the current El Niño results in drought conditions and weaker output. Risks to the domestic outlook include the prospect of net immigration staying high for longer and of household expenditure picking up on the back of strong house prices.

Monetary policy needs to be accommodative to help ensure that future average inflation settles near the middle of the target range. We expect to achieve this at current interest rate settings, although the Bank will reduce rates if circumstances warrant. 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



The New Zealand economy continues to expand, albeit at a slower rate than in 2014. The deceleration follows a large fall in the terms of trade, and together with strong labour force growth has contributed to an increase in spare capacity in the economy. Annual CPI inflation remains low at 0.4 percent, but is expected to move into the 1 to 3 percent target range in the first quarter of 2016. This will take headline inflation closer to estimates of ‘core’ inflation, which have been centred around 1.5 percent for the past three years. Core measures give a useful signal about the trend in inflation, because they are persistent and tend to move in line with the economic drivers of inflation.

The near-term pick-up in inflation is expected to stem from two factors. First, earlier petrol price falls will drop out of the annual calculation. Second, the New Zealand dollar has depreciated about 10 percent since April, which is now passing into higher prices for tradable goods. Appreciation of the exchange rate since the September *Statement* means that the outlook for tradables and headline inflation through 2016 is lower than previously projected.

Over the medium term, non-tradables inflation is expected to rise steadily as output growth increases, with some offset in the near term from reductions in ACC vehicle levies. Rapid labour force expansion – through net immigration – is expected to continue moderating upward pressure

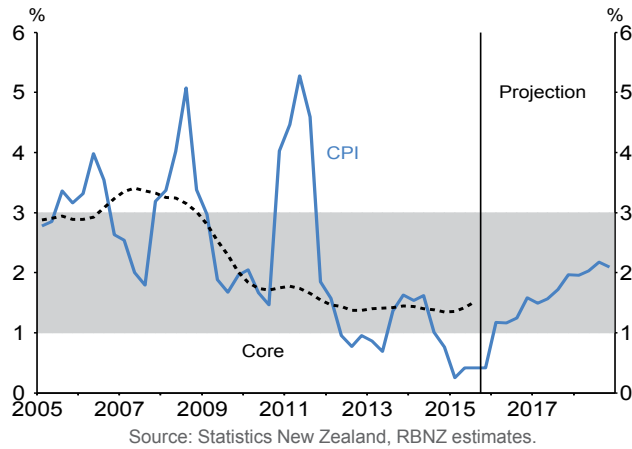
on inflation. Nonetheless, the stronger outlook for growth implies that the pick-up in non-tradables inflation is projected to be slightly faster than in September.

With inflation projected to increase in the near term, core inflation measures well within the target range, and inflation expectations consistent with the target midpoint, the appropriate course for monetary policy is to support a steady, gradual increase in inflation over the medium term (figures 2.1 and 2.2). Interest rates are currently stimulatory, and the depreciation in the exchange rate since April has provided further support to the tradables sector.

This policy path is consistent with the *Policy Targets Agreement* (PTA), which sets out a flexible approach to targeting future medium-term inflation. The flexibility reflects the fact that interest rates take 18 to 24 months to have their full effect on inflation, and cannot offset short-term inflation movements. The PTA states that monetary policy should focus on the medium-term trend in inflation when temporary factors, like the recent drop in global oil prices, push CPI inflation away from target in the short term.

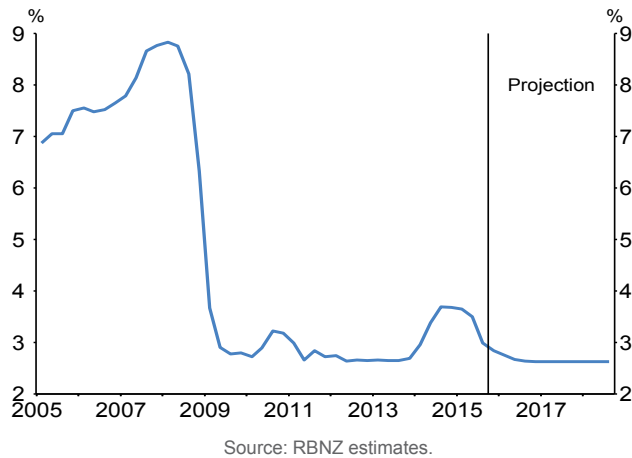
Clause 4b of the PTA says that subject to meeting the medium-term inflation target, monetary policy should avoid causing unnecessary

Figure 2.1
Inflation
(annual)



Note: Core inflation is the sectoral factor model estimate of core inflation.

Figure 2.2
90-day interest rate



instability in output, interest rates, and the exchange rate, and should have regard to financial system soundness and efficiency. With inflation expected to increase steadily, consistent with the inflation target, a much sharper adjustment in interest rates than projected risks being inconsistent with clause 4b of the PTA, and could not change near-term inflation outcomes.

The outlook for the economy and monetary policy in this *Statement* depends on a number of key judgements. Four of the most important are that:

- migration will add about another 3 percent to the working age population and labour force over the three-year projection;
- El Niño conditions will continue, but not result in a significant decline in output;
- trading partner growth will continue at about its current rate, and world dairy prices will recover slowly towards their long-run average; and
- consumers will remain cautious, with growth in household credit modest compared with the mid-2000s expansion.

Migration and droughts affect supply capacity in the economy directly, the first through the size of the labour force and the second through growing conditions on farms and electricity generation. It can take some time to get clarity about the overall effects of changes in supply capacity, because they can be persistent and their transmission through the economy remains gradual. As chapter 3 notes, there is considerable uncertainty about the global outlook.

We have seen migration cycles, droughts, changes in global demand and consumer behaviour in the past, and observed how they flow through the economy. History provides a helpful, but imperfect, guide to how things could play out in the future. Both the events themselves and how they flow through the economy will vary from cycle to cycle.

The following discussion outlines what we see as key risks to the above judgements, and what these risks could imply for the economic outlook and monetary policy. Chapter 5 goes into further detail, looking at the outcomes for our projections in scenarios where things turn out differently.

Over coming quarters, careful observation of data will be important for understanding whether things might indeed be playing out differently. Box A describes how developments in data have influenced our assessment and policy outlook over the past two years. We will continue to update our assessment and policy settings at each of our regular policy reviews, and to publish a full set of updated projections each quarter.

Net immigration

Record net immigration is adding materially to demand and to labour supply. Given continued strong flows, we have revised up our projection for net immigration (see chapter 5). Based on the cycle to date, we assume the future population boost and associated increases in the labour force will translate more quickly into supply potential than we have assumed in the past.

That has important implications for monetary policy. Under the assumptions we have made, higher-than-expected net inflows would result in upward revisions to our growth projections but the implications for inflationary pressure and monetary policy could be modest. That

said, any or all of the projected net inflow, demand effects, and supply contribution could turn out differently than assumed. Monitoring data on the labour market and the composition of migration flows – in particular, on the contribution to the labour force – will be especially important.

El Niño

The Pacific region is experiencing El Niño conditions. However, given the range of New Zealand weather outcomes possible in an El Niño, we have not assumed a drought in our central projection. Instead we have treated drought as a risk.

As noted above, the initial economic effects of a drought are on the economy's supply capacity. Monetary policy cannot offset any near-term effects on inflation, and should focus on whether weaker confidence and spending through the wider economy weaken the medium-term inflation outlook. The path of monetary policy may not need to change materially if a drought were short-lived and the exchange rate depreciated, supporting incomes and confidence through the wider economy. However, if the effect of the drought were more persistent, or if the exchange rate did not adjust, more-stimulatory monetary policy may be warranted.

World growth and export prices

The sharp fall in world dairy prices since 2014 has been a key driver of the reduction in GDP growth in the New Zealand economy, and of the lower outlook for inflationary pressure. While prices have recovered from their trough and are assumed to continue rising over the next three years, the rise is assumed to be gradual. However, vulnerabilities remain in the economies of some of New Zealand's Asian trading partners. Any development that slows economic growth in the region – in particular,

a further slowdown in China – would likely delay that recovery in export prices. This would warrant a mix of a lower New Zealand dollar exchange rate and more-stimulatory monetary policy. To the extent that the exchange rate did not depreciate in line with the growth and inflation outlook, more monetary policy stimulus might be needed.

Consumer behaviour

Cautious consumer behaviour is a feature of this projection. Consumption growth has been close to that in labour incomes, with household saving higher than in the previous cycle. We assume that consumers will smooth their spending through the current dip in national income growth. However, a stronger pick-up in consumption is a plausible risk, especially if high net immigration, low interest rates, and rising house prices combine to increase confidence and willingness to borrow for consumption. Such a scenario would warrant less monetary stimulus than is currently projected.

Box A

Recent monetary policy decisions

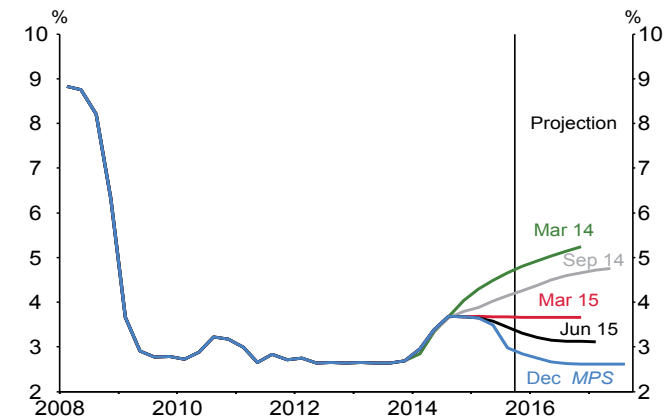
Consumer price inflation has been weaker than expected by the Bank and other forecasters for some time, and below the target band for the past year. Unanticipated events that led to inflation being weaker than forecast include: significant falls in the prices of oil and New Zealand's commodity exports; a stronger-than-expected exchange rate; and the boost to labour supply from unprecedentedly high net immigration. The Bank has used its *Statements*, speeches and analytical papers to discuss these developments.¹

While these developments could not be foreseen, the Bank has responded as they have occurred, progressively easing monetary policy as evidence of weaker inflationary pressures developed (figure A1). This easing started with the Bank scaling back the extent of its projected monetary tightening from the June 2014 *Statement*. Subsequently, the Bank cut the OCR by 25 basis points at its June, July and September 2015 OCR decisions.

This change in monetary policy outlook contributed to a fall in retail and wholesale interest rates from July 2014. Fixed mortgage interest rates are currently well below those prevailing prior to the March 2014 OCR increase (figure A2).

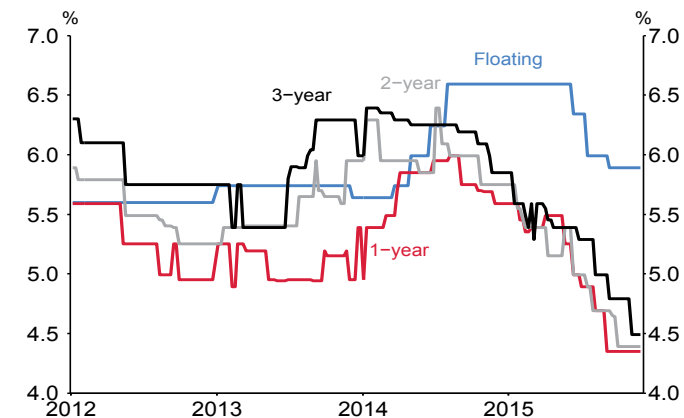
Inflation has been weaker than expected, and medium-term inflation expectations have fallen over the past six months. Inflation expectations

Figure A1
90-day interest rate forecasts



Source: RBNZ, RBNZ estimates.

Figure A2
Mortgage interest rates
(lowest rate among four major banks)



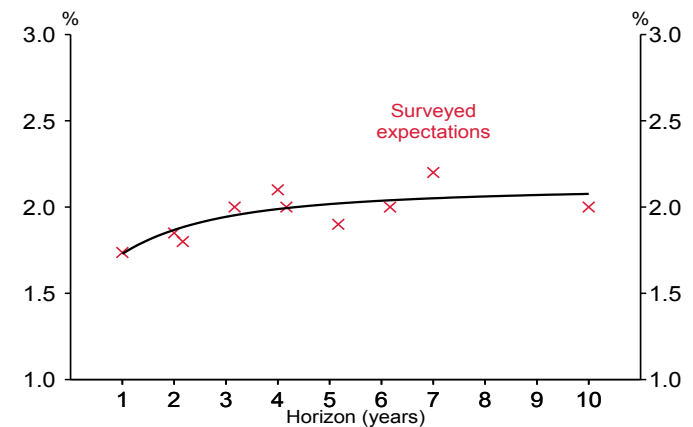
Source: interest.co.nz, Reuters, RBNZ calculations.

¹ See, for example, McDermott, J (2015), 'The dragon slain? Near-zero inflation in New Zealand', speech delivered on 23 April 2015, and Richardson, A (2015) 'Can global economic conditions explain low New Zealand inflation?', Reserve Bank of New Zealand *Analytical Note* 2015/03.

are around the 2 percent target midpoint (figure A3). External forecasters also expect inflation to return to target over the medium term.

When formulating monetary policy, the PTA directs the Bank to have a forward-looking focus, irrespective of past inflation outcomes. As noted in chapter 2, the current projection ensures that price stability is achieved while avoiding unnecessary instability in output, interest rates and the exchange rate. CPI inflation is expected to be within the target band in the first quarter of 2016 and to settle around the middle of the target band in the second half of the projection. The Bank will continue to adjust monetary policy as conditions evolve to ensure that price stability is achieved over the medium term.

Figure A3
Inflation expectations
(annual, by number of years ahead)



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

Note: The data point for expectations at each horizon is based on the available inflation expectations series from each of the ANZ Business Outlook Survey, Aon-Hewitt Economists' Survey, the Consensus Forecasts survey, and the RBNZ Survey of Expectations, with the data point for the one-year horizon the simple average of all available series. The black line shows a curve fitted through the expectations series using a Nelson-Siegel model.

Table 2.1
Key forecast variables

		GDP growth Quarterly	CPI inflation Quarterly	CPI inflation Annual	TWI	90-day bank bill rate
2013	Mar	0.1	0.4	0.9	75.9	2.7
	Jun	0.4	0.2	0.7	76.3	2.6
	Sep	1.1	0.9	1.4	75.9	2.6
	Dec	0.5	0.1	1.6	78.2	2.7
2014	Mar	1.1	0.3	1.5	80.1	3.0
	Jun	0.8	0.3	1.6	81.5	3.4
	Sep	0.9	0.3	1.0	80.1	3.7
	Dec	0.8	-0.2	0.8	77.5	3.7
2015	Mar	0.2	-0.2	0.3	77.9	3.6
	Jun	0.4	0.4	0.4	76.1	3.5
	Sep	0.6	0.3	0.4	69.8	3.0
	Dec	0.6	-0.2	0.4	70.7	2.8
2016	Mar	0.8	0.6	1.2	69.4	2.8
	Jun	0.7	0.4	1.2	68.4	2.7
	Sep	0.7	0.4	1.2	67.9	2.6
	Dec	0.8	0.2	1.6	67.7	2.6
2017	Mar	0.8	0.5	1.5	67.6	2.6
	Jun	0.9	0.5	1.6	67.5	2.6
	Sep	0.9	0.6	1.7	67.3	2.6
	Dec	0.9	0.4	2.0	67.1	2.6
2018	Mar	0.7	0.5	2.0	67.2	2.6
	Jun	0.6	0.6	2.0	67.3	2.6
	Sep	0.6	0.7	2.2	67.3	2.6
	Dec	0.5	0.3	2.1	67.4	2.6

Chapter 3

International developments



The global economic environment has deteriorated over 2015. Growth in New Zealand's trading partners has slowed, and forecasts have been revised down. Monetary policy remains accommodative in most regions, and has been eased further over 2015. Trading partner inflation remains weak, reflecting slack in the global economy and declines in oil prices.

Global financial markets have settled since the September *Statement*. Market participants perceive that the risk of a sharp reduction in Chinese growth has reduced and are less uncertain about the monetary policy outlook in the United States. However, prospects for China and the divergent outlook for monetary policy between the United States and other major economies remain key drivers of financial markets.

Trading partner outlook

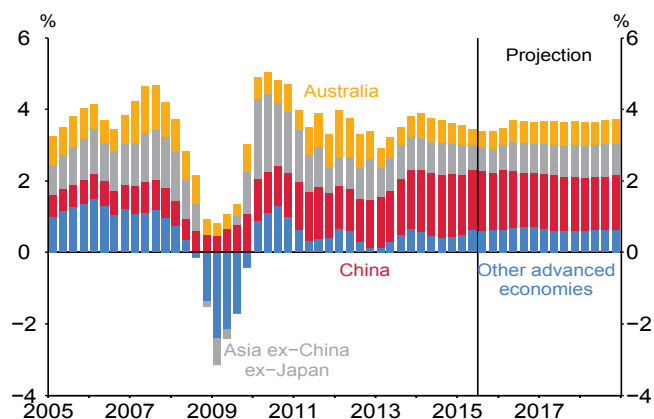
Growth in New Zealand's main trading partners has slowed slightly, to an estimated annual rate of 3.4 percent in the September quarter from 3.6 percent a year earlier. The slowing has been concentrated in Asia

and Australia, with most economies in the region growing at a below-trend pace. Growth in the United States, the euro area, and other major advanced economies has continued at a moderate pace (figure 3.1).

Despite significant monetary stimulus, trading partner growth is expected to increase only slightly in 2016 – a softer outlook than a few months ago. Especially important for New Zealand are the weaker outlooks for Asia and Australia, with the Asia-Pacific region accounting for around 75 percent of New Zealand's merchandise exports.

China in particular is an important trading partner for New Zealand, and has an outsized influence on global commodity demand and prices. Growth in China has continued to slow in 2015. Part of the slowdown in growth is structural, as economic reforms continue and the economy rebalances towards more consumption-led growth. This should support demand for New Zealand's consumer-focused goods and services exports. There is also a cyclical element to the slowdown in Chinese growth. Growth in fixed asset investment, particularly in the real estate sector, has continued to slow.

Figure 3.1
Trading partner growth
(annual, contributions)



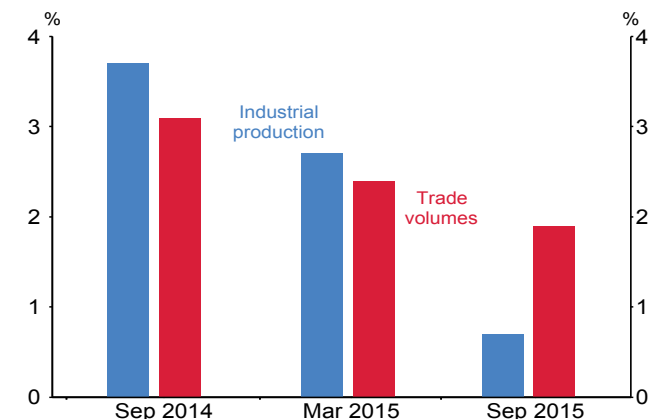
Source: Haver analytics, Statistics New Zealand, RBNZ estimates.

Note: Asia ex-China ex-Japan includes Hong Kong, India, Indonesia, Malaysia, Singapore, South Korea, Taiwan, Thailand, and the Philippines. Other advanced economies include Canada, the euro area, Japan, the United Kingdom, and the United States.

Concerns about a hard landing in Chinese growth have reduced since September – in part due to further easing in monetary and fiscal policies by the Chinese authorities. That said, considerable uncertainty remains about the global outlook, and especially so for China and the rest of Asia. The risks remain skewed to the downside.

Growth in global industrial production and trade volumes have slowed over the past year (figure 3.2). Accounting for part of the slowdown in global trade growth has been a reduction in Chinese import volumes, which were 6 percent lower in October than a year earlier. This partly reflects a reduced reliance on imports from the rest of Asia, and slowing growth in China's import-intensive investment and industrial production.

Figure 3.2
World industrial production and trade volumes growth
(annual)



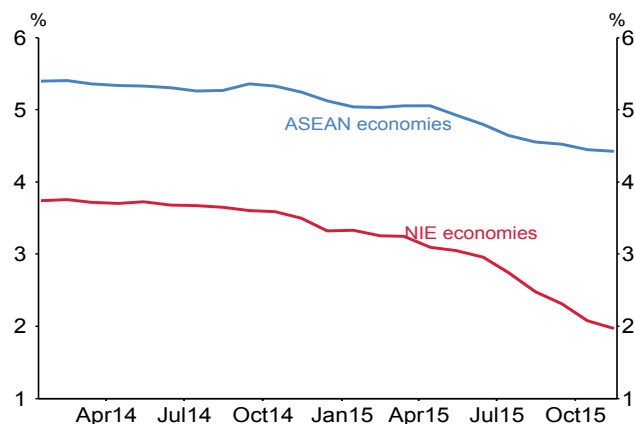
Source: Haver Analytics, RBNZ estimates.

Note: World industrial production excludes construction and is production weighted, three-month moving average.

Also contributing to low growth in global trade in recent years has been the composition of growth in advanced economies. The recoveries in major advanced economies have remained heavily skewed towards consumption and services, which have a relatively low import component.

In the United States, consumer spending has remained the key component of growth, supported by continued improvement in the labour market, strong growth in real disposable income, and increasing net wealth. Residential investment is also growing solidly, as conditions in the housing market have continued to improve. However, growth in industrial output and exports have been more subdued, dampened by weaker activity in the energy sector, a stronger US dollar, and weak external demand. Likewise in Europe, domestic demand has been the key component of growth, supported by a gradually improving labour

Figure 3.3
Evolution of 2015 growth forecast



Source: Consensus economics, Statistics New Zealand, RBNZ estimates.

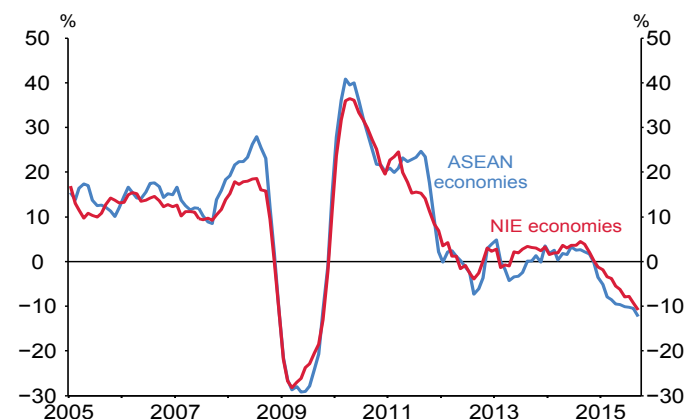
Note: This graph illustrates the changes in Consensus Economics forecasts for annual average GDP growth since January 2014, weighted into the aggregate regions by New Zealand merchandise export shares. ASEAN economies include Indonesia, Malaysia, the Philippines and Thailand. NIE economies include Hong Kong, South Korea, Singapore and Taiwan.

market, low oil prices, and extremely accommodative monetary policy. Net exports, after being strong in the first half of this year, are expected to weigh on growth over the next year due to weak external demand.

Weak external demand has weighed on economic growth in New Zealand's Asian trading partners. GDP growth in Asia excluding Japan and China slowed to an estimated 3 percent in the September quarter, down from 4.2 percent a year earlier. This was much weaker than forecast a year ago (figure 3.3).

The value of exports from the Asian region has declined substantially over the past year (figure 3.4), with the decline widespread across countries. While the fall in exports is exaggerated by a fall in USD-denominated export prices, export volumes have also fallen. There are

Figure 3.4
Export growth
(annual)



Source: Haver Analytics, RBNZ estimates.

Note: Data is nominal and expressed in US dollars, three-month moving average.

signs that weakness in external demand has begun to weigh on domestic demand in the region, particularly on investment.

There have been widespread declines in commodity prices over the past year as demand growth, especially from China, has slowed and as the supply of many commodities has continued rising. The largest price declines have been for energy and industrial commodities. The prices of agricultural-based commodities have fallen by less.

Low oil prices have boosted real incomes for New Zealand and most of New Zealand's trading partners. The price of Brent Crude oil has fallen a further 6 percent since the September *Statement* to below USD45 per barrel, about 60 percent lower than in mid-2014. Global oil supply has continued to increase, meaning global oil inventories remain near record

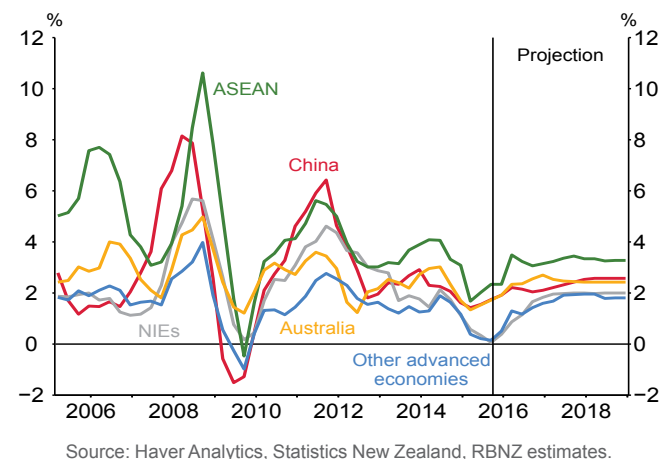
high. The significant imbalance in global oil markets is expected to persist for at least the next year.

Industrial commodities have especially been under pressure since the September *Statement*, with the Bloomberg index of industrial metal prices falling 15 percent. Downward pressure on metal prices is important for Australia, with iron ore accounting for around one fifth of its total exports.

Annual GDP growth in Australia remains below trend, at 2.5 percent in the September quarter. While growth in commodity export volumes has been boosting GDP growth, the substantial deterioration in the terms of trade in the past few years has weighed on national income growth. Sharp declines in capital expenditure have been a significant headwind to growth, as mining investment has continued to fall, while non-mining business investment has remained subdued, despite improving business conditions. Low interest rates are supporting household demand with consumption growing at a moderate pace, and residential investment at a very high level. The labour market also appears to have stabilised, with the unemployment rate having been around 6 percent for most of this year.

CPI inflation in New Zealand's trading partners has declined substantially over the past year, largely due to the decline in oil prices. CPI inflation in these economies is expected to pick up sharply over the next year as the decline in oil prices drops out of the annual calculation (figure 3.5). Nonetheless, core inflation across a number of New Zealand's trading partners – both advanced and emerging economies – is subdued, and below most central banks' targets.

Figure 3.5
CPI inflation
(annual)



Excess capacity in global manufacturing and subdued commodity prices continue to weigh on prices of internationally traded goods. At the same time, economic slack in many countries is dampening domestic inflationary pressures. Across New Zealand's trading partners, core inflation is expected to trend modestly higher over the projection, as economic slack is absorbed gradually. As a result, monetary policy settings are expected to remain accommodative for an extended period in many regions. However, as discussed below, there are important divergences in the outlook for monetary policy between the United States and many other major economies.

Global financial conditions

Global financial market volatility has reduced since the September *Statement* (figure 3.6).

Reasons for increased global market volatility in August and September were perceived risks of a hard landing in Chinese growth and substantial volatility in Chinese equities. The risks of an immediate hard landing for the Chinese economy have receded, and equity markets have stabilised, following monetary policy easing and other steps by the Chinese authorities to support output growth. Capital outflows from China and other emerging market economies have also slowed considerably.

Also contributing to volatility in August and September was uncertainty about when the United States Federal Reserve would increase interest rates. The target range for the federal funds rate was kept unchanged in September, and market participants have become more confident that the Federal Reserve will increase the target range by 25 basis points in December, reflecting improvements in the labour market and domestic demand.

As those risks have receded, market moves have been driven more by diverging monetary policy outlooks – particularly between the United States and the rest of the world. The increased expectations for tighter monetary policy in the United States have resulted in US bond yields increasing, with the policy-sensitive two-year Treasury bond rate now at a five-year high. While the timing of the start of the tightening cycle is important, so is the pace and extent of interest rate increases. Market pricing implies the pace of tightening will be slow.

The policy outlook is very different for the euro area, with the European Central Bank (ECB) easing monetary policy further in early December in an effort to boost growth and increase inflation. The ECB lowered its deposit rate by 10 basis points to -0.30 percent and extended its quantitative easing programme until at least March 2017, although market participants had expected even more easing. The outlook for accommodative monetary policy has lowered bond yields across the region, increasing the divergence between United States and euro area bond rates and resulting in a weaker euro. The two-year German government bond yield fell as low as -0.44 percent (figure 3.7). At the same time the United States two-year yield has risen to above 0.90 percent, resulting in the largest positive differential since 2006.

Monetary policy is expected to remain accommodative in many of New Zealand's other trading partners. The Reserve Bank of Australia

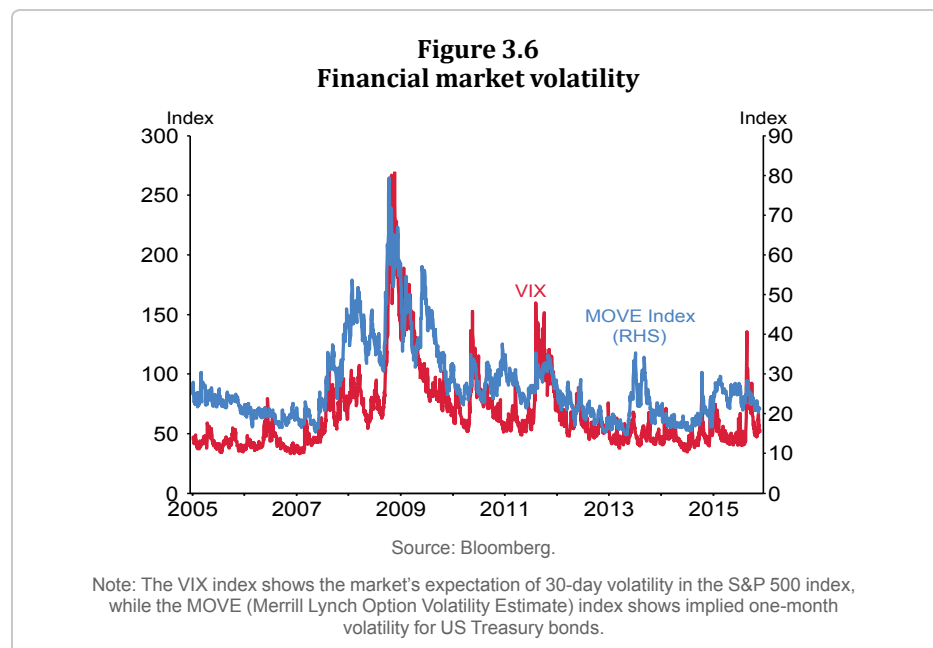


Figure 3.7
Two-year government bond yields

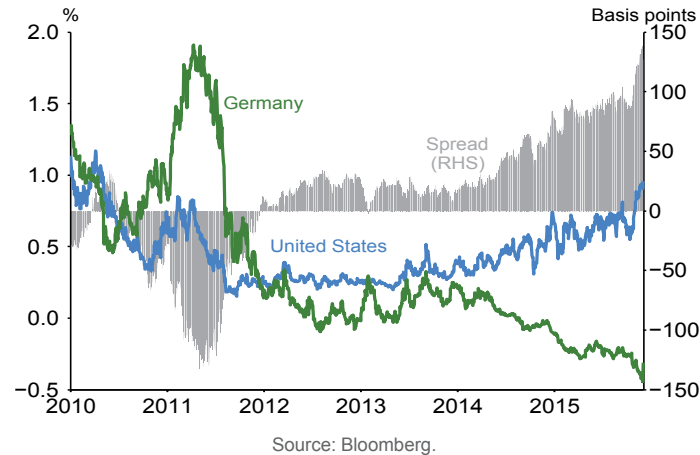
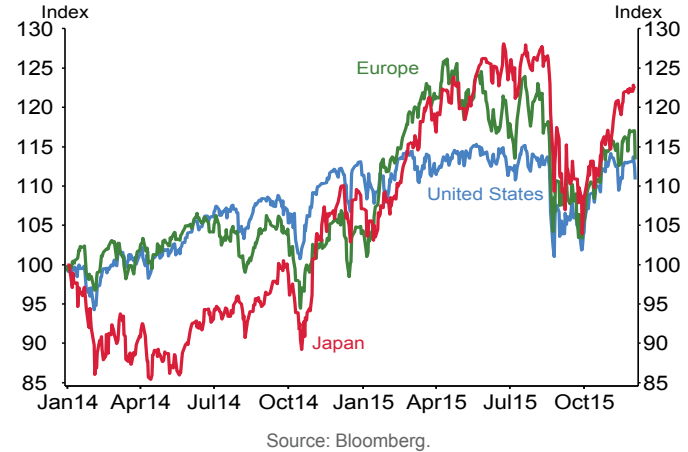


Figure 3.8
Major equity indices



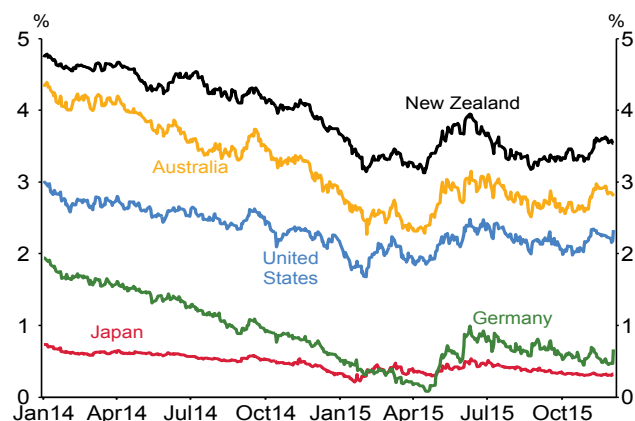
has moved to an explicit easing bias, as inflation has softened more than expected. However, markets have only a moderate expectation of further easing priced in at this point. The Bank of Japan has kept its policy settings unchanged since September, but has pushed back when it expects to reach its 2 percent inflation target. Many analysts believe further stimulus will be required in 2016. While the Bank of England is still expected to be the next major central bank after the Federal Reserve to increase its policy rate, market expectations have been pushed back until late 2016, as inflation remains low and as external demand has softened.

Market moves since the September *Statement* have largely been driven by improved risk sentiment and diverging monetary policy. More positive risk sentiment since October has resulted in a rebound in equity prices, although most major indices remain below the levels traded at prior to August (figure 3.8). Meanwhile, longer-dated government bond yields have risen since the September *Statement*, with the increase in rates in the United States flowing through to several other countries, including

New Zealand (figure 3.9). Despite the increase across some countries, 10-year government bond yields remain below highs seen earlier in the year and are low relative to historic rates.

The divergence in monetary policy outlooks across regions has had a substantial impact on exchange rates. The US dollar has strengthened significantly since the middle of 2014, with the US Dollar Index up about 25 percent over this time. A key risk is the potential impact of a stronger US dollar on some emerging markets, because it makes debt denominated in US dollars more expensive and may help to trigger capital outflows. This risk has diminished since the September *Statement*, with emerging market currencies generally appreciating against the US dollar (figure 3.10), and capital outflows slowing or starting to reverse. Nevertheless, risks remain given the potential for

Figure 3.9
10-year government bond yields

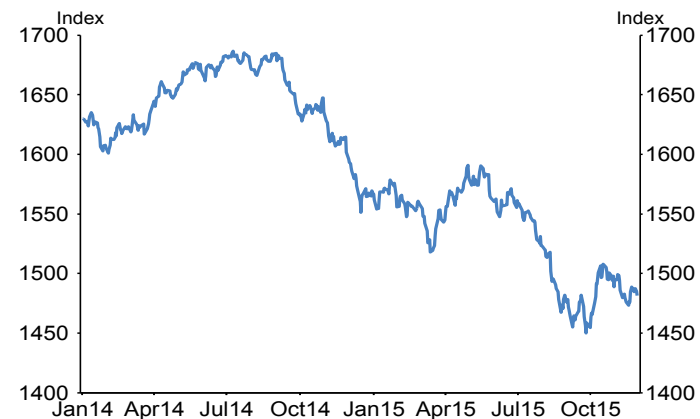


Source: Reuters.

further US dollar strengthening as the United States tightening cycle gets under way.

Trends in global monetary policy settings are important for New Zealand – particularly for the New Zealand dollar. While policy tightening in the United States may lead to a lower NZD/USD exchange rate, other New Zealand dollar cross rates may depreciate by less. This reflects the

Figure 3.10
MSCI emerging market currency index



Source: Bloomberg.

prospect of further easing, or delayed tightening, of monetary policy by New Zealand's other trading partners. International moves in longer-term bond yields also affect New Zealand interest rates, as evidenced by the recent increase in New Zealand 10-year government bond yields, although near-term rates – which are more relevant for mortgage rates – are less affected.

Chapter 4

Current domestic conditions



Economic growth in New Zealand has moderated over the first half of 2015. Much of this moderation relates to the substantial decline in prices for New Zealand's commodity exports since early 2014, which has weighed on incomes and confidence. Commodity export prices have recovered from their lows in recent months. In addition, monetary conditions have become more stimulatory over 2015 as a result of declining mortgage rates and depreciation of the New Zealand dollar TWI. Quarterly economic growth appears to have increased slightly over the second half of 2015. Growth in the economy's productive capacity remains strong, reflecting record high net immigration. Spare capacity in the New Zealand economy has increased over the past year, particularly in the labour market. Correspondingly, core inflation has remained subdued.

Domestic financial market developments

Domestic monetary conditions have eased since the beginning of 2015, with interest rates and the exchange rate having fallen substantially over the year. Interest rates have continued to edge lower since the September *Statement*. The New Zealand dollar TWI has recovered

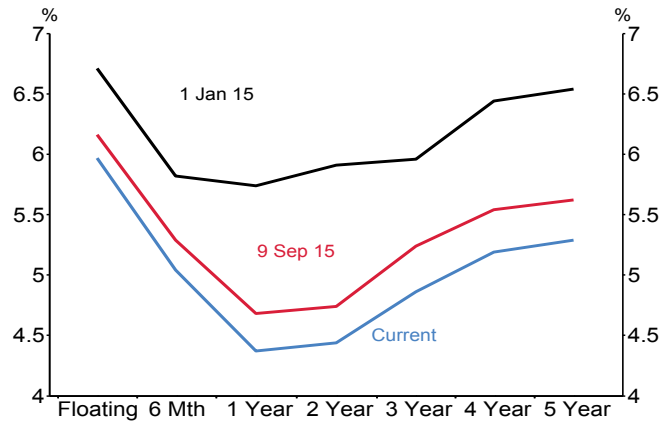
some of its earlier declines, driven by a number of international and domestic factors.

New Zealand wholesale interest rates have fallen significantly over 2015, initially as expectations for interest rate rises were pared back over the first six months of the year, and then as the OCR was cut by 25 basis points in each of June, July and September. Lower global interest rates owing to more accommodative global monetary policy have also contributed to the decline.

The decline in wholesale interest rates has translated into falls in domestic mortgage rates, in many cases to record low levels. Since the beginning of the year, one- and two-year fixed mortgage rates have fallen by more than 125 basis points (figure 4.1). Most fixed mortgage rates are lower than in the period over 2011-2014, when the OCR was at 2.50 percent. This is primarily because bank funding costs have fallen, allowing the spread between wholesale and fixed mortgage rates to decline. Wholesale rates are also near their previous lows, as financial markets are pricing in further easing in the OCR.

Households have continued to move to fixed-rate mortgages in recent months, with the proportion on floating mortgage rates falling to 24 percent in October from a peak of more than 60 percent in April 2012

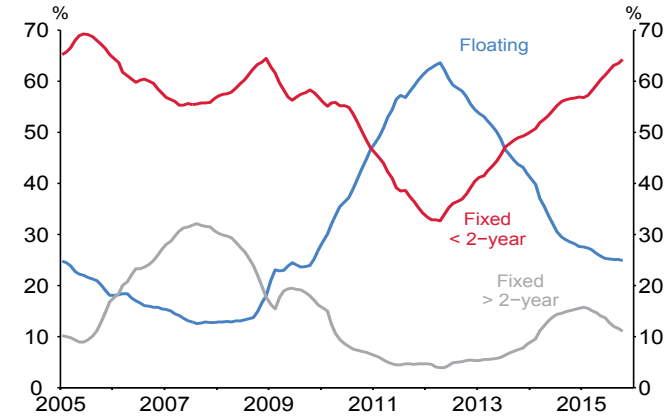
Figure 4.1
Mortgage interest rates



Source: interest.co.nz, RBNZ estimates.

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

Figure 4.2
Share of mortgages

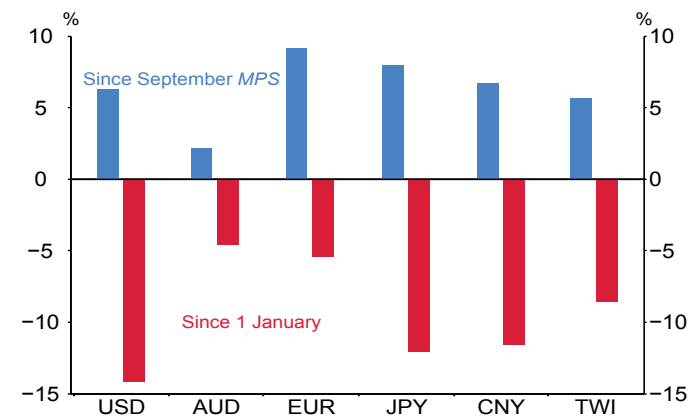


Source: RBNZ.

(figure 4.2). Fixing has been concentrated in the one- and two-year terms, as these have been the lowest available mortgage interest rates. The average time to re-price for all mortgages has consequently edged down over 2015 to less than a year.

The New Zealand dollar TWI has rebounded by about 5 percent since the September *Statement*, although it remains almost 10 percent lower than at the beginning of 2015 (figure 4.3). Global financial markets have become more settled following the turbulence around the time of the September *Statement*, as perceived risks of an immediate sharp slowdown in Chinese growth have reduced. Consequently, the demand for more volatile currencies, such as the New Zealand dollar, has increased.

Figure 4.3
New Zealand dollar exchange rate moves
(change since 1/1/2015 and September MPS)



Source: Reuters, RBNZ estimates.

Further, strengthening financial market expectations for additional monetary policy stimulus from a range of major central banks (with the United States Federal Reserve the exception) has led to the New Zealand dollar appreciating against several trading partner currencies. The largest gain has come against the euro, as markets priced in the expectation of further easing from the ECB.

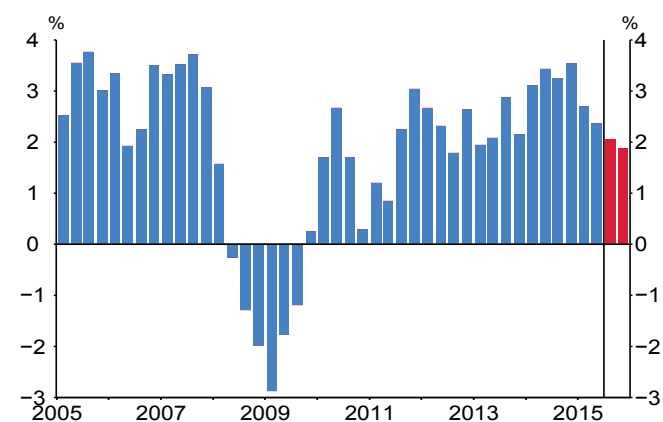
Improving domestic data, such as a rebound in dairy prices from the August lows, and an increase in consumer and business confidence, have also contributed to the appreciation in the New Zealand dollar TWI.

Output growth

GDP increased by 0.7 percent over the first half of 2015. Growth slowed across most industries, although growth in the services sector has remained relatively steady. The economy is estimated to have expanded 1.2 percent over the second half of 2015, resulting in annual growth slowing to slightly below 2 percent (figure 4.4).

Economic growth is slower than in 2014, when the economy grew by more than 3 percent. Several factors supported GDP growth over 2014, including increasing net immigration, high export prices, and growth in construction activity. Net immigration has continued to increase over 2015, and construction activity has continued to expand, although more slowly. However, since early 2014 export prices have declined sharply, and are now at a low level compared to history. Low export prices have weighed on growth this year, while more-stimulatory monetary conditions have provided some buffer.

Figure 4.4
GDP growth
(annual)

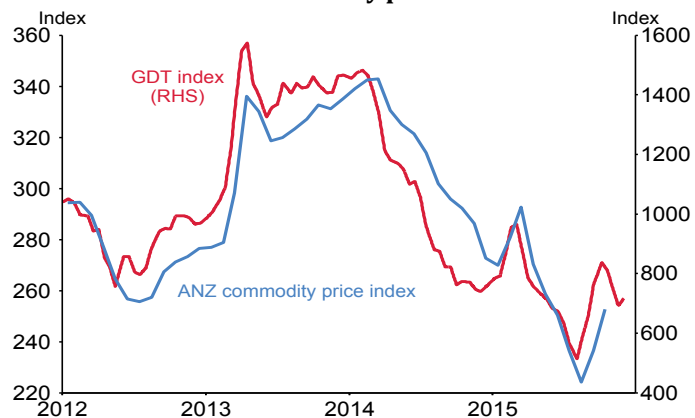


Source: Statistics New Zealand, RBNZ estimates.

Prices for New Zealand's export commodities have declined significantly over the past year, driven mainly by falls in dairy prices, although prices for forestry and meat products have also declined. Dairy prices fell substantially from their peak in 2014 to the beginning of this year, and have been volatile since then (figure 4.5). Compared to the time of the *September Statement*, the risk of an extremely low payout for dairy farmers has decreased. However, dairy prices remain low compared to recent years, and the decline since 2014 is having a large impact on the New Zealand economy. This is reflected especially in economic sentiment and business investment.

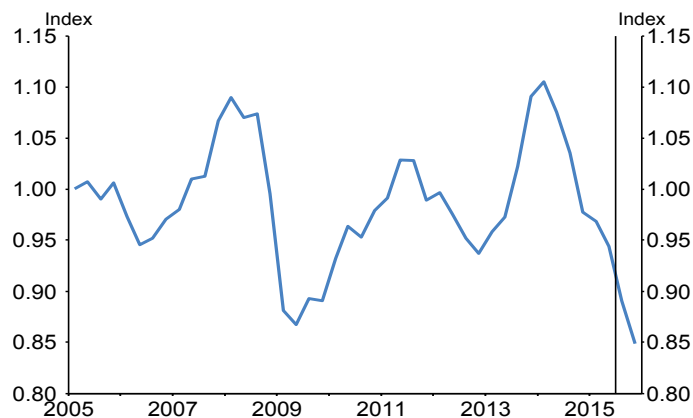
Despite some recovery in dairy prices over recent months, the declines in commodity prices to date imply a fall of more than 20 percent in New Zealand's overall export price basket, in real terms, since the beginning of 2014 (figure 4.6).

Figure 4.5
Commodity prices



Source: ANZ Bank, GlobalDairyTrade.

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

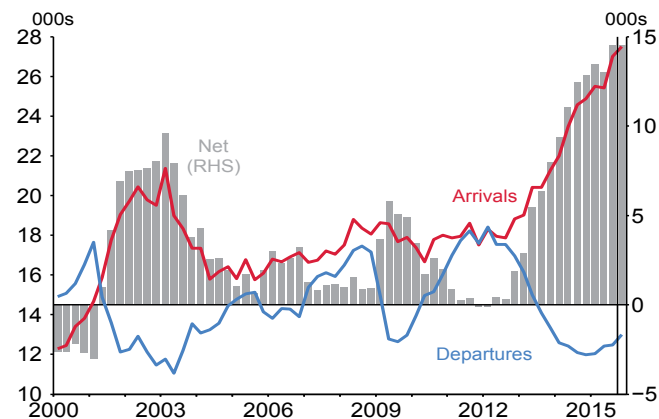


Source: Statistics New Zealand, RBNZ estimates.

Net immigration has continued to increase over 2015, and has reached record levels. Net permanent and long-term immigration of working-age people in the year to October 2015 was 55,000, or 1.5 percent of the working age population. Over 2013 and 2014, the increasing net inflow was driven roughly equally by more arrivals and fewer departures. More recently, departures have remained relatively flat, while arrivals have increased further (figure 4.7)

The drop in departures over recent years largely reflects fewer New Zealanders emigrating to Australia. This is consistent with the improvement in labour market conditions in New Zealand relative to Australia over this period. As discussed in chapter 3, conditions in the Australian labour market have stabilised more recently, which has contributed to departures stabilising, albeit at a historically low level.

Figure 4.7
Net immigration
(quarterly, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

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

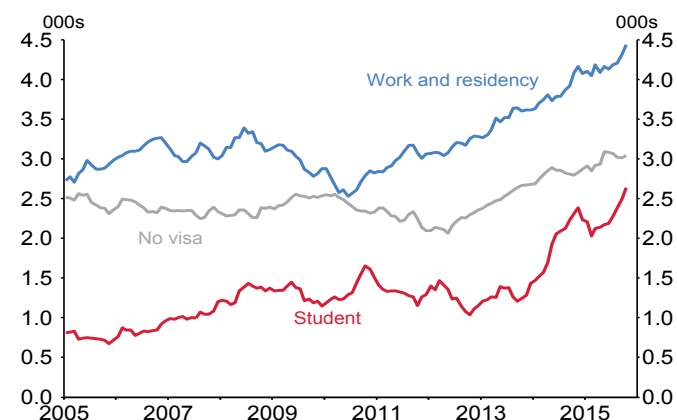
Migrant arrivals to New Zealand have been increasing across a range of visa categories (figure 4.8). Arrivals of New Zealanders and Australians, who do not require a visa, have increased steadily since 2012, again reflecting the relative strength of the New Zealand labour market. Arrivals on work visas have also increased steadily over recent years, while arrivals on residency visas have been broadly flat. Notably, there has been a large increase in arrivals on student visas since the end of 2013. At that time, a policy change allowed all migrants on a student visa to work up to 20 hours per week, making New Zealand a more attractive destination for international students.

The magnitude of the current upswing in net immigration – about equal to 3.3 percent of the working age population over the past three years – has had substantial impacts on the New Zealand economy, particularly in the housing and labour markets. High net immigration is boosting economic activity, but also the productive capacity of the economy. Although GDP has continued to expand in absolute terms, it has grown little relative to population growth over the past year (figure 4.9).

Continued increases in net immigration have contributed to further strength in house price inflation over recent months (figure 4.10). House price inflation remains high in Auckland, and is increasing in other regions, particularly those close to Auckland. Although there are some initial signs that house price inflation in Auckland is slowing, strong net immigration and low mortgage rates are likely to support national house price inflation in the near term.

The decline in export prices, and hence national incomes, over the past 18 months continues to weigh on consumer confidence and spending. However, growth in real labour incomes remains high – despite subdued growth in nominal wages – reflecting low consumer price inflation and moderate employment growth. Strong growth in real labour incomes,

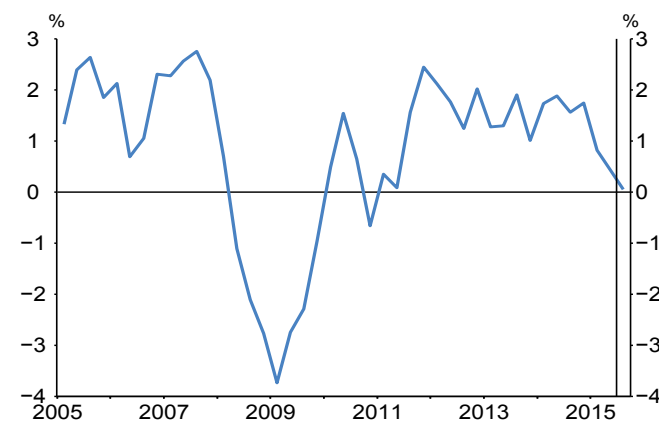
Figure 4.8
Arrivals by visa type
(monthly, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

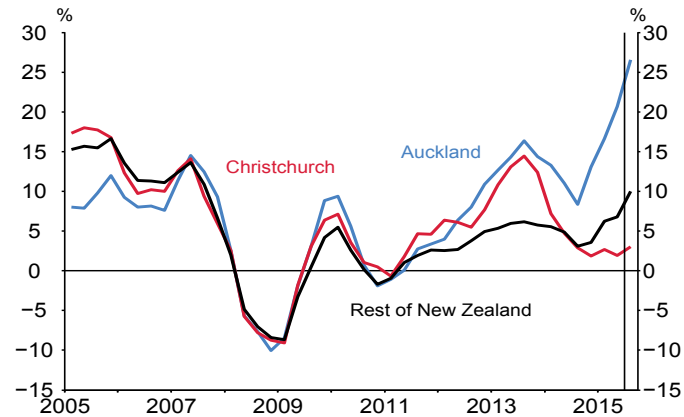
Note: The data shown are three-month moving averages for permanent and long-term arrivals.

Figure 4.9
GDP per capita growth
(annual)



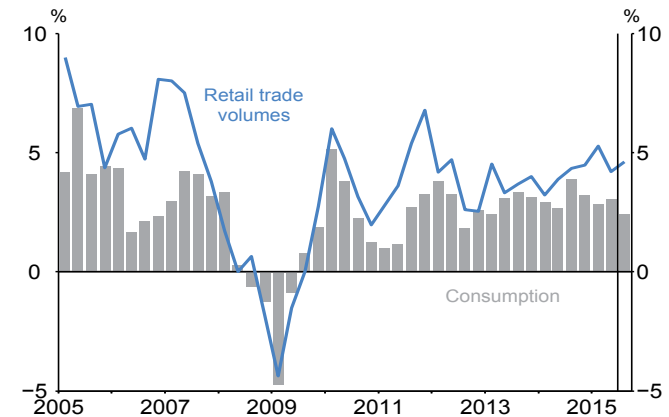
Source: Statistics New Zealand, RBNZ estimates.

Figure 4.10
House price inflation
(annual)



Source: CoreLogic, RBNZ estimates.

Figure 4.11
Spending growth
(annual, real)



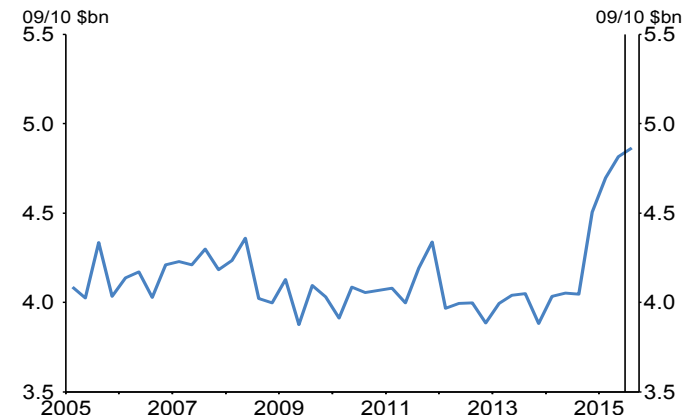
Source: Statistics New Zealand, RBNZ estimates.

high population growth, and increasing house price inflation over the past year are together supporting a moderate rate of growth in household consumption.

Growth in consumer spending has been lower than growth in retail trade volumes over the past year (figure 4.11), partly reflecting the boost to retail sales from strong growth in spending by overseas visitors.

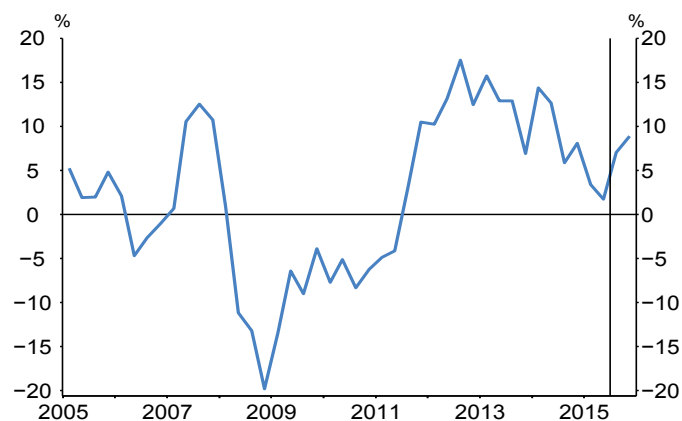
Exports of services have increased strongly over the past year (figure 4.12). Most of the increase represents increasing tourism activity, with overseas visitor arrivals growing strongly from a range of countries. In addition, the number of international students has increased significantly. The depreciation of the exchange rate over 2015 is improving the competitiveness of New Zealand's service export industries.

Figure 4.12
Exports of services
(quarterly, real, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

Figure 4.13
Construction growth
(annual)



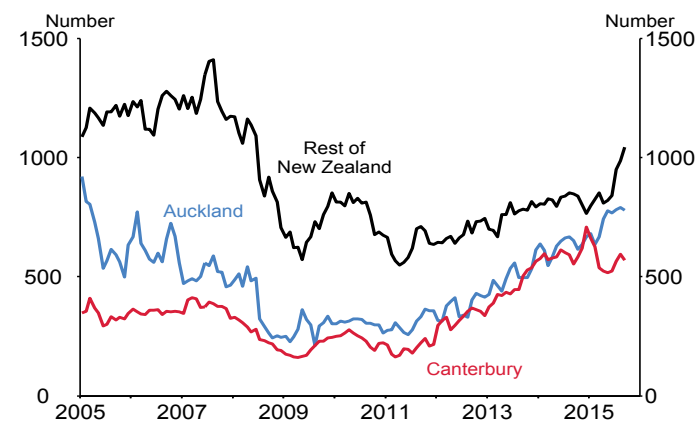
Source: Statistics New Zealand, RBNZ estimates.

Growth in construction expenditure slowed over the first half of 2015, reflecting slower growth in both residential and non-residential construction. Construction growth is estimated to have increased over the second half of the year (figure 4.13).

Slower growth in residential investment is mainly due to the residential rebuild in Canterbury, which is estimated to have peaked in early 2015. High house prices and strong population growth are encouraging residential building activity, although supply constraints remain a major headwind, particularly in Auckland. Continued growth in consent issuance outside Canterbury is consistent with stronger growth in residential building activity over the second half of 2015 (figure 4.14).

Non-residential construction has remained elevated over 2015, although the pace of growth has slowed. Increasing non-residential consent issuance is consistent with further growth over the second half of 2015.

Figure 4.14
Residential building consents
(s.a.)



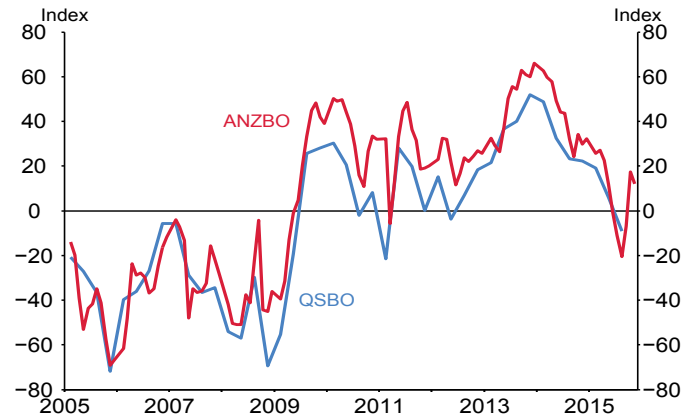
Source: Statistics New Zealand, RBNZ estimates.

Note: Three-month moving average.

Total business investment declined slightly over the first half of 2015, and is expected to increase only modestly over the second half of the year. Slower growth in business investment is consistent with less capacity pressure, and the negative impact of lower export prices on national incomes and business confidence (figure 4.15).

The lower exchange rate is expected to have supported growth over the second half of 2015, particularly net exports. The lower exchange rate means that export commodity prices have declined by less in New Zealand dollar terms than in world terms. Although import volumes have strengthened over the first half of 2015, they are expected to ease over the second half of the year in response to the lower exchange rate and sluggish business investment.

Figure 4.15
Business confidence
(s.a.)



Source: ANZ Bank, New Zealand Institute of Economic Research, RBNZ estimates.

Figure 4.16
Labour market growth
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Capacity pressure

Employment growth has slowed substantially over 2015, consistent with softer growth in economic activity. Working age population growth remains high compared to history, due to strong net immigration. However, labour force participation has declined over 2015, partly due to weaker economic conditions. This means labour force growth, while still high relative to history, has slowed compared to a year ago. Annual employment growth is currently around 1.5 percent, while annual growth in the labour force is around 2 percent (figure 4.16).

Slower growth in employment, combined with continued strength in labour supply, has resulted in conditions in the labour market loosening

over the past year. The unemployment rate is expected to increase to above 6 percent in late-2015, from a low of 5.6 percent in the September 2014 quarter (figure 4.17).

Consistent with increased slack in the labour market and subdued CPI inflation, nominal wage growth has declined slightly. However, low CPI inflation means that growth in the purchasing power of wages is high by past standards.

Slower GDP growth over 2015 and strong growth in the productive capacity of the economy have reduced pressure on productive resources. The output gap is currently estimated to be around -0.5 percent of potential output. This is within the range suggested by a suite of indicators, although estimates of the output gap are always subject to considerable uncertainty (figure 4.18).¹

¹ For more discussion on the output gap indicator suite, see Armstrong, J (2015), 'The Reserve Bank of New Zealand's output gap indicator suite and its real-time properties', Reserve Bank of New Zealand Analytical Note, AN 2015/08.

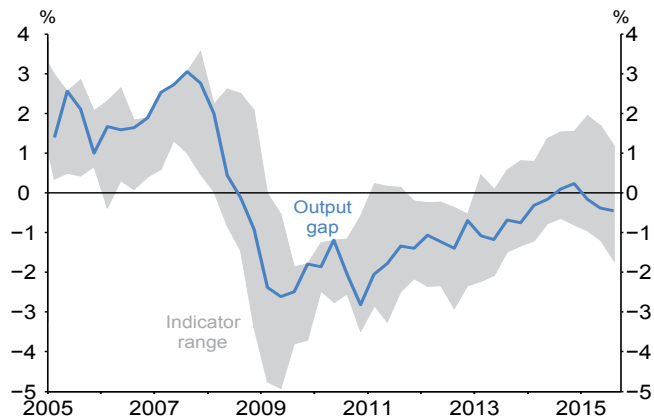
Pricing and inflation

Figure 4.17
Unemployment rate
(share of labour force, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

Figure 4.18
Output gap
(share of potential output)

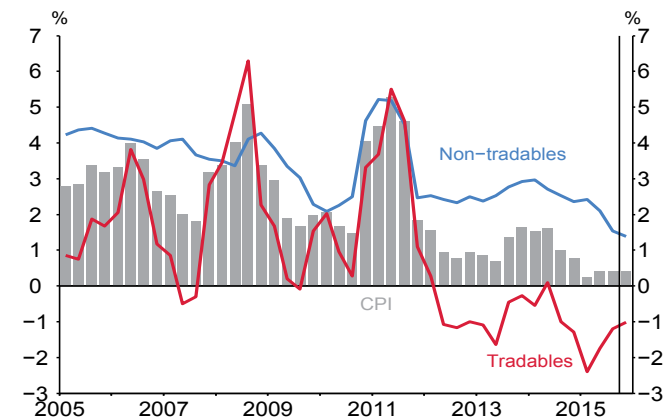


Source: RBNZ estimates.

Annual CPI inflation remained steady at 0.4 percent in the September 2015 quarter. CPI inflation is below the 1 to 3 percent target range, and below its average rate of 2.3 percent since 2002. In the September quarter, annual tradables inflation was -1.2 percent, and annual non-tradables inflation was 1.5 percent (figure 4.19).

Annual CPI, tradables, and non-tradables inflation are each being dampened by large price moves in specific components. Lower prices for vehicle licensing, part of the non-tradables basket, are subtracting 0.3 percentage points from annual CPI inflation following reductions in ACC levies in July. Lower prices for vehicle fuels, part of the tradables basket,

Figure 4.19
Inflation
(annual)



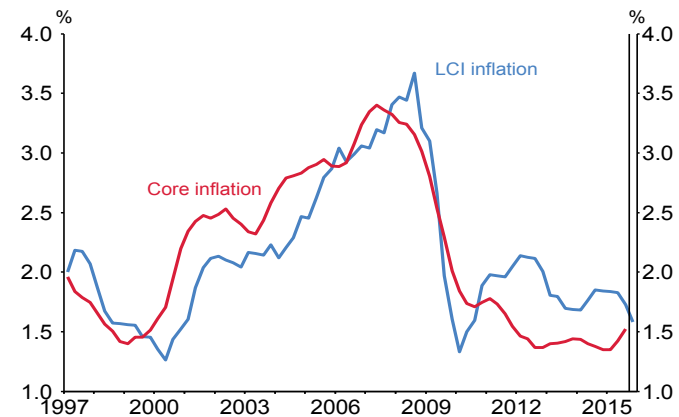
Source: Statistics New Zealand.

are subtracting 0.4 percentage points from annual CPI inflation. Although prices of other tradables items continue to decline on average, this rate of decline has slowed over recent quarters, as the depreciation in the exchange rate over 2015 has increased the cost of imported goods.

Given the large impact that sector-specific and temporary price movements have on CPI inflation, considering measures of core inflation, which adjust for these movements, can be helpful. While CPI inflation is low, core inflation (as measured by the sectoral factor model) remains well within the target range at 1.5 percent. Both core inflation and wage inflation have been subdued relative to history over recent years, and core inflation has been broadly unchanged since 2012 (figure 4.20).

Subdued core inflation and wage inflation are consistent with lingering spare capacity in the domestic economy, particularly in the labour market, and with a change in price- and wage-setting behaviour in response to lower inflation expectations and low CPI inflation in recent years.

Figure 4.20
Price and labour cost inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Note: LCI inflation is the Labour Cost Index, private sector salary and wage rates, adjusted for productivity. Core inflation is the sectoral factor model estimate of core inflation.

Box B

Insights from outreach

In the December quarter, the Reserve Bank talked to businesses throughout New Zealand to aid our understanding of how the lower exchange rate is affecting the economy. In particular, we focused on understanding how quickly, and to what extent, the recent depreciation in the exchange rate could impact incomes, costs, investment, and sales volumes across different types of businesses. Across a range of sectors, businesses were passing through higher import costs to prices. However, a range of factors, including competition, could either limit the extent of pass-through or see price increases take longer to come through. During these visits, the Bank also focused on updating our knowledge of two other key issues: developments in the agricultural sector and how construction activity is evolving across different regions of New Zealand.

The companies and organisations contacted by Reserve Bank staff during the projection round were:

Manufacturing	Retail/trade
Hamilton Jets Limited	Bunnings (New Zealand) Limited
Juken New Zealand Limited	Gough Group
National Aluminium Limited	Kathmandu Holdings Limited
New Zealand Manufacturers and Exporters Association	Mitre 10 (New Zealand) Limited
Resene Paint Limited	Swazi New Zealand
Steel and Tube Holdings Limited	The Farmers Trading Company Limited
	The Warehouse Group Limited

Agricultural	Construction/housing
Carrfields Limited	Amalgamated Builders Limited
Carter Holt Harvey Wood Products	Auckland Council
Fonterra Co-operative Group Limited	Civil Contractors New Zealand
Freshmax New Zealand Limited	Fletcher Building New Zealand Limited
Irrigation New Zealand	Fulton Hogan Limited
PGG Wrightson Limited	Hawkins Group
	Higgs Construction Limited
	Macrennie Commercial Const. Limited
	New Zealand Building Industry Federation
	Tonkin and Taylor Limited
Tourism	Other
Air New Zealand	Bancorp Wealth Management New Zealand Limited
Heritage Hotel Queenstown	Bank of New Zealand
Kiwi Discovery Limited	Lyttelton Port Company Limited
Ngai Tahu Tourism	PriceWaterhouseCoopers
NZSki Limited	Restaurant Brands New Zealand Limited
Queenstown Airport Corporation	Tuatara Management Limited
Skyline Enterprises Limited	
Tourism Industry Association	

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

Business groups (14): Auckland, New Plymouth, Wellington, Christchurch, Greymouth, Dunedin.

Universities/Research (3): Hamilton, Wellington.

Manufacturers and exporters: Auckland.

International banking (3): United Kingdom, Canada.

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

	2014				2015			
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec
Inflation (annual rates)								
CPI	1.5	1.6	1.0	0.8	0.3	0.4	0.4	
CPI non-tradables	3.0	2.7	2.5	2.4	2.4	2.1	1.5	
CPI tradables	-0.6	0.1	-1.0	-1.3	-2.4	-1.8	-1.2	
Sectoral factor model estimate of core inflation	1.4	1.4	1.4	1.3	1.4	1.4	1.5	
CPI trimmed mean	1.5	1.7	1.0	0.7	0.4	0.4	0.7	
CPI weighted median	1.7	2.2	1.7	1.5	1.7	1.3	1.5	
GDP deflator (expenditure)	5.6	4.4	1.2	-2.1	-0.8	1.3		
Inflation expectations								
ANZ Bank Business Outlook - inflation one year ahead (quarterly average to date)	2.6	2.6	2.5	2.3	1.7	1.7	1.7	1.7
RBNZ survey of expectations - inflation two years ahead	2.3	2.4	2.2	2.1	1.8	1.9	1.9	1.9
AON Hewitt Economist Survey - inflation four years ahead	2.2	2.3	2.2	2.2	2.1	2.1	2.2	2.1
AON Hewitt Economist Survey - inflation seven years ahead	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Long-run inflation expectations ²	2.0	1.9	2.1	2.1	2.0	2.0	2.1	2.1
Asset prices (annual percentage changes)								
Quarterly house price index (CoreLogic)	8.0	6.9	4.8	6.4	9.0	10.6		
REINZ Farm Price Index (quarterly average to date)	9.0	15.3	3.7	1.2	2.0	2.1	-0.4	-8.6
NZX 50 (quarterly average to date)	16.5	14.6	12.7	12.6	16.5	12.6	11.4	9.4

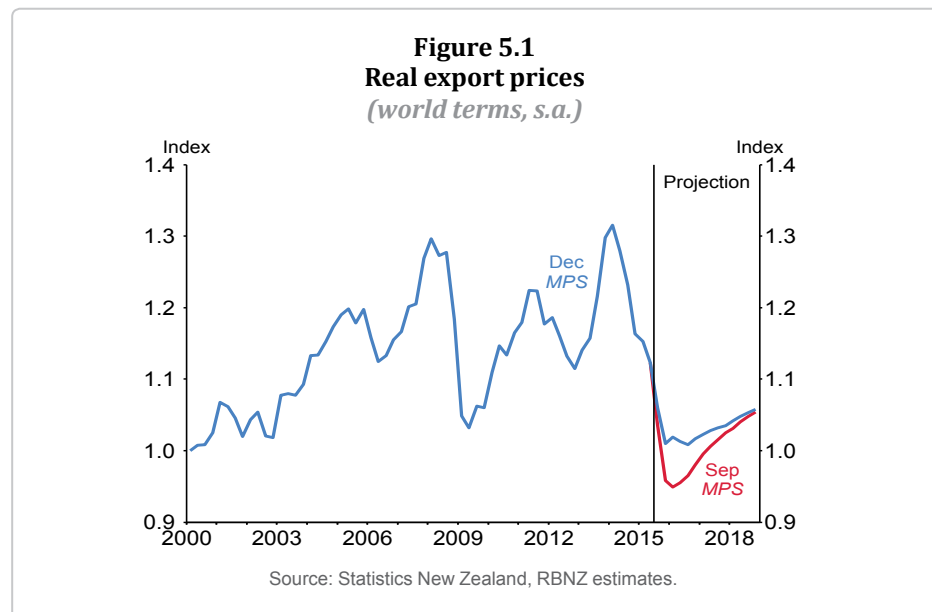
² Long-run expectations are extracted from a range of surveys using a Nelson-Siegel model. Source: ANZ Bank, Aon Consulting, Consensus Economics, RBNZ estimates.



Chapter 5

The macroeconomic outlook

The macroeconomic outlook has strengthened slightly over the past three months, but the near-term outlook remains weak. Much of the improvement in the outlook has stemmed from a rise in world dairy prices. Nonetheless, New Zealand's export prices are still low relative to history and are assumed to remain low even as they recover over the projection horizon (figure 5.1).

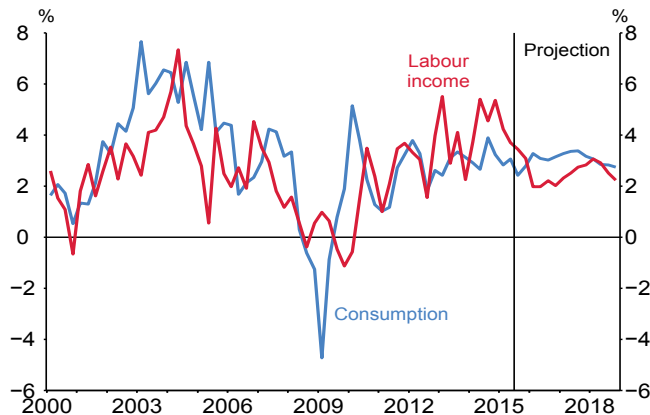


As discussed in the September *Statement*, below-average export prices will weigh on domestic incomes, confidence and spending. This is expected to translate into continued subdued business investment, particularly over the coming year.

Low export prices will also have a persistently negative impact on consumption. Consumers are expected to continue to smooth their spending through the current period of softer growth in national income. Further ahead, consumption growth is projected to be stronger than income growth, supported by low interest rates and high house prices (figure 5.2).

The outlook for net immigration is stronger than incorporated in the September *Statement*. Nonetheless, net immigration is expected to decline over coming years as employment prospects overseas improve (figure 5.3). The projection sees a net gain of 120,000 working-age people by the end of 2018, in addition to the 106,000 that have already arrived during this cycle.

Figure 5.2
Consumption and after-tax income growth
(annual, real)



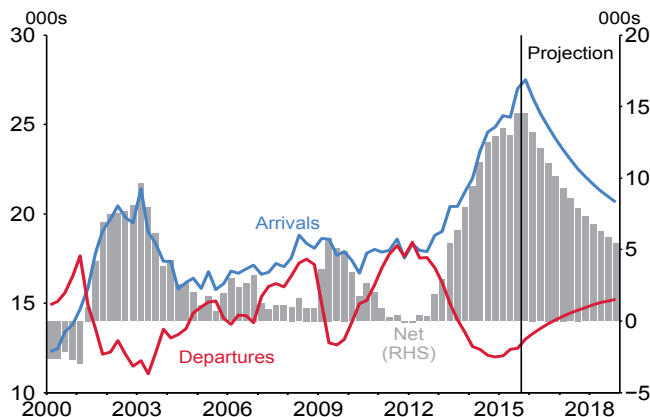
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.4
Unemployment rate
(share of labour force, s.a.)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.3
Migration
(quarterly, s.a.)



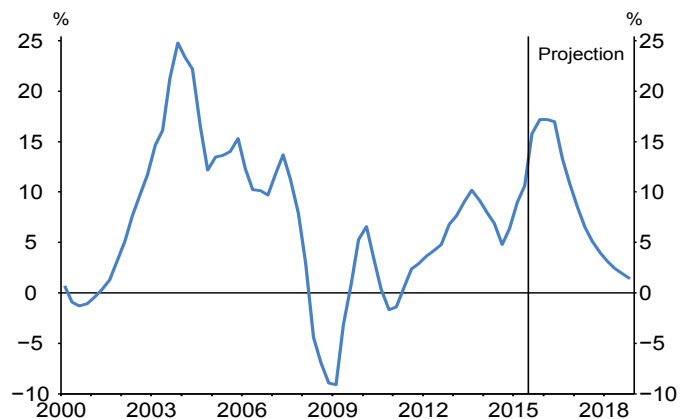
Source: Statistics New Zealand, RBNZ estimates.

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

Migration will affect the New Zealand economy in several ways. It is expected to continue adding to labour supply over the projection. Strong growth in the labour force over the coming year, combined with modest output growth, is expected to see the unemployment rate increase to above 6 percent at the start of 2016, before declining as economic growth picks up (figure 5.4). Slack in the labour market is expected to dampen nominal wage growth over the next year. However, low inflation implies real wage growth will remain reasonably strong, and real take-home pay is likely to be further boosted by growth in hours worked and employment.

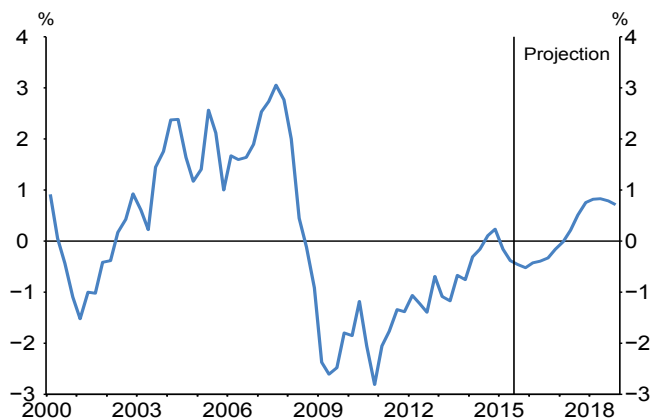
High net immigration is also expected to boost demand in the economy, including in the housing market. Annual house price inflation is expected to peak at the start of 2016. Over the remainder of the projection, house price inflation is projected to fall (figure 5.5), as net immigration declines, residential construction begins to address housing shortages, and

Figure 5.5
House price inflation
(annual)



Source: CoreLogic, RBNZ estimates.

Figure 5.6
Output gap
(share of potential output)



Source: RBNZ estimates.

affordability constraints bite. We anticipate that the dampening impact on house price inflation of recent changes in loan-to-value ratio restrictions and in tax treatment of investment properties will be temporary.

Construction remains an important driver of the economic expansion, although the positive impulse is waning. Construction related to the Canterbury rebuild was a major driver of growth over 2013 and 2014, and the level of activity has now plateaued. Outside Canterbury, construction growth is expected to remain strong, reflecting the shortage of housing in Auckland, strong population growth, high house price inflation, and low interest rates.

The economy is projected to grow by 2.7 percent over 2016, and at an average rate of just over 3 percent per year in 2017 and 2018. The rate of potential output growth is expected to remain near 2.5 percent, supported by strong growth in labour supply. Consequently, spare resources in the economy are projected to be absorbed by the start of 2017, with capacity pressures building thereafter (figure 5.6). Non-tradables inflation is projected to increase as capacity pressures build and while medium-term inflation expectations remain anchored near 2 percent (figure 5.7).

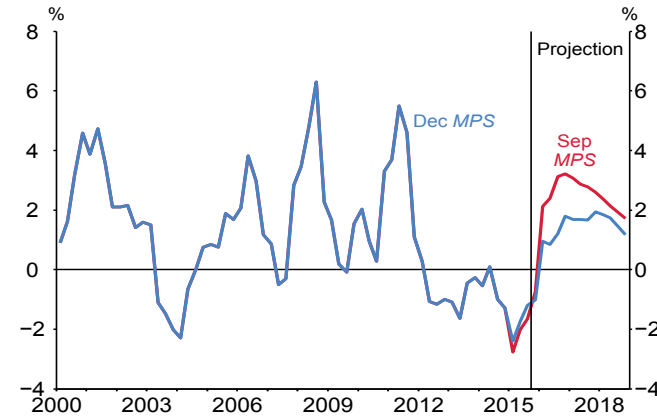
The New Zealand dollar TWI has depreciated by about 10 percent since April 2015 (figure 5.8), mostly reflecting falls in export prices. In the near term, this will push up the cost of imported goods, and will flow through to an increase in tradables inflation (figure 5.9). The Bank is closely watching the pass-through of the lower exchange rate into tradables inflation. In the near term, tradables inflation will be further boosted as the petrol price declines of early 2015 drop out of the annual calculation. However, an appreciation in the New Zealand dollar TWI since the September *Statement* means that the outlook for tradables inflation is lower than at that time.

Figure 5.7
Non-tradables inflation
(annual)



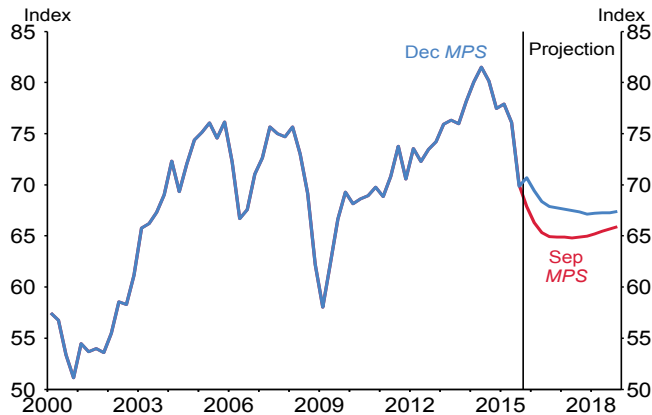
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.9
Tradables inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.8
New Zealand dollar TWI

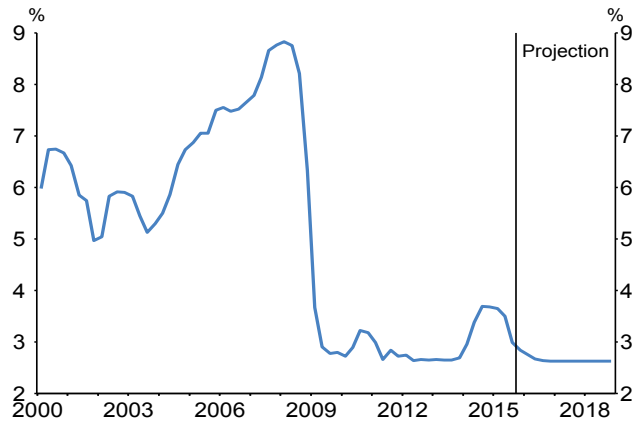


Source: RBNZ estimates.

Beyond the near term, the effect of the lower exchange rate on inflation is expected to wane. The lower export prices that contributed to the exchange rate depreciation are expected to weigh on incomes, demand and so inflationary pressure. To support demand growth and ensure that resources in the economy continue to be absorbed, monetary policy is expected to remain stimulatory over the projection (figure 5.10).

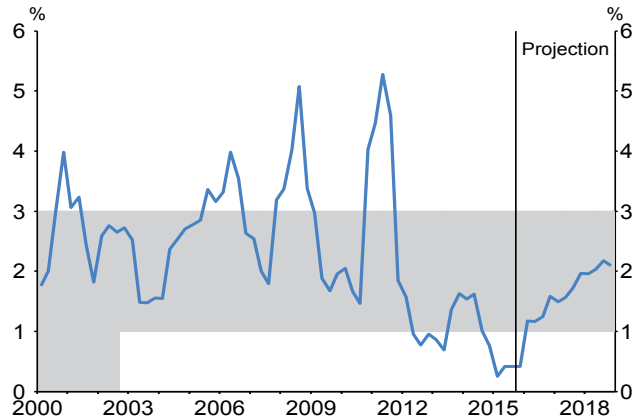
Headline CPI inflation is expected to increase steadily and settle near 2 percent in the second half of the projection horizon (figure 5.11). A rapid pick-up in tradables inflation will see headline inflation within the target band by the start of 2016. Beyond that point, increasing pressure on productive resources is projected to steadily push up non-tradables inflation.

Figure 5.10
90-day interest rate



Source: RBNZ estimates.

Figure 5.11
CPI inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Risk analysis

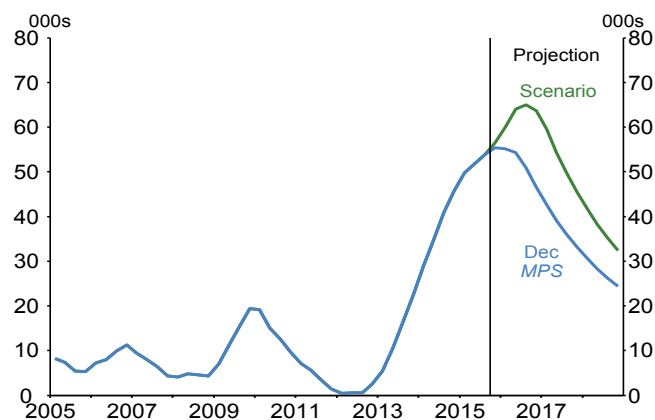
The projection described in this chapter represents the Bank's central view of how the forces acting on the economy might play out. If everything turned out as projected, the 90-day interest rate path shown in figure 5.10 would be consistent with the Bank's mandate of medium-term price stability. As noted in chapter 2, the projection is based on a range of historical relationships and assumptions about how key variables will evolve. These assumptions and relationships will not always hold, and unforeseen developments can also change the picture.

Moreover, inflation forecasting frameworks used by central banks are designed primarily to understand the implications of demand cycles. As discussed in chapter 2, the effects of changes to supply conditions on inflationary pressure can be harder to measure and can take a long time to flow through an economy.

The following scenarios illustrate four 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:

- net immigration is persistently stronger than we assume in the central projection, and the additional migrants contribute more to the economy's supply than we have assumed in the past;
- the economy is affected by a drought associated with El Niño;
- export prices fall significantly; and
- consumer confidence, spending and borrowing are higher.

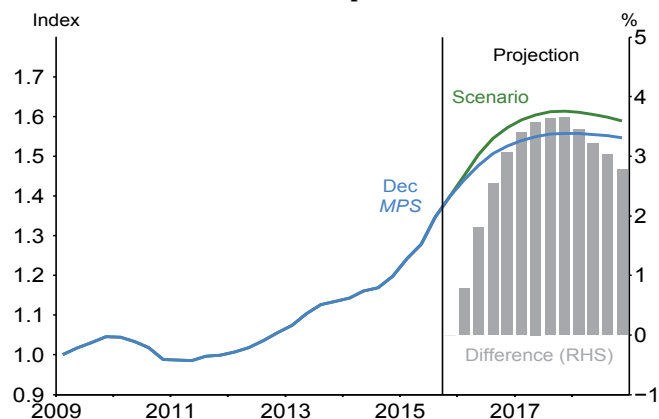
Figure 5.12
Net immigration
(annual)



Source: Statistics New Zealand, RBNZ estimates.

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

Figure 5.13
Real house price level



Source: CoreLogic, Statistics New Zealand, RBNZ estimates.

Persistently high net immigration

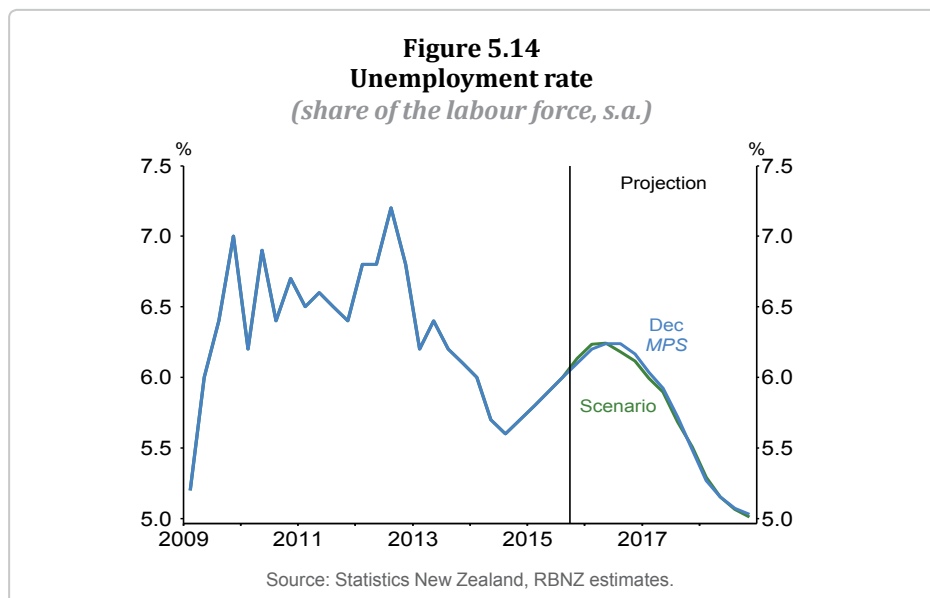
This scenario considers the impact of net immigration being stronger over the next three years than assumed in the central projection (figure 5.12). The working age population is about 1 percent higher than assumed in the central projection. Further, we assume that the additional population boosts the supply potential of the economy more quickly than we have assumed in the past.

The demand impact of higher net immigration is seen in the first instance in higher house prices and consumption. In this scenario, the level of real house prices is almost 4 percent higher than in the central projection (figure 5.13). The most direct effects on output growth are through consumption and residential investment. In total, GDP is 1 percent higher by the end of 2018.

Under the assumptions we have made in the past, the boost to demand from higher net immigration would increase inflationary pressure. This is because the contribution to supply potential was assumed to be gradual.

In this scenario, by contrast, we assume that the additional migrants contribute to supply capacity quickly. Specifically, we assume that the supply capacity of the economy is 1 percent higher by the end of 2018. The overall result is that the net impact on inflationary pressure is neutral, because the supply response quickly offsets the additional demand. The unemployment rate is therefore unchanged from the central projection (figure 5.14).

In short, while growth is stronger, so is supply capacity. In this scenario, inflationary pressure and the appropriate monetary policy response are similar to that in the central projection (figure 5.25). Of course, if the

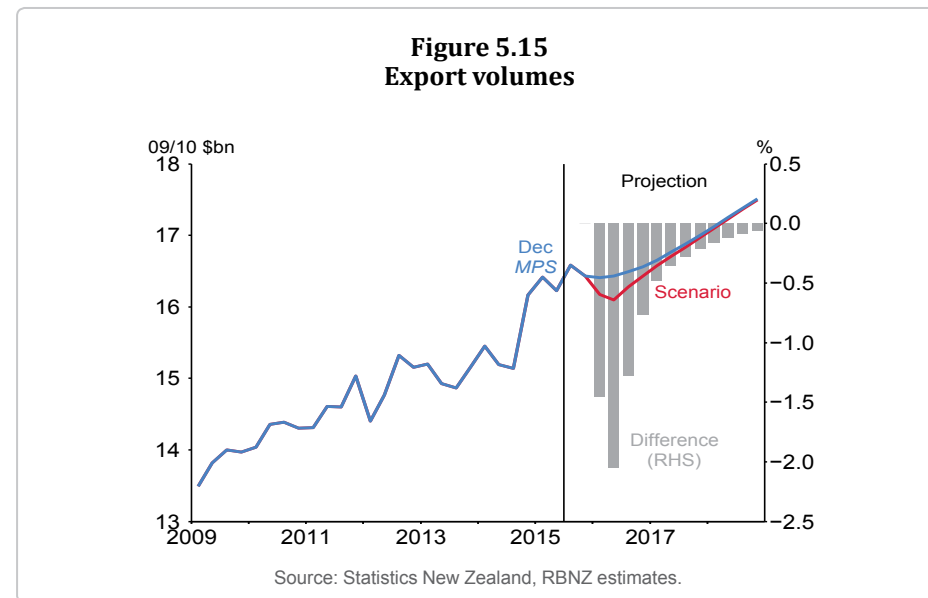


assumption that supply capacity increases quickly did not hold, we would expect to see stronger inflationary pressures build, and a different policy response.

A drought associated with El Niño conditions

In this scenario, we consider the impact of a moderate drought over the start of 2016. Global climatic conditions indicate an El Niño episode over this period. However, El Niño conditions do not always result in a drought, and when they do, the regional and economic impacts can vary from one event to the next.¹ In practice, how monetary policy should respond depends on the outcomes for agricultural production, export prices, and the New Zealand dollar exchange rate, as well as the interactions among these three components.

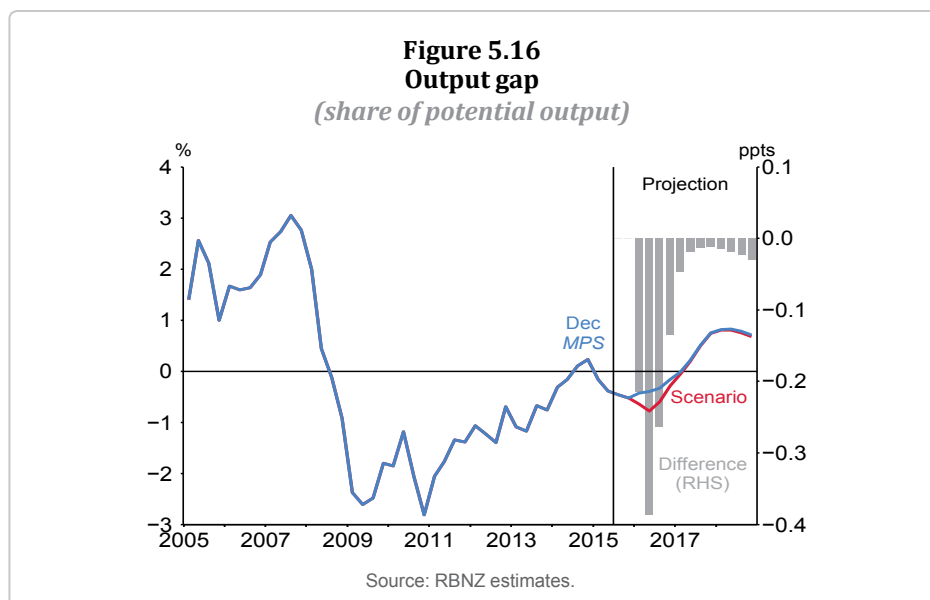
¹ Further information on the impact of El Niño on the New Zealand economy can be found in Ford, D, and A Wood (2015) 'El Niño', Reserve Bank of New Zealand *Analytical Note*, AN 2015/07.



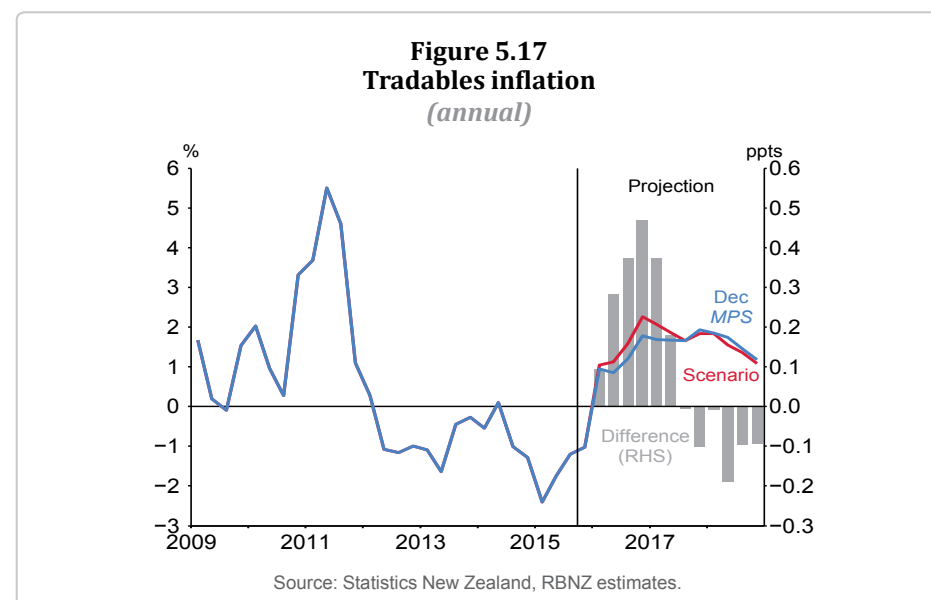
A drought, in the first instance, affects the supply capacity of the economy. We assume a drought of a size that would detract about 2 percent from export volumes at its peak, by lowering agricultural production (figure 5.15).² The direct impact on agricultural output and wider impact on incomes and spending would result in output being 0.4 percent lower in the middle of 2016 (figure 5.16).

A lower output gap means lower inflationary pressures. However, the weaker growth outlook would likely cause the TWI to fall – a drop of about 2 percent is assumed. The result would be slightly higher tradables inflation (figure 5.17) and lower non-tradables inflation. On net, CPI inflation would be slightly lower than assumed in the central projection.

² For details on the technical assumptions used in this scenario see Kamber, G, C McDonald, and G Price (2013), 'Drying out: Investigating the economic effects of drought in New Zealand', Reserve Bank of New Zealand *Analytical Note*, AN 2013/02.



For CPI inflation to return to 2 percent at around the same time as in the central projection, only a slight further reduction in interest rates would be needed (figure 5.25). In this scenario, most of the easing in monetary conditions comes through a large currency depreciation, which supports net exports. However, the associated fall in incomes and confidence could flow through to lower spending by businesses and consumers, especially given that export receipts are already depressed. If spending did fall, more stimulus may be needed.



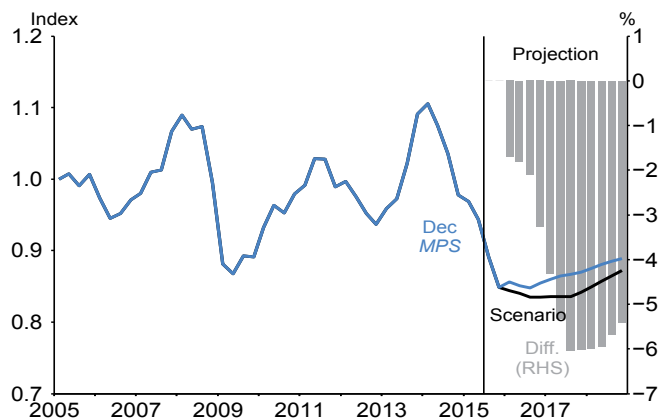
Further falls in export prices

Dairy prices have halved since their 2014 peak, and have remained low in recent months. The central projection assumes export prices will increase gradually over the next three years. This scenario considers the impact of export prices remaining low for longer – export prices are about 6 percent lower over the projection in this scenario (figure 5.18). This could happen if, for example, China’s import demand for dairy products did not pick up over the projection as anticipated.

The consequent fall in national incomes would be significant and protracted, resulting in further falls in consumer and business confidence that would amplify the effects on business investment and consumption. Weaker demand growth would put less pressure on productive resources (figure 5.19), resulting in lower non-tradables inflation over the projection.

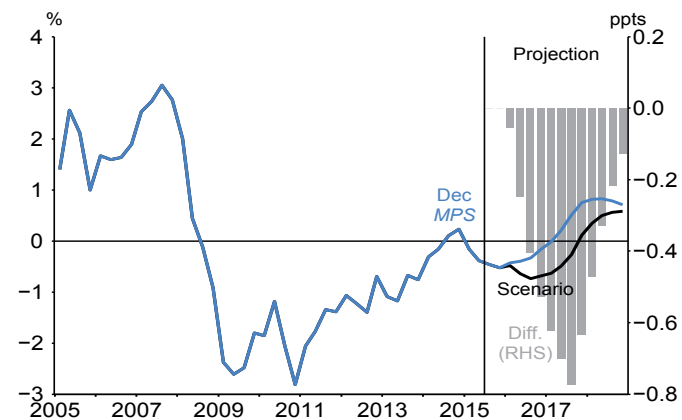
The weaker growth outlook would likely result in a lower New Zealand dollar exchange rate (figure 5.20). Consequently, tradables inflation would likely be higher, especially over the second half of the projection (figure 5.21). Despite higher near-term inflation in the tradables sector, the softer medium-term inflationary pressure would warrant more monetary policy stimulus than in the central projection. Interest rates would need to be about 50 basis points lower for inflation to settle at a rate similar to that in the central projection (figure 5.25).

Figure 5.18
Real export prices
(world terms, s.a.)



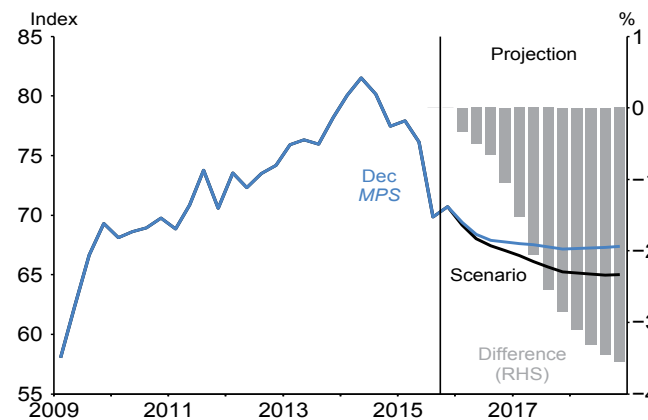
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.19
Output gap
(share of potential output)



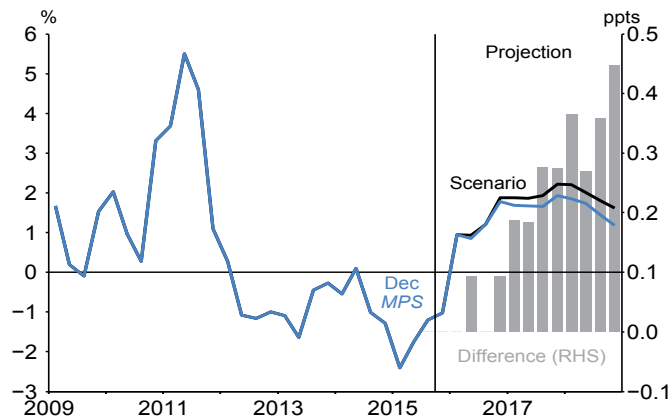
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.20
New Zealand dollar TWI



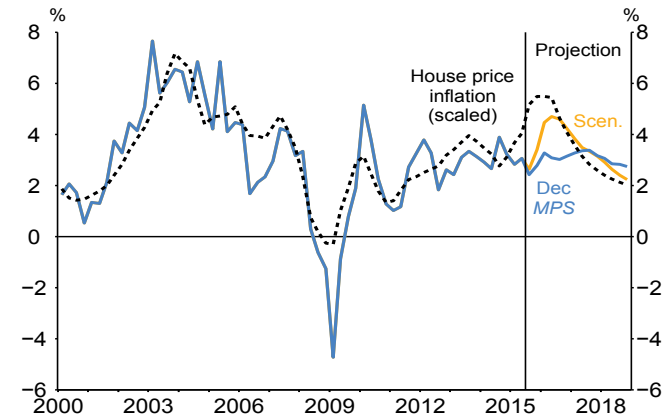
Source: Statistics New Zealand, RBNZ estimates.

Figure 5.21
Tradables inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.22
Consumption growth
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Households spend more freely

A feature of the central projection is that consumers are assumed to behave cautiously. Consumption growth is expected to be broadly in line with labour incomes, and slower than would be suggested by historical relationships with house price inflation and interest rates (figure 5.22).

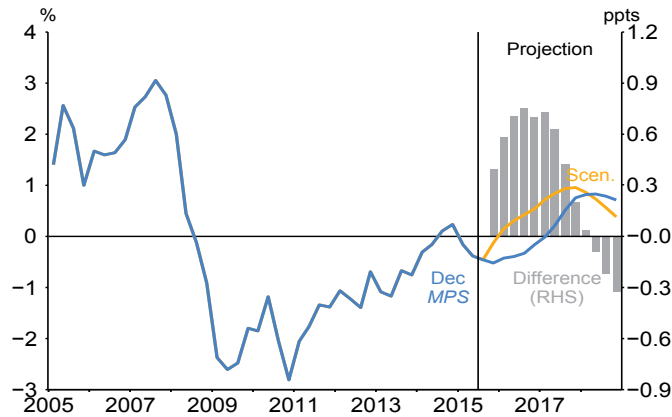
However, as economic growth picks up from its current period of softer growth, it is possible that low interest rates and continued house price inflation encourage a pick-up in credit growth and consumption spending.

In line with this behaviour, this scenario assumes that consumption evolves more in line with house price inflation than with labour incomes. This results in annual consumption growth being about 2 percentage points stronger over the first half of the projection. Stronger spending

and a lower household saving rate would see the current account deficit widen by an additional 1.2 percentage points.

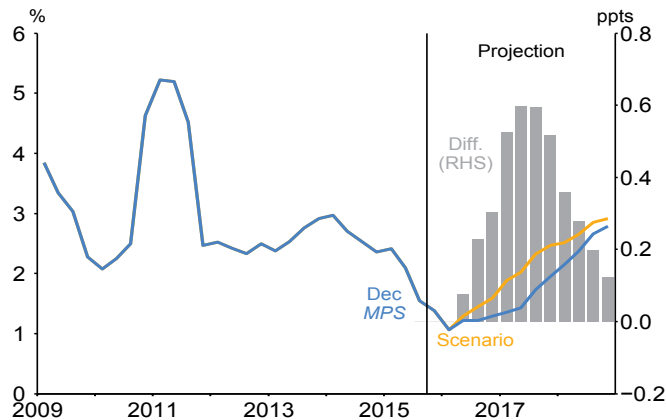
Stronger output growth would see spare resources used up more quickly. In this scenario, the output gap would close by the start of 2016, and increase to about 1 percent by the end of 2017 (figure 5.23). Stronger capacity pressure would result in higher non-tradables inflation (figure 5.24). To see CPI inflation settle near 2 percent in the medium term, tighter monetary policy would be required. In this scenario, interest rates would need to be about 60 basis points higher than in the central projection (figure 5.25).

Figure 5.23
Output gap
(share of potential output)



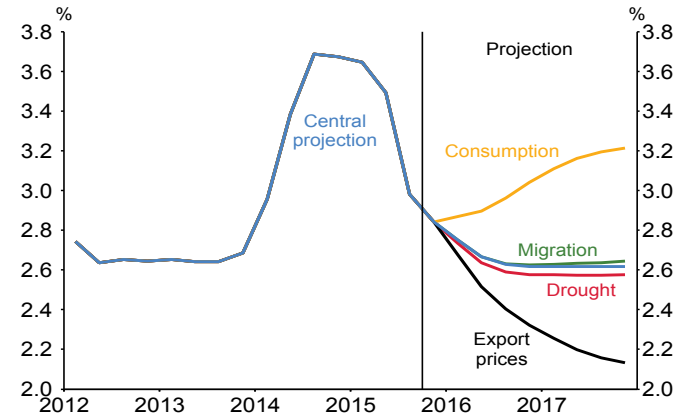
Source: RBNZ estimates.

Figure 5.24
Non-tradables inflation
(annual)



Source: Statistics New Zealand, RBNZ estimates.

Figure 5.25
Scenario 90-day interest rates



Source: RBNZ estimates.

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.

The largest differences in the interest rate track are seen in the demand-side scenarios – stronger consumption and lower export prices. The supply developments – stronger immigration and a drought – are more neutral for policy, under the assumptions made here. The monetary policy implications of supply-side developments can be more complex, because policy makers can face a trade-off, with economic activity and inflation moving in opposite directions.

It is important to note that the scenarios shown in this chapter represent only small deviations from the central projection, partly because each development is considered separately. In reality, combinations of unforeseen economic developments can impact the economy at the same time, and the deviations from the central projection could be larger than those shown here. As a result, the range of appropriate policy responses is likely to be larger than that shown here.

Box C

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.

2016

28 January 2016	OCR
10 March 2016	OCR and <i>MPS</i>
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>

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		
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Final consumption expenditure											
Private	3.7	-1.6	1.7	2.1	2.7	2.5	3.1	3.1	2.9	3.1	3.2
Public authority	4.7	4.0	-0.5	2.0	1.5	-0.6	2.7	2.8	1.7	0.1	2.4
Total	4.0	-0.2	1.1	2.0	2.4	1.7	3.0	3.0	2.6	2.4	3.0
Gross fixed capital formation											
Residential	1.8	-21.2	-9.0	1.6	-0.2	17.7	16.6	12.3	9.5	8.7	2.7
Other	10.0	-2.6	-9.3	3.8	7.1	4.4	8.6	4.7	0.9	1.3	7.1
Total	7.7	-7.5	-9.2	3.3	5.5	7.1	10.4	6.5	3.1	3.3	5.9
Final domestic expenditure	4.8	-2.0	-1.2	2.3	3.1	2.9	4.7	3.9	2.7	2.6	3.7
Stockbuilding ¹	0.8	-0.3	-0.7	0.7	0.3	-0.4	0.2	0.0	-0.4	0.1	0.1
Gross national expenditure	5.6	-2.3	-1.6	3.0	3.5	2.4	4.9	4.0	2.3	2.7	3.8
Exports of goods and services	3.9	-2.8	4.1	2.8	2.2	3.1	-0.1	4.2	4.4	0.7	2.5
Imports of goods and services	10.9	-3.6	-9.2	11.4	6.7	1.3	8.1	7.5	3.7	0.2	3.8
Expenditure on GDP	3.6	-2.1	2.3	0.7	2.2	2.9	2.5	3.0	2.4	3.0	3.4
GDP (production)	3.0	-1.6	-0.3	1.5	2.2	2.2	2.5	3.2	2.2	2.9	3.4
GDP (production, March qtr to March qtr)	1.6	-2.9	1.7	1.2	2.7	1.9	3.1	2.7	2.4	3.1	3.4

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		
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Price measures												
CPI	3.4	3.0	2.0	4.5	1.6	0.9	1.5	0.3	1.2	1.5	2.0	
Labour costs	3.5	3.1	1.3	2.0	2.1	1.8	1.7	1.8	1.7	1.7	1.9	
Export prices (in New Zealand dollars)	11.2	7.0	-7.9	8.6	-3.3	-4.7	11.8	-9.0	1.1	5.3	4.8	
Import prices (in New Zealand dollars)	-0.0	17.4	-11.1	3.5	-1.6	-4.0	-3.2	-3.7	10.4	4.9	2.8	
Monetary conditions												
90-day rate (year average)	8.6	6.7	2.8	3.1	2.7	2.6	2.7	3.6	3.0	2.6	2.6	
TWI (year average)	75.2	65.6	66.6	69.0	72.2	74.0	77.6	79.3	71.5	67.9	67.3	
Output												
GDP (production, annual average % change)	3.0	-1.6	-0.3	1.5	2.2	2.2	2.5	3.2	2.2	2.9	3.4	
Potential output (annual average % change)	2.2	1.7	1.2	1.3	1.5	1.9	2.2	2.5	2.6	2.7	2.6	
Output gap (% of potential GDP, year average)	2.6	-0.7	-2.2	-2.0	-1.4	-1.1	-0.7	0.0	-0.5	-0.2	0.6	
Labour market												
Total employment (seasonally adjusted)	1.1	-1.2	-0.4	1.6	0.6	0.2	3.7	3.2	1.1	2.1	2.6	
Unemployment rate (March qtr, seasonally adjusted)	3.9	5.2	6.2	6.5	6.8	6.2	6.0	5.8	6.2	6.0	5.3	
Trend labour productivity	1.2	1.1	1.0	0.9	0.9	0.7	0.6	0.6	0.6	0.7	0.7	
Key balances												
Government operating balance (% of GDP, year to June)	3.0	-2.1	-3.3	-9.0	-4.3	-2.0	-1.2	0.2	-0.5	-0.1	0.3	
Current account balance (% of GDP)	-6.7	-7.0	-1.5	-2.8	-3.2	-3.6	-2.5	-3.4	-4.8	-5.8	-5.7	
Terms of trade (SNA measure, annual average % change)	8.5	-2.0	-4.2	7.9	1.6	-4.1	11.7	-0.2	-6.5	-3.4	2.0	
Household saving rate (% of disposable income)	-0.4	-2.1	1.3	2.2	2.4	2.0	1.8	-0.7	-0.8	0.0	1.4	
World economy												
Trading partner GDP (annual average % change)	4.2	0.3	1.2	4.5	3.5	3.2	3.5	3.6	3.4	3.6	3.6	
Trading partner CPI (TWI weighted, annual % change)	4.2	1.6	2.2	3.2	2.7	2.3	2.3	1.0	1.9	2.2	2.4	

