

11/2021

Monetary Policy **STATEMENT**



Reserve Bank
of New Zealand
Te Pūtea Matua





STATEMENT

of the MPC's monetary policy strategy

The Monetary Policy Committee's (MPC) monetary policy strategy is its overarching plan for how it will formulate monetary policy under different circumstances to achieve its objectives.¹ It outlines a consistent approach to how the MPC intends to achieve its objectives across time, accounting for trade-offs and uncertainty. Agreeing on and publishing a strategy promotes transparency, public understanding, and accountability.

Monetary policy framework and objectives

Under the *Reserve Bank of New Zealand Act 1989* (the Act), the MPC is responsible for formulating monetary policy to maintain a stable general level of prices over the medium term and to support maximum sustainable employment.² Operational objectives for monetary policy are set out in the *Remit*. The current *Remit* sets out a flexible inflation targeting regime, under which the MPC must set policy to:

- keep future annual inflation between 1 and 3 percent over the medium term, with a focus on keeping future inflation near the 2 percent mid-point; and
- support maximum sustainable employment, considering a broad range of labour market indicators and taking into account that maximum sustainable employment is largely determined by non-monetary factors.

In pursuing these objectives, the *Remit* requires the MPC to have regard to the efficiency and soundness of the financial system, seek to avoid unnecessary instability in the economy and financial markets, and discount events that have only transitory effects on inflation. The MPC must also assess the effect of its monetary policy decisions on the Government's policy to support more sustainable house prices.

The Reserve Bank's flexible inflation targeting framework and the MPC's monetary policy strategy reflect the fact that:

- low and stable inflation is monetary policy's best long-run contribution to the well-being of New Zealanders;
- in the short to medium term, monetary policy can influence real variables such as employment, and hence policy trade-offs can arise; and

- monetary policy is more effective if the Bank's policy targets are credible, so policy should be formulated in a way that ensures credibility is maintained.

Key aspects of monetary policy strategy

The MPC practises **forecast targeting**, which means that it sets monetary policy such that it expects to achieve its inflation and employment goals in the medium term. In most instances the MPC aims to return inflation to the target mid-point within a one to three year horizon. The appropriate horizon at each policy decision will vary based on how different policy paths will contribute to maximum sustainable employment, whether price-setters' expectations are consistent with the inflation target, and other considerations such as the balance of risks to the MPC's central economic outlook.

1 For a more in-depth discussion of monetary policy strategy in New Zealand, see J. Ratcliffe and R. Kendall (2019), 'Monetary policy strategy in New Zealand', Reserve Bank of New Zealand, *Bulletin*, Vol. 82, No. 3, April.

2 These economic objectives contribute to the overall purpose of the Act, which is to promote the prosperity and well-being of New Zealanders, and contribute to a sustainable and productive economy. See [monetary policy framework](#) for more information on New Zealand's monetary policy framework, including the full text of the *Remit*.

The MPC does not attempt to return inflation and employment to target immediately, because monetary policy actions take time to transmit through the economy. Attempting to return inflation to target too quickly would result in unnecessary instability in the economy and financial markets. The 1 to 3 percent target range for inflation provides the MPC with flexibility to ensure that managing inflation variability does not come at the cost of excessive variability in the real economy. For similar reasons, the MPC does not attempt to offset events that are expected to have only transitory effects on inflation.

The MPC **takes into account both its inflation and employment objectives** when setting policy. In the long run, no trade-off exists between the MPC's objectives. In the short to medium term, there may be situations where monetary policy can move one objective closer to target only at the cost of the other, resulting in a trade-off. When a trade-off does arise, the MPC will consider outcomes for both objectives in setting policy. In general, if employment is projected to be below its long-run sustainable level, the MPC would let inflation overshoot the target mid-point for a time, and vice versa (while staying within the 1–3 percent target range).

The MPC **responds to both deviations above target and deviations below target**. The MPC sets policy to stabilise employment near its maximum sustainable level, and to return inflation near to the target mid-point, regardless of whether inflation is currently below or above 2 percent. This approach helps to anchor inflation expectations at the target mid-point and promotes sustainable growth and employment by dampening fluctuations in the business cycle.

The MPC **considers the balance of risks** to its objectives that arise from uncertainty about the economic outlook and the transmission of its policy decisions. In general, the MPC will incorporate likely future developments into its central economic projections and set monetary policy in response. However, the MPC will also take into account risks to its central projections when setting policy. Under extreme uncertainty, the MPC may choose to publish scenarios instead of central projections to illustrate the range of possible situations and economic outcomes that could occur when circumstances are highly unpredictable.

The MPC **has regard to the efficiency and soundness of the financial system**, while recognising that in most instances prudential policy is better suited to leaning against risks to financial stability. The Reserve Bank takes prudential policy settings into account when setting monetary policy, and vice versa.

Implementation of strategy

The MPC applies the following process when formulating a policy decision:

1. Firstly, it assesses the outlook for the economy and the implications for its policy objectives. It then discusses risks to achieving its policy objectives.
2. Next, it considers which stance of monetary policy is most consistent with its monetary policy strategy given the current economic outlook, risks, and trade-offs.
3. Finally, the MPC decides how it will achieve the desired stance of monetary policy, including whether or not to adjust its policy settings at the current meeting and how it will communicate the policy outlook. The MPC has a **suite of monetary tools** to achieve its goals, and uses its **Principles for Monetary Tools** to make decisions on which tools to deploy.



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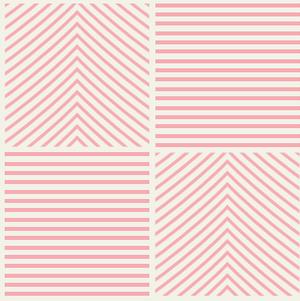
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11/2021

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The projection was finalised on 18 November 2021. The OCR projection incorporates an outlook for monetary policy that is consistent with the MPC's monetary policy assessment, which was finalised on 24 November 2021. Other data and developments have been incorporated up until 17 November 2021.



Policy
assessment

CHAPTER 01

CHAPTER 1

Policy assessment

Tēnā koutou katoa, welcome all.

The Monetary Policy Committee agreed to raise the Official Cash Rate (OCR) to 0.75 per cent. The Committee agreed it remains appropriate to continue reducing monetary stimulus so as to maintain price stability and support maximum sustainable employment.

The level of global economic activity continues to rise, supported by accommodative monetary and fiscal policy settings, and the relaxation of COVID-19 health-restrictions. The pace of global economic growth has ebbed however, due to the elevated uncertainty created by the persistent COVID-19 virus.

Global supply-chain disruptions are causing both cost pressures and constraints on production, at a time when consumer demand remains strong. Central banks globally face the challenge of distinguishing between transitory price increases and underlying sustained inflation pressures to assess the need for, and timing of, reductions in the level of monetary policy stimulus.

New Zealand's public health restrictions are easing as the country transitions into the COVID-19 Protection Framework. The framework will enable greater mobility of people, and goods and services. With the easing of restrictions, it is anticipated that the COVID-19 virus will become more widespread geographically, albeit manageable for health authorities and less harmful for those vaccinated. However, household spending and business investment will be dampened in the near term by these ongoing health uncertainties.

The recent nationwide health-related lockdown, the more prolonged restrictions in Auckland, Northland and the Waikato, and the continued 'Level 2' restrictions elsewhere, resulted in a sharp contraction in economic activity. Despite these lockdowns, underlying economic strength remains supported by aggregate household and business balance sheet strength, fiscal policy support, and strong export returns.

Capacity pressures have continued to tighten. For example, employment is now above its maximum sustainable level. A broad range of economic indicators highlight that the New Zealand economy continues to perform above its current potential.

Headline CPI inflation is expected to measure above 5 percent in the near term before returning towards the 2 percent midpoint over the next two years. The near-term rise in inflation is accentuated by higher oil prices, rising transport costs and the impact of supply shortfalls. These immediate relative price shocks risk generating more generalised price rises given the current domestic capacity constraints.

The Committee noted that further removal of monetary policy stimulus is expected over time given the medium term outlook for inflation and employment.

Meitaki, thanks.



Adrian Orr
Governor



SUMMARY

Record of meeting

The Monetary Policy Committee discussed economic developments since the August Statement.

Global economic activity continues to recover, as public health restrictions ease and COVID-19 vaccine rates increase. However, the near-term outlook for global growth has weakened somewhat because of the continued spread of the Delta variant and related disruptions to production.

Global inflation has increased due to the rapid recovery in global demand combined with significant supply chain bottlenecks and labour shortages in some sectors. An ongoing boost from government spending and monetary policy stimulus in many countries is adding to strong demand. There is considerable uncertainty about the persistence of global inflationary pressures.

The New Zealand economy was in a strong position before the national lockdown in August, supported by resilient household spending, strong construction activity, and demand for our key dairy and meat exports. This had more than offset ongoing weakness in hospitality and sectors reliant on international tourism. While public health restrictions to control the spread of the Delta variant will result in a slowdown over the second half of the year, Government support for business and jobs has helped the economy weather the impact.

Nevertheless, some customer-facing businesses in Auckland and a range of service sectors are suffering acute stress.

The Committee noted that the economy is expected to recover as public health restrictions are eased as the country moves into the COVID-19 Protection Framework. However, the Committee discussed the risk that consumer and business confidence weakens as COVID-19 becomes more widespread across the country, dampening household spending and investment in the near term.

Despite recent lockdowns, capacity pressures in the economy have continued to tighten. Employment is now assessed as being above its maximum sustainable level. Measures of labour market slack such as unemployment and underutilisation are at their lowest levels in over a decade. This has been reflected in stronger aggregate wage growth, albeit below the rate of CPI inflation.

The Committee discussed the outlook for net migration and how this could affect labour supply. For example, it is currently easier to leave New Zealand than arrive, so there could be a net loss of labour in the near term. There will be ongoing uncertainty as to the relative impact net migration will have on overall supply and demand in the economy.

Rising capacity pressures have led to an increase in domestic inflation. At the same time, continued bottlenecks in global and local supply chains and further increases in global oil prices have added to inflationary pressures. Annual CPI inflation has increased to 4.9 percent in New Zealand, above the Committee's 1 to 3 percent *Remit* target band. Measures of core inflation have also increased into the top half of the target band. The Committee noted that inflation is expected to remain high in the near term, and return to the midpoint of the target band over the next two years.

The Committee assessed that near-term risks to inflation are skewed to the upside, and discussed the risk that higher near-term inflation could become embedded in price setting behaviour. The Committee noted that near-term inflation expectations tend to move with actual inflation. Medium-term measures provide a better gauge of whether inflation expectations remain anchored, and these remain close to the target midpoint.

The Committee discussed the Reserve Bank's assessment that the level of house prices are unsustainable. Members noted that higher mortgage interest rates, continued strong home building, tighter lending rules and changes in tax settings should all act to moderate house prices over the medium term. The Committee discussed the risk that house prices could keep rising in the near term, increasing

the risk of a sharper fall later. Continued increases in the OCR are expected to support more sustainable house prices.

The importance of overall monetary conditions was considered by the Committee, including medium-term borrowing rates for households and businesses, to achieving its price stability and maximum sustainable employment objectives. In 2020, additional monetary policy tools were used to support the economy by further lowering interest rates when the OCR was near zero. The Committee agreed that higher interest rates are now needed to maintain price stability and maximum sustainable employment, and that the OCR remains their preferred tool to do this.

The Committee noted that the Large Scale Asset Purchase (LSAP) programme provided significant monetary stimulus and supported bond market functioning through 2020 as the Reserve Bank bought government bonds as an additional monetary policy tool. As bond market functioning has improved, the impact of the LSAP programme on monetary stimulus has fallen, and it is assessed that current bond holdings are providing a small amount of ongoing stimulus.

The Committee expects to gradually manage LSAP bond holdings down, in a way that maintains the smooth functioning of financial markets. More details on how bond holdings will be reduced will be provided early next year.

The Committee discussed that funding remains available to banks under the Funding for Lending Programme (FLP) until the end of 2022, as another

part of the Bank's additional monetary policy toolkit. The programme provides banks with assured access to some medium-term funding at the OCR. This commitment has been factored into banks' funding plans. Any adjustment to the terms of the programme would increase funding and operational risks for banks, and would undermine future effectiveness if a similar programme is required in the future. The Committee agreed that changing the terms of the programme would not be consistent with its risk appetite.

As the OCR is increased, the cost to banks of borrowing through the FLP will rise, helping to remove monetary stimulus. Since banks have provided assets as collateral to access funding under the FLP, the scheme does not pose material financial risk to the Crown.

The Committee discussed how much monetary stimulus needed to be removed over the next 12-18 months to meet their price stability and maximum sustainable employment *Remit*. The Committee expected that the OCR would need to be progressively increased and, conditional on the economy evolving as expected, the OCR would likely need to be raised above its neutral rate.

The Committee discussed how fast interest rates need to be increased, taking into account primary and secondary objectives of its *Remit*. Higher starting point inflation and capacity pressures, and the risk that higher near-term inflation becomes embedded in price setting behaviour were discussed as factors arguing for a more rapid removal of monetary stimulus.

However, the Committee expressed uncertainty about the resilience of consumer spending and business investment as the country adapts to living with the COVID-19 virus in the community. The Committee also noted that increases in interest rates to households and businesses had already tightened monetary conditions. High levels of household debt, and a large share of fixed-rate mortgages re-pricing in coming months, could increase the sensitivity of consumer spending to these interest rate increases.

Weighing these factors, the Committee assessed risks to their price stability and maximum sustainable employment objectives as being broadly balanced over the medium term. The Committee judged that considered steps in the OCR were the most appropriate way to continue reducing monetary stimulus for now.

On Wednesday 24 November, the Committee reached a consensus to increase the OCR to 0.75 percent.

Attendees:

Reserve Bank members of MPC:

Adrian Orr, Geoff Bascand, Christian Hawkesby, Yuong Ha

External MPC members:

Bob Buckle, Peter Harris, Caroline Saunders

Treasury Observer:

Bryan Chapple

MPC Secretary:

Chris Bloor



Current economic
assessment
and risks

CHAPTER
02

CHAPTER 2

Current economic assessment and risks

The Reserve Bank's Monetary Policy Committee (MPC) is responsible for setting monetary policy to achieve and maintain medium-term price stability, and support maximum sustainable employment. These outcomes are the best long-run contribution monetary policy can make to the prosperity and well-being of New Zealanders.



Key points

- The New Zealand economy entered the recent lockdowns in a strong position. Underlying economic growth was stronger and more broad-based than expected, as reflected in recent labour market and inflation data. Much of this strength has been due to resilient household spending and demand for our key exports.
- We expect that this underlying strength will persist, but be more than offset by the impacts of public health restrictions in the near term. New Zealand's time at Alert Levels 3 and 4 nationwide and ongoing restrictions in Auckland and other parts of New Zealand have reduced economic activity during the latter half of 2021.
- Underlying pressure on available resources in the economy has continued to increase, particularly in the labour market. Employment is now assessed as being above its maximum sustainable level, with the unemployment and underutilisation rates at their lowest levels since 2007. There has been strong demand for more workers in some sectors, but it has been difficult for businesses to recruit extra staff. This has seen wages rise as firms compete for workers.
- Strong aggregate demand, shortages of goods and workers, continued disruptions to global and local supply chains, and further increases in global oil prices have contributed to annual consumer price inflation increasing to 4.9 percent, above the MPC's 1 to 3 percent target band. Measures of core inflation have also increased.

- Inflation is expected to remain high in the near term, and return to the midpoint of the target band over the next three years. Nevertheless, there is a risk that high inflation becomes embedded in price- and wage-setting behaviour, particularly if goods and labour shortages carry on for longer than assumed.
- COVID-19 is likely to spread widely throughout New Zealand over coming quarters. While the New Zealand economy is starting from a relatively strong position, there is considerable uncertainty about how the economy will evolve once COVID-19 becomes widespread. The key factors that will determine economic outcomes are the frequency with which regions spend time with higher public health restrictions and how households and businesses respond to widespread community transmission.
- Monetary conditions have already tightened in expectation of further OCR increases. Conditional on the current assessment of the economic outlook and balance of risks, our central projection implies that monetary stimulus should be reduced further in order for the MPC to meet its inflation and employment objectives.

Current economic assessment

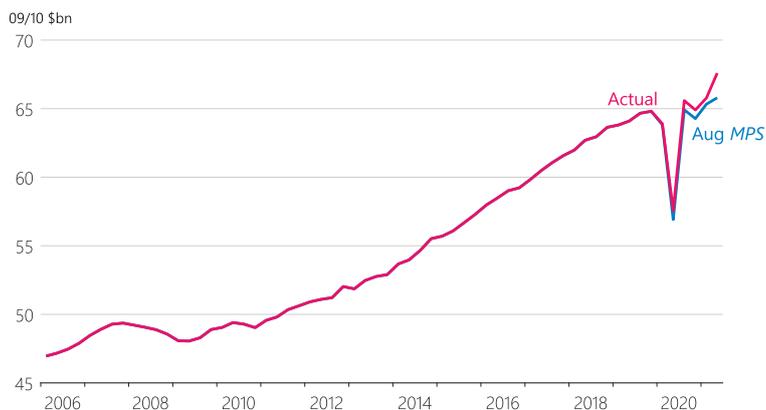
The New Zealand economy entered the recent lockdowns in a strong position. The economy expanded 2.8 percent in the June 2021 quarter (figure 2.1), with much of this growth accounted for by the services sector.

Household sector a key source of economic momentum

Much of the underlying pick-up in economic growth has been due to strength in household spending, as well as ongoing high demand for our goods exports. Household consumption remains well above its pre-pandemic level, despite low population growth (figure 2.2). Strength in household consumption has been particularly pronounced in spending on goods as opposed to services.

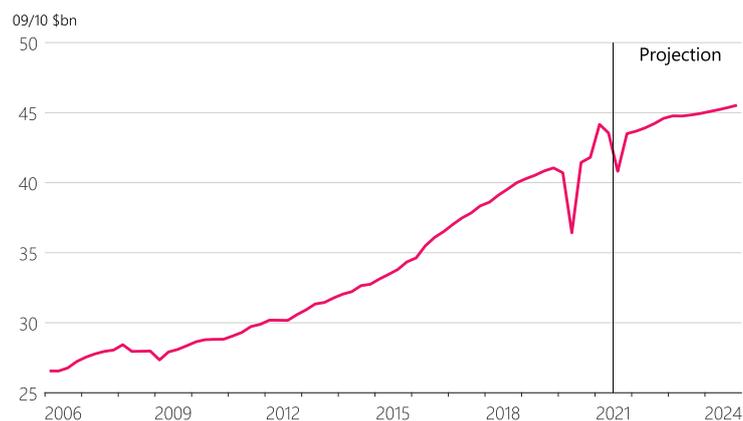
Quarterly income GDP measures show that while households spent more than they earned on aggregate for the second quarter in a row (figure 2.3), the stock of savings built up by households during 2020 is largely yet to be spent. This stock of savings, in conjunction with strong labour earnings, is expected to support household spending in the future. Consumer spending growth is assumed to be temporarily held back over 2022 as New Zealand households adapt to higher levels of COVID-19 in the community.

Figure 2.1
Quarterly production GDP
(seasonally adjusted)



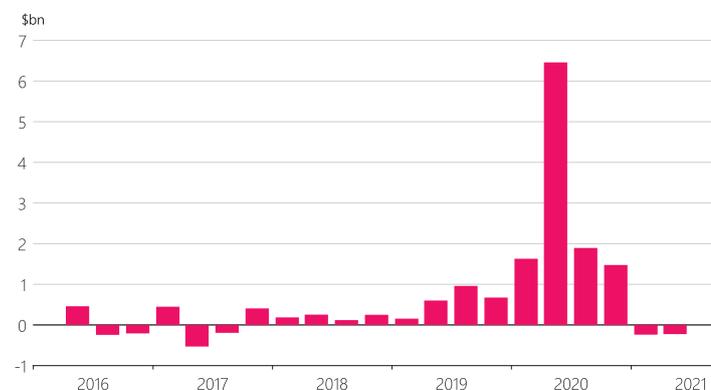
Source: Stats NZ, RBNZ estimates.

Figure 2.2
Quarterly household consumption expenditure
(seasonally adjusted)



Source: Stats NZ, RBNZ estimates.

Figure 2.3
Quarterly household saving
(nominal, seasonally adjusted)



Source: Stats NZ.

Household spending is also being supported by continued increases in house prices, which contribute to total household wealth. House price rises have been stronger than anticipated at the time of the August *Statement*. Strong housing demand is being reflected in both high house prices and more home building. Nationwide residential building consents rose 28 percent in the year to September, and the level of home building is expected to remain high (figure 2.4). This reflects the amount of already-consented work to be completed, and an expected increase in construction of medium-density housing due to the recently announced changes to land-use restrictions.

Our central forecast is for house price inflation to moderate over the coming year as prices adjust to reflect higher mortgage interest rates, lower population growth, policy measures introduced by the Government and the Reserve Bank, and more new homes being built. House prices are expected to decline moderately towards a more sustainable level in the latter part of the projection, although the magnitude and timing of such a decline remain highly uncertain (figure 2.5).

Demand for our goods exports remains robust

The outlook for growth in some of our major trading partners has been revised lower in recent months. This partly reflects the spread of the Delta variant in Australia and heightened uncertainty regarding the growth outlook in China. However, demand for New Zealand's key commodity exports – such as dairy, meat and logs – remains resilient.

Figure 2.4
Residential investment
(seasonally adjusted)



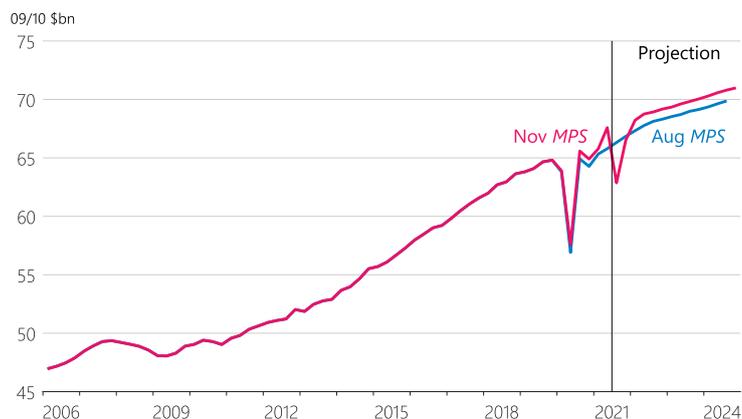
Source: Stats NZ, RBNZ estimates.

Figure 2.5
House price inflation
(annual)



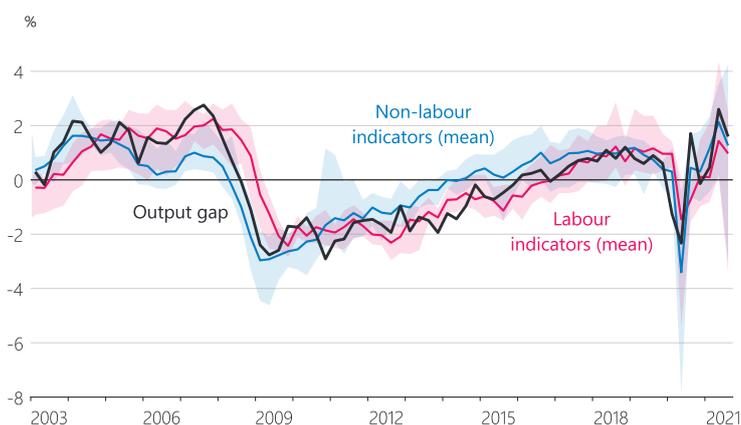
Source: CoreLogic, RBNZ estimates.

Figure 2.6
Quarterly production GDP
(seasonally adjusted)



Source: Stats NZ, RBNZ estimates.

Figure 2.7
Output gap and output gap indicators
(share of potential output)



Source: NZIER, MBIE, Stats NZ, RBNZ estimates.

Note: The output gap indicators based on information about the labour market are shown separately from the other indicators. For each group of indicators, the shaded area shows the range of values and the line shows the mean value.

Underlying drivers of economic momentum to be tempered by near-term volatility

We expect underlying economic growth will continue to be driven by accumulated savings, a tight labour market, recent increases in house prices, and robust demand for our goods exports. However, these will be tempered by volatility in economic activity in the near term as a result of COVID-19 restrictions. We assume that GDP declined 7.0 percent in the September 2021 quarter due to the recent lockdowns, and will rebound in the December quarter as restrictions are eased.

However, the recovery in activity is not expected to be as rapid as that following the nationwide lockdown in 2020 (figure 2.6). In our recent conversations with businesses, several noted the negative and compounding effects of multiple lockdowns over the past 18 months. Businesses said they did not think there would be such a big bounce-back in activity in Auckland. Firms in the construction sector were the exception, given their significant backlog of residential work.

Capacity pressures continue to build, particularly in the labour market

Capacity pressures have continued to tighten in recent months (figure 2.7), and are expected to build further despite the near-term volatility in economic activity. Reported capacity utilisation for builders and manufacturers is at its highest-ever level. These pressures are the result of continued strong demand in an environment where parts of the economy are constrained, either by public health restrictions, border restrictions, or supply-chain disruptions. Tighter capacity pressures are expected to support business investment over the projection. However, investment is assumed to be held back in the near term while businesses gauge the likely impacts of COVID-19 becoming widespread in New Zealand.

Survey measures and discussions with businesses indicate that there is an acute shortage of workers in many sectors. The unemployment rate declined to 3.4 percent in the September 2021 quarter, equalling the previous low in 2007 (figure 2.8). A broader measure of slack in the job market, the underutilisation rate, shows a sharp fall in the number of part-time employees that would like more hours and those available but not actively seeking work.

Broad-based demand for labour has meant that employment has continued to rise despite lingering skills and regional mismatches from jobs displaced as a result of COVID-19. Groups that had previously been lagging in the recovery, or who were particularly badly affected during 2020, are now seeing strong growth in employment. This includes younger people, women, Māori, and Pasifika (figures 2.8, 2.9 and 2.10). Strong demand for labour has drawn people back into work, with the participation rate increasing to 71.2 percent.

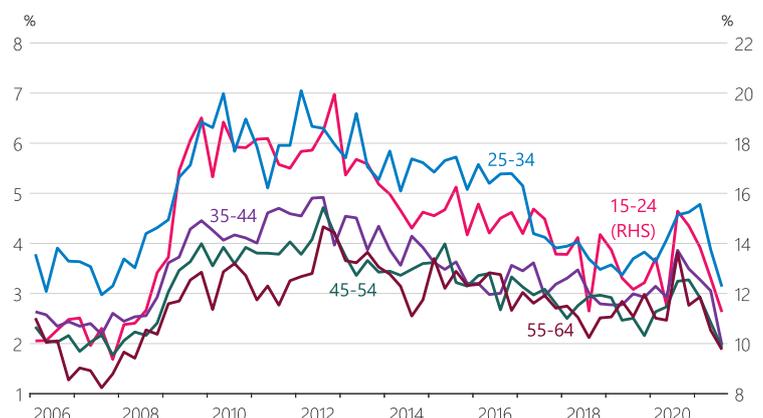
Businesses are increasingly looking to boost staff numbers, and working harder to retain existing workers. Businesses are reporting that they are holding onto staff even during periods of reduced trading. This reflects difficulties in obtaining and retaining staff in a highly competitive labour market. The Wage Subsidy scheme has also helped firms to hang on to workers, even if they have been hit hard by COVID-19 public health restrictions.

Figure 2.8
Unemployment rates by sex
(seasonally adjusted)



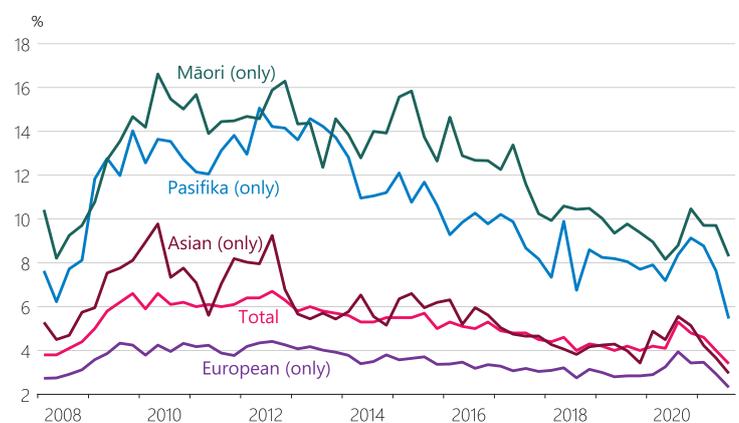
Source: Stats NZ.

Figure 2.9
Unemployment rates by age
(seasonally adjusted)



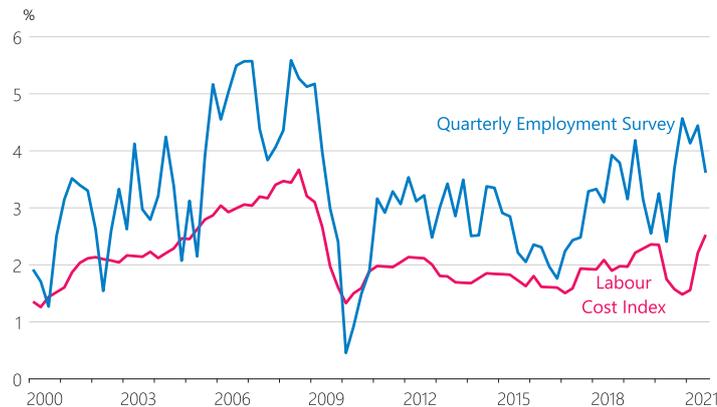
Source: Stats NZ, RBNZ estimates.

Figure 2.10
Unemployment rates by ethnicity
(seasonally adjusted)



Source: Stats NZ, RBNZ estimates.

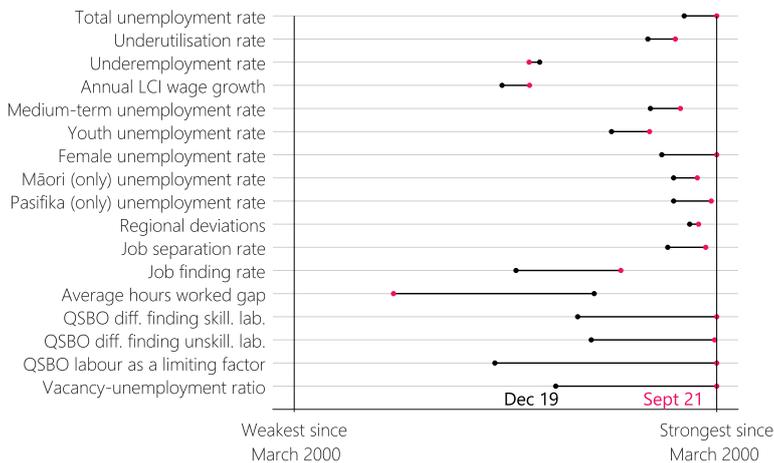
Figure 2.11
Private sector wage inflation
(annual)



Source: Stats NZ.

Labour market tightness is being reflected in wages. Same-job wage growth (as measured by the Labour Cost Index) increased to 2.5 percent in the year to the September 2021 quarter, approaching rates of growth last seen in the mid-2000s (figure 2.11). Broader wage growth is also being boosted by increased movement between jobs. However, real wage growth has declined as consumer price inflation has increased. Nominal wage growth is expected to increase further over the next year, reflecting ongoing labour market tightness and employees seeking some compensation for the higher cost of living.

Figure 2.12
MSE indicator suite



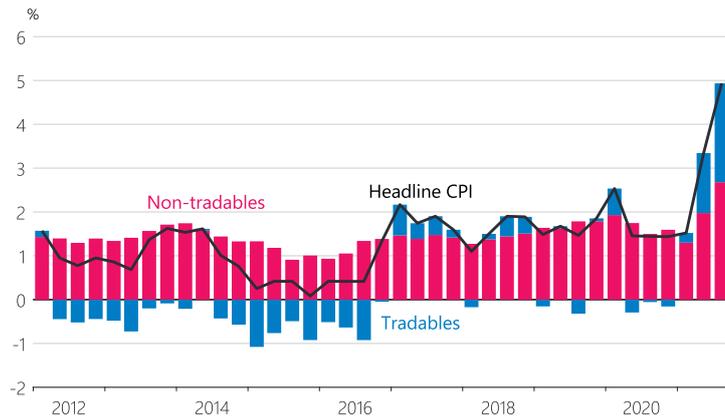
Source: NZIER, Stats NZ, MBIE, ANZ, RBNZ estimates.

Note: The Reserve Bank uses a range of indicators when assessing MSE and regards the December 2019 quarter as a period when this selection of indicators pointed to employment being at MSE. However, current outturns should not be directly compared to 2019Q4 as the level of MSE is likely lower. The vertical lines on the left-hand and right-hand sides represent the lowest and highest data outcomes since 2000, respectively. A pink dot to the right of a black dot means that the latest data outcome was stronger than in the December 2019 quarter. It should be noted that 'average hours worked gap' data were heavily affected by the restrictions on activity during periods at higher alert levels.

Employment is above its maximum sustainable level

We assess employment as being above its maximum sustainable level, with many of our labour market indicators near or at record levels (figure 2.12). We assume that the unemployment rate will decline further in the final quarter of this year as businesses continue to focus on retaining and boosting staff numbers to meet strong underlying demand. We assume access to workers from abroad will remain limited by border restrictions during at least the first half of 2022. We expect the unemployment rate to slowly rise towards a more sustainable level as capacity pressures ease.

Figure 2.13
Contributions to annual CPI inflation



Source: Stats NZ, RBNZ estimates.

Inflation has continued to increase, reflecting global and domestic factors

Stronger wage inflation, greater pressure on available domestic resources, global and local supply-chain disruptions and increases in global prices for our imports have all seen consumer price inflation increase more than anticipated in the August *Statement*. Annual inflation in the consumers price index (CPI) increased to 4.9 percent in the September 2021 quarter (figure 2.13).

While the sources of higher inflation were largely as expected, the size of price movements were greater than anticipated. Prices for goods and services in sectors most exposed to international developments and competition (tradables) increased by 5.7 percent in the year to September 2021. Food and petrol prices contributed to much of the recent increase. Crude oil prices have increased rapidly due to the recovery in global demand and less supply following disagreements among some of the largest oil producers. Higher global oil prices have been partly offset by a higher New Zealand dollar, but prices at the pump have still increased.

The New Zealand dollar trade-weighted index (TWI) is currently above the level assumed in the August *Statement* (figure 2.14). The recent appreciation reflects both expectations for higher interest rates in New Zealand relative to other countries, and a recovery in risk sentiment in global markets (discussed further in chapter 3). A higher exchange rate is expected to moderate tradables inflation over the projection.

Supply-chain disruptions to persist into 2022

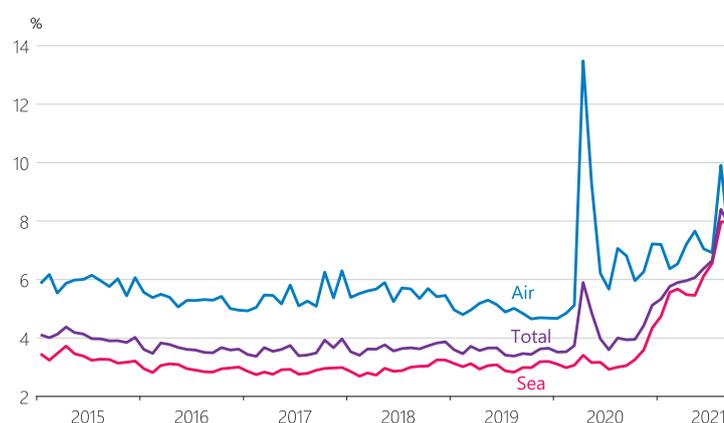
Strong global demand for goods and disruptions in global supply chains continue to push up prices for our imported goods. While estimated shipping costs have eased in the past month, they remain significantly higher than their pre-pandemic levels (figure 2.15). Our recent conversations with businesses suggest that they expect global supply-chain bottlenecks to carry on well into 2022. More shipping containers are available and vaccination rates have been rising, which means it is less likely that COVID-19 will create further disruptions at ports. However, import supply chains remain vulnerable to COVID-19 resurgences in key manufacturing regions, notably in South East Asia. Given all of these factors, we continue to assume that supply-demand imbalances will start to ease from around mid-2022.

Figure 2.14
New Zealand dollar TWI
(quarterly average)



Source: RBNZ, RBNZ estimates.

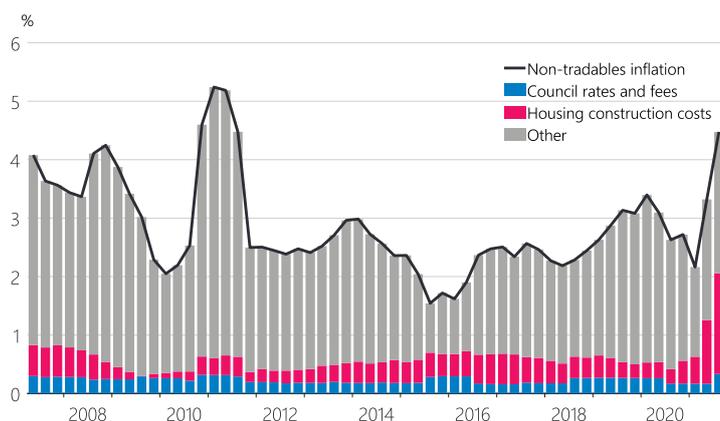
Figure 2.15
Shipping costs for consumer goods
(share of import cost)



Source: Stats NZ, RBNZ estimates.

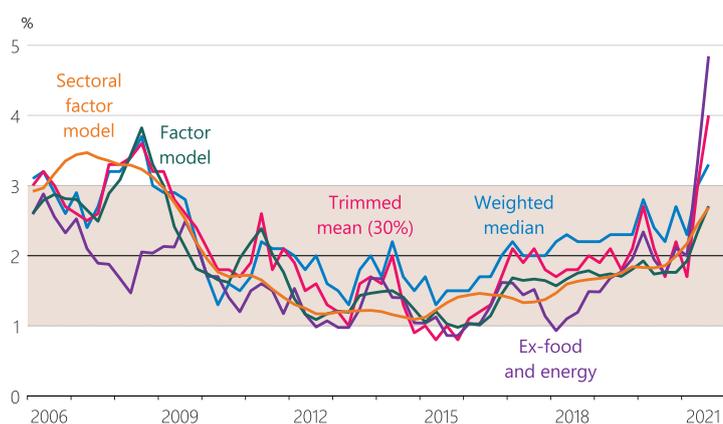
Note: These series are estimated by taking the value of consumer merchandise imports including freight and insurance costs (CIF) and subtracting the reported value for duty (VFD), which excludes these costs. It is expressed as a percentage of the VFD figure.

Figure 2.16
Contributions to annual non-tradables inflation



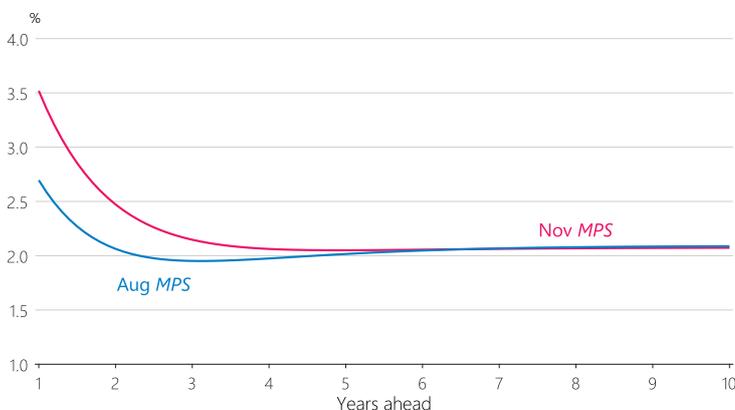
Source: Stats NZ, RBNZ estimates.

Figure 2.17
Core inflation measures
(annual)



Source: Stats NZ, RBNZ estimates.

Figure 2.18
Inflation expectations curve
(annual)



Source: RBNZ estimates.

Note: See 'Inflation expectations and the conduct of monetary policy in New Zealand' (Lewis, McDermott and Richardson, 2016) for a description of the inflation expectations curve.

Domestic inflationary pressures are also strong

While global factors have boosted inflation, domestic pressures are also making a strong contribution. Annual non-tradables inflation increased to 4.5 percent in the September 2021 quarter, which was higher than widely expected.

Strong demand is putting pressure on available resources in the economy. Businesses are reporting pressures on a range of costs including electricity, fuel, imported materials and other goods, shipping, compliance and labour. To date, non-tradables inflation has been most evident in housing-related components, where high demand has made it easier for firms to pass on cost increases (figure 2.16). Significant annual increases in council rates are also adding to inflationary pressures. We expect domestic inflationary pressures to broaden in coming quarters as recent high inflation starts to be reflected in wage- and price-setting decisions.

Measures of core inflation and expectations have risen

Measures of core inflation, which attempt to look through any short-term volatility, have also increased (figure 2.17). All of these measures now sit above 2 percent. The rise in consumer price inflation has also resulted in increases in survey measures of inflation expectations, particularly over the next one to two years. Expectations at longer horizons remain near the target midpoint of 2 percent (figure 2.18).

Annual CPI inflation is expected to ease towards 2 percent

CPI inflation is expected to remain elevated over coming quarters, due to ongoing capacity pressures and high import prices. Any further increases in global oil prices would likely result in higher inflation. Annual inflation is expected to moderate towards 2 percent over the latter half of the projection, as recent spikes in petrol prices drop out of the annual calculation, supply-chain disruptions ease, and higher interest rates lead to declining pressure on available resources (figure 2.19). However, there are risks to the outlook for inflation, as discussed in the following section.

Figure 2.19
CPI inflation
(annual)



Source: Stats NZ, RBNZ estimates.



Key risks to the economic outlook

The appropriate monetary policy stance depends not only on our central outlook for the economy, but also on our assessment of the balance of risks to this outlook. The risks discussed below are not intended to be exhaustive, but instead illustrate some factors that could substantially alter the economic and monetary policy outlook.

The response to COVID-19 becoming widespread in New Zealand

It is likely that COVID-19 will spread throughout New Zealand in the near term. Unlike most other countries, New Zealand has not seen widespread community transmission.

While this is a complex issue, there are two factors that we expect will most influence New Zealand's economic outcomes (in the absence of unexpected developments or manifestation of other risks). These factors are:

1. The extent and frequency of more stringent public health restrictions, which will also influence the extent to which activity is constrained. This will depend on the ability of our health system to respond to high case numbers.
2. How households and businesses respond to widespread community transmission, such as whether people become reluctant to go out and do things like eating at restaurants or attending sporting events.

These factors are closely linked. Our central projection assumes that high levels of vaccination enable the health system to meet higher case numbers. While there are likely to be some periods of tight restrictions in some areas, we assume that restrictions are fairly moderate at a national level. We expect some hesitation by households to go out and travel within New Zealand and overseas and that some businesses will hold back on investment while uncertainty about our transition to endemic COVID-19 is high. However, this hesitancy is assumed to be relatively short-lived, as uncertainty wanes and people adapt to COVID-19 being widespread in the community.

Different combinations of the factors described above could lead to very different economic outcomes. These are summarised in table 2.1.

Table 2.1

Illustrative outcomes in response to COVID-19 becoming widespread throughout New Zealand

	Extensive public health restrictions are sporadic and short-lived; health system can meet demand from higher case numbers	Extensive public health restrictions are frequent and widespread; health system is under significant pressure from higher case numbers
Household and business demand remains strong, despite widespread community transmission	(A) Demand is strong and occasional restrictions do not constrain activity. Faster removal of monetary stimulus might be required.	(C) Demand remains resilient, but frequent and widespread restrictions constrain activity, leading to greater capacity pressures. Faster removal of monetary stimulus might be required, depending on the outlook for continued demand.
Household and business demand weakens due to reluctance to leave home and heightened uncertainty	(B) Occasional restrictions do not constrain activity, but demand is somewhat weakened. Pressure on available resources is therefore lower, and a slower removal of monetary stimulus may be required.	(D) Demand is weak and frequent and widespread restrictions constrain activity. Weaker demand quickly leads to lower business revenue and businesses may be forced to lay off staff and reduce investment. This leads to further slowing in demand and negative second-round impacts. A slower removal of, or an increase in, monetary stimulus may be required.

All of these stylised outcomes would also be influenced by factors such as:

- **The response of fiscal policy.** Significant government spending during the current and previous lockdowns has supported business and household incomes, offsetting some of the impacts of tight mobility restrictions.
- **The magnitude of net migration once border restrictions start to ease.** Increased migration of foreign workers would add to demand for goods, services, housing and infrastructure, but would also be expected to alleviate some of the current pressures on the labour market. There is also a risk that more New Zealanders look to migrate overseas as they become vaccinated and global restrictions are increasingly eased.
- **The demand for international travel and tourism by New Zealanders and foreigners once border restrictions are eased.** Our central projection assumes that the demand for international tourism, especially to long-haul destinations, does not recover to pre-pandemic levels. However, if this recovery is weaker than currently assumed, this would have a significant impact on New Zealand's tourism industry and the economy as a whole. This is especially the case given that the industry was provided a degree of respite by higher domestic tourism spending over the 2020/21 summer. Once border restrictions are eased, New Zealanders are likely to begin travelling overseas once more.

There is additional uncertainty surrounding the longer-term economic implications of COVID-19, here and abroad, particularly for neutral interest rates (as discussed in the August 2021 *Statement*) and potential output (discussed in chapter 4.2).

Higher inflation becomes embedded

There is a risk that high inflation outcomes will lead to an increase in expected inflation that becomes embedded in wage- and price-setting behaviour to a greater extent than anticipated. This would result in greater underlying inflationary pressures.

We currently assume that these impacts will be limited, as we expect observed annual inflation to decline from the middle of next year. However, there is a risk that inflation remains higher on balance than in the central projection, and leads to high inflation becoming more embedded. Factors that contribute to this risk include:

- a possibility that supply-chain disruptions exert pressure on prices for longer;
- house price inflation remaining higher than assumed, placing further pressure on housing-related components of consumer prices, such as rents and construction costs; and
- the possibility that the direct effects of climate-change-related disruptions and government climate transition policies add to inflationary pressures (discussed in chapter 4.3).

We will continue to monitor inflation outcomes and expectations for any signs that inflationary pressures are building to an extent that is inconsistent with our medium-term objectives.



Monetary policy outlook

The OCR remains low by historical standards, and below the Reserve Bank's estimate of a nominal neutral interest rate of about 2 percent. Given the current and expected strength in the labour market and increase in inflationary pressures, our central projection implies that official interest rates should be increased further in order for the MPC to meet its economic objectives (figure 2.20).

Figure 2.20
Official Cash Rate
(quarterly average)



Source: RBNZ.

The speed at which interest rates should be increased is greater than assumed in the *August Statement*, due to a stronger starting point, reflected in higher capacity, labour market and inflationary pressures. These additional pressures more than offset the short-term volatility in activity resulting from recent lockdowns. They also offset our assumption that widespread COVID-19 weighs on household and business spending in the near term. As is always the case, this projection for the OCR is conditional upon the economy evolving in line with the assumptions summarised in this chapter, and also in chapter 5.

The reduction in monetary stimulus in New Zealand has happened sooner than in many of our advanced trading partner economies. This reflects different combinations of current employment and inflationary pressures in each country, and differences in central banks' monetary policy objectives that influence how they are expected to respond to these pressures. These factors are summarised in table 2.2.

Table 2.2

Central bank comparison

	Monetary policy objectives	Annual headline consumer price inflation (%)	Unemployment rate (%)	Average projected output gap in 2022 (%)
New Zealand	1–3% inflation target; employment objective	4.9	3.4	2.1
Australia	2–3% inflation target; employment objective	3.0	5.2	0.0
USA	Inflation averages 2% over time; employment objective	4.4*	4.6	3.3
UK	2% inflation target	4.2	4.3	-0.4
Euro area	2% inflation target	4.1	7.4	-0.6

Source: Respective central banks and official statistical agencies, International Monetary Fund (IMF), Stats NZ, RBNZ estimates.

Note: Output gap projections are based on IMF estimates, except for New Zealand's, which is based on our current projection. All other data reflect the respective latest outturns.

*The consumer price inflation measure for the US is the annual inflation rate for the personal consumption expenditures price index.



Financial
conditions

CHAPTER 03

CHAPTER 3

Financial conditions

The Reserve Bank’s monetary policy tools affect economic activity by influencing conditions in financial markets, including the interest rates at which households and businesses save and borrow, and the exchange rate. Financial conditions have been accommodative but have tightened since the August Statement.

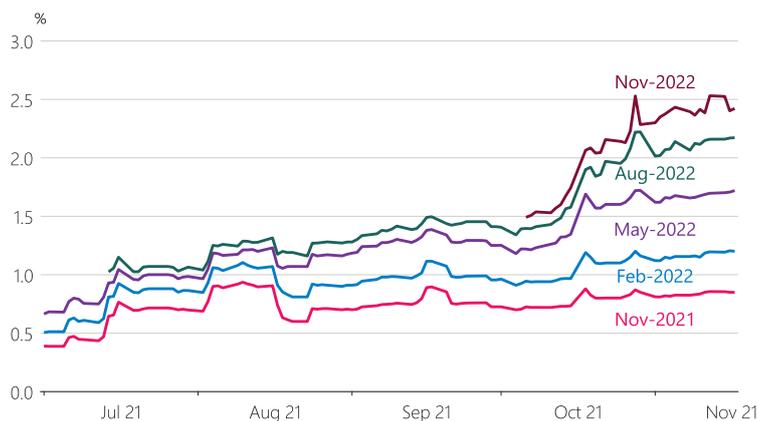


Wholesale interest rates have risen

Financial conditions have been tightening for several months due to expectations of higher central bank policy rates here and overseas. Stronger global and domestic data have helped to increase confidence amongst market participants that economic conditions will warrant higher interest rates over coming years.

Market participants now expect a faster and larger tightening of monetary policy in New Zealand than at the time of the August *Statement*. In the lead up to the November *Statement*, financial market expectations for the OCR, as measured by overnight indexed swap (OIS) pricing, were for around one 25 basis point increase in the OCR at each scheduled review until November 2022 (figure 3.1). The market is expecting the OCR to reach at least 2 percent by August next year, 100 basis points higher than was expected at the time of the August *Statement*.

Figure 3.1
Market expectations for the OCR



Source: Bloomberg.

Note: Each line represents the expectations of the level of the OCR at a given point in time in the future, as measured by overnight indexed swap pricing. For example, the Feb-2022 line shows expectations over time for what the OCR will be in February 2022.

Interest rate swap rates in New Zealand have also increased, primarily due to higher expectations for short-term interest rates. Swap rates are now at their highest levels since 2018 (figure 3.2). The 2-year swap rate is more than 200 basis points higher than its low earlier this year. In recent months, increases in shorter-term swap rates have been larger than increases in longer-term swap rates, leading to a flattening of the yield curve in the swaps market.

Reduced market liquidity has contributed to recent moves in swap markets. A historically large value of mortgage debt is reaching the end of its fixed-rate period during the current quarter, and borrowers have recently been fixing their mortgages at longer terms. This has been putting additional upward pressure on swap rates, as banks use interest rate swaps to insure against the interest rate risk of their fixed-rate mortgage lending. These market dynamics appear to have contributed to recent increases in swap rates, but increases in short-term interest rate expectations have been the main driver.

The recent tightening in domestic financial conditions has led to a widening gap between interest rates in New Zealand and those in the US. This year, the spread between the yield on the 2-year New Zealand government bond and the 2-year US government bond reached its widest level since 2016 (figure 3.3).

Figure 3.2
Interest rate swap rates



Source: Bloomberg.

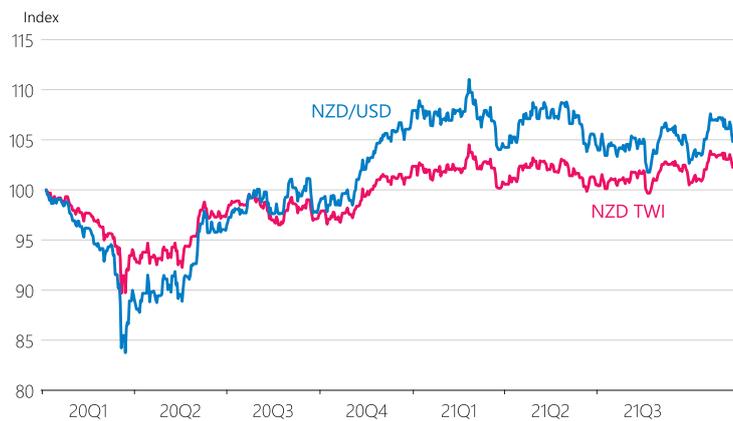
Figure 3.3
NZ-US interest rate differentials



Source: Bloomberg.

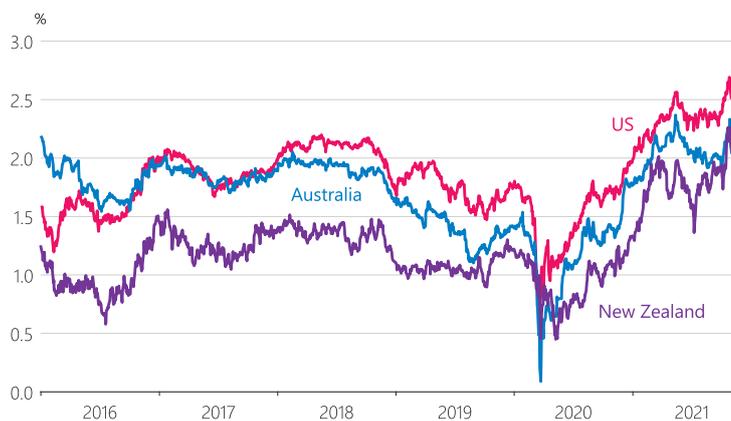
Increases in New Zealand interest rates relative to the US would typically be associated with an appreciation in the New Zealand dollar. This is because New Zealand dollar-denominated investments become relatively more attractive. Despite this, the New Zealand dollar to US dollar exchange rate has traded within a narrow range this year (figure 3.4). This is alongside other supporting factors, such as sustained strength in New Zealand's export commodity prices and an improvement in global appetite for risk. In the second half of this year, the US dollar has appreciated against other major currencies, following improving economic activity within the US as COVID-19 restrictions were lifted. This US dollar strength may help to explain why the New Zealand dollar exchange rate has not always moved in line with interest rate differentials this year.

Figure 3.4
New Zealand dollar exchange rates



Source: Reuters.

Figure 3.5
10-year breakeven inflation rates



Source: Bloomberg, RBNZ estimates.

Note: Breakeven inflation rates are the differences between the yields on regular bonds and those on inflation-indexed bonds.

Increasing inflation expectations have supported domestic interest rates

Increases in inflation expectations have played a role in pushing up interest rates globally and in New Zealand. Medium-term measures of inflation expectations, such as those derived from financial markets, have risen since the *August Statement* (figure 3.5). Over this period, the US 10-year breakeven inflation rate, which offers an insight into financial market participants' inflation expectations, has increased around 35 basis points to 2.7 percent. The latest value implies what market participants expect inflation to be in the next 10 years, on average. As discussed in chapter 2, survey measures of inflation expectations in New Zealand have increased for the one- and two-year horizons, but remain well-anchored over the medium term.

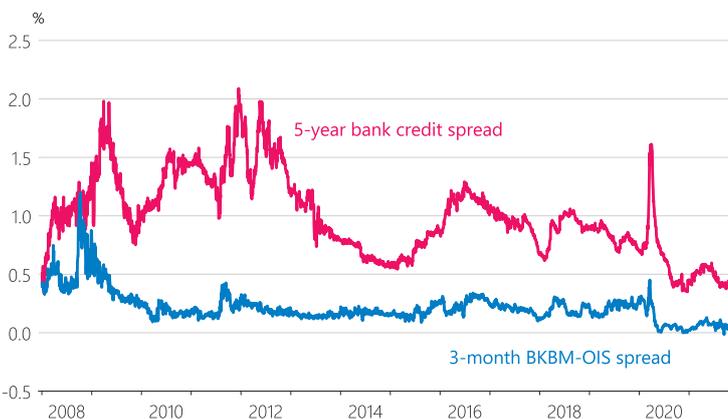
The New Zealand 10-year breakeven inflation rate has risen in recent months and is now slightly above 2.0 percent. Breakeven inflation rates are also influenced by other factors, such as changes in appetite for liquidity and insurance against the risk of higher or lower inflation in the future, so they do not give a pure read on market participants' expectations. This is particularly the case for New Zealand, where the small size of the inflation-indexed bond market has typically led to a higher liquidity premium than in larger inflation-linked bond markets. This helps explain why breakeven inflation in New Zealand has traded below the Reserve Bank's inflation target historically.

Bank funding costs remain low

Both short- and medium-term measures of bank funding costs relative to benchmark rates have remained near historic lows, despite increased volatility in domestic financial markets since the *August Statement*. This can be seen in the spread between the 3-month bank bill (BKBM) and the 3-month OIS rate. A lower BKBM-OIS spread implies investors are willing to accept less compensation for the risk of lending money to a bank.

Following the implementation of the Reserve Bank's additional monetary policy tools, including the Large Scale Asset Purchase (LSAP) programme and the Funding for Lending Programme (FLP), the BKBM-OIS spread declined to near historic lows last year and currently remains close to these levels (figure 3.6). Credit spreads provide an indication of medium-term funding costs relative to benchmark interest rates. A lower spread represents a lower implied borrowing cost. The 5-year bank credit spread also spiked in March 2020 and has remained near historic lows ever since.

Figure 3.6
Bank funding costs



Source: Bloomberg, RBNZ estimates.

Note: Credit spreads are the differences between secondary market bond yields and the swap curve. The bond yields used for the 5-year measure were the averages of 5-year bonds issued in New Zealand dollars from ANZ, ASB, BNZ and Westpac. A lower spread represents a lower implied borrowing cost.

Markets continue to function well in the face of tightening financial conditions

In line with recent increases in swap rates, yields on New Zealand government bonds (NZGB) have also increased significantly since the *August Statement*. In recent weeks, we have observed some of the largest daily changes in these yields since March 2020.

However, indicators suggest the NZGB market is functioning well. One indicator to determine this is the bid-ask spread. This measures how far apart buyers and sellers are from reaching an agreed price to trade. In times of market stress, bid-ask spreads can widen significantly. Bid-ask spreads on nominal NZGBs did widen during March 2020 and returned to pre-COVID-19 levels by May 2020. Bid-ask spreads have not widened since the *August Statement*, despite increased volatility in the NZGB market. This indicates that markets continue to function well in the face of tightening financial conditions.

The NZGB market has also responded in an orderly way to the halt in LSAP purchases. The New Zealand Debt Management's (NZDM) tenders provide a useful indication of demand in the NZGB market. These tenders typically occur three times a week and involve NZDM issuing debt at a pre-announced time and volume. Demand at these tenders, as measured by the amount that the volume of bids for these bonds exceeds the volume of bonds being offered, has remained in line with pre-pandemic averages following the halt in LSAP purchases.

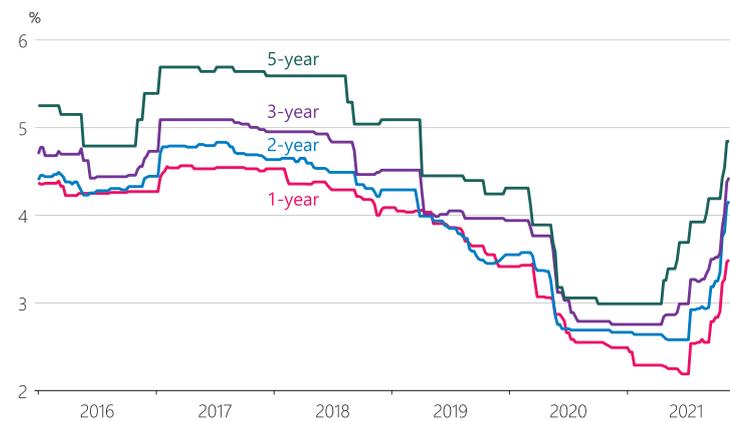
In addition, the Reserve Bank's Bond Lending Facility (BLF) provides market participants access to NZGBs as a lender of last resort. Use of this facility provides an indication of NZGB availability in the secondary market. Towards the end of the LSAP programme, use of the BLF increased. Following the halt in LSAP purchases, this has subsequently declined in line with the increasing supply of NZGBs.

Higher wholesale rates are being passed through to higher retail rates

Interest rates paid by businesses and mortgage borrowers, as well as those paid to depositors, are increasing in response to rising wholesale rates. Fixed mortgage rates at all terms are now above their pre-pandemic levels (figure 3.7). The 1-year mortgage rate has increased to around 130 basis points above its low this year. For longer-term fixed mortgages, increases have been larger. For example, the 5-year mortgage rate has risen 185 basis points from its lowest point this year. However, the increase in mortgage rates has not been as large as the increase in swap rates over the past year, in part because the increase in banks' funding costs has been subdued.

OCR increases are passed through to mortgaged households' interest payments more quickly when borrowers are on shorter fixed terms. Similar to the two most recent periods when the OCR was increasing, a significant share of mortgages is due to reprice over the coming year, constituting 67 percent of fixed-rate mortgage debt (see the *August Statement*). At the same time, as a consequence of higher debt levels overall, a historically large value of mortgages are due to reprice over the next 12 months. In recent months, many borrowers have fixed at longer terms in anticipation of rising interest rates. These dynamics, coupled with rising mortgage rates, imply that the majority of borrowers who reprice in the current quarter will be moving onto rates at least 1 percentage point higher.

Figure 3.7
Mortgage rates



Source: Interest.co.nz.

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

Despite these recent increases, interest rates on outstanding business loans and mortgages remain low by historical standards. The average interest rates on outstanding business loans and mortgages were 3.2 percent and 2.8 percent in September, respectively. This is more than 80 and 120 basis points lower than at the start of 2020. Business loans tend to be floating or fixed at shorter terms, meaning the interest rates on these loans tend to move more closely with the OCR.

Term deposit rates have also increased. This year, term deposit rates have increased at a slower pace than mortgage rates, but have risen quickly since the *August Statement*. The 6-month term deposit rate is 60 basis points higher than at the start of this year. In comparison, the 1-year term deposit rate has increased by 100 basis points this year, to 1.8 percent. These smaller increases relative to mortgage rates are partly a consequence of the shorter term of these rates. Term deposit rates have been suppressed by the large growth in deposits over the past 18 months, caused in part by the LSAP programme and the Wage Subsidy. Continued availability of the FLP, which provides an alternative source of funding, has also suppressed term deposit rates.



Special topics

CHAPTER
04

CHAPTER 4

Special topics

Before each *Statement*, the MPC is provided with analysis of some topical issues.

Topics for the November *Statement* included:

1. Transmission of global developments to New Zealand's economy.
2. Outlook for New Zealand's productive capacity.
3. Climate change and inflation.



Transmission of global developments to New Zealand's economy

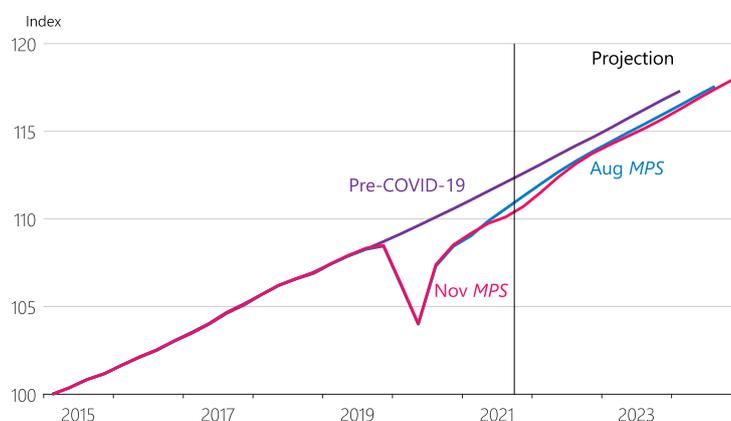
As New Zealand is a small open economy, global economic and financial market conditions have a significant influence on domestic activity and inflation. This section describes how international developments are currently affecting the New Zealand economy, through trade, uncertainty and financial market channels.

Trade channel

The global economy continues to recover from the pandemic. This recovery is supporting demand for New Zealand's commodity exports. However, actual and forecast trading-partner growth has slowed since the August *Statement* (figure 4.1). The loss of momentum is due to the spread of the COVID-19 Delta variant, ongoing supply-chain disruptions and targeted regulatory tightening in China. While demand for New Zealand's exports has remained strong, a further easing in global growth momentum could pose a downside risk to New Zealand's exports.

Global inflationary pressures have increased, largely reflecting a combination of supply-demand mismatches brought about by the COVID-19 pandemic. These inflationary pressures have transmitted to New Zealand primarily via higher import prices.

Figure 4.1
Quarterly trading-partner GDP
(2015Q1=100)



Source: Consensus Economics.

New Zealand's exports of travel services have remained muted due to the decline in international visitors since the introduction of border restrictions in early 2020. There is significant uncertainty about how international tourism will recover as border restrictions ease.

Financial channel

Currently, global financial conditions in major economies remain accommodative, characterised by low government bond yields, tight corporate credit spreads, and high equity prices. Accommodative global financial conditions have allowed New Zealand banks to access low-cost funding from offshore wholesale markets.

Since the *August Statement*, a number of central banks have begun to signal or move towards reducing monetary stimulus, citing the ongoing recovery from the pandemic and rising inflationary pressures. If inflationary pressures prove more persistent than currently expected, and inflation expectations increase, this could lead to a faster increase in global interest rates. Such a situation would tighten global financial conditions, and might also put upward pressure on domestic long-term interest rates, given the high correlation in long-term interest rates across countries.

Changes in global wholesale interest rates can flow through to the costs of borrowing for New Zealand firms and households. They have also contributed to recent moves in the New Zealand dollar exchange rate (see chapter 3).

Uncertainty channel

Uncertainty around the global economic outlook is likely to remain elevated for some time, primarily due to uneven vaccine rollouts across countries and the continued presence of COVID-19 across the globe. The outlook for global inflationary pressures remains highly uncertain, in part due to unpredictability around how long it may take for global supply-chain disruptions to ease, and to what extent they will ease.

Uncertainty stemming from offshore developments can influence consumption and investment in New Zealand, particularly via business and consumer confidence.¹ Domestic uncertainty is playing a greater role at present as firms face near-term uncertainty about health policy, border settings, and consumption patterns when COVID-19 becomes widespread in New Zealand (as discussed in chapter 2).

¹ See Rice, Vehbi and Wong (2018), 'Measuring uncertainty and its impact on the New Zealand economy', *Analytical Note*, Reserve Bank of New Zealand.

2

Outlook for New Zealand's productive capacity

Gross domestic product (GDP) is an important economic indicator, as it measures the amount of goods and services produced in an economy over a period. Another key concept is productive capacity, also known as potential GDP or potential output. Potential output is the amount of goods and services an economy could produce without generating excess inflationary pressure. This is the amount of output that would be produced if all labour and capital in the economy were used to their maximum sustainable levels.

COVID-19 has significantly affected the way goods and services are produced and has limited New Zealand's productive capacity. Health restrictions have temporarily closed parts of the economy and, at times, reduced the amount of staff that are allowed to work onsite. New Zealand's international tourism industry has been severely hampered by border restrictions. International restrictions to control outbreaks are straining global supply chains. However, there may also be positive changes. Digital innovation has increased as businesses have moved online and many employees can now work from home.

Our projection reflects that potential output is likely to be lower than it would have been without the COVID-19 pandemic. The level of potential GDP is assumed to be lower, mainly due to four supply-side channels (discussed below). We have also made specific adjustments to our estimates of potential output to reflect New Zealand's much lower ability to produce goods and services at Alert Levels 3 and 4 (figure 4.2). There is a large degree of uncertainty about the overall impact on potential output over the next few years, depending on how New Zealand adapts to living with COVID-19.

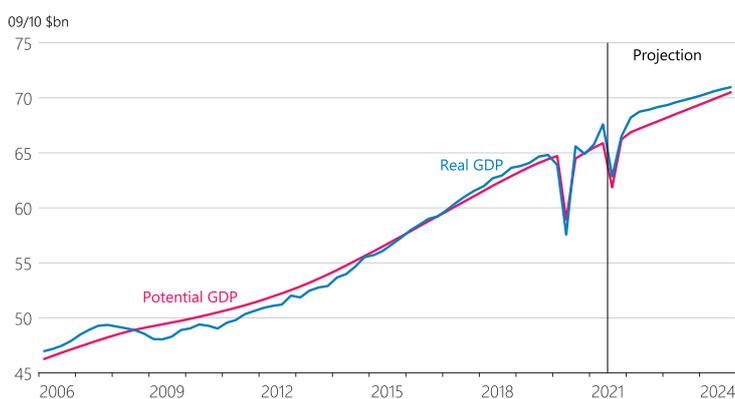
Productive capacity is an important concept for understanding the economy

Productive capacity is a theoretical concept that cannot be measured directly. But it can be estimated using models to improve our understanding of the economy:

- Potential GDP gives an indication of the level of actual GDP that may be sustainable over longer periods. This helps to guide medium-term forecasts of GDP since the economy tends to move back to its sustainable level if it is above or below this level.
- Potential GDP is also a predictor of inflationary pressure in an economy. When labour or capital are employed in an unsustainable way, actual output deviates from potential output and this typically generates excess inflation.

For example, to increase production, a manufacturer could employ more people. However, if the economy were operating above its potential output, the workers that the manufacturer needs would be more likely to already be employed. The employer may need to offer higher wages to entice workers from other firms, pushing up production costs and generating inflationary pressures. If this happens across the economy it causes inflation.

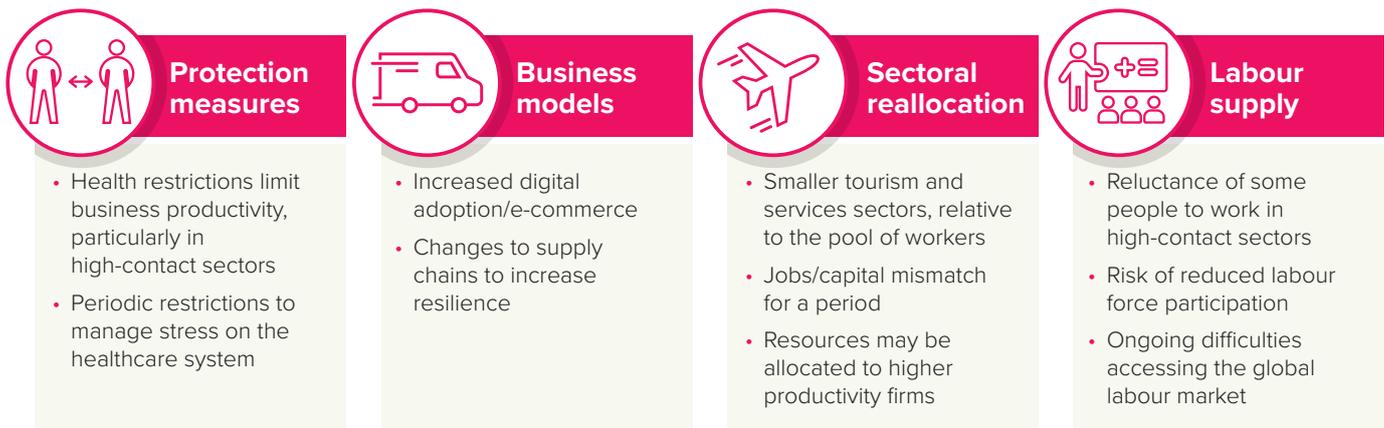
Figure 4.2
GDP and potential GDP
(seasonally adjusted)



Source: Stats NZ, RBNZ estimates.

Figure 4.3

Summary of medium-term impacts of COVID-19 on productive capacity



COVID-19 will affect New Zealand's productive capacity over the medium term

New Zealand is transitioning towards COVID-19 being widespread in the community. We expect this transition to affect potential GDP through four key supply-side channels (figure 4.3).

Protection measures

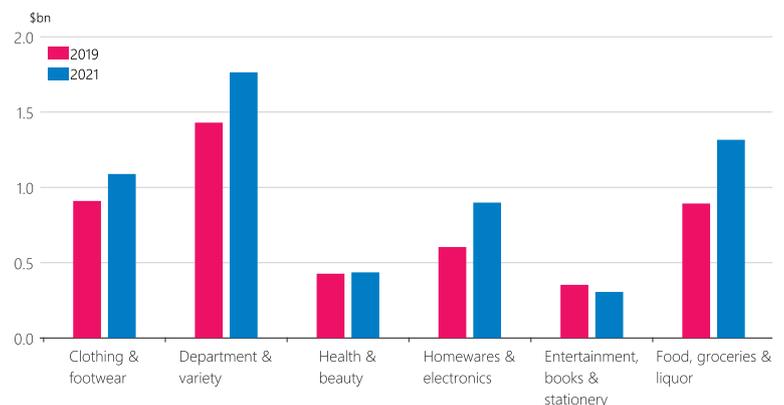
Restrictions to slow the spread of the virus have held back the full use of labour and capital. While ongoing strict nationwide lockdowns are less likely with high vaccination rates, regional lockdowns to prevent the healthcare system from being overwhelmed would still slow down production. Increased sick days and periods of self-isolation for staff may also reduce labour productivity.

Adaptation of business models

Endemic COVID-19 could reinforce the adoption of digital technologies by New Zealand businesses. Surveys show businesses are more likely to look at new technology opportunities after their experience during lockdown.² For example, temporary closures of physical stores have triggered substantial growth in online shopping (figure 4.4) and a change in the demographics using it.

Figure 4.4

Total online spend by sector



² See 'How coronavirus transformed our use of technology and what it means for the future', MYOB (2020).

While the effects of these changes on business models are uncertain, there is evidence to suggest a switch to digital ways of doing business could boost productivity. For example, an increased ability to work remotely could increase labour productivity.

On the other hand, COVID-19 has strained global supply chains. Domestic firms are currently having to agree to more expensive contracts to ship their goods. Businesses have also noted longer production times, and that shipping disruptions are encouraging them to maintain higher levels of inventories as insurance against delays. While increasing the resilience of domestic supply, maintaining higher inventory levels ‘just in case’ can come at the cost of lower productivity, as firms dedicate more time and resources to managing larger stock levels.

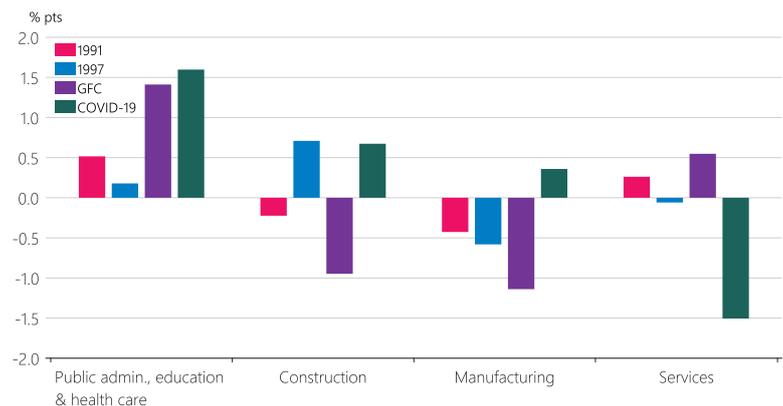
Sectoral reallocation

The spread of COVID-19 in the community is also likely to disproportionately affect businesses in high-contact sectors, such as retail and hospitality. These sectors have already been heavily impacted since the outset of the pandemic and their productivity may continue to be affected by public health restrictions such as social distancing. A transition away from these industries may reduce short-to-medium-term productive capacity if specialist workers and capital in these industries can no longer be used to their full potential. However, productive capacity could be boosted after the transition period if workers and other resources shift into higher-productivity firms.

Such reallocation of resources was a common feature of historical recessions (figure 4.5). This adjustment process may be smoother compared to past experiences because the sectors that are likely to be the worst hit tend to have higher job turnover, have less job-specific capital, and are less capital intensive in some cases.³

Figure 4.5

Change in the share of employment by industry (% of total employment)



Source: Stats NZ, RBNZ estimates.

Note: The recessions in the comparison are the 1991 recession (Q4 1990 to Q2 1991), 1997 recession (Q2 1997 to Q1 1998), and 2008 recession (Q4 2007 to Q2 2009). For the COVID-19 comparison, the period is Q1 2020 to Q3 2021.

Some early studies suggest that COVID-19 has prompted a shift of resources towards high-productivity firms that are more digitally innovative,⁴ however the evidence for this in New Zealand has been weaker to-date. The effects of reallocation may become increasingly evident as government support measures are withdrawn and the economy transitions to COVID-19 being widespread.

³ For example, the Bank of England has estimated that the required amount of task reallocation for workers to shift is smaller than in the early 1990s recession, when workers with more specialised skills were affected.

⁴ See ‘COVID-19, productivity and reallocation: Timely evidence from three OECD countries’, Andrews et al (2021).

Labour shortages

The labour market is currently tight and many firms are reporting difficulty in finding workers. Widespread COVID-19 could further impact the availability of workers. Workers may be more cautious about being employed in sectors where they have a lot of direct contact with customers or other employees. It is also possible that participation rates decline as a result of factors like vaccine mandates, or parents staying home to care for their children while schools and childcare facilities are closed.

Despite the challenges to labour supply, employment growth bounced back strongly in recent quarters. And, in contrast to many countries, labour force participation has not yet been dampened substantially by COVID-19 in New Zealand.

The pace of the easing of border restrictions, and the ability to attract overseas workers to fill jobs, presents risks to the outlook for potential output. Looser border restrictions might encourage higher immigration. This would increase potential output by increasing the size of New Zealand's labour force and helping with skill shortages. However, it is also likely that some people now living in New Zealand would move overseas for work.

The outlook for productive capacity is uncertain

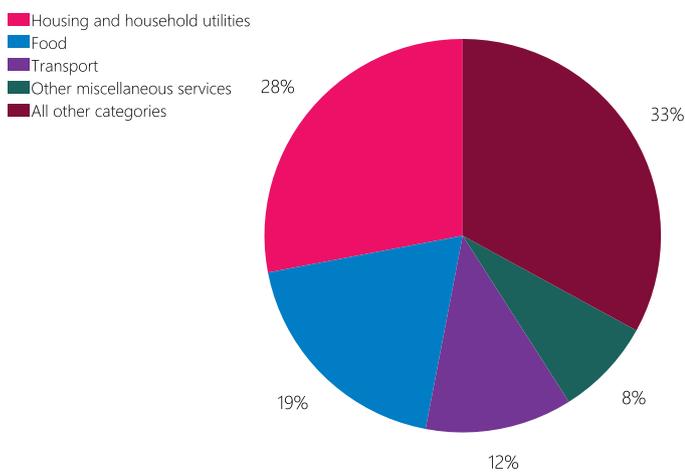
The impact on potential output in New Zealand could be more severe than we have assumed if widespread COVID-19 causes consumers and workers to be much more cautious. This could lead to more disruptive impacts on high-contact sectors. On the other hand, potential output may quickly return to and then exceed pre-COVID-19 levels. For example, this could occur if productivity gains from digital adoption emerge, spare resources are effectively deployed by high-productivity firms, and the opening of borders resolves labour shortages. In the long run, the impact of COVID-19 is likely to be overshadowed by factors such as technology, infrastructure, education and population.

3

Climate change and inflation

Climate change has important implications for the economy and financial system.⁵ For monetary policy, climate change is likely to impact both inflation and employment. This special topic discusses the potential effects on consumer prices, which stem from both the physical impacts of climate change and the policies aimed at minimising climate change and its effects.

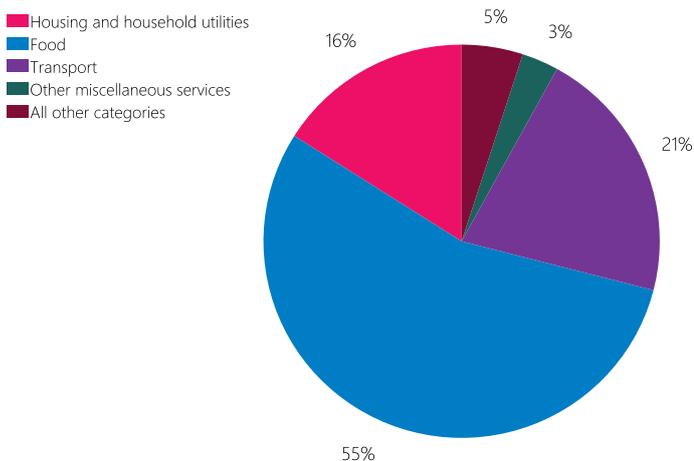
Figure 4.6
Composition of consumer spending



Source: Stats NZ.

Note: Spending shares are based on the base expenditure weights used in the consumers price index.

Figure 4.7
Industrial greenhouse gas emissions



Source: Stats NZ.

Climate change will impact the supply of goods and services

Climate change is likely to impact the supply of goods and services in the economy. These effects could become large and persist for several decades. They fall into two main categories:

- **Physical impacts:** These are the direct impacts of climate change, such as variations in growing conditions for crops, and more frequent and severe weather events. Physical climate-change-related events are likely to become more significant over time.⁶
- **Transition impacts:** These are the outcomes of actions to limit climate change and its effects. They may be the result of government policy changes, consumer preferences for 'green' products, or pressure from investors and the public more generally. Government intervention is accelerating globally, with New Zealand recently making a commitment to reduce net greenhouse gas emissions by 50 percent by 2030.

The impacts on consumer prices will vary in both magnitude and direction over time. They will come through both the prices of goods and services produced and consumed locally, as well as those that are imported. The clearest potential impacts are on consumer prices for housing and household utilities, food and transport. These components account for a significant share of consumer spending in New Zealand (figure 4.6). They are particularly vulnerable to physical impacts and are exposed to transition impacts due to their greenhouse gas emissions (figure 4.7).

⁵ See *Climate Changed 2021 and Beyond*, Reserve Bank of New Zealand (2021).

⁶ See for example '*State of Climate in 2021: Extreme events and major impacts*', World Meteorological Organisation (2021).

The physical impacts of climate change will be passed through to consumer prices by increasing the scarcity and/or reducing the productivity of certain resources in the near term. These impacts could result from reductions in global food production due to more frequent extreme weather events such as droughts or floods, and from disruptions to renewable energy generation.

The outcomes of government policies to limit the extent and impacts of climate change will – by design in many cases – change consumer prices. For example, the New Zealand Emissions Trading Scheme (ETS) is designed to progressively increase the cost of high-emissions production, which will affect production costs in high-emissions industries. This would be particularly pronounced in the transport sector. The relative cost of emissions from fossil-fuel-based transport is likely to steadily rise, as governments encourage a shift to low-emissions transport methods. Concurrently, this should help low-emissions production become cheaper, and encourage investment in new technology that could further reduce costs in low-emissions industries.

Climate change will impact consumer prices over the next decade

Climate change is expected to impact the level and volatility of consumer prices in the short and medium term. Its effects further out are more uncertain.

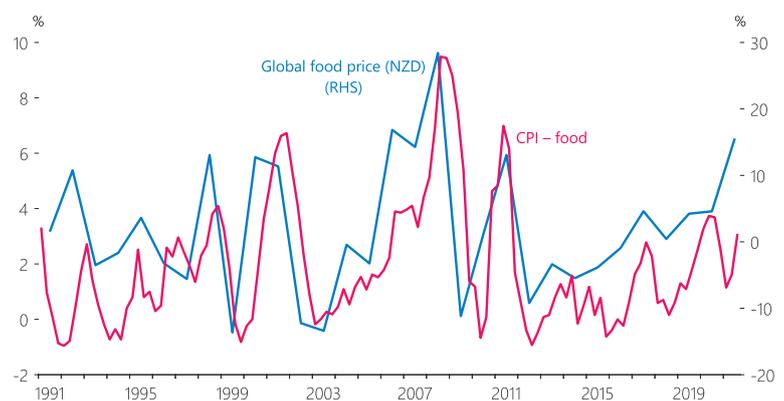
Short-term impacts

In the near term, climate-change-related price movements could be large and generally positive. Climate change impacts are likely to be contributing to price pressures globally for energy, food and transportation. Volatility in global food and energy prices typically flows through to the prices paid by New Zealand consumers (figures 4.8 and 4.9).

Markets for some goods have been affected by physical disruptions to global production and distribution. For example, severe droughts in Brazil over the past two years have been boosting grain prices. Some markets have also been affected by transition impacts, as the MPC noted in the Summary Record of Meeting for the October 2021 *Review*. For example, the shift to renewable energy has created some challenges, such as energy shortages when demand is high. China temporarily introduced electricity rationing due to high coal prices and difficulties meeting emissions goals, as manufacturing-related electricity demand increased and extreme weather boosted demand for heating and cooling.

Figure 4.8

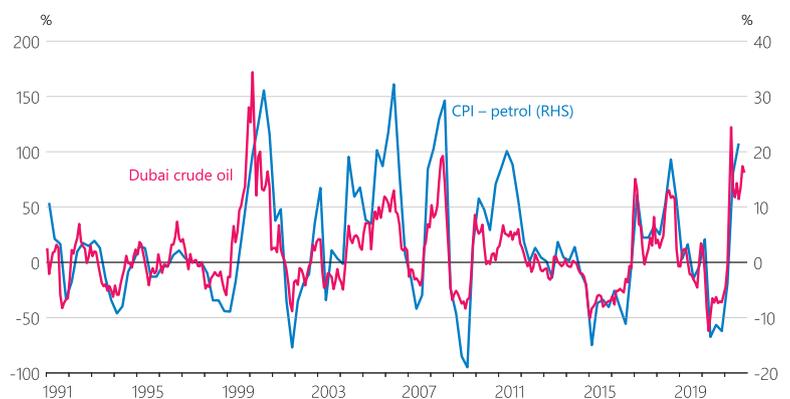
Global and domestic food price inflation (annual)



Source: FAO, Reuters, Stats NZ, RBNZ estimates.

Figure 4.9

Global and domestic energy price inflation (annual)



Source: Reuters, Stats NZ, RBNZ estimates.

It is important to note that it is very difficult to separate these impacts from those of other developments in these markets. These include factors such as strong global demand and non-climate-related supply-chain disruptions.

Medium-term impacts

Over the next five to ten years, the impacts of climate change on consumer prices may become broader. Tightening domestic carbon policy will continue to generate price pressures for fuel and high-emissions industries, such as transport. Home ownership costs, such as insurance and council rates, are already rising in response to the actual and expected physical risks presented by rising sea levels and more extreme weather events. Housing costs are also likely to increase if building standards increasingly encourage energy-efficient buildings, which are more expensive. Over time, higher home ownership costs may also be reflected in rent prices.

The magnitudes of these impacts are uncertain, and there are likely to be some offsetting effects. For example, demand for houses that are exposed to physical risks is likely to be lower, and higher housing costs may encourage people to live in smaller houses. In addition, policy-driven reductions in demand for high-emissions products, such as fossil fuels, could reduce the underlying prices of those products.

In general, the overall impact on consumer prices is expected to be mitigated by changes in spending patterns as consumers substitute away from high-emissions products. The impacts are likely to be larger where spending behaviour is entrenched, such as in the case of widespread use of petrol and diesel vehicles, or in cases where substitutes are more limited. It is important that the measurement of the consumers price index adapts as consumers' spending patterns and product types evolve.

Long-term impacts

In the longer term, the direction and strength of climate-change-related inflation impacts are less clear. This is because there is greater scope for upside and downside price influences in the long run. For example, the physical impacts of climate change could be more or less severe, consumption patterns might change, and new technologies might be developed. In addition, some areas will experience changes in climate that are beneficial to food production.

Implications for monetary policy

The potential implications of climate change for inflation make it relevant for monetary policy. However, isolating, quantifying and tracking the specific impacts of climate change on consumer prices is extremely challenging. In addition, increases in the prices of certain goods and services due to climate change will not always result in a sustained increase in the overall consumer price level as the prices of other products adjust. Regardless, it is likely that climate-change-related price volatility will result in more volatility in consumer price inflation over time.

The Reserve Bank is working to better understand the macroeconomic impacts of climate change. This work will build on the modelling work by the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) and the Climate Change Commission.



Economic
projection

CHAPTER
05

CHAPTER 5

Economic projection



This chapter summarises the baseline economic projection that the MPC considered when making its policy assessment. The projection was finalised on 18 November 2021.

This projection relies on a set of key assumptions about the global and domestic responses to the ongoing COVID-19 pandemic. These relate to:

- the timing and pricing impacts of supply-chain disruptions and how and when they dissipate;
- the economic impacts of, and recovery following, restrictions on activity;
- how the behaviour of businesses, consumers, and workers might adapt to living with COVID-19 in the community;
- vaccination rates and vaccine effectiveness; and
- how well the New Zealand health system will cope with widespread COVID-19 in the community, and to what extent the Government will respond.

There is significant uncertainty about these assumptions, and outcomes could be substantially different if they do not hold. Chapter 2 discusses some of the key risks to the economic outlook.

The projection takes into account recent data, which show strong economic activity before recent lockdowns and a more resilient labour market than previously expected. The factors underpinning this starting point are discussed in chapter 2.

The projection also accounts for the assumed impacts of developments since the August *Statement*, including the announced COVID-19 Protection Framework, the tightening of loan-to-value ratio (LVR) restrictions, and announced policy changes aimed at increasing housing supply through new housing intensification rules. The projection assumes New Zealand moves to the COVID-19 Protection Framework before the end of 2021, and that New Zealand is predominantly at Orange or Green Level restrictions over the projection horizon. The projection also assumes that border restrictions ease gradually from the March 2022 quarter in line with recent Government announcements.

Employment is expected to remain above its maximum sustainable level (MSE) over the projection horizon, but to return towards MSE over the projection as capacity pressures ease. Similarly, annual CPI inflation returns to the 2 percent target midpoint towards the end of the projection. Annual inflation remains elevated due to ongoing supply-chain disruptions and heightened capacity pressures in the near term.

The economic outlook is consistent with higher interest rates. This helps to ensure the MPC meets its medium-term inflation and employment objectives.

Table 5.1

Key projection assumptions

Key factors	
Global growth	<ul style="list-style-type: none"> Annual average trading-partner GDP growth is expected to recover to 5.7% in 2021 and moderate thereafter. While this recovery is supported by the ongoing COVID-19 vaccine rollout, expected near-term growth has slowed since the <i>August Statement</i>. This slowdown is in part due to the spread of the Delta variant in Australia and across Asia. The New Zealand dollar trade-weighted index (TWI) is assumed to stay around 75.1. The Dubai oil price is assumed to return gradually towards USD 73 per barrel over the medium term, in line with futures market pricing.
Health restrictions	<ul style="list-style-type: none"> New Zealand is assumed to transition to the announced COVID-19 Protection Framework before the end of 2021. New Zealand is assumed to be predominantly at Orange or Green Level restrictions over the projection, with restrictions becoming less stringent towards the latter half of the projection. COVID-19 is assumed to become more widespread in the community. The projection allows for some periods of increasing, but not unmanageable, strain on the health system. Border restrictions are expected to begin to ease gradually in 2022, in line with recent Government announcements.
House prices	<ul style="list-style-type: none"> Annual house price growth is expected to slow down from 30% at the end of 2021 to 6% by the end of 2022. House prices are then assumed to fall modestly from late 2022 until the end of the projection horizon. This reflects a variety of factors, including increases in interest rates, increased housing supply, low net migration, announced changes to tax policy, and the reintroduction and tightening of LVR restrictions.

Economic growth

Production

- Near-term economic activity has been negatively impacted by the recent lockdowns, although not as severely as the nationwide lockdown in 2020. Activity is expected to recover, with annual average GDP growth peaking at 4.7% in 2022.
- New Zealand's productive capacity (potential output) continues to be constrained by the domestic and international measures put in place to contain COVID-19 (see chapter 4.2). These disruptions are expected to dissipate as domestic border restrictions and supply-chain pressures ease.
- The output gap is starting from a much higher position than assumed in the *August Statement*. This reflects stronger-than-expected economic growth and a tighter labour market.

Consumption

- Consumption is expected to rebound from the recent lockdowns but remain fairly muted over the near term. This reflects some hesitancy as COVID-19 becomes widespread. Consumption is then projected to accelerate, supported by a resilient labour market and accumulated savings.
- Rising interest rates and easing house price inflation are expected to moderate consumption growth over the medium term.

Investment

- Business investment rebounds from the recent lockdowns, but is expected to be dampened by an initial period of heightened uncertainty in the near term as COVID-19 spreads more widely in New Zealand. However, it then recovers in response to ongoing capacity pressures.
- Residential investment rebounds strongly from the recent lockdowns, reflecting record levels of residential building consents. Policies that permit more intensive residential builds are expected to provide further medium-term support. Despite the slowdown in house price inflation and increases in interest rates, residential investment is expected to remain elevated over the projection horizon. However, the construction sector will continue to face capacity constraints, particularly in the near term.

Exports and imports

- Import prices are significantly higher than previously expected, driven largely by higher oil prices and the impact of supply-chain disruptions on the cost of producing goods and transporting them to New Zealand.
- Recovering global growth is expected to underpin demand for New Zealand's exports. This supports strong, albeit moderating, export prices over the projection.
- It is assumed that, as border restrictions ease, factors like New Zealand's remoteness will somewhat discourage international travellers from visiting. In contrast, New Zealanders are expected to become more comfortable with international travel as they adapt to COVID-19 being more widespread in the community. This asymmetry weighs on net exports over the projection horizon.

Labour market

Employment and wages

- New Zealand's labour market is exceptionally tight. The unemployment rate fell to 3.4% in the September 2021 quarter, despite a marked increase in the participation rate. This reflects both heightened demand and constrained labour supply.
- We assume that the level of MSE is lower relative to pre-COVID-19 levels, largely reflecting a mismatch of skills in New Zealand's labour market. This is particularly the case while border restrictions remain stringent, preventing migrant workers from filling labour shortages.
- Consequently, employment is expected to be above, but to return towards, its maximum sustainable level over the projection horizon.
- Annual labour cost index (LCI) private sector wage inflation is projected to accelerate further from 2.5% in the September 2021 quarter, peaking at 3.6% at the end of 2022. This reflects the tight labour market, heightened capacity pressures, and rising living costs.
- Net working-age migration is projected to be mildly negative over 2021, as asymmetric border restrictions impede arrivals but not departures. Net migration is assumed to increase gradually as border restrictions ease, to about 24,000 people per year.

Consumer price inflation

Tradables

- Annual tradables inflation is expected to peak at 6.7% in late 2021, reflecting increases in oil prices and the ongoing impacts of supply-chain disruptions.
- Supply-chain disruptions are currently assumed to ease from mid-2022, with ex-oil import prices stabilising towards the end of 2022. Together with moderating oil prices, and a relatively strong TWI, annual tradables inflation declines to -0.4% by the end of the projection horizon.

Non-tradables

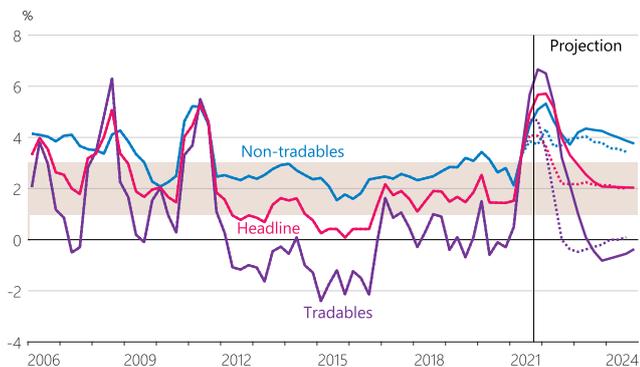
- Annual non-tradables inflation remains at or above 3.5% over the projection.
- High starting-point momentum in housing demand and construction costs supports housing-related components of non-tradables inflation. Capacity pressures and a tight labour market provide additional support, but are assumed to ease over the latter part of the projection.

Headline

- Annual CPI inflation is projected to peak at 5.7% in the March 2022 quarter, reflecting strength in both tradables and non-tradables inflation.
- Annual CPI inflation is expected to decelerate to the 2% midpoint of the target band towards the end of the projection, reflecting the tradables and non-tradables factors listed above.

Charts

Figure 5.1
CPI inflation
(annual)



Source: Stats NZ, RBNZ estimates.
Note: Dotted lines show the projection from the August Statement.

Figure 5.2
Private sector LCI wage inflation
(annual)



Source: Stats NZ, RBNZ estimates.

Figure 5.3
Unemployment rate
(seasonally adjusted)



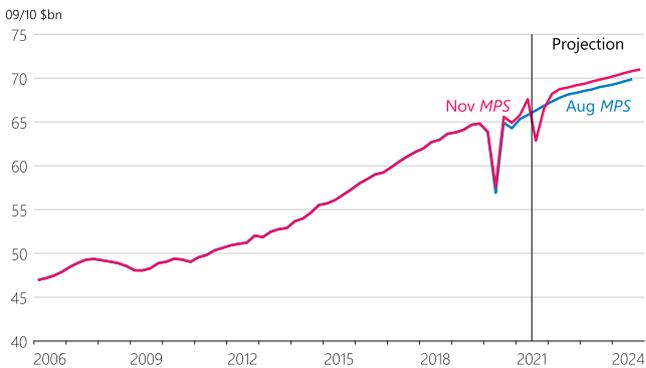
Source: Stats NZ, RBNZ estimates.

Figure 5.4
Annual house price inflation



Source: CoreLogic, RBNZ estimates.

Figure 5.5
Quarterly production GDP
(seasonally adjusted)

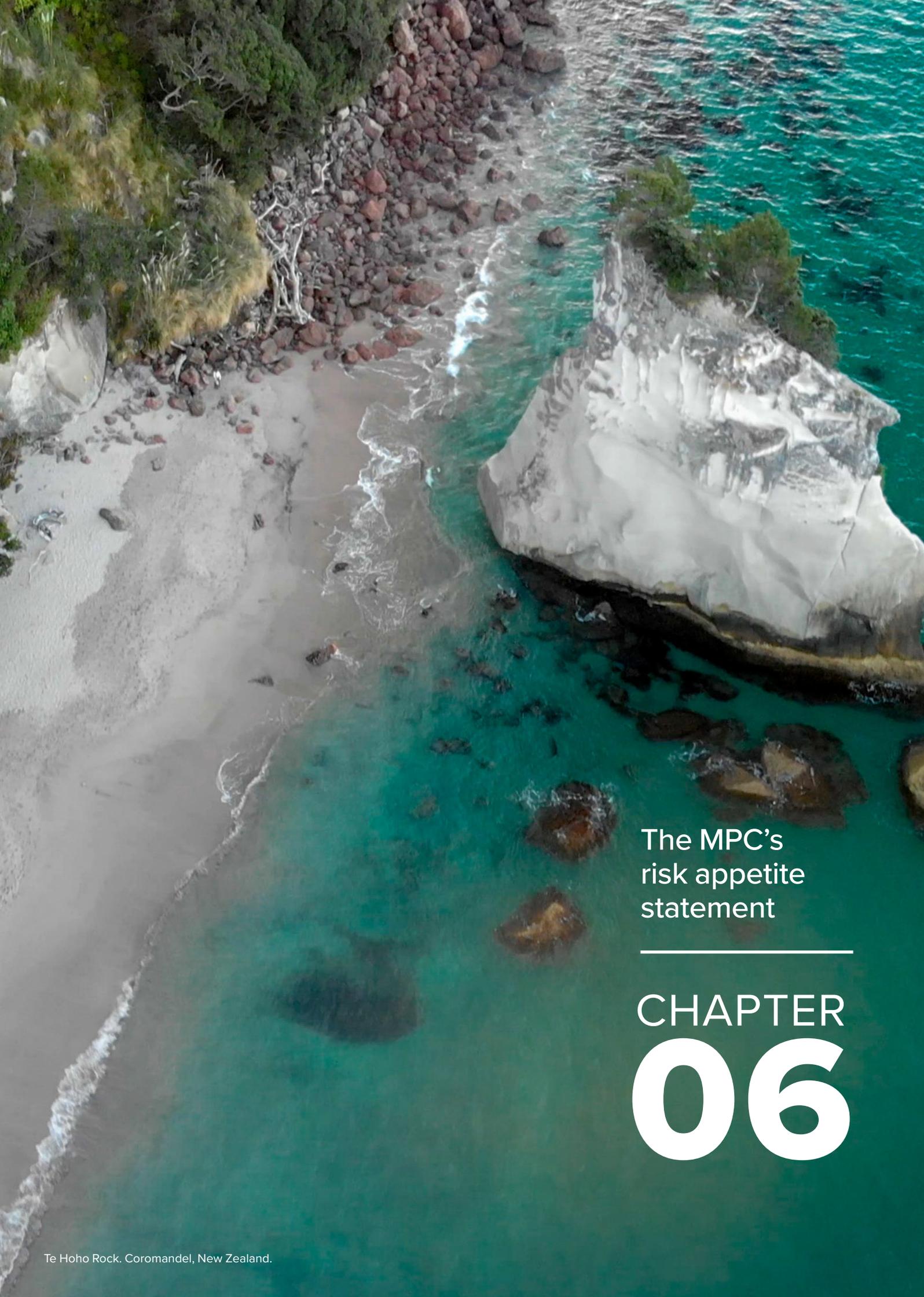


Source: Stats NZ, RBNZ estimates.

Figure 5.6
Official Cash Rate
(quarterly average)



Source: RBNZ.



The MPC's
risk appetite
statement

CHAPTER
06

CHAPTER 6

The MPC's risk appetite statement



The statement of the MPC's monetary policy strategy at the beginning of this document outlines how the MPC approaches economic risks when making policy decisions. The MPC also faces other risks when it acts. This chapter outlines the MPC's risk appetite statement for operational, legal, reputational, and financial risks.

The Reserve Bank of New Zealand Act (1989) underpins the Monetary Policy Committee's (MPC) purpose, which is to promote the prosperity and well-being of New Zealanders, and contribute to a sustainable and productive economy. The MPC is mandated to do this by formulating monetary policy to achieve and maintain stability in the general level of prices over the medium term and support maximum sustainable employment, subject to secondary considerations. In doing so, the MPC is guided by the operational objectives set out in the MPC *Remit*. The MPC's *Charter* further outlines the duties and responsibilities for the MPC in an operational sense.

The MPC faces a range of risks when formulating policy – some of which are unavoidable. The MPC has recently defined the specific risks it faces and has detailed a Risk Appetite Statement (RAS) for the first time to outline its appetite for each type of risk.

Defining the risks

The MPC aims to maximise the operational objectives in the *Remit* while not taking undue risk. Undue risk can be defined as risks over and above those outlined in its RAS below. The purpose of the MPC's RAS is to distinguish between necessary and undue risk. It summarises the MPC's willingness to take on different types of risks to best fulfil its mandate.

The MPC's willingness to take on some types of risk must be guided by its legal mandate. Some, such as the financial risk borne by the Reserve Bank as a consequence of the MPC's monetary policy decisions, will also be heavily influenced by the risk preferences of the Reserve Bank.

The MPC's risk appetite is categorised as high, medium or low in the RAS. Definitions for each level of risk can be found in table 6.1. The types of risk the MPC is exposed to (operational, legal, reputational and financial) are defined with examples in table 6.2.

Table 6.1
Defining the risk appetite levels

Risk appetite	Description
High appetite	The MPC readily accepts exposure to these risks, as they are central to the pursuit of its mandate. Managing them on an appropriate risk-reward basis is one of its core competencies.
Medium appetite	The MPC accepts exposure to these risks, but on a controlled basis. These risks contribute to the achievement of its mandate but may come at a material cost, and are taken on a modest basis.
Low appetite	The MPC generally avoids these risks, as they have the potential to undermine its ability to achieve its mandate. When these risks arise, extra measures are taken to mitigate them.

Table 6.2
Defining the risks faced by the MPC

Risk	Definition and examples
Operational	<p><i>The risk that disruptions to people, systems, and processes impact the MPC meeting and the effective formulation of monetary policy.</i></p> <ul style="list-style-type: none"> • One or more MPC members can't meet due to illness, technical difficulties or similar issues. • MPC members can meet, but they don't have the best information or resources available to make a decision. • MPC must make decisions under less than ideal conditions – e.g. without sufficient time for deliberation. • MPC can make a decision, but doesn't have the resources to communicate it well.
Legal	<p><i>The risk that the MPC does not fulfil its lawful mandate and is subject to legal challenge. Lawful mandate covers the Act, Remit, Charter, and Code of Conduct.</i></p> <ul style="list-style-type: none"> • The legality of MPC monetary policy decisions is legitimately questioned. • An MPC member is found to have acted illegally.
Reputational	<p><i>The risk that damage to credibility results in a loss of stakeholder trust or confidence in monetary policy and/or the MPC.</i></p> <ul style="list-style-type: none"> • MPC policies produce poor outcomes. • MPC policies produce good outcomes, but are received poorly by the public or other key stakeholders. • Monetary policy credibility is lost. • The reputation of the MPC or MPC members is compromised by factors other than policy choices.
Financial	<p><i>The MPC bears no financial risk as a committee, but has the responsibility to set policies which may cause significant financial risk to be borne by the Reserve Bank and the Crown.</i></p>

Table 6.3

The MPC's risk appetite statement

Risk type	Risk appetite statement	Success indicators
Operational	<p>The MPC has low appetite for directing the Reserve Bank to undertake policies that would exceed its operational capacity, or lead to a policy being launched without sufficient preparation.</p> <p>The MPC has low appetite for making decisions without thorough deliberation and a sound understanding of the information available at the time. However, it operates in an inherently uncertain environment, therefore the MPC necessarily has a high tolerance for setting policy under uncertainty.</p> <p>The MPC has low appetite for making a decision without all members contributing, but is flexible with respect to how members come together to deliberate.</p> <p>The MPC has medium appetite to test new internal systems and processes, seeking continuous improvement in the way it operates.</p>	<p>Monetary policy is formulated in line with the capacity of the Reserve Bank.</p> <p>The MPC is forward-looking regarding potential policy tools and directs the Reserve Bank to prepare its operational needs in line with expected future policy needs.</p> <p>The MPC can meet and formulate policy as scheduled.</p>
Legal	<p>The MPC has very low appetite for legal challenge, and no appetite for acting illegally.</p>	<p>Monetary policy decisions are explained and justified in the <i>Monetary Policy Statement</i>.</p> <p>Record of meeting reflects consideration of a broad range of information, robust discussion, and acknowledgement of secondary considerations.</p> <p>Members continuously seek to reach consensus.</p>
Reputational	<p>The MPC recognises the importance of credibility for effective monetary policy. It has low appetite for policies or decisions that could cause inflation expectations to become unanchored.</p> <p>The MPC has moderate appetite for external criticism and challenge, and will respond as necessary to maintain its legal licence to operate.</p> <p>The MPC has high appetite to learn from its international peers and to design and test new or novel policies to respond to uncharted economic conditions.</p>	<p>Medium-to-long-term inflation expectations are anchored near the target midpoint.</p> <p>Market rates (e.g. OIS) move as intended when implementing monetary policy.</p> <p>Inflation and employment are near, or forecast to converge towards, their respective targets.</p>
Financial	<p>The MPC bears no financial risk as a committee, but has the responsibility to set policies which may cause significant financial risk to be borne by the Reserve Bank. For this reason, the MPC is guided by the Reserve Bank's internal risk appetite and institutional arrangements in these areas.</p>	

Table 6.3**Summary of the MPC's risk appetite**

Risk type	Low	Medium	High
Operational	✓	<i>New systems and processes</i>	
Legal	✓		
Reputational	✓	<i>External challenge</i>	<i>Learning from international peers and innovative or novel policy</i>
Financial			

Note: A tick denotes the default risk tolerance level, with exceptions listed in italics. The MPC has not established an appetite for financial risk, as it does not bear any financial risk as a committee.

An aerial photograph of a coastline. The image shows several waves breaking onto a sandy beach. The water is a deep teal color, and the sand is a light, textured grey. The waves are moving from the top right towards the bottom left, creating a series of curved, parallel lines across the frame. The overall tone is cool and natural.

Appendices

CHAPTER
07

CHAPTER 7

Appendices

Appendix 1: Statistical tables

Table 7.1

Key forecast variables

		GDP growth Quarterly	CPI inflation Quarterly	CPI inflation Annual	TWI	OCR
2019	Mar	0.3	0.1	1.5	74.0	1.8
	Jun	0.4	0.6	1.7	72.6	1.6
	Sep	0.9	0.7	1.5	72.0	1.2
	Dec	0.2	0.5	1.9	71.3	1.0
2020	Mar	-1.4	0.8	2.5	70.9	0.9
	Jun	-9.9	-0.5	1.5	69.7	0.3
	Sep	13.9	0.7	1.4	72.0	0.3
	Dec	-1.0	0.5	1.4	72.9	0.3
2021	Mar	1.4	0.8	1.5	74.9	0.3
	Jun	2.8	1.3	3.3	74.7	0.3
	Sep	-7.0	2.2	4.9	74.4	0.3
	Dec	5.8	1.2	5.7	75.1	0.6
2022	Mar	2.6	0.9	5.7	75.1	0.9
	Jun	0.8	0.8	5.2	75.1	1.5
	Sep	0.3	1.1	4.0	75.1	1.9
	Dec	0.4	0.5	3.3	75.1	2.1
2023	Mar	0.2	0.5	2.9	75.1	2.3
	Jun	0.4	0.4	2.5	75.1	2.4
	Sep	0.3	0.8	2.3	75.1	2.5
	Dec	0.3	0.3	2.1	75.1	2.6
2024	Mar	0.4	0.5	2.1	75.1	2.6
	Jun	0.4	0.4	2.1	75.1	2.6
	Sep	0.3	0.8	2.0	75.1	2.6
	Dec	0.3	0.3	2.0	75.1	2.6

Table 7.2

Measures of inflation, inflation expectations, and asset prices

	2020				2021			
	Mar	Jun	Sep	Dec	Mar	Jun	Sep	Dec
Inflation (annual rates)								
CPI	2.5	1.5	1.4	1.4	1.5	3.3	4.9	
CPI non-tradables	3.4	3.1	2.6	2.8	2.1	3.3	4.5	
CPI tradables	1.5	-0.6	-0.1	-0.3	0.5	3.4	5.7	
Sectoral factor model estimate of core inflation	1.8	1.8	1.9	2.0	2.2	2.4	2.7	
CPI trimmed mean (30 percent measure)	2.7	2.1	1.7	2.2	1.7	3.0	4.0	
CPI weighted median	2.8	2.4	2.2	2.7	2.3	3.0	3.3	
GDP deflator (expenditure)	3.7	2.4	1.6	0.6	0.2	2.2		
Inflation expectations								
ANZ Business Outlook – inflation one year ahead (quarterly average to date)	1.7	1.4	1.4	1.5	1.9	2.2	2.9	3.9
RBNZ Survey of Expectations – inflation 2 years ahead	1.9	1.2	1.4	1.6	1.9	2.0	2.3	3.0
RBNZ Survey of Expectations – inflation 5 years ahead	2.0	1.8	1.9	1.9	2.0	2.1	2.0	2.2
RBNZ Survey of Expectations – inflation 10 years ahead	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0
Long-run inflation expectations*	1.8	1.8	2.0	2.0	2.1	2.1	2.1	2.1
Asset prices (annual percent changes)								
Quarterly house price index (CoreLogic NZ)	7.6	7.2	10.7	16.9	24.1			
REINZ Farm Price Index (quarterly average)	-12.5	-8.0	-3.7	-0.5	6.9	6.3	15.1	
NZX 50 (quarterly average)	21.1	6.4	8.6	13.2	14.4	17.1	10.3	

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

*Long-run expectations are extracted from a range of surveys using a Nelson-Siegel model.

Table 7.3

Measures of labour market conditions

(seasonally adjusted, changes expressed in annual percent terms, unless specified otherwise)

	2020				2021		
	Mar	Jun	Sep	Dec	Mar	Jun	Sep
Household Labour Force Survey							
Unemployment rate	4.2	4.1	5.3	4.8	4.6	4.0	3.4
Underutilisation rate	10.4	12.1	13.2	11.8	12.1	10.5	9.2
Labour force participation rate	70.7	69.9	70.1	70.2	70.4	70.5	71.2
Employment rate (percentage of working-age population)	67.7	67.1	66.4	66.8	67.1	67.6	68.8
Employment growth	2.5	1.6	0.4	0.6	0.2	1.6	4.3
Average weekly hours worked	34.1	30.7	33.7	34.9	33.9	34.1	31.2
Number unemployed (thousand people)	120	116	151	139	133	116	98
Number employed (million people)	2.74	2.73	2.71	2.73	2.75	2.78	2.83
Labour force (million people)	2.86	2.85	2.87	2.87	2.88	2.89	2.93
Extended labour force (million people)	2.96	2.96	2.97	2.97	2.99	2.98	3.01
Working-age population (million people)	4.05	4.07	4.09	4.09	4.09	4.10	4.11
Quarterly Employment Survey – QES							
Filled jobs growth	2.1	0.3	-0.6	0.3	0.5	2.4	4.0
Average hourly earnings growth (private sector, ordinary time)	3.3	2.4	3.7	4.6	4.1	4.4	3.6
Other data sources							
Labour cost index growth, private sector	2.4	1.7	1.6	1.5	1.6	2.2	2.5
Labour cost index growth, private sector, unadjusted	3.6	2.8	2.6	2.4	2.8	3.7	4.1
Estimated net migration (published, thousands, quarterly)	26.9	0.4	0.5	-1.1			
Change in All Vacancies Index	-14.5	-50.1	-19.1	-1.1	26.1	164.1	56.6

Note: The All Vacancies Index is produced by MBIE as part of the monthly Jobs Online report, which shows changes in job vacancies advertised by businesses on internet job boards. It is converted to quarterly and seasonally adjusted by the RBNZ. The unadjusted labour cost index (LCI) is an analytical index that reflects quality change in addition to price change (whereas the official LCI measures price changes only). For definitions of underutilisation, the extended labour force, and related concepts, see Statistics New Zealand (2016), *Introducing underutilisation in the labour market*. Estimated net migration (published) is the Stats NZ outcomes-based measure.

Table 7.4**Composition of real GDP growth***(annual average percent change, seasonally adjusted, March years, unless specified otherwise)*

March year	Actuals								Projection		
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Final consumption expenditure											
Private	3.9	3.3	4.2	6.5	4.9	4.4	2.6	0.4	4.7	3.5	1.2
Public authority	2.1	3.4	2.3	2.2	3.4	3.7	6.1	6.5	8.4	1.2	-0.2
Total	3.5	3.3	3.7	5.5	4.6	4.2	3.4	1.9	5.6	2.9	0.8
Gross fixed capital formation											
Residential	15.2	8.3	7.1	8.8	-1.8	3.0	1.4	1.2	7.7	8.6	0.7
Other	7.6	7.9	2.5	-0.3	10.4	6.4	1.2	-6.1	8.0	9.2	2.3
Total	9.4	8.0	3.7	2.1	7.0	5.5	1.2	-4.2	7.9	9.0	1.9
Final domestic expenditure	4.8	4.4	3.7	4.7	5.2	4.5	2.9	0.4	6.1	4.3	1.1
Stockbuilding*	-0.2	0.5	-0.3	0.1	0.2	-0.1	-0.5	-0.1	0.7	-0.2	0.0
Gross national expenditure	4.5	4.6	3.2	4.9	5.6	4.4	2.3	-0.6	7.0	4.5	1.2
Exports of goods and services	0.1	4.7	6.8	2.1	3.8	3.4	0.3	-17.6	5.1	5.8	7.5
Imports of goods and services	8.1	7.7	2.6	5.6	7.8	4.3	1.1	-15.9	14.7	7.0	5.8
Expenditure on GDP	2.1	3.7	4.4	3.8	4.4	4.2	2.1	-0.3	4.4	4.0	1.3
GDP (production)	2.7	3.8	3.7	3.7	3.6	3.3	1.7	-1.4	4.5	4.2	1.3
GDP (production, March qtr to March qtr)	3.5	3.8	4.1	3.2	3.6	2.9	0.1	2.9	3.7	1.7	1.4

*Percentage point contribution to the growth rate of GDP.

Table 7.5

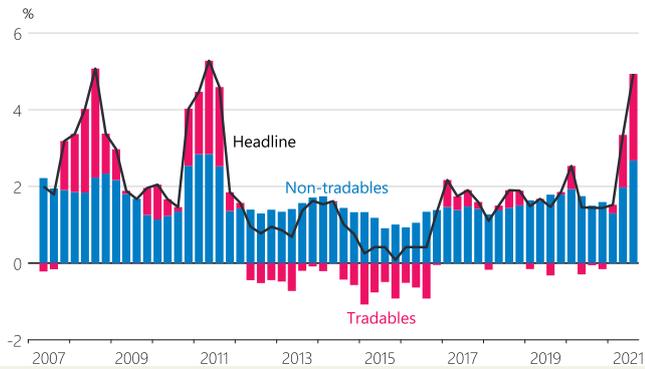
Summary of economic projection

(annual percent change for March years unless specified otherwise)

March year	Actuals									Projection		
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	
Price measures												
CPI	1.5	0.3	0.4	2.2	1.1	1.5	2.5	1.5	5.7	2.9	2.1	
Labour costs	1.7	1.8	1.8	1.5	1.9	2.0	2.4	1.6	3.2	3.6	3.5	
Export prices (in New Zealand dollars)	11.5	-9.2	-0.2	3.9	3.3	1.5	7.2	-2.7	7.2	-2.8	-2.1	
Import prices (in New Zealand dollars)	-3.0	-3.4	1.2	0.6	1.7	4.1	2.4	-2.7	6.4	-1.7	-0.2	
Monetary conditions												
OCR (year average)	2.5	3.4	2.9	2.0	1.8	1.8	1.2	0.3	0.5	2.0	2.5	
TWI (year average)	77.6	79.3	72.6	76.5	75.6	73.4	71.7	72.4	74.8	75.1	75.1	
Output												
GDP (production, annual average % change)	2.7	3.8	3.7	3.7	3.6	3.3	1.7	-1.4	4.5	4.2	1.3	
Potential output (annual average % change)	2.6	3.1	3.2	3.2	3.1	3.0	2.5	-1.2	2.7	3.8	2.0	
Output gap (% of potential GDP, year average)	-1.5	-0.8	-0.3	0.2	0.7	1.0	0.2	-0.1	1.7	2.0	1.3	
Labour market												
Total employment (seasonally adjusted)	4.0	3.6	2.3	5.9	2.9	1.5	2.5	0.2	3.5	0.7	0.9	
Unemployment rate (March qtr, seasonally adjusted)	5.6	5.5	5.3	4.9	4.4	4.2	4.2	4.6	3.3	3.6	3.9	
Trend labour productivity	0.8	0.7	0.6	0.5	0.4	0.4	0.5	0.6	0.6	0.6	0.5	
Key balances												
Government operating balance (% of GDP, year to June)	-1.2	0.2	0.7	1.5	1.9	2.4	-7.3	-4.1	-4.6	-2.1	-1.8	
Current account balance (% of GDP)	-2.5	-3.5	-2.4	-2.6	-3.0	-3.7	-2.3	-2.5	-4.4	-5.1	-5.8	
Terms of trade (SNA measure, annual average % change)	11.7	-0.3	-3.0	2.6	4.5	-2.4	2.0	-0.7	1.7	0.6	-2.2	
Household saving rate (% of disposable income)	1.2	-0.3	0.0	0.3	-0.1	0.5	1.9	5.2	1.6	0.2	-0.8	
World economy												
Trading-partner GDP (annual average % change)	3.5	3.7	3.5	3.5	3.9	3.5	1.7	-0.8	5.3	4.6	3.3	
Trading-partner CPI (TWI weighted)	2.2	1.0	1.2	1.9	1.8	1.4	2.4	0.8	2.6	2.1	2.1	

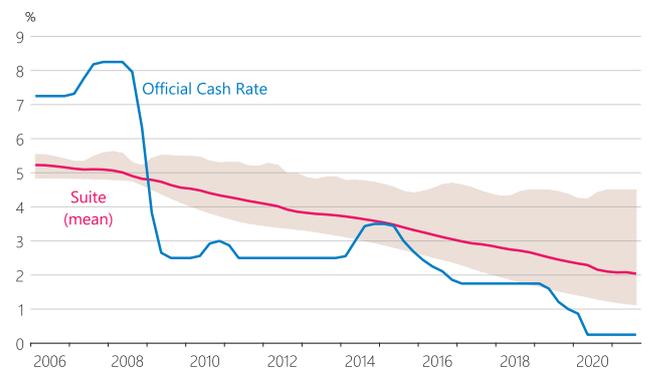
Appendix 2: Chart pack

Figure 7.1
Composition of CPI inflation
(annual)



Source: Stats NZ, RBNZ estimates.

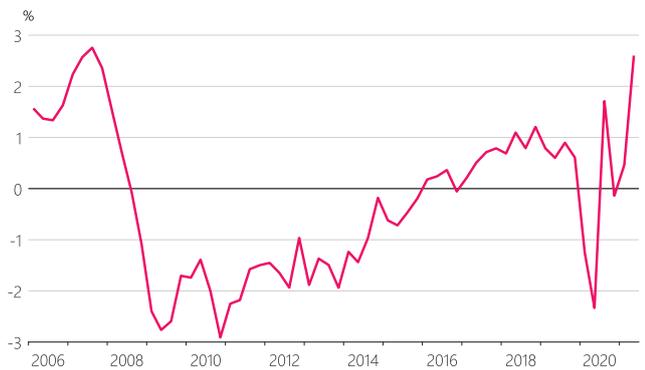
Figure 7.4
OCR and neutral OCR indicator suite
(quarterly average)



Source: RBNZ estimates.

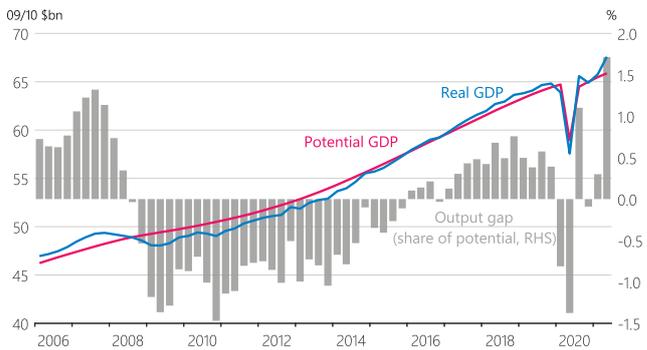
Note: Shaded area indicates the range between the maximum and minimum values from a suite of neutral OCR indicators.

Figure 7.2
Output gap
(share of potential)



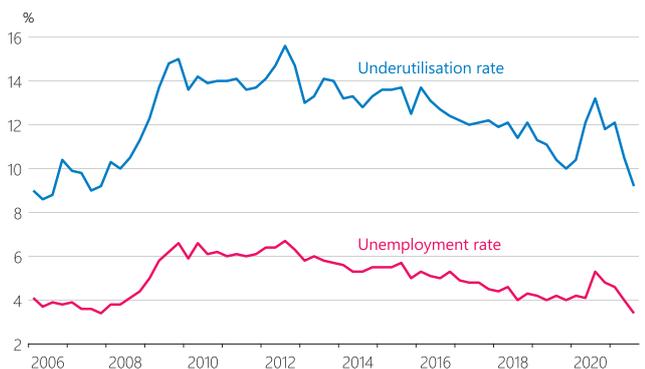
Source: Stats NZ, RBNZ estimates.

Figure 7.5
GDP and potential GDP
(seasonally adjusted)



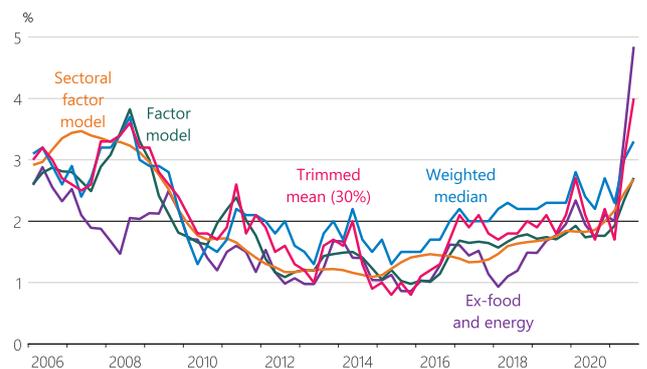
Source: Stats NZ, RBNZ estimates.

Figure 7.3
Unemployment and underutilisation rates
(seasonally adjusted)



Source: Stats NZ.

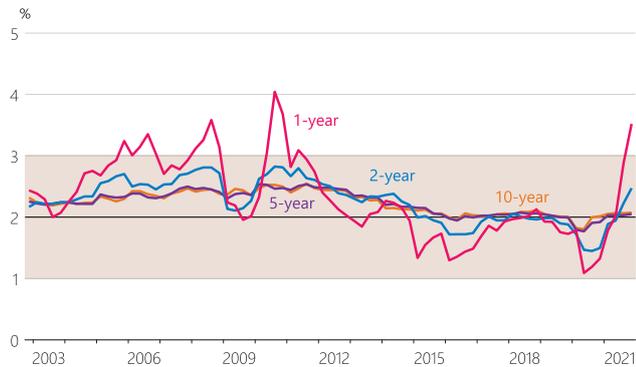
Figure 7.6
Measures of core inflation
(annual)



Source: Stats NZ, RBNZ estimates.

Note: Core inflation measures exclude the GST increase in 2010.

Figure 7.7
Inflation expectations
(annual)



Source: RBNZ estimates.

Note: Inflation expectations are estimates from the RBNZ inflation expectations curve, based on surveys of businesses and professional forecasters.

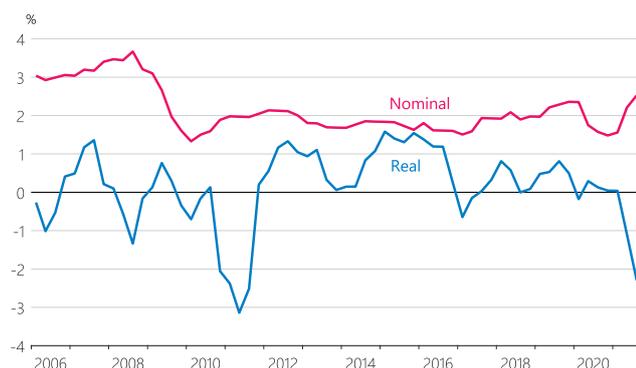
Figure 7.10
Mortgage rates



Source: interest.co.nz, RBNZ estimates.

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

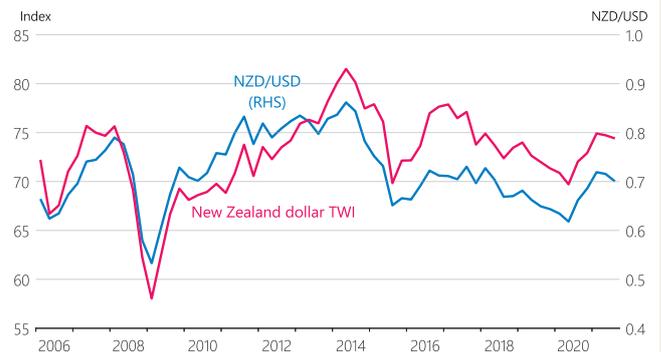
Figure 7.8
Private sector wage growth
(annual)



Source: Stats NZ, RBNZ estimates.

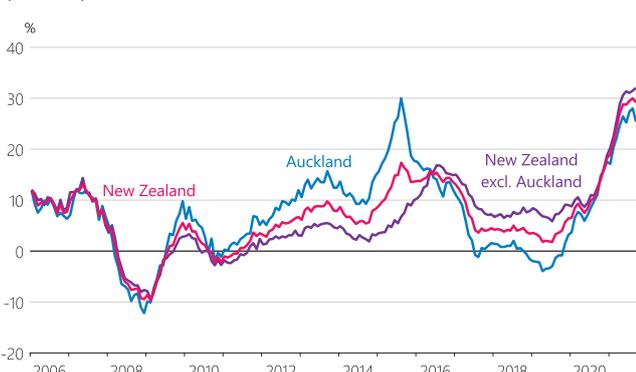
Note: Private sector wage growth is measured by the labour cost index, all salary and wage rates, private sector. Real labour cost index is deflated with headline CPI inflation.

Figure 7.11
New Zealand dollar exchange rates
(quarterly average)



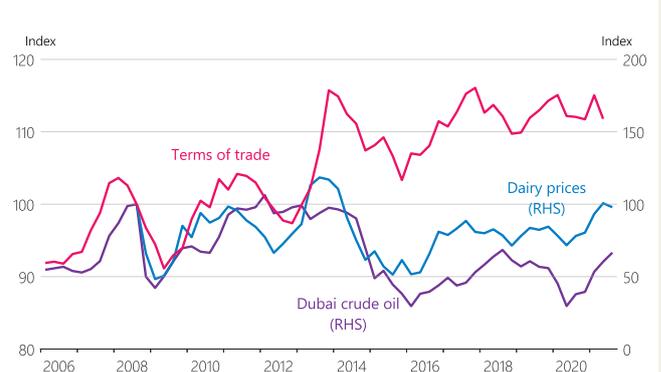
Source: Reuters, RBNZ, RBNZ estimates.

Figure 7.9
House price inflation
(annual)



Source: REINZ.

Figure 7.12
Terms of trade, dairy and oil price indices



Source: Stats NZ, Global Dairy Trade, Reuters, RBNZ estimates.