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.

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Hon Bill English
Minister of Finance

Graeme Wheeler
Governor Designate
 Reserve Bank of New Zealand

Dated at Wellington 20 September 2012
Monetary Policy Statement
August 2017


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Chapter 1
Policy assessment

The Reserve Bank today left the Official Cash Rate (OCR) unchanged at 1.75 percent.

Global economic growth has become more broad-based in recent quarters. However, inflation and wage outcomes remain subdued across the advanced economies, and challenges remain with on-going surplus capacity. Bond yields are low, credit spreads have narrowed and equity prices are at record levels. Monetary policy is expected to remain stimulatory in the advanced economies, but less so going forward.

The trade-weighted exchange rate has increased since the May Statement, partly in response to a weaker US dollar. A lower New Zealand dollar is needed to increase tradables inflation and help deliver more balanced growth.

GDP in the March quarter was lower than expected, adding to the softening in growth observed at the end of 2016. Growth is expected to improve going forward, supported by accommodative monetary policy, strong population growth, an elevated terms of trade, and the fiscal stimulus outlined in Budget 2017.

House price inflation continues to moderate due to loan-to-value ratio restrictions, affordability constraints, and a tightening in credit conditions. This moderation is expected to persist, although there remains a risk of resurgence in prices given continued strong population growth and resource constraints in the construction sector.

Annual CPI inflation eased in the June quarter, but remains within the target range. Headline inflation is likely to decline in coming quarters as the effects of higher fuel and food prices dissipate. The outlook for tradables inflation remains weak. Non-tradables inflation remains moderate but is expected to increase gradually as capacity pressure increases, bringing headline inflation to the midpoint of the target range over the medium term. Longer-term inflation expectations remain well anchored at around 2 percent.

Monetary policy will remain accommodative for a considerable period. Numerous uncertainties remain and policy may need to adjust accordingly.

Graeme Wheeler
Governor
Chapter 2
Key policy judgements

• Annual headline CPI inflation has returned to the target range, but is expected to be variable over the year ahead.

• Global conditions continue to suppress inflationary pressure in New Zealand, underpinning a low outlook for tradables inflation.

• Non-tradables inflation remains subdued, partly reflecting weak price-setting behaviour, but is expected to increase gradually.

• Monetary policy is expected to remain accommodative to support strengthening GDP growth and rising capacity pressure. This support is needed for headline inflation to move towards the target midpoint over the medium term.

• Survey measures of inflation expectations are consistent with the Bank’s projections. Longer-term inflation expectations remain well anchored around the target midpoint.

In recent years, weak global conditions have suppressed inflationary pressure in New Zealand. Although domestic headline inflation has returned to the target range, this disinflationary impulse from the world is still working through the New Zealand economy and influencing the outlook for inflation and monetary policy.

Annual CPI inflation was 1.7 percent in the June 2017 quarter, lower than forecast in the May Statement. CPI inflation is expected to be variable over the next year, due in large part to movements in tradables inflation. The sharp increase in inflation over the past year largely reflected increases in oil and food prices. As the effects of these sharp movements dissipate in early 2018, annual headline inflation is expected to drop temporarily below the bottom of the target range, before returning to the target midpoint.

Economic activity has improved across major economies over the past year, and the outlook for growth across our main trading partners remains relatively stable. Although measures of uncertainty have reduced, risks remain skewed to the downside. Strengthening global activity has supported commodity prices. Oil prices are assumed to rise only gradually in coming years.
Spare capacity remains in our main trading partners, despite highly stimulatory monetary policy in those economies. Core inflation and measures of wage inflation remain persistently low across many trading partners. While stronger activity is raising the prospect of monetary policy normalisation by some major central banks, the subdued outlook for trading-partner inflation suggests this may occur only gradually.

Low global interest rates, and the positive outlook for the New Zealand economy relative to several other advanced economies, have supported investor appetite for New Zealand dollar assets over recent years, contributing to strength in the New Zealand dollar exchange rate. Recent upward pressure on the New Zealand dollar exchange rate has been driven in part by generalised US dollar weakness as markets reassess the likely pace of monetary policy normalisation in the United States, along with a continued recovery in the prices of New Zealand’s exports. The New Zealand dollar TWI has risen by around 5 percent since the May Statement, largely reversing the depreciation observed through the beginning of 2017. The exchange rate remains higher than is sustainable for balanced growth in the economy and continues to dampen import prices and tradables inflation.

Based on the outlook for commodity prices, global inflation and global policy rates, tradables inflation is expected to remain below its historical average for some time. Accounting for this weakness, a strong lift in non-tradables inflation is necessary for inflation to settle near the target midpoint in the medium term. Non-tradables inflation and core inflation remain subdued at present.

Low past inflation appears to be contributing to weak price-setting behaviour by businesses. This is creating a drag on current and future inflation (see box B in chapter 4). These weaker price-setting dynamics suggest a need for stronger capacity pressure than might otherwise be necessary to generate a given level of inflation.

Conditions in global labour markets relative to New Zealand are contributing to high net immigration. Migration flows are increasing demand for housing and other goods and services, although to a lesser degree than in previous cycles. Migration is also contributing to strong growth in the labour supply and potential output. The expansion in overall capacity means that higher levels of growth may not necessarily be accompanied by significant increases in inflationary pressure.

GDP growth was weaker than expected in the March 2017 quarter. This follows the softening in growth observed through the end of 2016. Part of this weakness was due to temporary factors, with higher frequency data suggesting a recovery in the June quarter. In the year to March 2017, the economy has grown at a similar pace to estimates of growth in potential output and around the same rate as population growth. The output gap is estimated to be around zero at present.

GDP growth is forecast to strengthen, with annual growth averaging 3.4 percent over the next two years. This pace of GDP growth is above estimates of growth in potential output, leading to an increase in the output gap. Low interest rates, along with rapid population growth, continue to underpin the growth outlook. Also contributing is a recovery from temporary weakness in GDP growth through late 2016 and early 2017, and contributions from the high terms of trade and fiscal stimulus.

The terms of trade have increased to around historic highs, supporting growth in consumption and investment. The terms of trade are expected to remain elevated largely due to relatively low import prices. This encourages higher spending on imports, offsetting some of the impact of higher consumption and investment spending on GDP growth. The
recovery in export prices since mid 2016 has also contributed to the recent lift in the terms of trade. Export prices have increased to around average levels in real terms, and imply less of a dampening impact on domestic demand than in recent years.

Consistent with policy communicated in *Budget 2017*, fiscal policy is assumed to be more stimulatory than reflected in the May *Statement*. Planned fiscal expenditure and changes to taxation and transfers are expected to support household consumption.

The slowing in the housing market that began in mid 2016 has continued. This slowing has been most pronounced in Auckland, where house prices are now below the level of a year ago. While low interest rates and strong population growth continue to underpin demand for housing, changes to loan-to-value ratio (LVR) restrictions, the lift in mortgage interest rates through the end of 2016, and some tightening in credit supply appear to have moderated this demand. Concerns relating to affordability may also be tempering demand. It remains uncertain how persistent the slowing in the housing market will be and the degree to which affordability constraints will limit future house price inflation.

Although central banks in some major advanced economies are starting to raise interest rates, or beginning to consider a gradual lessening of monetary stimulus, it remains appropriate for monetary policy in New Zealand to remain accommodative. With domestic inflationary pressure remaining subdued, the Official Cash Rate (OCR) is projected to remain low for a prolonged period (figure 2.1).

Relative to estimates of the neutral interest rate, the current level of the OCR implies that monetary policy remains stimulatory. Estimates of the neutral interest rate have been declining slowly for some time (figure 2.2). The Bank uses a range of models to estimate neutral and...
The Reserve Bank of New Zealand regularly communicates its updated estimates. The mean estimate from the Bank’s suite of indicators suggests a neutral rate of around 3.5 percent at present.

The current stance of monetary policy is expected to support above-trend GDP growth, such that non-tradables inflation gradually increases and headline inflation settles around the midpoint of the Bank’s target range over the medium term. The Policy Targets Agreement (PTA) directs the Bank to maintain future inflation in the 1 to 3 percent target range, focusing on keeping average inflation near the midpoint of the range. The Bank is flexible in its approach to inflation targeting, looking through temporary volatility in headline inflation and setting policy in a manner to avoid unnecessary volatility in output, interest rates, and the exchange rate. In the current environment, a premature tightening of policy would risk undermining growth, causing inflation to settle below the midpoint of the target range. On the other hand, an easing of policy, seeking to achieve a faster increase in inflation, would risk generating unnecessary volatility in the economy.

Survey measures of inflation expectations (as summarised by the Bank’s inflation expectations curve) are consistent with the Bank’s policy stance and inflation outlook (figure 2.3). Short-term inflation expectations tend to be influenced by observed inflation outcomes, and recent moves are consistent with movements in headline inflation. Despite variability in headline inflation over the year ahead, measures of inflation expectations suggest a gradual return of inflation to the midpoint of the target range over a similar time frame to that seen in the Bank’s economic projections. Longer-term inflation expectations remain well anchored around the target midpoint.

The economic projections outlined in this Statement set out the Bank’s plan for monetary policy to meet the requirements of the PTA. There is always uncertainty around these projections – economic conditions can change suddenly and economic relationships can evolve differently from in the past. Our assessment of the outlook and the appropriate policy responses depend on a range of judgements. In the current projections, the key judgements relate to how evolving global conditions, domestic capacity and financial constraints, pricing behaviours, and domestic policy stimulus may affect the New Zealand economy. If the assumptions underpinning the projections prove to be inconsistent with incoming data, or if risks to the projections materialise, the outlook for policy will be revised. Two scenarios presented in chapter 5 examine possible implications if outcomes differ from our assumptions.

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**Global economic conditions**

Global economic conditions are assumed to remain stable over the projection, with the pace of growth sufficient to see spare capacity being absorbed. Although near-term forecasts of trading-partner inflation have recently been revised lower, underlying inflation is expected to increase gradually. Monetary policy in major advanced economies is expected to become less accommodative.

Global commodity prices are assumed to continue to rise, but at a slower pace than observed over the past year. The Dubai oil price is assumed to increase over the projection to around USD 55 per barrel. Non-oil import prices are expected to decline relative to trading-partner CPI. Whole milk powder prices are assumed to trend towards our medium-term assumption of USD 3,000 per tonne from USD 3,155 at present. Recent price increases for New Zealand’s other export commodities are assumed to be sustained.

The New Zealand dollar TWI is assumed to depreciate over the projection to around 75, but remains higher throughout the projection than assumed in the May Statement. The assumed depreciation reflects a narrowing of interest rate differentials between New Zealand and the major advanced economies. If world interest rates remain low for longer than currently anticipated, or if global developments result in a stronger preference for New Zealand dollar assets, the TWI could be higher than currently projected. If a higher exchange rate were to reflect weaker conditions overseas, it could necessitate more-stimulatory monetary policy to offset the impact on inflation. However, a stronger exchange rate due to stronger domestic conditions could be accompanied by increasing capacity pressure, in which case a monetary policy response may not be necessary.

As labour market conditions gradually improve across advanced economies, net immigration is assumed to decline from its current high level. Net immigration is difficult to forecast. However, what matters most for monetary policy is the increase in demand stemming from migration flows relative to their impact on the productive capacity of the economy, and the resulting implications for inflationary pressure. The current migration cycle has not coincided with the same increase in inflationary pressure that we have seen in previous migration cycles. Should the balance between the supply and demand impacts of migrant flows evolve differently from recent experience, monetary policy may need to respond to the change in inflationary pressure.

**Domestic inflationary pressure**

Low interest rates, strong population growth, increasing incomes, and high house prices are supporting consumption growth. Consumption growth has strengthened over the past year, coinciding with a lift in the terms of trade. Recent strength in consumption is assumed to persist, supported at the margin by fiscal stimulus. There are risks to both sides of this projection. Households could respond to planned fiscal stimulus more or less strongly than assumed. An unexpected fall in commodity prices affecting incomes and confidence, or increased concerns about sustainability of household debt could cause weaker household consumption. Alternatively, commodity prices could increase further than assumed, generating stronger consumption growth.

We assume house price inflation remains low relative to recent history, as higher mortgage rates and affordability concerns constrain housing demand. The effect of changes to LVR restrictions in October 2016 is assumed to be temporary. House price inflation could be stronger than expected if the dampening effects of past policy changes prove to be less persistent, or if affordability constraints are less binding than assumed.
However, more binding affordability constraints or more cautious mortgage lending by banks could cause house price inflation to be weaker than expected.

Despite recent weakness, residential investment is expected to increase over the next year, albeit to a lower level than previously assumed. Capacity pressure in the construction sector appears to be increasing, and there has been some tightening in lending standards for residential property development over the past year. Uncertainty remains as to the degree to which availability of land, labour, capital, and finance could constrain construction activity. If constraints become more binding than assumed, construction activity could be lower. The implications for inflation could vary, depending on the interaction of these constraints.

Past low inflation is assumed to continue to contribute to weak price-setting behaviour, dampening domestic inflation throughout the projection. This effect gradually dissipates as inflation increases and settles around the target midpoint. Price-setting behaviour can vary over time. Should businesses begin to set prices in a less backward-looking manner, the dampening impact on headline inflation would be less than assumed. In such a case, monetary policy may need to respond to stronger inflationary pressure.

### Box A

**Recent monetary policy decisions**

Over the 2014-15 period, the deterioration in global economic and financial conditions acted to suppress inflationary pressure in New Zealand through several channels: the terms of trade declined, low global inflation contributed to low import price inflation, and the TWI appreciated. In addition, high net immigration was not having the same net impulse to inflationary pressure as observed in previous cycles. The Bank responded by initially scaling back its projected pace of tightening, and then by cutting the OCR by 100 basis points from June to December 2015 (figure A.1). At the December 2015 Statement, with the OCR at 2.5 percent, the Bank noted that it expected this degree of stimulus would see inflation settle near the middle of the target range, but that it would further reduce the policy rate if circumstances warranted.

Heightened volatility returned to financial markets in early 2016 and the global growth outlook weakened further. At the same time, domestic inflationary pressure remained weak, and there was a shift down in inflation expectations across all time horizons. Taking account of these factors, the Bank cut the OCR by 25 basis points at its March 2016 Statement, noting that further easing could be required.

By August 2016, the elevated exchange rate, combined with persistently weak global inflation, had resulted in a significant downgrade to the outlook for tradables inflation. This lower tradables inflation posed a risk to inflation expectations. To support strong GDP growth and guard against the risk of further declines in inflation expectations, the Bank reduced the OCR by a further 25 basis points at the August 2016 Statement and indicated further easing might be necessary.
Over the following six months, domestic activity and inflation looked to be evolving in a manner consistent with the Bank’s projections. GDP growth was reported to be strengthening. Headline inflation returned to the target band as past declines in oil prices dropped out of the annual calculation, but non-tradables inflation remained low. Consistent with previous communications, the Bank cut the OCR to 1.75 percent at the November 2016 Statement and signalled a flat forward path for the OCR. The Bank held the OCR unchanged at the February 2017 Statement.

Subsequent data, including revisions to earlier GDP figures, suggested activity was weaker through the second half of 2016 than previously thought. Housing market activity and house price inflation continued to moderate, due in part to tighter lending conditions. Balancing these negative impacts on inflationary pressure, the TWI depreciated by around 5 percent between February and May, and higher food and fuel prices continued to boost headline inflation. At the May Statement, the Bank commented that these developments on balance were neutral for the stance of monetary policy. The Bank held the OCR at 1.75 percent and noted that monetary policy would remain accommodative for a considerable period.

Figure A.1
Official Cash Rate

Source: RBNZ estimates.

Note: The Bank changed from publishing the forward path for the 90-day interest rate to the OCR in November 2016. For illustrative purposes, previous 90-day interest rate tracks have been adjusted to an OCR basis by applying an assumption of a constant spread between the 90-day rate and the OCR.
### Table 2.1
**Key forecast variables**

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Chapter 3
International developments

• The outlook for economic growth in New Zealand’s main trading partners has remained largely unchanged since the May Statement, with growth continuing at a moderate pace.

• Global inflationary pressure remains subdued. Combined with recent strength in the New Zealand dollar, this continues to imply low tradables inflation in New Zealand.

• Globally, monetary policy and financial conditions remain accommodative. Bond yields in major economies remain low but have been volatile, reflecting diverse views about the prospect for policy normalisation.

• Risks around the economic outlook for New Zealand’s trading partners remain skewed to the downside.

Recent data suggest some further improvement in activity across major economies, particularly in the euro area and the United States. Consistent with the improvement in global growth, global trade volumes rebounded during the first half of this year. GDP growth in China exceeded expectations in the June 2017 quarter, supporting stronger activity in other Asian economies. Growth in Australia slowed in the March 2017 quarter. This appears to have been partly influenced by temporary factors, with some rebound in activity and labour market indicators in the June 2017 quarter.

Overall, the forecast for trading-partner growth is largely unchanged from the May Statement, at around 3.5 percent for 2017 (figure 3.1). A stronger outlook for growth in China is almost completely offset by downward revisions to the outlook for Australian growth.

Despite the slight improvement in the economic outlook over the past six months, inflation forecasts for many of New Zealand’s major trading partners have been revised lower (figure 3.2). With the exception of the United Kingdom, core inflation has remained low (figure 3.3). While labour market conditions have tightened, this has not been accompanied by a strong pick-up in wage growth in many advanced economies.
Figure 3.1
Trading-partner GDP growth
(annual)

Source: Haver Analytics, Stats NZ, RBNZ estimates.

Figure 3.2
Trading-partner inflation
(annual)

Source: Haver Analytics, Stats NZ, RBNZ estimates.

Figure 3.3
Core inflation
(annual)

Source: Haver Analytics.

Figure 3.4
OECD unemployment and annual earnings growth

Source: OECD.
The persistence of weak underlying inflationary pressure will be an important influence on the pace of policy normalisation in major advanced economies. For example, markets have pushed out the timing of expected tightening in Australia following recent weak inflation outturns.

Monetary policy remains accommodative globally. Despite persistently low core inflation, the improvement in economic growth in recent months has raised the prospect of monetary policy normalisation by some major central banks. The Federal Reserve continued its path of policy normalisation in June, increasing the federal funds rate by 25 basis points to 1.0–1.25 percent. The Federal Reserve has also announced its plan for reducing the size of its balance sheet, with analysts expecting an implementation announcement in September. A decline in inflation has seen markets delay expectations of future increases in the federal funds target rate. This change in expectations, along with uncertainty about US fiscal policy, has contributed to a notable decline in the value of the US dollar against other major currencies.

The European Central Bank (ECB) continues to operate accommodative monetary policy. Similarly to the United States, improving economic data have led market analysts to expect the ECB to signal plans to taper asset purchases. Analysts expect an announcement in August or September, with implementation expected to start in early 2018. Since inflation remains well below the ECB’s target, any withdrawal of policy stimulus is likely to be gradual.

Market participants remain divided about the impact that commencement of gradual policy normalisation could have on bond yields. Despite this, bond yields remain at low levels.

Since the May Statement, financial conditions have become more supportive of real activity in the United States and euro area (figure 3.5). Equity markets remain close to historical peaks with low implied volatility, and credit spreads have narrowed.

In contrast, financial conditions in China have tightened. The monetary policy stance has shifted from accommodative to neutral and financial regulations have been tightened in order to address financial stability risks associated with high leverage and credit growth. China’s debt ratio has risen rapidly over recent years, with total credit to the non-financial sector exceeding 250 percent of GDP in December 2016. The People’s Bank of China and other Chinese regulators are tightening the flow of liquidity to the shadow banking sector, while trying to maintain an appropriate flow of credit to the real economy.
Commodity price movements have been mixed since the May Statement (figure 3.6). While the prices of industrial metals have risen, oil prices have fallen, reflecting increased global production. New Zealand’s export commodity prices have risen. The implications of these developments for the New Zealand economy and the Bank’s forecasts are discussed in chapters 4 and 5.

Recent appreciation in the New Zealand dollar implies less inflationary pressure in New Zealand. On a trade-weighted basis, the currency is up around 5 percent since the May Statement (figure 3.7). The largest moves have been against the US dollar and the pound sterling, which have both weakened against other major currencies over this period.

The balance of risks around the international outlook remains skewed to the downside. One risk is that Chinese regulatory actions cause a slowing in growth, adversely affecting global activity. Another downside risk is that policy uncertainty in the United States could increase, reflecting a lack of clarity about future fiscal policy. There is also a risk of increased volatility in advanced-economy bond yields should evidence of a pick-up in underlying inflationary pressure change market expectations of future inflation.
Chapter 4
Current domestic conditions

- Annual headline CPI inflation was 1.7 percent in the June 2017 quarter. Non-tradables inflation and core inflation measures remain below average.

- With global economic conditions improving, New Zealand’s export prices have increased from their 2016 lows. Import prices have also increased and contributed to higher tradables inflation, but this effect is waning.

- The New Zealand dollar TWI has increased since the May Statement.

- Quarterly GDP growth was weaker than expected over the past two quarters, partly due to temporary factors. GDP growth is expected to increase over coming quarters.

- Housing market activity has continued to slow despite strong fundamental drivers of housing demand, particularly low mortgage interest rates and strong population growth.

External prices

An improvement in global economic activity has supported the prices of New Zealand’s exports. Export prices have increased from 2016 lows, although the ANZ commodity price index remains 12 percent below the 2014 peak (figure 4.1). The increase over 2016 largely reflected an increase in dairy prices due to a reduction in global dairy supply. Over 2017, the prices of other New Zealand exports have increased strongly. In particular, meat prices have increased due to tightness in supply.

Import prices in world terms have also increased since 2016, although oil prices remain low. Over the past year, the terms of trade have increased as export prices have increased to a greater extent than import prices, providing less of a dampening impact on domestic demand.
Domestic financial conditions

The New Zealand dollar TWI has increased from around 75 at the May Statement to 78 currently, unwinding most of the depreciation seen earlier in the year (figure 4.2). This increase largely reflects US dollar weakness and the improvement in New Zealand’s export prices.

Accommodative global financial conditions have translated into lower foreign wholesale funding costs for New Zealand banks. New Zealand banks’ marginal funding costs have moved lower since 2015, and been relatively stable in recent months (figure 4.3).

Consistent with the stability in marginal funding costs, mortgage interest rates have remained broadly flat in recent months (figure 4.4). While mortgage rates are slightly higher than in 2016, they remain low relative
to history. The average time to reprice for all mortgages is near its historic average of around 11 months.

**Migration and the housing market**

Net permanent and long-term working-age immigration remains high. In the year to June 2017, a net 61,800 working-aged people migrated to New Zealand. Net immigration has contributed strongly to the population since 2012, adding around 1.5 percent to annual population growth over the past year (figure 4.5). Migrants have mainly been in the 15-29 year age group, although more recently there has been an increase in migrants from the 30-49 year age group. Reflecting relative labour market conditions, net immigration flows to Australia have been around zero for the past two years compared to net outflows of around 40,000 migrants in each of 2011 and 2012.
Strong population growth and low mortgage interest rates are supporting housing demand. However, changes to LVR restrictions, increases in mortgage rates in 2016, affordability constraints, and further tightening in lending standards have all contributed to a slowing in housing market activity.

House price inflation has slowed across most regions, with the slowing most pronounced in Auckland (figure 4.6). Annual house price inflation in Auckland has slowed to -0.6 percent in June 2017. Annual house price inflation is 9 percent across the rest of New Zealand; down from a peak of around 18 percent a year ago. Monthly nationwide house sales have fallen from a peak of 8,500 in April 2016 to 5,900 in June 2017.

**Domestic growth**

GDP growth was weaker than expected in the March 2017 quarter, following a weak December 2016 quarter outturn. GDP increased by 0.5 percent in the quarter (figure 4.7). Annual GDP growth slowed from a recent peak of 3.6 percent in the second quarter of 2016 to 2.5 percent in the March 2017 quarter, a similar rate to population growth. Declines in construction activity and export volumes have weighed on growth, but activity is expected to recover over coming quarters.

Annual growth in construction activity fell sharply to 3.8 percent in the year to March 2017, from 10.8 percent in the previous quarter. Construction growth has largely been supported by residential building activity in recent years. Residential building consents fell sharply at the end of 2016 but have since rebounded (figure 4.8). The high level of consents, combined with a backlog of work from early 2016, is expected to support growth in residential building in coming quarters.
A tightening in the availability of credit, labour, and materials may be constraining residential investment despite the strong fundamental drivers of high population growth, low interest rates, and an incentive to build given high house prices relative to replacement costs. The Quarterly Survey of Business Opinion (QSBO) measures of capacity and financing pressures for builders have increased relative to 2016 (figure 4.9). As noted in the May 2017 Financial Stability Report, banks have tightened credit conditions, particularly in the residential property development sector.

Export volumes declined in each of the past two quarters, in part reflecting poor weather conditions over the second half of 2016 that affected dairy production. Export volumes are expected to recover, given the recent improvement in dairy production volumes. Exports of services are expected to have been strong through the middle of 2017 due to the recent Lions rugby tour and World Masters games.

Consumption has been growing at above average rates in recent quarters (figure 4.10). Consumption is being supported by strong population growth, improving confidence, and high terms of trade, despite the slowing in house price inflation. Even accounting for strong population growth, consumption has strengthened, and consumption growth is now around average on a per capita basis.

Annual growth in business investment has increased over the past few quarters, reflecting the rising terms of trade and improvements in business confidence. Increasing capacity pressure is expected to support growth in business investment.

The strength in consumption and business investment has contributed to higher import volumes, which have limited the associated increase in GDP growth.
**Capacity pressure**

The output gap is estimated to be around zero (figure 4.11). The range of estimates for the output gap suggested by our suite of indicators is wide, reflecting uncertainty about the current degree of capacity pressure.

Labour market conditions have tightened slightly over the past year. The unemployment rate has fallen to 4.8 percent in the June 2017 quarter from 5.1 percent a year earlier (figure 4.12). Despite strong employment growth, the unemployment rate has declined only slightly. This is due to employment growth being largely offset by strong labour force growth.

Despite some tightening in labour market conditions, nominal wage inflation is persistently below average, a phenomenon seen across many economies. Increasing capacity pressure is likely to support wage growth in the near term. Over the middle of 2017, the minimum wage increase and the care and support workers’ pay equity settlement will support wage growth.

**Inflationary pressure**

Annual CPI inflation was 1.7 percent in the June 2017 quarter, lower than the 2.2 percent observed in the March 2017 quarter, and lower than expected. The increase in annual CPI inflation over the past year has been driven by a sharp increase in tradables inflation, due to higher food and fuel prices. As food prices normalise, and given recent falls in petrol prices, this boost is expected to dissipate.

Tradables inflation fell in the June 2017 quarter due to lower fuel prices (figure 4.13). The Dubai oil price has fallen from around USD 56 per barrel in February to around USD 51 per barrel currently. The increase
in the New Zealand dollar exchange rate over 2016 also appears to be putting further downward pressure on tradables inflation.

Annual non-tradables inflation was 2.4 percent in the June 2017 quarter, and has been persistently below average levels, reflecting weak price-setting behaviour (see box B). A key factor holding up the level of non-tradables inflation is housing-related items (figure 4.14). In particular, construction cost inflation has been high with cost pressures particularly evident in Auckland. Auckland construction cost inflation was around 8 percent in the year to the June 2017 quarter, whereas, outside of Auckland, construction cost inflation was around 5 percent.

The Bank uses measures of core inflation to abstract from specific price movements and observe the underlying trend in inflation. These measures seek to look through temporary volatility, such as recent movements in food and energy prices, permitting a clearer assessment of inflationary pressure in the economy. Core inflation measures are consistent with the subdued domestic inflationary pressure (figure 4.15).
Box B

Price-setting behaviour and inflation expectations

Explaining recent low inflation

Recent research to understand the drivers of low domestic inflation found evidence of a change in domestic price-setting behaviour over recent years. Generally, businesses are assumed to set prices using a combination of past inflation outcomes and future inflation expectations as a reference. This research suggests that, in recent years, businesses have been placing a greater weight on past inflation when setting prices. In response, the Bank has adjusted its forecasting models of inflation to better capture the role of past low inflation weighing on current pricing decisions. This has helped remove the negative forecast errors in non-tradables inflation observed between 2012 and 2015 (figure B.1).

The Bank primarily forecasts inflation using Phillips curves. These models use the relationship between capacity pressure, expectations of future inflation, and past inflation. To illustrate the impact of placing greater emphasis on past inflation, figure B.2 shows stylised Phillips curves. Until recently, the 2-year ahead inflation expectations measure from the RBNZ Survey of Expectations, together with the output gap, provided a reasonable explanation of core non-tradables inflation. This relationship is unable to explain the low inflation outcomes since 2011.

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An alternative specification using the 3-year average of past inflation better explains core non-tradables inflation. This suggests that domestic price-setting behaviour has changed, and thus placing greater weight on past inflation outcomes can improve the empirical fit of typical Phillips curves.

The implication is that recent weak pricing dynamics are likely to act as a headwind to inflation over the forecast horizon, suggesting that the stance of monetary policy needs to be more accommodative than otherwise.

There is a risk that price-setting behaviour could be stronger than is currently assumed in the forecasts. If businesses begin to put less weight on past inflation when setting prices, recent low inflation outcomes would weigh less on the outlook for inflation. This would lead to higher inflation as pricing behaviour responds relatively more to economic activity and to expectations of higher future inflation. In this situation, less policy stimulus would be required for CPI inflation to settle near the mid-point of the target band.

**Monetary policy credibility**

The ability of a Phillips curve to explain current inflation says very little about the credibility of the Reserve Bank’s monetary policy stance. We can gain insights about credibility from the inflation expectations curve. The expectations curve suggests that long-run inflation expectations remain anchored around the 2 percent target midpoint (figure B.3). The

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expected time for inflation to return to close to the target midpoint is just over one year. This is broadly consistent with the Monetary Policy Statement inflation forecast.

Expectations of inflation at shorter horizons tend to move with CPI inflation outturns and economic developments. This reflects that it is expected to take time for developments to work through the economy and inflation to return to near the long-run estimate. This volatility at shorter horizons is consistent with perceptions of the Bank being a flexible inflation targeter.

Long-run inflation expectations are more stable and appear to capture beliefs about the perceived inflation target. Since 2012, the estimate of long-run inflation expectations has trended lower (figure B.4). This coincides with low CPI inflation and the focus on the midpoint of the target range introduced in the 2012 PTA. Over the past two years, the long-run estimate, which is influenced by all expectation surveys, has stabilised around 2 percent, despite low inflation outturns. This implies that the Bank’s policy strategy is seen as credible.
### Table 4.1
Measures of inflation, inflation expectations, and asset prices

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<td>ANZ Business Outlook - inflation one year ahead (quarterly average to date)</td>
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<td>1.5</td>
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<td>RBNZ Survey of Expectations - inflation two years ahead</td>
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<td><strong>Asset prices (annual percent changes)</strong></td>
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<td>Quarterly house price index (CoreLogic NZ)</td>
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<td>11.6</td>
<td>13.9</td>
<td>12.6</td>
<td>13.9</td>
<td>10.3</td>
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<td>REINZ Farm Price Index (quarterly average to date)</td>
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<td>4.2</td>
<td>-2.6</td>
<td>4.3</td>
<td>4.9</td>
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<tr>
<td>NZX 50 (quarterly average to date)</td>
<td>10.8</td>
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<td>15.8</td>
<td>12.8</td>
<td>7.6</td>
<td>5.2</td>
</tr>
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</table>

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

- Subdued global inflationary pressure is expected to keep tradables inflation below average over the projection.

- Economic activity continues to be supported by accommodative monetary policy and strong population growth. The outlook for domestic demand is also supported by additional fiscal stimulus and the high terms of trade.

- Above-trend GDP growth is expected to underpin an increase in capacity pressure, generating an increase in non-tradables inflation, despite robust growth in the productive capacity of the economy.

- Annual CPI inflation is projected to increase over the medium term and settle around 2 percent in 2019.

The New Zealand dollar TWI is currently elevated (figure 5.1), driven in part by low global interest rates relative to those in New Zealand and higher export prices. The TWI has appreciated around 5 percent since May and is currently around 3 percent higher than forecast in the May Statement. The New Zealand dollar is assumed to depreciate over the projection, as spare capacity in New Zealand’s trading partners is absorbed and global monetary policy stimulus is gradually withdrawn (as discussed in chapter 3).

Over the past year, New Zealand’s import prices increased (figure 5.2). Some of this increase is expected to be temporary, with ex-oil import prices assumed to decline modestly in the near term. The Dubai oil price is assumed to increase gradually from around USD 50 per barrel currently, to around USD 55 per barrel over the next three years.

Annual tradables inflation is expected to fall in the near term as past increases in food and fuel prices drop out of the annual calculation (figure 5.3). Thereafter, tradables inflation is projected to settle at a below-average level due to persistently low global inflation and the high New Zealand dollar exchange rate.

As tradables inflation is projected to be low, a rise in non-tradables inflation is necessary for headline inflation to settle around the target
midpoint over the medium term. Above-trend GDP growth and an associated rise in capacity pressure underpin this increase. Growth over the projection is supported by low interest rates and strong population growth.

Population growth is being supported by strong net immigration, and this is expected to persist over the medium term (figure 5.4). However, some decline in net immigration is expected as conditions in overseas labour markets improve gradually. Net immigration is projected to boost the working-age population by around 3.5 percent over the next three years, adding to both demand and supply capacity.
Population growth and low mortgage interest rates are expected to support housing demand. However, this is expected to be moderated by increasing pressure on affordability and the recent tightening in lending standards. House price inflation is projected to remain lower than in recent years (figure 5.5).

Another factor dampening house price inflation over the projection is a lift in housing supply. Residential investment is expected to increase over the projection (figure 5.6), underpinned by low interest rates, sustained population growth, and elevated house prices. However, the projected peak in residential investment as a share of the economy remains below the level of the mid-2000s, reflecting constraints relating to the availability of credit and capacity in the construction industry.
Despite the slowing in house price inflation, consumption growth is projected to remain high (figure 5.7). Consumption is expected to be supported by accommodative monetary policy, the tax changes announced in Budget 2017, and the elevated terms of trade (figure 5.8). While population growth will continue to boost consumption, this impetus is expected to moderate as net immigration declines.

The elevated terms of trade and rising capacity pressure are expected to support growth in business investment (figure 5.9). In conjunction with the increases in consumption and residential investment, this is projected to support a strengthening in GDP growth (figure 5.10). However, the increase in GDP growth is tempered by higher import volumes. Annual GDP growth is expected to average 3.4 percent over the next two years.
Supply-side growth is expected to be strong, driven by sustained population growth and the labour force participation rate remaining elevated. The boost to the labour force is expected to be more than matched by employment growth as economic growth strengthens, with the unemployment rate gradually declining to below 4.5 percent (figure 5.11). This should support an increase in nominal wage growth over the projection. Wage growth is also likely to be boosted in the near term by the recent care and support workers’ pay equity settlement.

Potential output is projected to grow at a robust rate of 2.8 percent in each of the next two years. Despite this, the output gap is expected to rise, peaking in late 2019 (figure 5.12). This generates a lift in non-tradables inflation to above-average levels (figure 5.13). This lift occurs despite persistently weak price-setting behaviour (see box B).
Annual CPI inflation is expected to be variable over the next year, due to temporary movements in tradables inflation (figure 5.14). Headline CPI inflation is currently at 1.7 percent, but is projected to decline to 0.7 percent in the first quarter of 2018. This reflects the strong March 2017 quarter dropping out of the annual calculation. From early 2018, CPI inflation is projected to increase, despite tradables inflation remaining relatively subdued, as non-tradables inflation increases. Annual CPI inflation is projected to settle near 2 percent in 2019.

Scenario analysis

The projections discussed in this chapter reflect the Bank’s central view of how global and domestic economic conditions might evolve, and how these will affect inflationary pressure in New Zealand. Given this view, the projected path for the OCR is consistent with future average inflation settling near the target midpoint.

As discussed in chapter 2, the projections and appropriate policy response are conditional on a range of judgements regarding the future path of key variables. These judgements will be reviewed as events unfold, with the projections and associated monetary policy settings adjusted accordingly.
The following scenarios illustrate risks around two of the key assumptions underlying the projections, which would have a substantial impact if they materialised. The two scenarios considered are that:

- global inflationary pressure increases more rapidly than expected; and
- domestic capacity pressure is lower than projected, due to weaker growth in consumption and residential investment activity.

**Stronger global inflation**

One of the key judgements underpinning the central projection is that global inflation recovers slowly, resulting in only a gradual removal of global monetary policy stimulus. This generates persistently below-average tradables inflation, necessitating a significant increase in capacity pressure and non-tradables inflation to return CPI inflation to the target midpoint.

While this judgement reflects the Bank’s assessment of how global inflationary pressure will evolve, there are risks to either side of the central projection. This scenario assesses the effect on the New Zealand economy if global inflationary pressure is stronger than projected.

Stronger global inflation would directly boost New Zealand's import prices – in the scenario, import prices are around 3 percent higher by 2020 than in the central projection (figure 5.15). Higher global inflation would also prompt earlier tightening of global monetary policy than assumed, leading to a faster narrowing of interest rate differentials and depreciation of the New Zealand dollar TWI (figure 5.16). Both higher import prices and a lower TWI would generate a significant lift in tradables inflation, back to around average levels (figure 5.17).
Without an appropriate monetary policy response, CPI inflation would settle above the midpoint of the target range. In this scenario, the OCR would need to be around 75 basis points higher (figure 5.20). This would moderate the increase in domestic capacity pressure and non-tradables inflation, consistent with CPI inflation returning to near 2 percent over the medium term.

**Weaker domestic demand**

The central projection assumes that capacity pressure increases significantly over the medium term, driven primarily by strong growth in consumption and residential investment. However, there is a risk that domestic demand does not pick up to the extent expected. This could occur if consumption is more heavily affected by the weakness in the...
housing market, or if funding constraints in the construction industry are more binding than assumed in the central projection.

This second scenario assumes that the risks outlined above materialise, meaning that both consumption and residential investment remain subdued relative to the central projection (figures 5.18 and 5.19). Low consumption and residential investment imply weaker domestic demand, generating a more gradual rise in capacity pressure and non-tradables inflation. Without an appropriate monetary policy response, headline inflation would settle below the target midpoint over the medium term.

To ensure CPI inflation evolves in line with the Bank’s mandate, more-accommodative monetary policy would be required. In this scenario, the OCR would need to be lowered by around 75 basis points by 2019, and remain below the central projection over the forecast horizon (figure 5.20).

Policy implications

In both of these scenarios, the Bank’s policy response would differ from that shown in the central projection. Depending on domestic and global economic developments, monetary policy may have to be more or less stimulatory for inflation to settle near the midpoint of the target range in the medium term.

It is important to note that the scenarios considered in this chapter represent only small deviations from the central projection relative to the historical experience. In reality, there are a range of uncertainties relating to the outlook, and combinations of unforeseen developments can influence the economy simultaneously. While some of these developments might be offsetting, deviations from the central projections could be larger than those shown here, leading to a wider range of associated monetary policy responses.
Table 5.1
Composition of real GDP growth
(annual average percent change, seasonally adjusted, unless specified otherwise)

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<tr>
<td>Private</td>
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<td>1.7</td>
<td>3.2</td>
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\(^1\) Percentage point contribution to the growth rate of GDP.
Table 5.2
Summary of economic projections
(annual percent change, unless specified otherwise)

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<tr>
<td>Trading-partner GDP (annual average % change)</td>
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