
Risks and Scenarios

Overview

- This chapter outlines the main economic and fiscal risks associated with the central forecast. The first part of the chapter outlines the key risks to the economic outlook. The second part of the chapter presents two alternative scenarios for the economy, and the remainder focuses on general fiscal risks. The global risks to the New Zealand economy, primarily around the prices of commodity exports, are tilted to the downside. However, domestic risks, relating chiefly to the size and duration of net inward migration, are skewed to the upside.
- Internationally, the risks with potentially the largest impact on the New Zealand economy relate to the demand for commodities and global inflation. These include a sharp fall in demand from China, a slower rebalancing into non-mining activity in the Australian economy, the impact of any unwinding of easy US monetary policy on emerging markets and persistent weak inflation in many advanced economies.
- Domestically, the risks with potentially the largest impact on the New Zealand economy relate to the duration and impact of elevated net migration, the uncertain impact on household spending as a result of the low inflation environment, a nationwide adjustment in house prices, the outlook for the Canterbury rebuild and uncertainty around labour productivity growth later in the forecast.
- Two scenarios are presented that show possible ways in which the New Zealand economy could deviate from the central forecast. Scenario one is based on lower terms of trade and weaker inflation than in the central forecast, which reduce nominal GDP and tax revenue. An OBEGAL surplus is not achieved until the 2018 fiscal year. Scenario two is based on a larger boost to domestic demand from the low inflation environment, associated with a longer period of elevated net migration. This lifts nominal GDP, tax revenue and the OBEGAL over the forecast period.
- In addition to the risks associated with the economy, the Crown is also subject to expenditure and balance sheet risks. In particular, volatility in financial asset prices and interest rates can have a significant impact on the Crown's fiscal position.

Economic Risks

The balance of risks to global growth continues to be skewed to the downside. Growth in China slowed in 2014 as housing demand weakened, and growth in Australia remained below trend. The US recovery remains on track despite moderating in early 2015, and US monetary policy settings are expected to tighten, which may have the unintended effect of increased volatility in emerging markets. Growth in euro area activity has picked up from a low level, but deflationary risks persist. Downside risks remain around the demand for New Zealand's key commodity exports, and global inflation may remain weak for longer. The realisation of any of these downside risks to the world economy would weigh on growth in the New Zealand economy.

The outlook for domestic demand continues to be solid, with household spending and high net migration presenting upside risks. High household confidence may facilitate a larger boost to consumption from the low inflation environment than in the central forecast. Stronger demand and GDP growth in New Zealand relative to other countries, compared to our central forecast, could sustain a longer period of elevated net inward migration, which would further boost domestic demand in the economy.

Risks to China's growth outlook continue to be tilted to the downside...

Risks to the growth outlook for China continue to be skewed to the downside, with GDP growth in 2014 (7.4%) just below the government's target (7.5%). Annual growth in the March 2015 quarter fell to the government's 2015 target of 7.0%. Housing demand has continued to weaken, resulting in house price falls across the major cities. The housing market slowdown reinforced concerns over the high level of informal banking credit and local government debt. China's growth could slow more sharply than in the central forecast if financial adjustment results in significantly tighter credit conditions.

The People's Bank of China has continued to ease monetary policy, but the extent of stimulus has been relatively limited so far. While policymakers want to prevent a sharp slowdown in the economy and stabilise the housing market, excessive stimulus would lead to the build-up of future risks. Structurally, China is rebalancing its economy away from investment- and export-led growth towards private consumption. Rebalancing is expected to lead to slower overall growth in the short term, but should deliver more sustainable growth in the long term. A successful rebalancing into more consumption-based growth would be positive for New Zealand by increasing Chinese demand for our primary products.

...which could hinder the recovery in the Australian economy...

A sharp slowdown in China's growth would weaken external demand for other Asian economies. Lower Chinese demand would also impact on Australia's export sector, particularly mining and agriculture. Iron ore prices have already fallen 50% since mid-2014. Growth in Australia is expected to be below trend in the near term, and risks to the Australian economy (apart from the flow-on effect from China) centre on a slower-than-expected rebalancing of growth from mining investment to investment in the non-mining sectors. Continued muted growth in labour productivity and firm profitability could dampen employment and wage growth, leading to weaker household demand than expected. Lower export earnings and a sharp depreciation in the Australian dollar would also reduce real incomes and spending. As one of New Zealand's largest trading partners, a more prolonged period of soft growth in Australia would clearly impact on the New Zealand economy.

...and US monetary tightening may expose emerging market vulnerabilities...

The US economy has continued to recover from the global financial crisis, driven by growth in consumption and investment. Despite a moderation in the recovery in early 2015, the US Federal Reserve is expected to raise its funds rate in the second half of the year. Thereafter, monetary tightening could be faster than in the central forecast if US domestic demand turns out to be stronger than expected. This could lead to the unintended consequence of a disorderly global financial market adjustment, especially in emerging markets.

In an environment of very low interest rates, global asset prices have risen to levels that may not reflect economic fundamentals. As monetary tightening begins in the US, higher US bond yields and a more entrenched recovery would raise the attractiveness of US assets. This could lead to large capital outflows from emerging markets including Asia, as well as tighter credit conditions and volatility in their exchange rates. Growth would fall in some of New Zealand's key trading partners, in turn reducing the demand for our exports.

...contributing to risks of prolonged weakness in global commodity demand

Risks to the outlook for global commodity prices are, on balance, skewed to the downside. Crude oil prices were down 50% in April 2015 from June 2014, and a key judgement underpinning the central forecast is a slow recovery in oil prices (see the box on "Commodity prices" in the Economic Outlook chapter). Oil prices would remain low for longer than in the central forecast if any international risks weaken demand, and/or competition intensifies between oil producers in the Middle East and North America. On the other hand, geopolitical uncertainty in the Middle East and Ukraine could lead to greater volatility in oil prices.

The prices of other hard commodities, such as iron ore and copper, and soft commodities including dairy, may fall further or remain at their current low levels for longer than expected. Lower commodity prices than in the central forecast would reduce key export prices and export revenues for New Zealand. Lower commodity prices would also dampen global inflation and increase deflationary risks in some of the major economies, particularly the euro area and Japan.

Euro area deflationary risks persist despite a pick-up in growth

The growth outlook for the euro area economy has improved from 2014, but significant risks remain around the high levels of sovereign debt and the robustness of the banking sector in the peripheral economies. In particular, the risk of a Greek default is assessed by the market to have increased as the Greek government and its EU partners experienced difficulty in agreeing on the terms of a further bailout programme.

Meanwhile, deflationary risks remain high as lower petrol prices drove headline inflation below zero, which may reinforce low inflation expectations. A flare-up of debt concerns or a fall into deflation could stifle the euro area recovery. It remains uncertain how effective the European Central Bank's quantitative easing programme will be at boosting inflation and growth.

Weak global demand would reduce key commodity export prices...

The effect of lower commodity prices on New Zealand's terms of trade would depend on the relative size of price declines between commodity exports (especially dairy) and imports (primarily crude oil). Given a larger weight for commodities in exports than in imports, and the possibility of weaker demand from Asian markets, the risks to the terms of trade are tilted to the downside. Lower terms of trade than in the central forecasts, owing to weakness in export prices, particularly dairy, would reduce export receipts and weigh on incomes and spending in the agricultural sector. Agricultural production beyond 2015 may also be negatively affected to an extent. Lower spending by the agricultural sector could lead to second-round impacts on other sectors, suppressing consumer confidence and demand in the wider economy.

...and global inflation may remain low for longer and suppress domestic prices further...

The inflation outlook is weak over the year ahead in spite of solid growth in domestic demand. If prices for crude oil and other commodities remain at a low level for longer, this would flow through to lower domestic petrol prices and inflation. A more prolonged period of low inflation in the major economies than expected, including the euro area and Japan, would suppress global price pressures, which could put further downward pressure on the prices of tradable goods and services in New Zealand.

A separate risk for inflation originates from the estimation of the economy's productive capacity (the maximum level of activity that can be achieved while maintaining stable inflation). If potential output is higher than estimated, the output gap (the difference between real GDP and potential output) would be smaller. As a result, inflationary pressures would be weaker than anticipated. Under these circumstances, the Reserve Bank may hold stimulatory monetary policy settings in place for longer than currently expected. If potential output is lower than estimated and fast growth continues, inflation could pick up earlier, prompting the Reserve Bank to increase rates sooner.

Scenario one explores the above risks further, through simulating the economic impacts of lower terms of trade for longer than in the main forecast as a result of weaker world demand. Weak global demand is also reflected in a prolonged period of low inflation in this scenario.

...but higher net migration than forecast would boost domestic demand...

Net migration gains remain elevated and judgements around the extent of the cycle play a key role in the forecasts. The annual net inflow of migrants is forecast to peak at around 57,000 in June 2015, up from a forecast peak of around 52,000 in March in the *Half Year Update*. A stronger domestic labour market than forecast or weaker conditions in the countries to and from which significant migration occurs could result in a higher peak level of net migration than in the central forecast, which may also last for longer. Higher net migration would be likely to continue to include fewer departures to Australia.

The impact of higher migration inflows on the wider economy will depend on the balance between increased arrivals and reduced departures. The contribution of new arrivals to net migration gains has increased over the past year, which points to a larger initial boost to demand than to supply in the economy. This development contrasts with 2014, when reduced departures drove net migration gains. New migrants are likely to require time to adjust to the New Zealand labour market. At the same time, higher migrant arrivals than in

the central forecast would put additional pressure on the housing market and boost private consumption.

...and low inflation environment may provide larger boost to consumption

Low inflation also poses some upside risk to the central forecast of domestic demand through lifting the purchasing power of households. The extent of the demand boost would depend on the magnitude of the impact on real incomes, the response from the Reserve Bank and household decisions on saving and spending. Should firms' wage-setting behaviour remain relatively unchanged despite low inflation, real wage growth would be higher, contributing to a larger boost to household consumption. The Reserve Bank may hold the Official Cash Rate (OCR) at an historically low level for longer than in the central forecast, or even reduce the OCR. Lower interest rates and higher consumer confidence would also lead to a larger boost to household spending and business investment, which would flow through to faster growth in real and nominal GDP than in the central forecast.

Potential housing market adjustment and risks around the Canterbury rebuild

Housing demand is expected to be supported by net migration and low mortgage rates in the year ahead. However, housing demand might be weaker or stronger than in the main forecast, particularly given the risks around migration inflows. Declining nationwide house prices would reduce growth in residential investment and erode some households' wealth. Faster nationwide house price growth than in the central forecast would boost residential investment, as well as household wealth and consumer confidence.

The Canterbury rebuild may provide a smaller contribution to growth than in the central forecast. The size of the residential rebuild may be smaller than expected, as uncertainty persists over the number of households leaving Christchurch after settling their insurance claims. At the same time, housing supply may be gradually catching up with demand. The commercial rebuild may also be slower over the next couple of years than expected, as the commencement of large commercial buildings is taking longer than anticipated despite the basic infrastructure rebuild being well underway.

Uncertainty on labour productivity presents risks for the medium-term outlook

The assumptions on labour productivity growth have significant implications for the medium-term real GDP forecasts. Slower labour productivity growth over the medium term than in the central forecast would result in lower real income growth in the later years of the forecast period. This would result in lower domestic demand than projected, and slower growth in both real and nominal GDP. Conversely, faster labour productivity growth would lead to higher GDP growth.

Alternative Scenarios

The following scenarios show how the economy might evolve if some of the key judgements in the central forecast are altered (Table 3.1). They represent two of the many ways that the economy could deviate from the central forecast. Scenario one represents the economic impacts if the terms of trade fall to a lower level than in the central forecast and recover only gradually over the forecast period. Scenario two shows the economic impact if household demand rises by more than in the central forecast in response to low inflation and if net inward migration is stronger.

Table 3.1 – Economic and fiscal variables for central forecast and scenarios

March years	2014	2015	2016	2017	2018	2019
	Actual	Estimate	Forecast	Forecast	Forecast	Forecast
Real GDP (annual average % change)						
Main forecast	2.5	3.3	3.1	2.8	2.8	2.4
Scenario one	2.5	3.3	2.4	2.8	3.0	2.5
Scenario two	2.5	3.3	3.6	3.1	2.6	2.2
Nominal GDP (annual average % change)						
Main forecast	6.8	3.9	3.3	5.3	4.8	4.1
Scenario one	6.8	3.8	0.7	4.5	5.9	5.1
Scenario two	6.8	3.9	4.0	6.0	5.0	4.2
Consumers price index (annual % change)						
Main forecast	1.5	0.2	1.4	2.1	2.0	2.1
Scenario one	1.5	0.1	1.4	1.9	2.1	2.0
Scenario two	1.5	0.2	1.7	2.5	2.5	2.3
Unemployment rate¹						
Main forecast	6.1	5.6	5.1	4.7	4.5	4.5
Scenario one	6.1	5.6	5.4	5.2	4.8	4.6
Scenario two	6.1	5.6	4.9	4.4	4.3	4.4
Operating balance before gains and losses (% of GDP)²						
Main forecast	-1.3	-0.3	0.1	0.6	0.7	1.3
Scenario one	-1.3	-0.3	-0.6	-0.3	0.0	0.7
Scenario two	-1.3	-0.3	0.3	1.0	1.3	1.8
Net core crown debt (% of GDP)²						
Main forecast	25.6	25.7	26.3	25.5	24.4	22.9
Scenario one	25.6	25.8	27.9	27.9	27.2	25.9
Scenario two	25.6	25.7	25.7	24.4	22.7	20.7

Notes: 1 March quarter, seasonally adjusted

2 June years

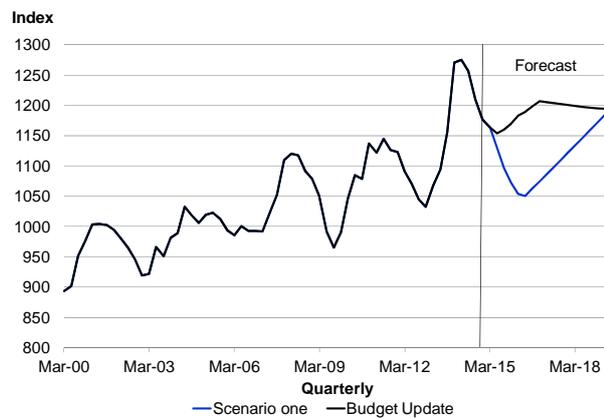
Sources: Reserve Bank, Statistics New Zealand, the Treasury

Scenario One – Lower Trough in the Terms of Trade

Greater weakness in commodity prices and low global inflation...

In the first scenario, world prices for New Zealand's commodity exports fall to a lower level than in the central forecast. The potential key drivers of such a price fall include the impacts of a sharp slowdown in Chinese demand on other Asian economies and Australia. Alternatively, US monetary tightening may lead to falling asset prices, currency volatility and tighter credit conditions in emerging markets, which would also result in lower Asian demand. Finally, global supply of soft commodities may be larger than projected.

Figure 3.1 – Goods terms of trade (SNA)



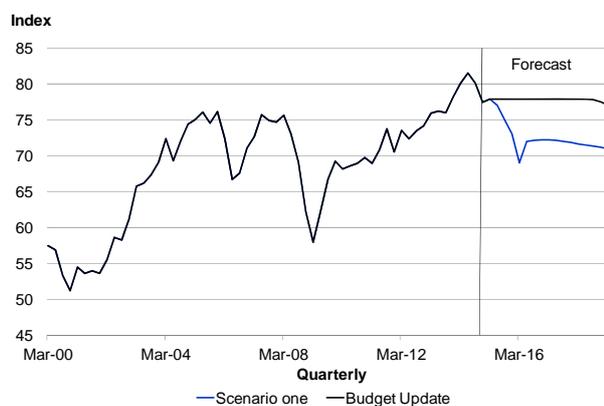
Sources: Statistics New Zealand, the Treasury

As a result of weaker commodity prices, global inflation remains low for a longer period. At the same time, low nominal interest rates hinder an effective response by central banks to lift demand. Even weaker global inflation flows through to lower import prices for New Zealand, partly offsetting the fall in export prices, but the goods terms of trade are lower than in the central forecast until June 2019 (Figure 3.1), when they recover to the same level.

...result in depreciation of the NZ dollar and slightly lower inflation...

Lower terms of trade than in the central forecast lead to a sharp depreciation in the exchange rate over the coming year, contrasting with a steady NZ dollar TWI projection in the central forecast (Figure 3.2). Following this fall, the TWI remains at a lower level throughout the forecast period.

Figure 3.2 – Trade-weighted NZ dollar index



Sources: Reserve Bank, the Treasury

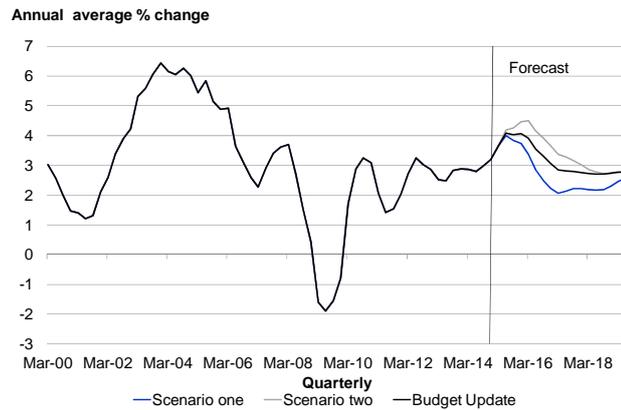
Inflation is slightly lower over the next year than in the central forecast (Figure 3.6). Non-tradable inflation recovers at a slower pace over 2016 and 2017 as a result of weaker domestic demand.

Tradable inflation is higher over 2016 as a result of the fall in the exchange rate, but the lift is partly offset by low global prices for tradable goods and particularly for commodities, including crude oil. Headline inflation returns to 2.0% at the end of 2016, similar to the central forecast.

...as well as reduced export values, domestic demand and nominal GDP growth...

The fall in commodity prices initially results in a contraction in export receipts, leading to lower farm incomes and, more gradually, reduced agricultural output than in the central forecast. The depreciation of the NZ dollar acts to offset some of the fall in export values, but nominal goods exports are lower over the next three years. Weak spending by the agricultural sector spreads to other sectors, leading to slower growth in private consumption (Figure 3.3), investment and imports than in the central forecast. While import volumes are lower, import values are higher owing to a weaker exchange rate. Higher import values and lower export prices lead to the annual current account deficit rising to 7.7% of GDP by the end of 2016, larger than in the central forecast. Nominal GDP is a cumulative \$26 billion lower than in the central forecasts over the period to June 2019.

Figure 3.3 – Real private consumption



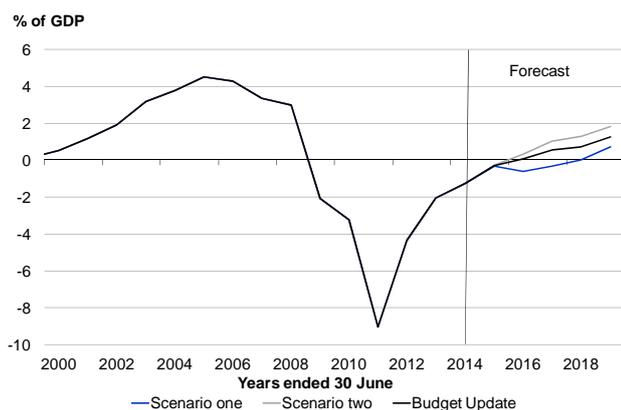
Sources: Statistics New Zealand, the Treasury

...together leading to lower tax revenue and operating balance

Core Crown tax revenue is a cumulative \$7.1 billion lower over the forecast period in this scenario. Lower nominal consumption and residential investment reduce GST revenue by a cumulative \$1.1 billion over the forecast period. The economy's lower value of output means that business profits are reduced, resulting in corporate taxes being a cumulative \$2.3 billion lower. The weaker labour market and lower labour incomes reduce source deductions revenue by \$1.9 billion over the forecast period.

Core Crown expenses are moderately higher than in the central forecast. Weaker demand for labour results in an increase in the number of recipients of unemployment-related benefits. Fiscal policy is assumed to remain unchanged from the central forecast. In this scenario, the OBEGAL does not return to surplus until the June 2018 year (Figure 3.4), two years later than in the central forecast. As a consequence, net core Crown debt peaks at 27.9% of nominal GDP in the June 2016 year, rather than peaking at 26.3% in that year, as in the central forecast (Figure 3.7).

Figure 3.4 – Operating balance (before gains and losses)



Source: The Treasury

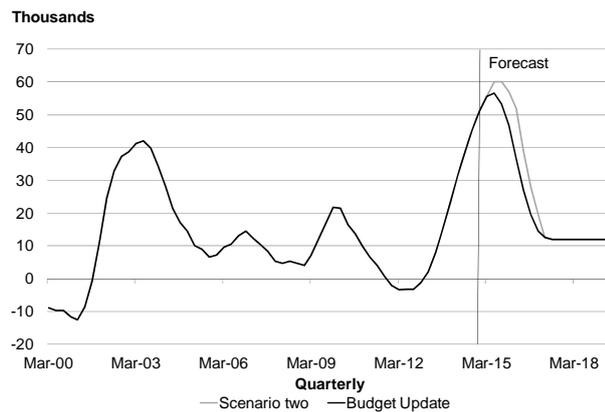
Scenario Two – Stronger Household Demand and Migration

Low inflation lifts consumer spending with a larger surge in net inward migration...

In the second scenario, household demand picks up by more than in the central forecast in response to the low inflation environment. Consumer confidence rises to a higher level than in the central forecast, as low retail prices, including petrol, increase the disposable income of households. As a result, consumers spend a larger proportion of the income boost. Stronger trading conditions for businesses than in the central forecast lead to increased demand for labour.

At the same time, net inward migration rises to a higher level than in the central forecast, reinforced by more upbeat domestic demand and a stronger labour market. The annual net migration inflow rises to 60,000 in June 2015, and remains around that level until March 2016 (Figure 3.5), contrasting with an earlier decline in the central forecast from a peak of 57,000 in June 2015. This represents a cumulative 15,000 more people than in the central forecast over the next two years. Higher net inward migration driven mostly by new arrivals further boosts domestic demand by more than the supply side of the economy over the next couple of years.

Figure 3.5 – Annual net migration



Sources: Statistics New Zealand, the Treasury

...supporting a lift in private consumption and business investment...

Higher net inward migration and increased spending by New Zealand households underpin faster growth in real private consumption than in the central forecast (Figure 3.3). In response to buoyant trading conditions, businesses increase capital investment and hiring of labour to expand capacity. Spare capacity in the labour market is reduced faster than in the central forecast despite higher migration. Stronger growth in labour demand than supply leads to the unemployment rate falling to 4.5% by the end of 2016, a year earlier than in the central forecast. The NZ dollar appreciates, with the TWI rising to 80.0 by June 2016, higher than the steady track in the central forecast of 77.9.

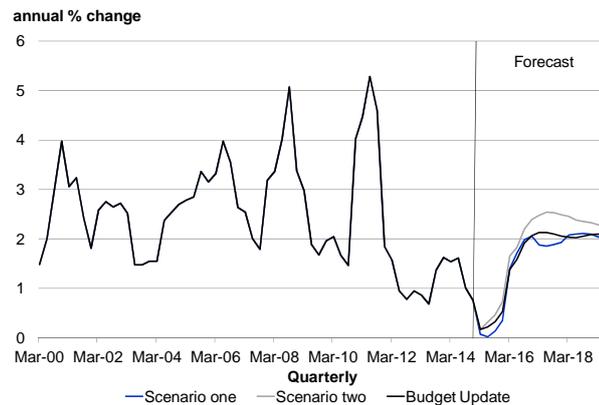
...and leading to a surge in housing demand...

Higher population growth than in the central forecast boosts housing demand, and annual house price growth is faster, at 8.0% at the end of 2015, and remains higher over the next two years. Initially, the increase in housing demand relative to the central forecast is concentrated in Auckland and Canterbury, but gradually broadens to other areas. Faster house price growth supports higher real and nominal residential investment growth than in the central forecast.

...while pressure in the non-tradable sectors eventually leads to higher inflation...

Stronger domestic demand results in higher inflation over the medium term than in the central forecast. Non-tradable inflation is significantly higher at 4.3% in the March quarter of 2017, although tradable inflation is slightly lower as a result of a higher exchange rate. Annual inflation rises to 2.0% by the middle of 2016, half a year earlier than in the central forecast, and moves towards the upper limit of the Reserve Bank’s target band thereafter (Figure 3.6). The Reserve Bank tightens monetary policy in the December quarter of 2016, earlier than in the central forecast, but the move only begins to restrain demand and inflation later in the forecast period. The caution on the part of the Reserve Bank reflects the uncertainty in the economic outlook and accommodative policy settings in the rest of the world.

Figure 3.6 – Consumers price index



Sources: Statistics New Zealand, the Treasury

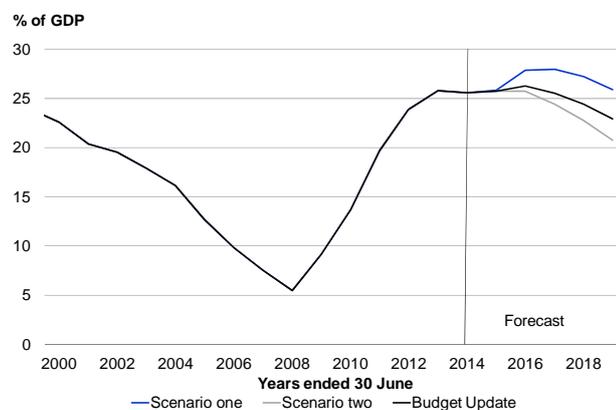
Real GDP growth over the next two years is faster than in the central forecast, at 3.6% in the March year 2016, although increased import growth produces some offset. Higher inflation and faster house price growth lead to stronger nominal GDP growth. Nominal GDP is a cumulative \$16 billion higher than in the central forecast by the end of June 2019, with most of this occurring over the first three years of the scenario.

...and higher nominal GDP boosts tax revenue and the operating balance

Core Crown tax revenue is a cumulative \$5.0 billion higher than in the central forecast over the period to June 2019. Increased nominal consumption and residential investment boost GST revenue by a cumulative \$1.2 billion over the forecast period. Greater business profitability results in corporate taxes being a cumulative \$1.1 billion higher. The stronger labour market and higher wage growth lift source deductions revenue by \$1.9 billion over the forecast period. An earlier increase in short-term interest rates flows through to a cumulative \$0.2 billion rise in RWT.

Core Crown expenses are lower than in the central forecast owing to a lower number of recipients of unemployment-related benefits. The OBEGAL returns to surplus in the June 2016 year, the same as in the central forecast, but the surplus is larger at 0.3% of GDP (Figure 3.4). The OBEGAL surplus remains larger than in the central forecast over the later years. Net core Crown debt peaks at a lower level of 25.7% of GDP in the June 2016 year, and it subsequently declines faster to 20.7% of GDP in the June 2019 year (Figure 3.7).

Figure 3.7 – Net core Crown debt



Source: The Treasury

General Fiscal Risks

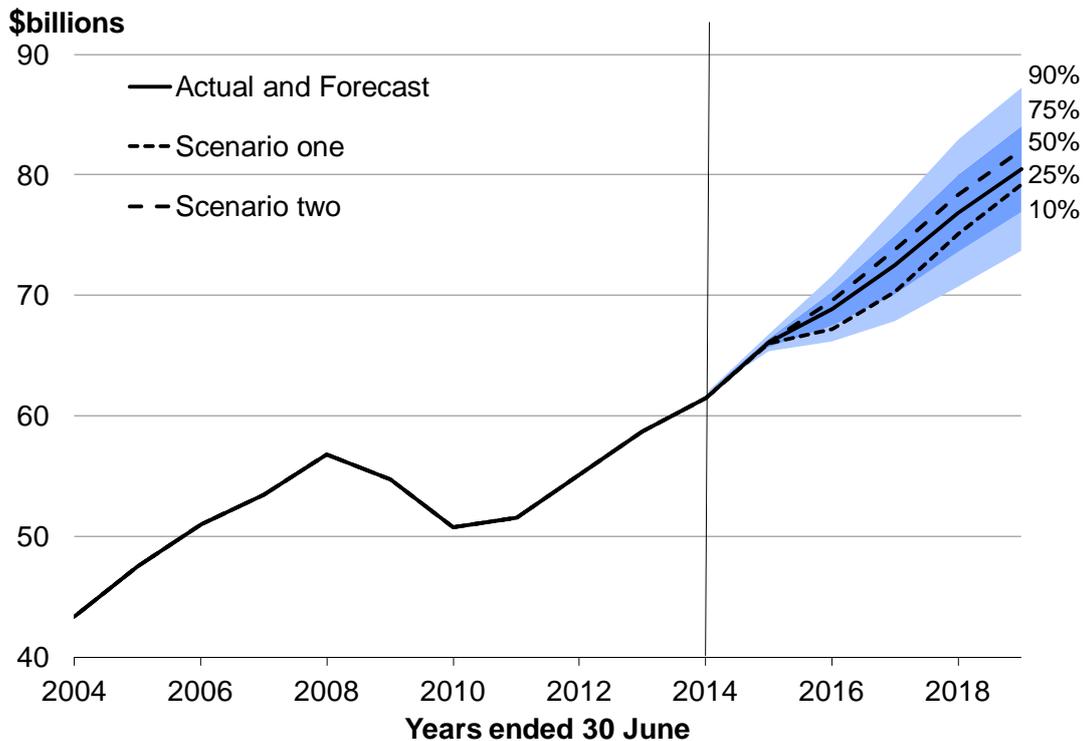
The remainder of this chapter focuses on the links between the economic risks and the Crown’s fiscal position. For more on fiscal risks, see the Specific Fiscal Risks chapter.

Revenue Risks

One of the major sources of risk to the fiscal position arises from the inherent uncertainty about future tax revenue. The amount of tax revenue that the Crown receives in a given year is closely linked to the performance of the economy.

Figure 3.8 plots the central tax revenue forecast, along with confidence intervals around these forecasts based on the Treasury’s historical tax forecast variances and the assumption of an even balance of risks around the central forecast.⁹ The outermost shaded area captures the range $\pm\$6.7$ billion in the June 2019 year, within which actual tax outturns are expected to fall 80% of the time.¹⁰

Figure 3.8 – Core Crown tax revenue uncertainty



Source: The Treasury

⁹ A summary of the methodology and key assumptions is found in Parkyn, O (2010), “Estimating New Zealand’s Structural Budget Balance”, New Zealand Treasury Working Paper 10/08, available at <http://www.treasury.govt.nz/publications/research-policy/wp/2010/10-08/>. Standard deviations used for the 0-, 1-, 2-, 3- and 4-year forecasts are 0.9%, 3.2%, 5.3%, 6.6% and 6.9% of the actual results.

¹⁰ Treasury analysis showed that a shock that has a significant and persistent impact on economic growth can result in tax revenues significantly beyond the outermost shaded area. See Fookes, C (2011), “Modelling Shocks to New Zealand’s Fiscal Position”, New Zealand Treasury Working Paper 11/02, available at <http://www.treasury.govt.nz/publications/research-policy/wp/2011/11-02>

The tax revenue forecasts from the two scenarios are also shown in Figure 3.8. The 2008/09 global financial crisis showed that exogenous shocks can have severe impacts on government revenue. Should any of the uncertainties outlined in the Economic Risks section eventuate, Crown revenue would be different from forecast, with Scenarios one and two being examples of possible outcomes.

Based on average historical forecast variances, Figure 3.8 suggests that an annual tax revenue outturn associated with Scenario one lies between the 25th and 50th percentiles in most years. An annual tax revenue outturn associated with Scenario two lies between the 50th and 75th percentiles in each year.

Fiscal Sensitivities

Table 3.2 provides some rules of thumb on the sensitivities of the fiscal position to small changes in specific variables. For example, if nominal GDP growth is one percentage point higher than forecast in each year up to June 2019, tax revenue would be around \$4.1 billion higher than forecast in the June 2019 year as a result. The sensitivities are broadly symmetric and if nominal GDP growth is one percentage point lower each year than expected, tax revenue would be around \$4.0 billion lower than forecast in the June 2019 year. The figures are indicative and can be influenced by the composition of growth as different types of activity have different effective tax rates.

A different interest rate path from that forecast would also impact on the fiscal position. A one percentage point lower interest rate would result in interest income on funds managed by NZDMO being \$130 million lower in the June 2019 year. This would be more than offset by interest expenses being \$340 million lower in the June 2019 year. In the June 2015 year, a one percentage point lower interest rate would result in interest expenses being \$8 million higher, owing to increased realised losses on the repurchase of EQC buildings.

Table 3.2 – Fiscal sensitivity analysis

Year ending 30 June (\$millions)	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast
1% higher nominal GDP growth per year on					
Tax revenue	675	1,400	2,210	3,130	4,125
Tax revenue impact of a 1% increase in growth of					
Wages and salaries	280	595	945	1,350	1,800
Taxable business profits	130	290	475	680	895
Impact of 1% lower interest rates on					
Interest income ¹	(32)	(68)	(135)	(138)	(130)
Interest expenses ¹	8	(109)	(214)	(275)	(340)
Overall operating balance ¹	(40)	41	78	138	210

Note: 1 Funds managed by NZDMO only.

Source: The Treasury

Expenditure Risks

One-off and unexpected expenditure shocks can have a large impact on the Crown's operating balance in the year that they occur. Over-forecasting of expenditure leads to policy being tighter than otherwise, and there is inherent uncertainty in forecasting the cost of new policy initiatives.

There is also considerable uncertainty regarding the effect of the performance of the economy on Crown expenditures. This uncertainty relates largely to the operation of the so-called automatic stabilisers. For example, if the economy performs better (worse) than expected in a given year, official expenditures on social programmes may be lower (higher) than planned.

In recent years, earthquakes have underlined the inherent exposure of the Crown's fiscal position to unexpected events. The Crown's fiscal position would be affected if another catastrophic earthquake were to occur or if the costs associated with prior events exceed the updated estimates.

The ageing population also presents risks to the medium-term fiscal position, particularly to the extent that demographic forecasts may prove to be too low or high. An ageing population implies increased public expenditure, especially for health and superannuation spending.

Balance Sheet Risks

In addition to risks around revenue and expenditure, which appear in the balance sheet through their impact on the operating balance, the Crown's financial position is also exposed to asset and liability risks. Some of these risks impact on the balance sheet owing to the Crown having explicit obligations either in respect of its own assets or to the wider economy. Some do not directly impact the balance sheet but nonetheless affect fiscal stability (eg, items that are of a discretionary nature, but are implicit obligations of the Crown owing to strong expectations that the Crown would respond to an event).

While the Crown's exposure to risks is sometimes unavoidable, the Crown's general approach is to identify, avoid or mitigate these risks where practicable. When a risk cannot be avoided or reduced, the Government's response has been to increase the Crown's resilience by reducing debt ahead of the time when financial resources could be needed. This helps to absorb the impact of the risk through the balance sheet so that the wider economy need not adjust immediately at a greater economic cost.

A large source of balance sheet risk is volatility in asset and liability values owing to movements in market variables such as interest rates, exchange rates and equity prices. This may result in an operating balance impact. Of the Crown's aggregate financial risk, it is estimated that roughly a third is attributed to this "market risk".¹¹ Three areas of the balance sheet are particularly susceptible:

- Financial assets held by the Crown Financial Institutions (CFIs) are sensitive to financial-market volatility. CFIs tend to diversify their portfolios across a range of financial assets to manage exposures to specific market risks.

¹¹ Irwin, T and Parkyn, O (2009), "Improving the Management of the Crown's Exposure to Risk", New Zealand Treasury Working Paper 09/06, available at <http://www.treasury.govt.nz/publications/research-policy/wp/2009/09-06>

- Insurance and retirement liabilities and provisions are prone to market volatility through their actuarial valuations, which are sensitive to assumptions about variables such as interest and inflation rates.
- Physical assets such as land, buildings, state highways and military equipment are susceptible to valuation movements through changes in property market conditions, interest rates and changes in the costs of construction.

Other large sources of balance sheet risk are contingent and implicit liabilities relating to natural disasters and potential financial system stress.

Business risks, relating to the broader commercial environment, may also affect the Crown's balance sheet. A number of entities owned by the Crown, including commercial and social entities, have their financial performance and valuations impacted by these external factors.

The New Zealand Crown remains in the top-25 rated sovereigns globally, with the top Aaa foreign-currency rating from Moody's and AA foreign-currency ratings from Standard & Poor's and Fitch. Ratings outlooks are stable for Standard & Poor's and Moody's, and the rating outlook from Fitch is positive.

In the case of an increase in global risk aversion and in the absence of a marked improvement in the external position, New Zealand may face increased funding pressure in the future. All else being equal, deterioration in the ratings outlook could raise debt-servicing costs for the Crown. On the other hand, additional downward pressure on borrowing rates is possible if diversification flows, particularly away from Europe, continue in the future.

The Crown is also susceptible to "liquidity risk" with respect to its ability to raise cash to meet its obligations. This risk is relatively small, however, given ongoing management of the core Crown's liquidity position by NZDMO.

For additional detail, refer to the 2014 *Investment Statement* which provides information on the shape and health of the Crown's portfolio of assets and liabilities at the end of the 2013/14 financial year.¹² It outlines how the balance sheet has changed in recent years and includes forecasts of its anticipated composition and size through to 30 June 2018.

¹² <http://www.treasury.govt.nz/government/investmentstatements/2014>