3

Risks and Scenarios

Overview

- This chapter outlines the main economic and fiscal risks associated with the central forecast. Risks to the economic outlook are balanced over the forecast period as a whole, but are tilted to the downside in the near term. 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.
- Domestically, the risks and uncertainties with potentially the largest impact on the New Zealand economy relate to the outlook for inflation and potential output (the maximum level of economic activity that can be achieved while maintaining stable inflation), net migration's impact on domestic demand, pressures in the housing market and the pace of the Canterbury rebuild and its interaction with the wider economy.
- Internationally, the risks with potentially the largest impact on the New Zealand economy relate to the level of demand and price for New Zealand's commodity exports (particularly dairy), economic weakness in key trading partners, the timing and magnitude of interest rate increases in the US and the sensitivity of energy prices to geopolitical developments.
- Two scenarios are presented that represent possible ways in which the New Zealand economy could deviate from the central forecast. Scenario one is based on a sustained fall in the terms of trade and faster depreciation of the NZ dollar, which lowers real and nominal GDP over the forecast period. Scenario two is based on potential output growing faster than in the main forecast, increasing real and nominal GDP over the forecast period.

Economic Risks

The economic outlook, though moderating, remains positive. However, key areas of domestic uncertainty remain, including the outlook for inflation and potential output, the scale of the current migration cycle, the future path of house prices and the speed of the Canterbury rebuild and its wider economic implications.

Despite improvements in the prospects for the US and UK economies, the balance of global risks remains skewed to the downside. Growth is slowing in China and Australia while the outlook for Japan and the euro area remains weak. Downside risk remains for demand and prices of New Zealand's key commodity exports, particularly dairy. Geopolitical risk has increased since the *Pre-election Update*, with the situation in the Middle East and Ukraine deteriorating. New risks associated with Ebola have emerged.

The inflation outlook is a source of uncertainty...

Recent inflation outturns have been lower than expected. The factors behind the persistently lower inflation are not fully understood, leading to a higher degree of uncertainty over future inflation than normal. One possible cause is that potential output (the maximum level of economic activity that can be achieved while maintaining stable inflation) is higher than currently estimated, leaving a larger negative output gap (the difference between real GDP and potential output). As a result, inflationary pressures are weaker than anticipated. Under these circumstances, the Reserve Bank may choose to hold stimulatory monetary policy settings in place for longer. This would pose downside risk to the nominal GDP forecast in the near term, as price levels would be lower than in the central forecast. Over the longer term the risks are skewed to the upside as higher potential output would allow New Zealand to sustain a higher real GDP growth rate. Scenario two examines the impact of potential output growing more quickly than in the central forecast.

Another possibility is that inflationary pressures are present but taking longer than usual to impact on prices and wages. For example, following on from the experience of the global financial crisis, employees may be placing greater emphasis on job security than seeking higher wages. In this case the inflation outlook may be higher than recent outturns suggest. By putting upward pressure on both prices and wages this could lead to higher nominal consumption than otherwise. The extent and timing of such an increase in inflation would influence monetary policy settings. The impact on real consumption would depend on the relative changes in prices and wages. All else being equal, wages rising faster than prices would lead to higher real consumption.

...as is net migration's impact on domestic demand

Net migration gains remain elevated and judgements around the extent and timing of the cycle play a key role in the economic forecasts. The annual net inflow of migrants is now forecast to peak at around 52,400 in the first quarter of 2015, compared to a forecast peak of around 42,500 in the third quarter of 2014 in the *Pre-election Update*. The impact on the wider economy of higher rates of net migration will depend on the skill sets of the migrants and their geographic distribution. If the current strength in migration persists for longer than forecast it would put additional pressure on the housing market and add further impetus to domestic demand. However, higher migrant inflows to Canterbury could mitigate some of the capacity risks associated with the rebuild. The current migration cycle differs from previous ones, in that a large component is owing to fewer departures and the proportion of working-age arrivals is higher. The extent to which this changes net migration's economic impact, through its impact on productivity for example, is a further source of uncertainty.

Pressures remain in the housing market...

House price growth and house sales have slowed as higher mortgage rates and loan-to-value ratio restrictions (LVRs) have impacted mortgage lending. This slowdown in the housing market has been in contrast to the record net migration gains, which historically have increased the demand for housing. While higher net migration flows would pose an upside risk by increasing housing demand further, there could also be a delayed response to the recent increases in net migration that have already occurred, leading to higher demand for housing and possibly higher private consumption growth. Regional imbalances linger, as price growth in Auckland and Canterbury remains above the national average in response to strong demand. The timing of the removal of LVRs could also have a significant influence on developments in the housing market.

...and the timing and extent of the Canterbury rebuild remains uncertain

There is still uncertainty around the overall timing and magnitude of the Canterbury rebuild. Key determinants continue to be the pace of the settlement of remaining insurance claims (with around a third of private sector claims estimated to be outstanding) and the evolution of resource pressures in 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. Recently this has been reflected in a slowing in the number of dwelling consents being issued. The availability and mobility 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 lower than in the forecast.

Risks from volatility in commodity prices are skewed to the downside...

Commodity prices for a number of New Zealand's key exports, especially dairy and to a lesser extent forestry, have fallen sharply this year. The outlook for dairy in particular remains weak (see box Dairy export prices and the New Zealand economy in the Economic Outlook chapter) and larger falls or a slower recovery in dairy prices than forecast pose downside risk through their adverse impact on farm incomes and the rural economy. Dairy farmers are particularly at risk should a second season of low farm gate prices occur. In contrast, meat prices, particularly beef, have continued to increase and should the upward trend continue for longer than currently anticipated this would create upside risk to the forecast. As a net oil importer, low oil prices owing to increases in global supply combined with lower demand growth form a positive risk to the New Zealand economy, although a further increase in geopolitical risks could bring an increase in prices (see below).

A further source of uncertainty is the one-year Russian agricultural import ban imposed in August, which impacts on a number of New Zealand's export markets such as dairy and apples (although New Zealand is not specifically included in the ban). An earlier removal of this ban could support a faster recovery in commodity prices, while a later removal could lead to more weakness in commodity prices as trade flows remain disrupted.

Given the relative weightings of the different export sectors and generally low global demand growth, risks to the forecast from commodity prices are tilted to the downside. Scenario one explores this further through simulating a sustained fall in the terms of trade caused by a broad-based fall in export prices.

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

Risks to the growth outlook for China remain, with GDP growth slipping below the Government's target. 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. China's growth could slow more quickly than in the central forecasts if financial market disruption resulted in significantly tighter credit conditions. The People's Bank of China has been implementing some stimulus to address these imbalances and return GDP growth to the target of 7.5% but it will take time before the impact of the stimulus is known. Structurally, China is aiming 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.

Australian economic activity is relatively subdued, with consumer confidence, retail spending and job growth low. The slowdown in China also impacts on the Australian economy, particularly its export-orientated sectors such as mining and agriculture. As New Zealand's largest trading partner and source of foreign investment, continued weakness in Australia could impact on New Zealand via these channels. The Reserve Bank of Australia continues to maintain its accommodative monetary policy stance.

The economic outlook is weak in the euro area and downside risks remain. Sovereign debt issues have not been resolved and the pressure for increasing domestic competitiveness is high. Deflationary risks are increasing, leading to further easing of monetary policy by the European Central Bank, which has also left the door open for quantitative easing. The effect of this easing introduces further uncertainty to the outlook for Europe. A fall into deflation or a flare-up of sovereign debt issues could stifle the weak euro area recovery.

Japan's outlook has also weakened after an increase in sales tax reduced consumption, prompting the Japanese central bank to expand its asset purchase programme and the government to propose delaying further sales tax increases until 2017. Weaker Japanese activity could reduce export demand, particularly for economies in the Asia-Pacific region, many of which are also key trading partners for New Zealand. At the time forecasts were finalised, a snap election scheduled for 14 December was a further source of uncertainty.

...although the US economy is gaining momentum

The US economy continues to recover, with solid investment, consumption, construction and employment growth. Should the recovery accelerate further this would present a positive risk to the forecasts through its stimulatory effect on global demand. In particular, this may help boost export demand in emerging economies whose growth has slowed. October marked the end of quantitative easing in the US, although uncertainty remains over when monetary policy tightening will begin. Monetary policy tightening in the US and UK while the euro area and Japan ease may cause further disruption to global financial markets, as the divergence in monetary policy settings shifts financial and capital flows.

Geopolitical developments remain a concern

Geopolitical risk has increased since the *Pre-election Update*, as the situations in both Ukraine and the Middle East have deteriorated further. Recent developments have been watched closely by markets for any possible impacts on economic activity and energy supplies. While long-term implications of the recent geopolitical developments remain uncertain, further deterioration that impacts energy supplies may reverse recent price falls. Europe is particularly exposed to the Ukrainian situation given the trade links to Russia and the high proportion of energy supplies that is sourced from Russia.

Ebola has become more widespread in West Africa. While at this time it is unlikely for New Zealand to be directly impacted, potential reductions in global tourism and travel and disruption to trade may impact New Zealand indirectly should the situation deteriorate.

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). The scenarios represent two of a number of ways that the economy could deviate from the central forecast. Scenario one represents the economic impacts of further deterioration in the terms of trade owing to lower export prices. Scenario two represents the economic impact if potential output grows faster than anticipated.

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

March years	2014 Actual	2015 Forecast	2016 Forecast	2017 Forecast	2018 Forecast	2019 Forecast
Real GDP (annual average % change)						
Central forecast	**3.2**	**3.5**	**3.4**	**2.8**	**2.3**	**2.2**
Scenario one	3.2	3.4	2.9	2.6	1.9	1.8
Scenario two	3.2	3.5	3.5	3.1	2.8	2.8
Unemployment rate[1]						
Central forecast	**6.0**	**5.4**	**5.1**	**4.7**	**4.5**	**4.5**
Scenario one	6.0	5.4	5.5	5.2	4.9	4.9
Scenario two	6.0	5.4	5.1	4.7	4.4	4.5
Nominal GDP (annual average % change)						
Central forecast	**6.7**	**3.0**	**4.9**	**5.7**	**4.1**	**3.6**
Scenario one	6.7	2.9	2.5	4.5	3.9	3.2
Scenario two	6.7	3.0	5.0	6.0	4.7	4.2
Current account balance (% of GDP)						
Central forecast	**-2.7**	**-5.3**	**-6.2**	**-5.8**	**-5.7**	**-5.9**
Scenario one	-2.7	-5.4	-7.9	-7.8	-7.3	-7.3
Scenario two	-2.7	-5.3	-6.2	-5.8	-5.8	-6.1
90-day bank bill rate[2]						
Central forecast	**3.0**	**3.7**	**3.9**	**4.4**	**4.8**	**5.2**
Scenario one	3.0	3.7	3.9	4.4	4.8	5.2
Scenario two	3.0	3.6	3.6	3.6	4.0	4.6

Notes: 1 March quarter, seasonally adjusted
2 March quarter average

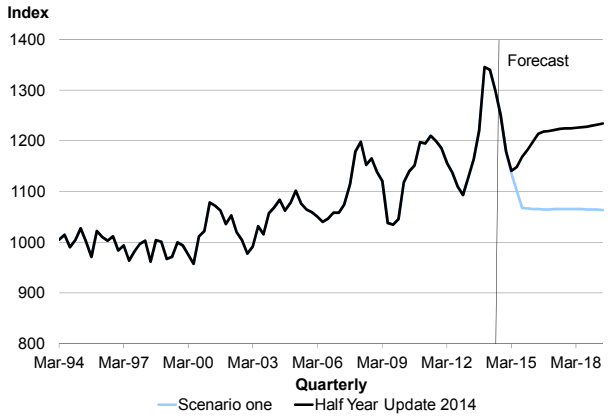
Sources: Reserve Bank, Statistics New Zealand, the Treasury

Scenario One – Fall in the Terms of Trade

Further falls in export prices lead to a larger decline in the terms of trade...

In the first scenario, world prices for New Zealand's exports fall further than in the central forecast and are not offset by falls in world import prices. Meat prices peak earlier and at a lower level than in the central forecast while other export prices, including dairy, fall further than in the central forecast before stabilising, leaving total goods export prices lower. As a result, the terms of trade fall further and for a longer period of time, before stabilising near the average of the past two decades (Figure 3.1). This is a permanent shock to the economy rather than a cyclical downturn in the terms of trade.

Figure 3.1 – Goods terms of trade (SNA)

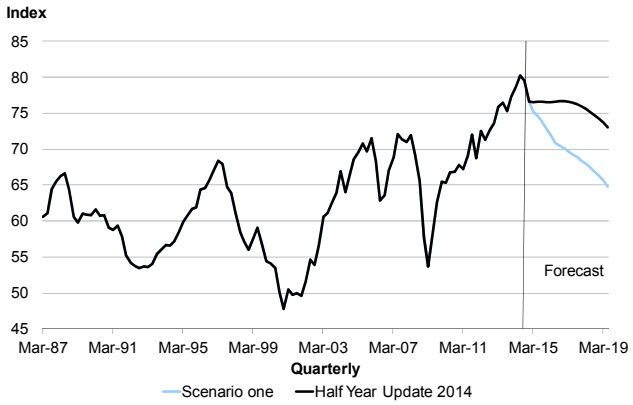


Sources: Statistics New Zealand, the Treasury

...faster depreciation of the exchange rate and higher tradables inflation

In response to the falling terms of trade, the exchange rate depreciates faster than in the main forecast (Figure 3.2). This acts to buffer some of the negative impact of falling export prices. The lower exchange rate leads to imported goods costing significantly more in NZ dollars, boosting tradables inflation. With lower non-tradables inflation only partially offsetting the tradables inflation, total inflation is higher than in the central forecast although it remains within the target band. Perceiving this to be a one-off shock, it is assumed that the Reserve Bank chooses to "look through" the short-term increase in inflation and leave monetary policy settings unchanged compared to the central forecast. This poses risk to the Reserve Bank as, depending on the timing of the inflation shocks and the degree to which tradables inflation spills over into non-tradables inflation, total inflation may move outside the target band for an extended period. There is always considerable uncertainty associated with how permanent an exogenous shock event may be.

Figure 3.2 – Exchange rate (TWI)



Sources: Reserve Bank, the Treasury

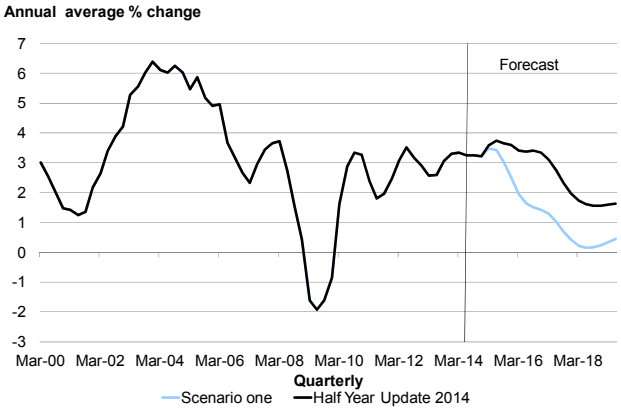
Lower incomes lead to lower consumption and investment growth and lower GDP growth...

In regions most exposed to the export sector (rural areas for example) the fall in export prices reduces income levels, leading to lower private consumption compared to the central forecast. Over time this spreads to other areas of the country as they in turn see a slowdown in demand, further reducing consumption. Higher inflation, largely as a result of higher import prices, also reduces consumers' purchasing power compared to the central forecast, leading to lower real private consumption growth over the forecast period (Figure 3.3). For firms, the reduction in profits cuts into their ability to set aside funds for

the future while the cost of investment is higher (owing to higher imported capital goods prices), reducing market investment growth. The reduction in investment growth also has a negative impact on the economy's capacity, reducing the potential growth rate and thereby the level of potential output (from where it would otherwise have been).

With lower real private consumption and market investment, the demand for imports falls, leading to lower real imports. However, the sharp fall in the exchange rate means that imported goods are more expensive in NZ dollar terms, leading to higher nominal imports than the central forecast. Higher import costs and lower export receipts lead to the current account deficit widening to over 7% of nominal GDP in 2019. The lower terms of trade, combined with weaker domestic activity, reduce nominal GDP by a cumulative $39 billion relative to the central forecasts over the forecast period.

Figure 3.3 – Real private consumption



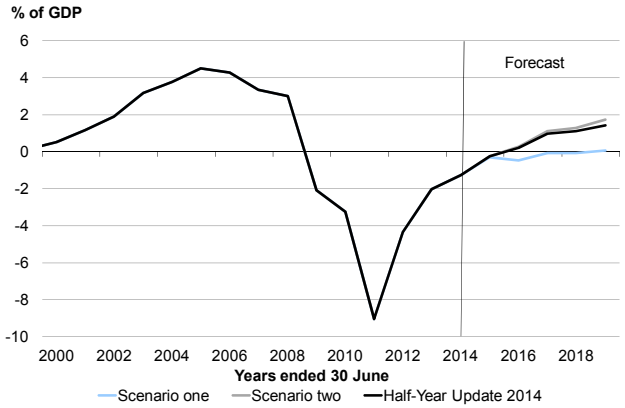
Sources: Statistics New Zealand, the Treasury

…as well as lower tax revenue and operating balance

Core Crown tax revenue is a cumulative $10.7 billion lower over the forecast period in this scenario, owing to the lower nominal GDP. The economy's lower value of output means that business profitability is reduced, resulting in corporate taxes being a cumulative $4.6 billion lower. The weaker labour market and lower labour incomes reduce source deductions revenue by $2.5 billion over the forecast period. Lower nominal consumption and residential investment reduce GST revenue by a cumulative $2.0 billion over the forecast period.

Core Crown expenses are higher than in the central forecast. Weaker demand for labour results in an increase in the number of recipients of unemployment-related benefits compared to the central forecasts, while the cost of these benefits is higher as they are linked to higher inflation. Fiscal policy is assumed to remain unchanged from the central forecast. In this scenario, the OBEGAL does not return to surplus until the June 2019 year (Figure 3.4). As a consequence, net core Crown debt reaches 28.0% of GDP in the June 2016 year, rather than peaking at 26.5% in the June 2015 year as in the central forecast (Figure 3.8).

Figure 3.4 – Operating balance (before gains and losses)



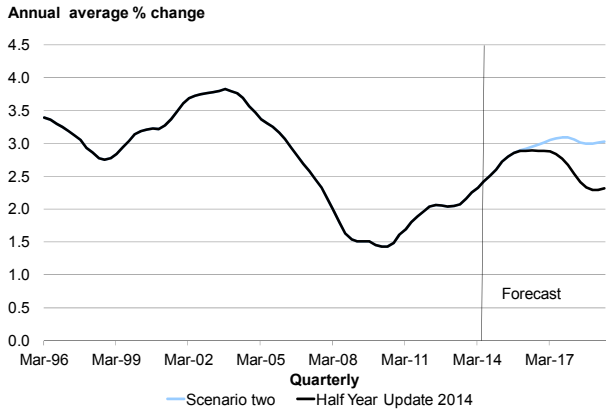
Source: The Treasury

Scenario Two – Higher Growth in Potential Output

Growth in potential output is higher than anticipated...

Scenario two explores the impact of potential output growing faster than the central forecast. Higher investment and total factor productivity growth enable potential output to return to growth rates seen in the two decades prior to the global financial crisis (Figure 3.5). The recent strong migration cycle, with its high proportion of working-age arrivals, is also assumed to have a more positive impact on potential output than is built into the central forecast. The skills, ideas and international connections of the migrants are assumed to further increase productivity growth.

Figure 3.5 – Potential output growth



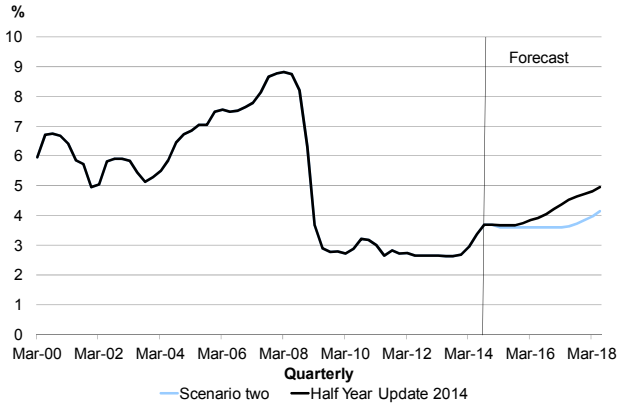
Source: The Treasury

...leading to lower inflationary pressures

In the near term, potential output expands in line with the general expansion in economic activity. Thanks to the productivity gains, this expansion is able to proceed for longer without running into capacity constraints, keeping inflationary pressures low.

With inflation close to the middle of the target range, the Reserve Bank can maintain its current monetary policy settings for longer than in the central forecast. The Reserve Bank remains on hold until 2017, after which increases in interest rates are phased to reduce the output gap and keep inflation at 2%. This leaves interest rates lower than in the central forecast over most of the period (Figure 3.6).

Figure 3.6 – 90-day interest rate



Sources: Reserve Bank, the Treasury

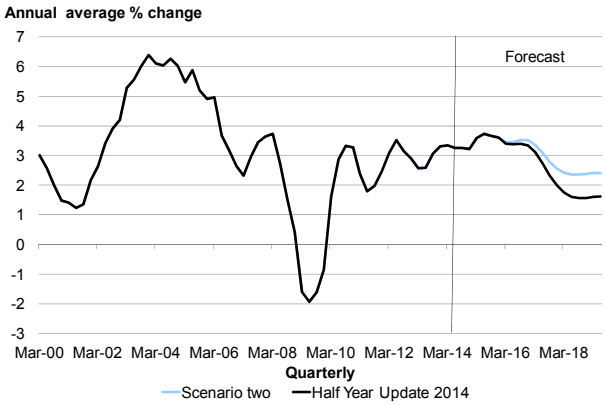
Lower interest rates stimulate investment...

Low interest rates reduce the cost of investment, allowing consumers and firms to increase real residential and market investment. Higher productivity growth further boosts the return on investment, creating an even larger incentive for firms to invest. This investment creates a virtuous cycle by further increasing potential output and alleviating inflationary pressures, allowing interest rates to remain on hold for longer.

Although consumer price inflation remains stable, productivity growth enables employers to increase their employees' wages faster than prices. The resulting improvement in consumers' purchasing power leads to higher real private consumption (Figure 3.7). For households, lower interest rates reduce debt servicing costs, increasing disposable income and further boosting real private consumption.

Higher investment and private consumption lead to higher demand for imported goods. Although higher investment boosts exports too, the increase in exports is not large enough to offset the increase in imports leading to deterioration in the merchandise goods balance. The current account deficit widens slightly more than in the central forecast to 6.1% of GDP in 2019. The exchange rate is largely the same as in the central forecast.

Figure 3.7 – Real private consumption



Sources: Statistics New Zealand, the Treasury

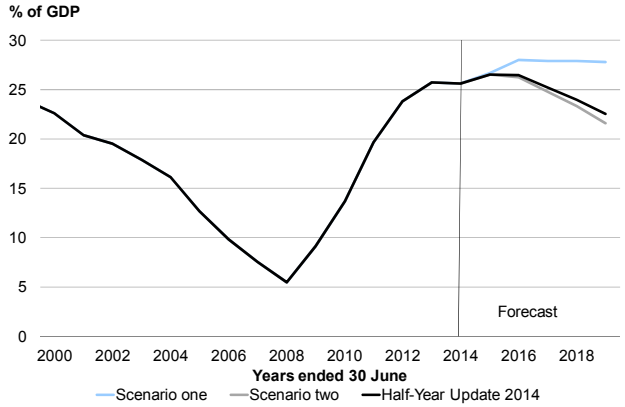
...leading to higher real and nominal GDP growth

Higher private consumption and residential and market investment, coupled with the higher potential output, lead to faster real and nominal GDP growth. Over the course of the forecast period nominal GDP is a cumulative $8 billion above the central forecast, with most of this occurring in the final three years of the scenario.

Core Crown tax revenue is a cumulative $1.7 billion higher over the forecast period. Labour productivity gains lead to faster wage and salary growth, boosting source deductions revenue by a cumulative $0.8 billion. Increased investment allows firms to expand faster, boosting revenues and profits, and increasing corporate tax by $1.1 billion. Higher nominal consumption and residential investment boost GST revenue by $0.5 billion over the forecast period. These gains are partially offset by falls in tax on interest of $1.1 billion owing to lower interest rates.

Core Crown expenses are lower than in the central forecast owing to a fall in debt-servicing costs. With most of the gains in this scenario accruing in the latter half of the forecast period, the return to OBEGAL surplus in the June 2016 year is unchanged from the central forecast, with a larger surplus developing in later years (Figure 3.4). The peak in net core crown debt is also the same (26.5% in the June 2015 year), although it subsequently declines faster than the central forecast to 21.6% of GDP in the June 2019 year (Figure 3.8).

Figure 3.8 – Net core crown debt



Source: The Treasury

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.

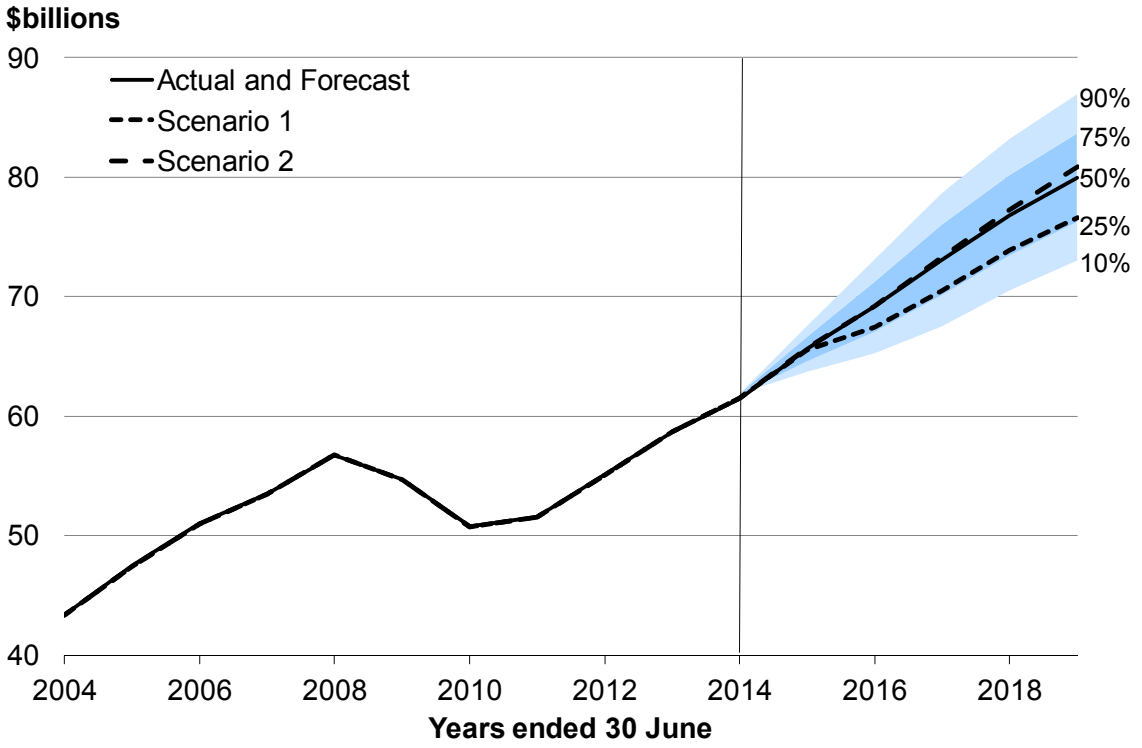
Revenue Risks

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 3.9 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.[8] The outermost shaded area captures the range ± $7.0 billion in the June 2019 year, within which actual tax outturns are expected to fall 80% of the time.

The tax revenue forecasts from the two scenarios are also shown in Figure 3.9. 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.

Figure 3.9 – Core Crown tax revenue uncertainty



Source: The Treasury

[8] A full summary of the methodology and critical assumptions is included in Treasury Working Paper 10/08.

Based on average historical forecast variances and an even balance of risks, Figure 3.9 suggests that tax revenue over the forecast period would be higher than scenario two approximately 46% of the time and lower than scenario one approximately 31% 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 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 Government'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 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 the balance sheet owing to the Crown having explicit obligations either in respect of its own assets or to the wider economy. Some are off the 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.

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".[9] 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 diversify their portfolios across a range of financial assets to manage exposures to specific market risks.
- 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 2013 financial year.[10] 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.

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 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 be more likely to face a degree of funding pressure in the future. All else being equal, 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 Debt Management Office (DMO).

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

10 www.treasury.govt.nz/government/investmentstatements/2014

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 $4.2 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 the Treasury's DMO being $136 million lower in the June 2019 year. This would be more than offset by interest expenses being $353 million lower in the June 2019 year.

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 annum on					
Tax revenue	680	1,420	2,250	3,170	4,150
Tax Revenue impact of a 1% increase in growth of					
Wages and salaries	285	600	955	1,365	1,820
Taxable business profits	130	300	490	695	905
Impact of 1% lower interest rates on					
Interest income[1]	(40)	(72)	(133)	(144)	(136)
Interest expenses[1]	(20)	(118)	(233)	(292)	(353)
Overall operating balance[1]	(20)	47	99	148	217

Note: 1 Funds managed by the Treasury's NZDMO only

Source: The Treasury