
Risks and Scenarios

Overview

- This chapter outlines the general economic and fiscal risks associated with the main forecast. Domestic risks to the economic outlook are fairly evenly balanced, while global risks remain skewed to the downside.
- Domestically, the risks with potentially the largest impact on the New Zealand economy relate to the pace of the Canterbury rebuild and its interaction with the wider economy, the sensitivity of households to higher debt servicing costs, along with net migration's impact on domestic demand.
- Stimulatory monetary policy settings appear to be succeeding in increasing demand in advanced economies, although inflation has been benign, particularly in the euro area. The risks posed to the recovery in emerging markets have increased since the *Half Year Update* with markets reassessing economic and financial fundamentals in some economies.
- Two scenarios are presented which represent two ways in which the New Zealand economy could deviate from the main forecast. Scenario one is based on a larger decline in the terms of trade than in the main forecast. Scenario two is based on a more robust domestic demand cycle driven by a stronger migration cycle. If these scenarios or any other significant deviations from the main forecast did eventuate, this would impact on the Government's fiscal performance and position.
- In addition to risks associated with the economy, the Crown is also subject to expenditure and balance sheet risks. In particular, volatility in market prices such as interest rates can have a significant impact on the Crown's fiscal position.
- The first part of this chapter outlines the key risks to the economic outlook. The second part of the chapter presents two alternative scenarios for the economy. The remainder of the chapter focuses on general fiscal risks that can impact the Crown's fiscal position.

Economic Risks

Domestic demand has grown faster than anticipated in the *Half Year Update*, with the economic expansion becoming more broad-based and embedded. Key areas of uncertainty remain, including the speed of the Canterbury rebuild and its wider economic implications, the reaction of households to higher debt servicing costs, and the scale of the current migration cycle and its impact on domestic demand.

Despite improvements in the prospects for some advanced economies, the balance of global risks remains skewed to the downside, with emerging economies having underperformed relative to expectations. Global economic developments may lead to adjustments in the demand for our main commodity exports and therefore affect the terms of trade (the prices of goods and services New Zealand exports relative to those that it imports) which were at a 40-year high in the December 2013 quarter. If a number of adverse global developments were to occur simultaneously, New Zealand could experience a rapid and sizeable negative adjustment in commodity prices and national income.

Other key assumptions made in the forecasts around the level and flow-through of the exchange rate, the amount of spare capacity in the economy and monetary policy developments all represent areas where deviations from forecast can exacerbate or dampen the current economic cycle.

The pace and scale of the Canterbury rebuild remain uncertain...

There is still some uncertainty around the timing and magnitude of the Canterbury rebuild. Key determinants continue to be the pace of the settlement of remaining insurance claims and the capacity of the construction sector.

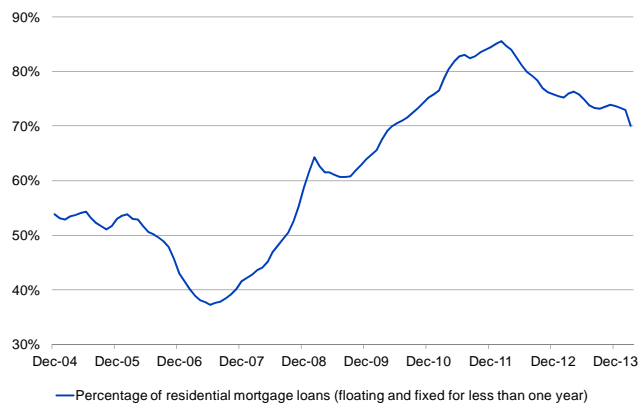
While the resolution of insurance claims has continued to progress, there are risks that the greater complexity of remaining claims could slow the rate of settlement. The availability of skilled labour will also impact on the pace of reconstruction if specific skill shortages act as bottlenecks in the construction industry. If the rebuild were to progress more slowly, residential and non-residential investment and employment growth could all be weaker than reflected in the main forecast.

The Canterbury region will account for a greater share of GDP than in previous construction booms and regional resource pressures will act to crowd out activity in other parts of the economy. Inward migration and imports of capital and materials may help to alleviate local capacity issues and will mitigate some of the upward pressure on prices in both Canterbury and the wider economy.

...as does the sensitivity of households to increasing interest rates...

After a sustained period of historically low rates, the Reserve Bank has increased the OCR from 2.5% to 3.0% with the aim of returning it to neutral levels in the medium term and then increasing it even further by 2016. It is difficult to anticipate the sensitivity of households to higher debt servicing costs. This is in view of already elevated debt levels and high exposure to interest rate increases, with a large number of households on floating or fixed mortgages of less than one year (Figure 3.1).

Figure 3.1 – Composition of residential mortgage lending



Source: Reserve Bank

Households could exercise more or less spending restraint than is anticipated in the main forecast. If consumption growth were to outpace income growth, then the shortfall may have to be funded by increasing levels of debt. On the other hand, if households exercise more restraint, debt levels would be lower but consumption growth would be weaker.

...and net migration's effect on domestic demand remains uncertain

Stronger employment growth in New Zealand relative to Australia and a more positive outlook have reduced the number of New Zealand resident departures, while the Canterbury rebuild has contributed to more permanent and long-term arrivals. The annual net inflow of migrants is now forecast to peak at around 38,000 in the second half of 2014 compared to a forecast of around 26,000 in the *Half Year Update*. The impact on the wider economy of stronger rates of net migration will depend on the skill sets of the migrants and their geographic distribution. If the migration cycle is larger than forecast it would put additional pressure on the housing market and add further impetus to domestic demand. However, higher migrant inflows to Canterbury would mitigate some of the capacity risks associated with the rebuild.

If, for any reason, key factors such as those outlined above played out differently than assumed in the main forecast and impacted on the inflation outlook, then the Reserve Bank's setting of monetary policy would be responsive to those different conditions. Interest rates could rise by more or less and the pace of tightening could be faster or slower depending on the direction of change.

Global downside risks persist...

In addition to the migration channel, global developments can also impact the New Zealand economy through both trade and financial channels. For example, strong Chinese demand for our key commodity exports has contributed to the terms of trade reaching a 40-year high, improving incomes and supporting the exchange rate at high levels. Risks posed to the outlook for key trading partners, and global financial settings in general, are all factors that can lead to rapid changes in the economic outlook for New Zealand. Overall, the balance of global risks remains skewed to the downside. Geopolitical risks have also increased, with Russia's annexation of Crimea creating ongoing diplomatic tensions with the West and greater uncertainty in financial markets.

...as weak emerging-market fundamentals exposed...

In January, the US Federal Reserve began the tapering of its asset purchase programme. Expected rises in US bond yields contributed to capital outflows from emerging market economies and sizeable depreciations in exchange rates. Generally, borrowing costs for countries that have become accustomed to favourable global lending conditions in recent years have increased. Both the monetary policy responses (that are likely to magnify the higher costs of capital) and the higher capital cost itself, will act to constrain growth in emerging economies. The most fragile countries, with the largest imbalances and high inflation, account for only a small share of New Zealand's export demand. Contagion to other emerging market economies could impact New Zealand more significantly.

Importantly, Asian economies have larger foreign exchange reserves than they did prior to the Asian financial crisis in the late 1990s, as well as floating exchange rates, which make them more resilient to these market pressures.

...and risks to New Zealand's key trading partners remain

Our largest trading partner, China, would largely be immune to the risks outlined above because of its capital account restrictions. However, domestic risks to the growth outlook for China remain. The property investment and construction boom that stimulated Chinese growth following the global financial crisis was fuelled by rapid credit growth. Concerns around the high level of local government debt, the quality of lending in the shadow banking sector and exposure of financial institutions to housing market vulnerabilities persist. Chinese growth could slow more quickly than in the main forecasts if financial market disruption resulted in significantly tighter credit conditions.

Structurally, China is looking to rebalance its economy away from investment-led growth towards private consumption. Rebalancing could lead to slower growth in the short term, particularly if this transition is disorderly. As consumption's share of output increases and the purchasing power of Chinese consumers improves, demand for New Zealand's soft commodities, such as dairy, will strengthen and help maintain prices at high levels.

Australian data continue to show signs that demand is picking up as the economy transitions from growth in mining investment to growth in the non-mining sectors and exports. However, the labour market remains subdued and the unemployment rate has remained steady at around 5.8% for the past year. Australia remains exposed to a slowdown in China and emerging market economies, which would reduce demand for its hard commodities, such as iron ore. This channel could be a source of indirect effects on the New Zealand economy.

Upside risks to US growth are also apparent with the recent weakness in US data largely a result of the harsh winter. A large amount of investment activity has been deferred since the global financial crisis and the stock of capital has aged. A more rapid movement to capital investment could be a source of upside surprises to growth. Likewise, households have deferred purchases of durable goods over this time. That said, a stronger US economy would further exacerbate the risks to emerging economies if expectations of a faster withdrawal of monetary stimulus were to develop.

Euro area recovery exposed to deflationary risks

Inflation in the euro area has been on a declining trend since late 2011 as peripheral economies rebalance and attempt to achieve renewed competitiveness. Large negative output gaps also mean that pricing pressures remain subdued. In the absence of

adequate policy responses, Europe could enter a period of sustained low inflation, increasing the risk of deflation. If long-term inflation expectations fall, demand and output would follow, stifling the euro area recovery.

Other risks around key judgements

Economic relationships are complex and judgements need to be made about key economic variables such as the exchange rate. For example, a higher exchange rate relative to forecast would decrease tradables inflation, as imported goods would become less expensive, and encourage the consumption of imported products. On the other hand, exporters and import-competing businesses would become less competitive, hindering manufacturing and service exports and production of import substitutes.

Recently, pasture conditions have been drier than usual in the North Island, with feed yields down from last year. Although there has been ample rain in most of the country in April, if dry conditions return, agricultural production could again act as a drag on gross domestic product as it did in the first half of 2013. Feed prices and availability amongst New Zealand's international competitors will also influence global supply and have a strong bearing on global commodity prices and the path of the terms of trade.

Alternative Scenarios

The following scenarios show how the economy might evolve if some of the key judgements in the main forecast are altered (Table 3.1). The scenarios represent two of a number of ways that the economy could deviate from the main forecast. Scenario one represents the economic impacts of a larger decline in the terms of trade. Scenario two represents the economic impacts of a larger migration cycle and stronger domestic demand.

Table 3.1 – Summary of key economic variables for main forecast and scenarios

March years	2013 Actual	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast
Real GDP (annual average % change)						
Main forecast	2.3	3.0	4.0	3.0	2.1	2.1
Scenario one	2.3	3.0	3.4	3.3	1.7	1.9
Scenario two	2.3	3.1	4.6	3.0	1.9	2.0
Unemployment rate¹						
Main forecast	6.2	5.9	5.4	5.1	4.8	4.4
Scenario one	6.2	5.9	5.7	5.2	4.9	4.6
Scenario two	6.2	5.9	5.2	4.9	4.7	4.4
Nominal GDP (annual average % change)						
Main forecast	2.2	6.7	5.7	4.3	4.5	3.7
Scenario one	2.2	6.6	2.6	4.1	4.6	3.6
Scenario two	2.2	6.8	6.9	4.5	4.1	3.5
Current account balance (% of GDP)						
Main forecast	-3.9	-3.1	-4.4	-5.9	-6.2	-6.3
Scenario one	-3.9	-3.1	-6.1	-7.5	-6.6	-6.0
Scenario two	-3.9	-3.1	-4.6	-6.4	-6.8	-6.8
90-day bank bill rate²						
Main forecast	2.7	3.0	4.3	4.8	4.9	5.3
Scenario one	2.7	3.0	3.3	4.1	4.2	4.7
Scenario two	2.7	3.0	5.0	5.7	5.4	5.4
Total Crown OBEGAL (% of GDP)³						
Main forecast	-2.1	-1.1	0.2	0.5	0.9	1.3
Scenario one	-2.1	-1.1	-0.7	-0.6	-0.2	0.1
Scenario two	-2.1	-1.0	0.5	1.1	1.6	1.9
Core Crown net debt (% of GDP)³						
Main forecast	26.2	25.8	26.4	25.9	24.9	23.8
Scenario one	26.2	25.9	28.2	28.6	28.7	28.7
Scenario two	26.2	25.7	25.6	24.5	23.0	21.4

Notes: 1 March quarter, seasonally adjusted

2 March quarter average

3 June years

Sources: Reserve Bank, Statistics New Zealand, the Treasury

Scenario One – Terms of Trade Shock

A larger fall in New Zealand’s terms of trade...

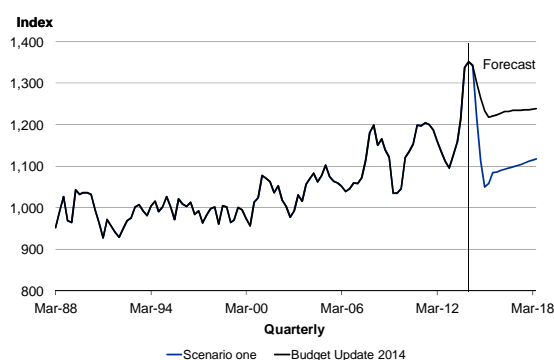
Scenario one is based on a large fall in the prices received for New Zealand’s merchandise exports. This scenario represents both a faster and deeper decline in the terms of trade, and a lower level over the rest of the forecast period. The fall represents a return of the terms of trade to levels prevailing near the start of the current commodity price boom in 2004. A fall in the terms of trade of this magnitude could be triggered by demand or supply factors, or a combination of the two; for example, a financial crisis in China that spills over to emerging markets more generally, could impact on the demand for our main commodity exports. Alternatively, a larger increase in global production, in combination with softer global demand, could see a more pronounced decline in the terms of trade than in the main forecast.

In this scenario it is assumed that the merchandise terms of trade decline rapidly over 2014 from their 40-year peak, and are down by around 22% in the year to March 2015 compared to around 9% in the main forecast. The terms of trade then recover slightly, but are still down around 10% relative to the main forecast at the end of the forecast period (Figure 3.2). (See the box on the terms of trade on page 13 of the Economic Outlook chapter for more details.)

...results in a sharp depreciation in the exchange rate and a spike in inflation...

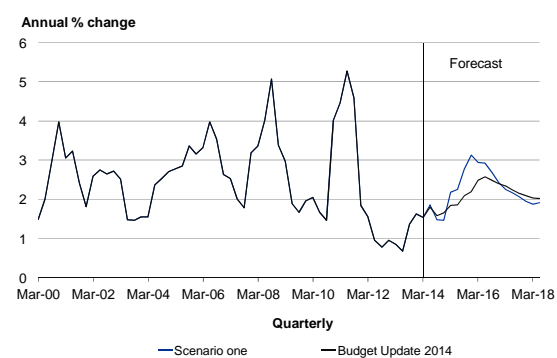
The exchange rate helps to buffer the shock to the export sector and depreciates sharply, with the trade-weighted exchange rate index (TWI) at 64.0 by mid-2015 compared to 78.6 in the main forecast. Tradables inflation rapidly increases and headline inflation peaks above the Reserve Bank’s policy band at 3.1% in the December quarter of 2015 (Figure 3.3). However, given the flexibility in the Policy Targets Agreement around exceptional movements in the prices of commodities traded in world markets, the Reserve Bank largely looks through the spike in inflation, keeping rates on hold in the near term. The policy response helps to limit the negative impacts on private consumption and investment growth. If the Reserve Bank were to respond to the spike in inflation this could exacerbate the negative impacts on real GDP growth but limit the inflationary impacts.

Figure 3.2 – Merchandise terms of trade



Sources: Statistics New Zealand, the Treasury

Figure 3.3 – Consumers Price Index



Sources: Statistics New Zealand, the Treasury

...with real private consumption and investment growth lower...

The decrease in the purchasing power of New Zealand households and firms, as real gross domestic income growth slows, results in lower real private consumption and investment growth. Annual real private consumption growth averages 2.2% over the

forecast period compared to 3.1% in the main forecast. Real investment growth, including residential and market investment, averages 5.8% per annum compared to 7.4% in the main forecast. Net exports contribute positively to growth rather than act as a drag, as import volumes fall away sharply. Although annual real GDP growth over the forecast period is only slightly less at 2.6% (compared to 2.8% in the main forecast), the composition and timing of that growth are different.

...and a sharp widening in the current account...

The annual current account deficit widens to 7.9% of GDP in the second half of 2015 as the trade balance deteriorates, while households and firms adjust to the real income shock, and nominal GDP growth slows. The large depreciation in the exchange rate makes New Zealand's goods and services more competitive globally. This sees a strong increase in nominal services exports and the services balance over the second half of the forecast period, notwithstanding the deterioration in the near term (the so-called "J-curve" effect). The annual current account deficit narrows to 6.0% of GDP by March 2018, a slightly lower deficit than in the main forecast.

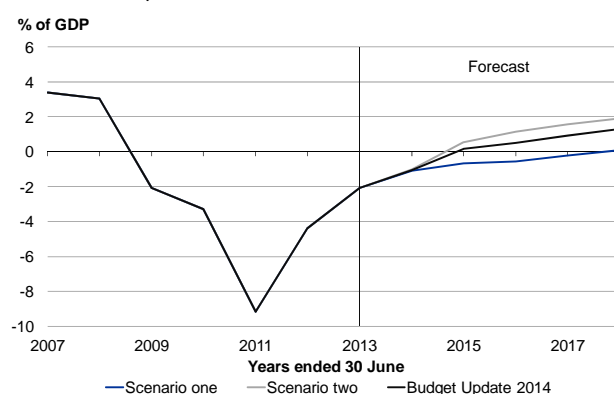
...as well as lower tax revenue and operating balance

Weaker domestic activity combined with the lower terms of trade more than offsets the higher inflation and reduces nominal GDP by a cumulative \$34 billion over the forecast period.

Core Crown tax revenue is a cumulative \$9.7 billion lower over the forecast period in this scenario, owing to the weaker nominal GDP. The weaker labour market and lower labour incomes reduce source deductions revenue by \$1.4 billion over the forecast period. The economy's weaker nominal activity means that business profitability is reduced, resulting in corporate taxes being a cumulative \$4.0 billion lower. Resident withholding tax is \$1.2 billion lower over the forecast period with interest rates increasing by less than in the main forecast. Weaker nominal consumption and residential investment reduces GST revenue by a cumulative \$1.6 billion over the forecast period.

Core Crown expenses are higher than in the main forecast, driven by an increase in debt servicing costs and increases in welfare payments. The increase in welfare payments results from a higher number of recipients of unemployment-related benefits than in the main forecast, reflecting the softer labour market. In this scenario, the return to surplus in OBEGAL is delayed until June 2018 (Figure 3.4). As a consequence, net core Crown debt peaks at 28.7% of GDP in the June 2017 year, compared to 26.4% in the June 2015 year in the main forecast (Figure 3.9). By the end of the forecast period net core Crown debt is 28.7% of GDP in this scenario compared to 23.8% of GDP in the main forecast.

Figure 3.4 – Operating balance (before gains and losses)



Source: The Treasury

Scenario Two – Stronger Cyclical Growth

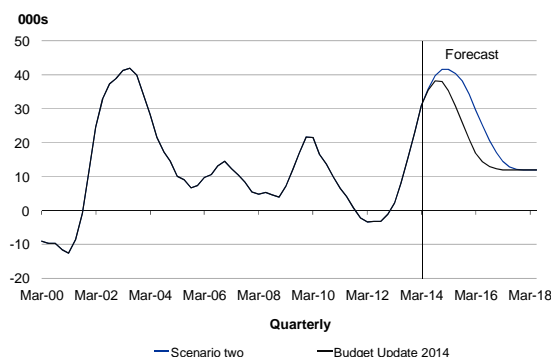
A stronger cyclical pick-up in migration...

Scenario two is based on a more robust domestic demand cycle than in the main forecast, driven by a stronger migration cycle. The scenario is similar to scenario one in the *Half Year Update* in that it presents the risks around our key migration assumption. Annual net permanent and long-term migration in this scenario peaks at 41,500 in the December quarter of 2014 compared to 38,000 in the September quarter of 2014 in the main forecast (Figure 3.5). The migration profile of scenario two represents an addition of 21,500 people to the population over the forecast period compared to the main forecast. It is also assumed that currently high levels of consumer and business confidence translate into even stronger near-term private consumption and investment growth.

...leads to more robust domestic demand in the near term...

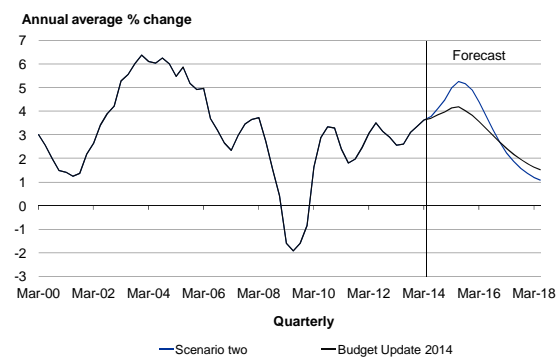
The larger migration cycle and less restrained households result in stronger annual real private consumption growth in the near term, peaking at 5.3% in the June quarter of 2015 compared to 4.2% in the main forecast (Figure 3.6). The population boost from net migration also increases demand for the existing stock of housing and provides additional support for residential investment. Stronger household demand, the current low interest rate environment and the elevated exchange rate spill over into business confidence with increased market investment and hiring intentions. Employment growth in this scenario is markedly stronger over 2015 and 2016, with the unemployment rate varying around 0.2% to 0.3% points lower over most of the forecast period compared to the main forecast.

Figure 3.5 – Annual net external migration



Sources: Statistics New Zealand, the Treasury

Figure 3.6 – Private consumption growth



Sources: Statistics New Zealand, the Treasury

...and sees increased price pressures and a faster monetary tightening cycle...

With the economy already growing faster than potential, the further boost to domestic demand sees any spare capacity in the economy used up more quickly than in the main forecast, and an even more positive output gap develop in the near term (despite net migration increasing productive capacity in the medium term). The stronger domestic outlook and expectations of higher interest rates result in a higher near-term exchange rate profile which puts downward pressure on tradables inflation. However, stronger non-tradables inflation dominates, resulting in a higher inflation track.

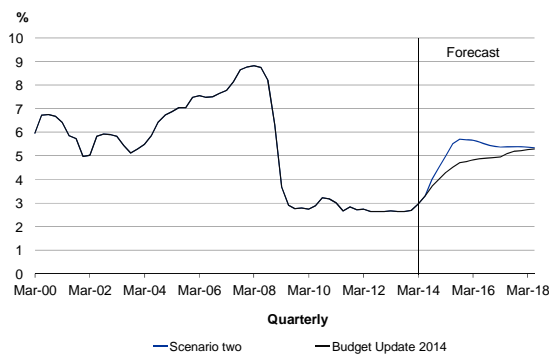
Given higher inflation, increased inflationary pressures and increased inflation expectations, monetary policy is tightened sooner and more aggressively to maintain price stability. The 90-day bank bill rate is around 100 basis points higher by mid-2015 than in the main forecast (Figure 3.7). The faster withdrawal of monetary stimulus acts to

constrain consumption and investment growth, with lower real GDP growth over the final years of the forecast period compared to the main forecast.

...but domestic and external imbalances widen

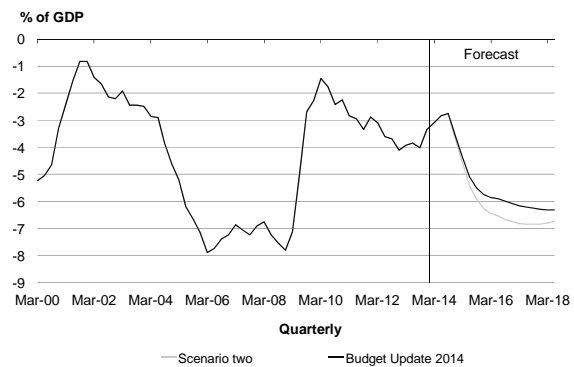
With some of the higher consumption and investment growth met from increased imports, the goods and services balances are weaker than in the main forecast. The stronger domestic economy also sees a widening in the income balance deficit as stronger profitability leads to larger dividend outflows. Consequently, the annual current account deficit is wider over the forecast period, reaching 6.8% of GDP in the March quarter of 2018 compared to 6.3% in the main forecast (Figure 3.8).

Figure 3.7 – 90-day bank bill rate



Sources: Statistics New Zealand, the Treasury

Figure 3.8 – Current account balance



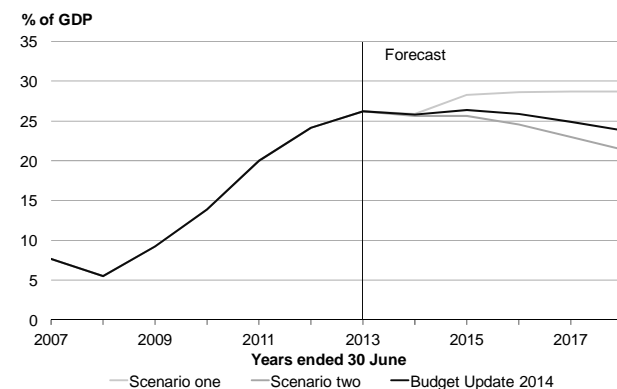
Sources: Statistics New Zealand, the Treasury

Household saving rates are also lower in this scenario, with nominal consumption growth outpacing the growth in incomes. This additional consumption is funded through increasing levels of household debt and this constrains consumption growth further as debt servicing costs increase.

Nominal GDP growth and tax revenue higher...

Stronger domestic activity, combined with greater price pressures, increases nominal GDP by a cumulative \$12 billion over the forecast period. Core Crown tax revenue is a cumulative \$5.3 billion higher over the forecast period. Higher nominal consumption and residential investment boost GST revenue by \$1.1 billion over the forecast period. The stronger labour market and increased competition for workers push up wages and salaries, boosting source deductions revenue by a cumulative \$1.1 billion. The stronger economic activity allows firms to increase their margins, boosting profitability and increasing corporate tax by \$1.3 billion. Higher short-term interest rates, needed to control rising inflation, boost tax on interest by \$1.1 billion.

Figure 3.9 – Net core Crown debt



Source: The Treasury

Core Crown expenses are slightly lower than in the main forecast owing to a fall in debt servicing costs and, to a lesser extent, a reduction in welfare payments. In this scenario, OBEGAL records a larger surplus of 0.5% of GDP (\$1.3 billion) in the June 2015 year

(Figure 3.4). Net core Crown debt declines to 21.4% of GDP in the June 2018 year compared to 23.8% of GDP in the main forecast (Figure 3.9).

...with fiscal policy remaining restrained

Although OBEGAL records a larger surplus in 2015 in this scenario, discretionary fiscal policy is unchanged relative to the main forecast and is restrained compared to the mid-2000s cycle. If the extra income received by the Government was used to increase spending it would add to the cycle by increasing domestic demand, contributing to price pressures which could then necessitate tighter monetary policy. This would support the exchange rate remaining higher for longer and would result in greater imbalances, such as an even wider current account deficit.

General Fiscal Risks

The remainder of this chapter focuses on the links between the risks to the performance of the economy and the Crown’s fiscal position. For more on fiscal risks, see the Specific Fiscal Risks chapter on page 63.

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 faster than we have forecast in each year up to June 2018, tax revenue would be around \$3.2 billion (1.2% of GDP) higher than forecast in the June 2018 year as a result. The sensitivities are broadly symmetric and if nominal GDP growth is one percentage point slower each year than we expect, tax revenue would be around \$3.1 billion lower than forecast in the June 2018 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 the Treasury’s Debt Management Office (DMO) being \$162 million lower in the June 2018 year. This would be more than offset by interest expenses being \$358 million lower in the June 2018 year.

Table 3.2 – Fiscal sensitivity analysis

Year ending 30 June (\$millions unless stated)	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast
1% higher nominal GDP growth per annum on					
Tax revenue	-	675	1,440	2,280	3,205
(% of GDP) ¹	-	0.3	0.6	0.9	1.2
Tax revenue impact of a 1% increase in growth of					
Wages and salaries	-	285	605	965	1,390
(% of GDP) ¹	-	0.1	0.2	0.4	0.5
Taxable business profits	-	130	300	480	675
(% of GDP) ¹	-	0.1	0.1	0.2	0.2
Impact of 1% point lower interest rates on					
Interest income ²	(37)	(90)	(86)	(151)	(162)
(% of GDP)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)
Interest expenses ²	3	(57)	(211)	(299)	(358)
(% of GDP)	0.0	(0.0)	(0.1)	(0.1)	(0.1)
Overall operating balance	(40)	(33)	125	148	196
(% of GDP)	(0.0)	(0.0)	0.0	0.1	0.1

Notes: 1 Percent of main forecast nominal GDP

2 Funds managed by the Treasury's DMO only

Source: The Treasury

Revenue Risks

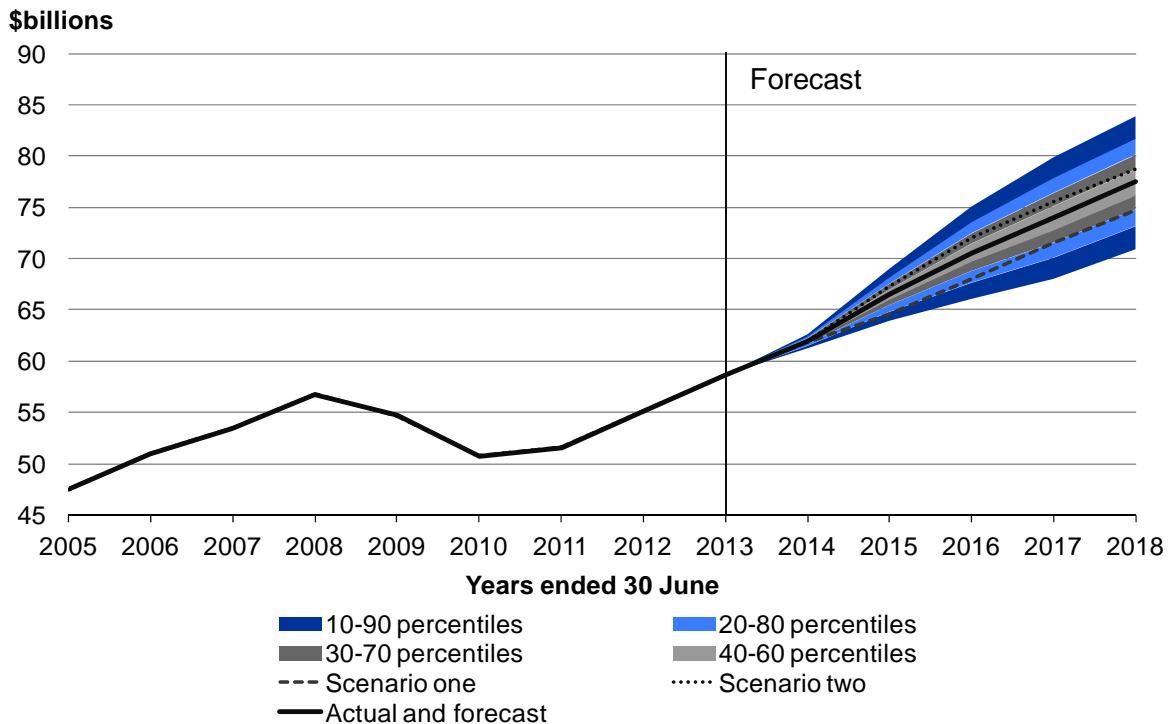
One of the major sources of risk to the fiscal position arises from the inherent uncertainty about future tax revenue. The amount of tax revenue that the Government receives in a given year is closely linked to the performance of the economy. Figure 3.10 plots the main tax revenue forecast, along with confidence intervals around these forecasts based on the Treasury's historical tax forecast errors and the assumption of an even balance of risks around the main forecast.⁵ The outermost shaded area captures the range +/- \$6.5 billion in the June 2018 year, within which actual tax outturns fall 80% of the time.⁶

The tax revenue forecasts from the two scenarios are also shown in Figure 3.10. 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, government revenue would be different from forecast, with scenarios one and two being examples of possible outcomes.

⁵ A full summary of the methodology and critical assumptions is included in New Zealand Treasury Working Paper 10/08. Standard deviation assumptions used for 0-, 1-, 2-, 3- and 4-year ahead forecasts are 0.9%, 3.2%, 5.3%, 6.6% and 6.9% of the actual result, respectively.

⁶ Previous 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.

Figure 3.10 – Core Crown tax revenue uncertainty



Source: The Treasury

Based on average historical forecast errors and an even balance of risks, Figure 3.10 suggests that tax revenue over the forecast period would be stronger than scenario two approximately 35% of the time and weaker than scenario one approximately 25% of the time.

There is also uncertainty around government revenue arising from the performance of SOEs and the path of interest rates as outlined in the Fiscal Sensitivities section.

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. Persistent over-forecasting of expenditure can also have substantial ongoing effects on the fiscal position, along with the uncertainty inherent 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 largely relates 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.

Meanwhile, the destructive seismic events of recent years have underlined the inherent exposure of the Crown’s fiscal position to exogenous shocks. The Government’s fiscal position would be impacted 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 requires increased government 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 are on balance sheet owing to the Crown having explicit obligations either in respect of its own assets or to the wider economy. Some are off balance sheet owing to their discretionary nature, but are implicit to the Crown from strong expectations that the Crown would respond to an event. The focus here is on balance sheet risks that can be documented, based on the Crown's contractual position.

While the Crown's exposure to risk 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 it could be needed. This helps to absorb the impact of the risk through its balance sheet so that the wider economy need not adjust immediately at a greater economic cost. For more information on balance sheet risks, see the Fiscal Outlook chapter on pages 37–39.

The largest 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, roughly a third is estimated to be attributed to this "market risk".⁷ Three areas of the balance sheet are particularly susceptible:

- Financial assets held by the CFIs are sensitive to financial-market volatility. CFIs diversify their portfolios across a range of financial assets to manage exposures to specific market risks. The Treasury estimates a 10% movement in world share markets would lead to around a \$1.7 billion operating balance impact.
- 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, and risk margins.
- 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. This will affect the recorded value of physical Crown assets.

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.

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 past full financial year.⁸ 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.

⁷ Irwin, T and Parkyn, O (2009), "Improving the management of the Crown's exposure to risk", New Zealand Treasury Working Paper 09/06.

⁸ <http://www.treasury.govt.nz/government/investmentstatements/2014>

Funding Risks

The New Zealand Crown remains in the top-20 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 across all three agencies.

The cyclical downside risks identified by the rating agencies are broadly in line with the risks identified earlier in the chapter. 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 be more likely to face a degree of funding pressure in the future. All else being equal, a deterioration in the ratings outlook could serve to 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 the Treasury's DMO, as well as the Government's commitment to maintaining prudent debt levels.