
Risks and Scenarios

Overview

- Relative to the *Half Year Update* forecasts, the risks to the *Budget Update* central forecasts are more balanced, mainly owing to receding extreme global downside risks. However, significant global economic risks remain and are slightly skewed to the downside. The underlying euro area government debt problems still exist, there are risks around how the US manages its fiscal consolidation and the effects of developed-country monetary easing remain uncertain.
- Domestically, uncertainties surround some of the key judgements in the economic forecasts and are slightly skewed to the upside. These judgements include the size and pace of the Canterbury rebuild, the path and pass-through of the exchange rate, the saving behaviour of households and the impact of the drought.
- The more balanced profile of risks is demonstrated by the upside and downside scenarios being broadly symmetrical. In the downside scenario nominal GDP is \$19 billion lower over the forecast period based on lower inflation internationally and domestically. The upside scenario results in nominal GDP being \$19 billion higher over the forecast period and is driven by stronger-than-expected house prices which results in more complementary consumption spending, along with increased pricing pressures in the construction industry. The scenarios are based on their impact on nominal GDP and tax revenue over the forecast period.
- If these economic risks or any significant deviations from the central forecast were to eventuate they would impact on the Government's fiscal performance and position. These economic uncertainties also pose risks to the Government's debt servicing costs. The fiscal uncertainties are illustrated by the downside and upside scenarios. Core Crown tax revenue is \$5.4 billion lower over the forecast period in the downside scenario and the operating balance (before gains and losses) reaches surplus two years later, compared to the central forecast. Core Crown tax revenue is a cumulative \$6.6 billion higher in the upside scenario and a larger surplus is recorded in the 2015 June year, compared to the central forecast.
- The Crown's financial position is also exposed to risks from its balance sheet. 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. These may result in operating balance impacts.

Introduction

The first part of this chapter outlines the key risks to the economic outlook. These risks mainly relate to the key judgements associated with the central forecast. In the second part of the chapter, upside and downside scenarios are presented which represent just two possible ways the New Zealand economy could deviate from the central forecast. The chapter then focuses on the established channels between the risks facing the economy and the Crown's fiscal position.

Economic Risks

Risks to the forecasts have become more balanced...

In recent *Economic and Fiscal Updates*, risks around the central forecasts have been skewed to the downside, mainly owing to the relatively high probability associated with a negative global shock occurring as the euro area debt crisis evolved. The height of these elevated downside risks was shown in the *Pre-election Economic and Fiscal Update 2011*, where an upside scenario was not included in order to demonstrate that there was a much higher probability of a downside scenario occurring. Since then, downside risks have become less prevalent to the point where risks are now fairly symmetrical around the central forecast. The more balanced nature of risks is illustrated by the upside and downside scenarios having similar-sized impacts on nominal GDP and tax revenue.

...with extreme global downside risks receding...

The more balanced profile of risks mainly relates to a lower probability of a severe internationally-generated negative shock occurring. The euro area debt crisis has settled down somewhat, the US avoided the “fiscal cliff” and China is experiencing a relatively modest slowing in growth. Definitive decisions by officials have lessened the risk of disorderly default or break-up of the euro area. This has included Ireland, Greece and Portugal all receiving funding packages from the IMF and European organisations, while the European Central Bank (ECB) has pledged to “do whatever it takes” to keep the euro area together, including buying sovereign bonds.

More recently, Cyprus has participated in a partial “bail-in”, where large uninsured depositors have to take losses on their deposits in order for Cyprus to receive funding from the IMF and European Union. In the US, Congress was able to avoid the “fiscal cliff”; there will still be significant fiscal consolidation, including payroll tax increases and government spending cuts (“the sequester”), but not at the level feared by market participants if negotiations had failed. The Federal Reserve has also pledged to keep policy easing in place until the recovery becomes entrenched, reducing downside risks. Fears of a sharp slowing in growth in China have mostly been averted, with real GDP growth reaching a trough of 7.4% on a year earlier in the September quarter of 2012 and rebounding slightly to 7.9% and 7.7% in the December and March quarters respectively.

...but global risks remain...

While the extreme negative risks from the euro area debt crisis have receded, significant global risks remain and are still somewhat skewed to the downside. In the central forecast it is assumed that governments and officials continue to do what is necessary to avoid a disorderly default by a euro area country but that growth in the region remains

weak as fiscal consolidation weighs heavily on activity. The probability that the crisis will worsen significantly has fallen recently owing to actions taken by organisations, including the ECB and IMF. However, escalation of the euro debt crisis would further dampen growth in the region and cause financial market turmoil, with spillover effects on the rest of the world.

More generally, the effects of fiscal consolidation and monetary easing by major advanced economies remain uncertain. The US and euro area must undergo significant adjustment to reduce government debt. Japan, the US and the UK are currently undertaking significant quantitative easing programmes to stimulate their economies through the purchase of financial assets. An example is the Bank of Japan pledging to double the size of its balance sheet over the next two years in order to achieve its 2% inflation target. This has driven the yen lower and boosted Japanese asset markets. How these changes flow through to the real economies remains uncertain.

...including for New Zealand's major trading partners...

One of the main risks associated with New Zealand's largest trading partner, Australia, is the source of growth after the peak in mining investment has passed this year. It will take some time for the exports associated with this investment to ramp up, requiring increased residential and non-mining business investment to maintain Australia's recent strength in economic growth.

China has grown in importance to the New Zealand economy, now being our second largest trading partner. The risk of a significant slowing in growth, as Chinese authorities tried to clamp down on rising asset prices, has eased recently. However, risks remain of a correction in the housing market, following the recent run up in prices, and the build up of poor quality debt over the recent investment boom. China is also attempting to rebalance its economy away from export- and investment-led growth, towards consumption. Faster progress towards this goal would benefit New Zealand as a major supplier of soft commodities, including dairy products.

...which, if they eventuate, would impact on the New Zealand economy

If any of the global downside risks eventuate, demand for New Zealand's exports would be lower; the opposite is true of upside risks which are considered now to be almost as likely. For products whose production is responsive to demand, including services and manufactured exports, lower world growth would depress demand and decrease export volumes; whereas for other products with supply constraints, including agricultural exports, the main impact would be through lower prices.

Downside global developments would also have a negative impact on domestic confidence and asset prices. Higher risk aversion in response to negative developments would result in more cautionary behaviour by households, which would be expected to lead to lower asset prices and less willingness by consumers to commit to major purchases. The result of these developments would be lower private consumption, while more caution on the part of firms would decrease business investment and employment as they are less willing to commit to expenditure in a more uncertain environment.

Negative global developments would increase the level of uncertainty faced by financial market participants and lower the amount of risk they are willing to take on. This would flow through to reduced availability, and higher cost, of credit for New Zealand. The effective repricing of risk would increase the borrowing costs of New Zealand banks,

which they would pass on to customers. However, there is room for the RBNZ to provide liquidity as needed and lower the base interest rate to mitigate the impact of higher funding costs on the interest rates faced by households and businesses. This is different from the majority of other developed-country central banks that are at the zero lower bound of interest rates and are undertaking alternative policy (eg, quantitative easing) to ease monetary conditions.

Risks surround key judgements relating to the domestic economy...

Offsetting the somewhat negatively skewed global risks, upside risks are slightly more prevalent for the domestic economy. Domestic risks mainly relate to the key judgements that have been made in the forecasts about the size and timing of the Canterbury rebuild, the level and flow through of the exchange rate, household saving behaviour and the developments of monetary policy. In addition, the impact of the drought, the current amount of spare capacity in the economy and the current underlying strength of the labour market remain uncertain.

...including earthquake rebuilding...

The timing and extent of the Canterbury earthquake rebuild is difficult to forecast, as an event of this magnitude has never occurred before in New Zealand. The key determinants of the speed the rebuild can ramp up and be sustained include insurance settlements and the capacity and capability of the construction sector. These factors provide both upside and downside risks to the rebuild assumption influencing the central forecast (see the “Investment Associated with the Canterbury Rebuild” box [Chapter 1, page 15] for more information). If insurance settlements and construction capability progress faster than expected, residential and non-residential construction, imported goods volumes and employment would all be stronger than in the main forecast. There is also a risk that the Canterbury rebuild puts more upward pressure on prices, which is explored further in the upside scenario.

Another risk to the forecasts is how much the Canterbury rebuild crowds out activity in other parts of the economy. New Zealand has limited construction capacity, which will be added to through inward migration and the importation of capital goods, a significant part of which will be taken up by Canterbury. So while the Canterbury rebuild is a major driver of growth over the forecast period, in its absence other parts of the country would use some of the construction industry’s capacity to increase activity.

...as well as the exchange rate...

A major change in judgement between the *Half Year Update* and the *Budget Update* is the evolution of the exchange rate. Previously, it was assumed that a significant fall in the New Zealand dollar (NZD) would occur over the forecast period owing to most measures suggesting a large over-valuation. However, this depreciation has not occurred yet and other factors, including looser monetary policy in major advanced economies and a positive growth outlook for New Zealand relative to other developed economies, have supported the NZD. The forecast for the NZD has therefore been held higher for longer on a trade-weighted basis. A risk to this forecast is that the over-valuation of the NZD leads financial market participants to sell the currency, resulting in a lower exchange rate than in the central forecast. A lower exchange rate would increase tradables inflation, as imported goods would become more expensive, and discourage consumption of imported products. On the other hand, exporters and import-competing businesses would become more competitive, boosting manufacturing and services exports and production of import substitutes for the domestic market.

...and household saving behaviour

In the central scenario it is assumed that households are fairly comfortable with the current state of their balance sheets and spend close to what they earn, resulting in a saving rate around zero over the forecast period. There is a risk that households show less restraint than anticipated; for example, households use the increased house prices that are forecast to fund consumption through housing equity withdrawal as occurred over the early-to-mid 2000s. This sort of behaviour is explored further in the upside scenario. This would result in consumption rising faster than disposable income, with the shortfall being funded by rising debt, and cause the saving rate to be more negative over the forecast period. While this would be positive for GDP growth in the near term, owing to a boost to private consumption, it may require a sharper negative adjustment in the medium term as households become more indebted and may need to repair their balance sheets.

Policy developments could turn out different than expected...

Macroeconomic policy developments remain uncertain, with macro-prudential policy being added to the uncertainty surrounding interest rates. The central forecast assumes that short-term interest rates begin rising in the June quarter of 2014, in line with market pricing at the time the forecasts were finalised. If recent strong growth in house prices were to spill over into more generalised price increases through wealth effects, an earlier increase in interest rates may be required. This could put further pressure on the exchange rate to appreciate and dampen domestic demand. On the other hand, if rising credit growth in order to finance house purchases and related consumption pose a threat to financial stability, macro-prudential tools may be used to stem the credit growth.

...as could the drought...

The effects of the recent drought on the economy are uncertain, particularly its impact on nominal GDP. Previous droughts have coincided with adverse global events such as the late-1990s Asian financial crisis and the late-2000s global financial crisis, which make it difficult to isolate the impact of each drought episode on the economy. The impact of this summer's drought on the economy is discussed in the "Economic Impacts of the Drought" box (Chapter 1, page 17). While rainfall has recently increased, given the weakened condition of the dairy herd going into the winter, a return to drought conditions would be particularly damaging and would impact on growth in the 2014 calendar year. A cold, dry winter could also reduce lambing rates next season to a greater extent than assumed, and may also negatively affect hydro-electricity generation which would be negative for GDP if producers switch to more costly thermal generation. The impact of the drought on prices is also a key uncertainty. If global dairy supply conditions remain tighter than assumed, dairy prices may be supported at a higher level next season than anticipated. There are also potential second round impacts to consider if changes in incomes resulting from the drought alter spending behaviour.

...and other key judgements

Labour market data have been volatile recently and movements in the Household Labour Force Survey have appeared at odds with other indicators. For more information see the "Recent Labour Market Conditions" box (Chapter 1, page 21). If the assumption that modest employment growth will resume in the first half of 2013, following recent labour market weakness, is incorrect and employment remains weak, the unemployment rate could rise rather than be flat as is forecast. This would result in more spare capacity and lower wage pressures in the economy, creating less domestically-generated inflation.

Related to this, the current amount of spare capacity in the economy (the output gap) is uncertain. If the output gap is more negative than the 1.0% of potential GDP estimated in the December quarter of 2012, there will be less domestically-generated inflation, but a greater cyclical increase in real GDP, than we have incorporated in the central forecast.

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 are only illustrative in that they are two of a large number of possible examples, and do not represent upper or lower bounds for the forecasts, with more extreme paths possible. They represent what are assessed to be key risks to the *Budget Update* forecast and illustrate the impact of relatively small changes in the assumptions on key economic and fiscal variables. Although not the most likely outcome, there is a realistic prospect that these scenarios could occur. The scenarios are based on their impact on nominal GDP and tax revenue over the forecast period and no judgement is made as to whether these would be beneficial or detrimental to the New Zealand economy over a longer period of time.

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

	2012	2013	2014	2015	2016	2017
March years	Actual	Estimate	Forecast	Forecast	Forecast	Forecast
Real GDP (annual average % change)						
Main forecast	1.9	2.5	2.4	3.0	2.6	2.2
Upside scenario	1.9	2.5	2.9	3.6	2.7	1.9
Downside scenario	1.9	2.5	2.4	2.9	2.6	2.1
Unemployment rate¹						
Main forecast	6.7	6.9	6.0	5.9	5.5	5.2
Upside scenario	6.7	6.9	5.9	5.6	5.2	5.0
Downside scenario	6.7	7.3	6.3	6.1	5.8	5.6
Nominal GDP (annual average % change)						
Main forecast	3.8	2.7	6.4	4.6	4.3	3.9
Upside scenario	3.8	2.7	6.8	5.7	5.1	4.1
Downside scenario	3.8	2.7	5.7	3.7	3.7	3.2
Current account balance (% of GDP)						
Main forecast	-4.4	-4.8	-4.8	-5.2	-5.8	-6.5
Upside scenario	-4.4	-4.8	-4.9	-5.6	-6.6	-7.3
Downside scenario	-4.4	-4.8	-5.2	-5.4	-6.2	-7.0
90-day bank bill rate²						
Main forecast	2.7	2.7	2.7	3.6	4.3	4.8
Upside scenario	2.7	2.7	3.0	4.1	5.4	6.0
Downside scenario	2.7	2.7	2.7	3.1	3.4	4.1

Notes:

- 1 March quarter, seasonally adjusted
- 2 March quarter average

Sources: Statistics New Zealand, the Treasury, RBNZ

Downside Scenario

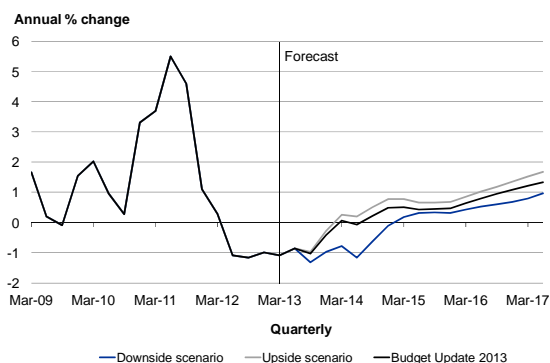
Prices weaker over the forecast horizon...

While there are a number of downside risks to real GDP growth, as outlined in the Economic Risks section, the downside scenario is based primarily on weaker inflation, both internationally and domestically. In this scenario it is assumed some of the judgements made in the central forecast turn out different than expected. In particular, it is assumed that the high exchange rate places more downward pressure on tradables inflation, inflation expectations are lower than anticipated resulting in decreased non-tradables inflation, and the terms of trade are lower than assumed in the central track owing to weaker global demand and a greater global supply response to expected growth in emerging market demand. These developments lower nominal GDP and tax revenue over the forecast period.

In the central forecast it is assumed that the deflationary impact of the recent appreciation of the exchange rate dissipates and becomes inflationary as the exchange rate begins to depreciate. This results in rising tradables inflation over the forecast period. In the downside scenario it is assumed that the deflationary impact of the high exchange rate is more persistent and keeps tradables inflation lower for a longer period than in the central forecast (Figure 3.1). The positive outlook for the New Zealand economy relative to other developed countries and an increase in monetary easing by advanced-economy central banks holds the NZD up, despite a lesser increase in short-term interest rates over the forecast period in response to the weaker inflation outlook.

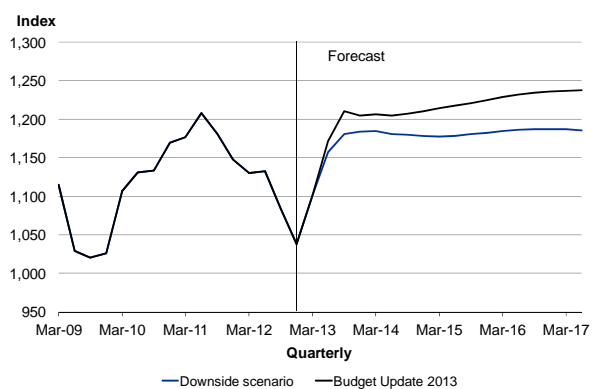
In the central forecast it is assumed that the labour market partially recovers in the first half of 2013 from the weak employment results in the second half of 2012. In the downside scenario employment remains weak in the first half of 2013 as firms are still not confident enough in the recovery to take on permanent staff and the unemployment rate rises. This weaker labour market and subsequent lower wage growth, along with the current low headline inflation rate, help to contain inflation expectations. Lower inflation expectations, along with marginally weaker real GDP growth, result in less domestically-generated inflation.

Figure 3.1 – Tradables CPI inflation



Sources: Statistics New Zealand, the Treasury

Figure 3.2 – Merchandise terms of trade (SNA)



Sources: Statistics New Zealand, the Treasury

In the central forecast it is assumed that the goods terms of trade increase sharply over 2013. This increase occurs as the price of the commodities New Zealand exports, especially dairy products, rises with global supply being constrained owing to dry

conditions in New Zealand and adverse weather conditions and increased feed costs overseas. Over the medium term it is assumed that growth in emerging market demand results in a slight upward trend in the merchandise terms of trade. In the downside scenario a lesser recovery in New Zealand's export commodity prices in 2013 is assumed as the price of dairy products is not as affected by adverse global weather conditions as first thought and a re-emergence of global risks dampens demand for commodities. It is also assumed that the global supply response to increasing emerging market demand is strong enough to contain price increases, resulting in a flatter merchandise terms of trade in the medium term (Figure 3.2).

...causing weaker nominal GDP...

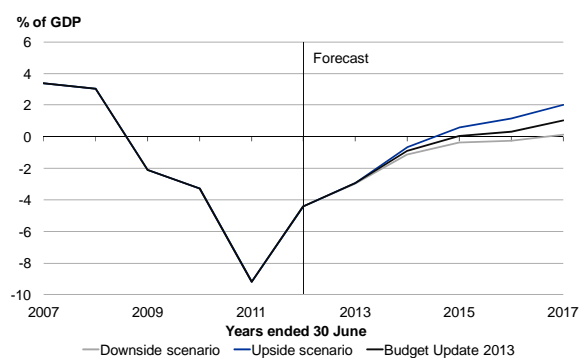
The combination of lower tradables and non-tradables inflation, as well as weaker terms of trade over the forecast period, result in lower inflation compared to the central scenario. These weaker prices, along with slightly lower real GDP, reduce nominal GDP by \$19 billion over the forecast period, compared to the central track. The lower terms of trade in the downside scenario weaken the goods trade balance over the forecast period which, along with the lower nominal GDP, increases the current account deficit as a percentage of GDP relative to the main forecasts. The current account balance reaches a deficit of 7.0% of GDP by March 2017, compared to 6.5% in the central track. The assumption of a weaker labour market mentioned earlier only reduces the unemployment rate to 5.6% by March 2017, compared to 5.2% in the central scenario.

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

Core Crown tax revenue is a cumulative \$5.4 billion lower over the forecast period in the downside scenario. A weaker inflationary environment means that nominal consumption and residential investment are lower, which reduces GST revenue by a cumulative \$800 million over the forecast period. The weaker labour market and less inflationary pressure mean that worker incomes are also lower, which reduces source deductions revenue by \$2.4 billion over the forecast period. The economy's weaker nominal activity means that business profitability is reduced, resulting in corporate taxes being a cumulative \$700 million lower. Resident withholding tax is \$600 million lower over the forecast period with interest rates needing to increase less than in the central forecast as inflation remains in the bottom half of the target band.

Core Crown expenses are slightly lower than in the central forecast as an increase in debt servicing costs is more than offset by a reduction in welfare payments. The reduction in welfare payments, despite incorporating a higher number of recipients of unemployment-related benefits, is driven by lower rate adjustments to benefits and superannuation, reflecting both lower inflation and wage growth. In this scenario, the return to surplus of the operating balance (before gains and losses) is delayed by two years until the June 2017 year (Figure 3.3) and, consequently, net core Crown debt as a proportion of GDP is still rising at the end of the forecast period (June 2017), reaching 30.3% at that time.

Figure 3.3 – Operating balance (before gains and losses)



Source: The Treasury

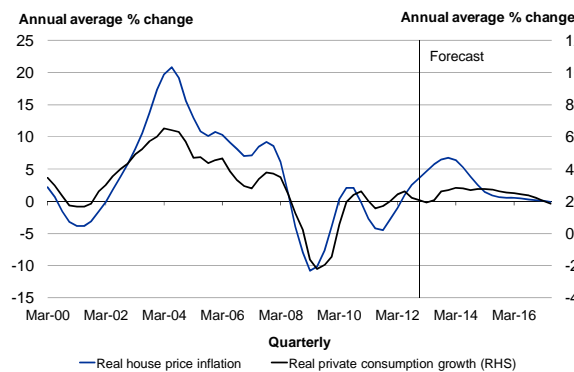
Upside Scenario

Higher house prices...

The upside scenario is based on higher prices for existing and new houses, along with an associated increase in complementary household spending. In this scenario it is assumed that the Canterbury rebuild generates more inflationary pressures than in the central forecast. Capacity constraints, including a shortage of skilled labour, require firms to pay higher wages to attract skilled workers to Canterbury in order to complete the rebuild in a timely fashion. These higher wages spill over into the rest of the country as other regions need to retain workers and these higher wages are passed on to customers in the form of higher house-building costs. Annual growth in residential investment prices peaks around 10%, compared with the central track where productivity increases resulting from the localised and repetitive nature of the rebuild are sufficient to keep pricing pressures in check and annual growth in residential investment prices peaks around 6%.

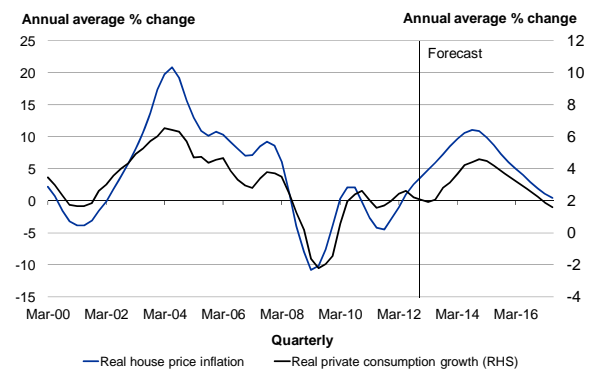
In the upside scenario, existing house prices rise by more over the forecast period, with peak growth around 14% in 2014 compared to close to 8% in 2013 in the central forecast. House price growth also takes longer to come off its peak and prices continue increasing in real terms over the forecast period, compared to the central scenario where prices are flat in real terms by the end of the forecast period (Figures 3.4 and 3.5). The stronger house price growth is driven by higher domestic confidence resulting in increased housing demand, and the increase in building costs spilling over into existing house prices.

Figure 3.4 – House prices and private consumption in central forecast



Sources: Quotable Value Limited, Statistics New Zealand, the Treasury

Figure 3.5 – House prices and private consumption in upside scenario



Sources: Quotable Value Limited, Statistics New Zealand, the Treasury

...boost private consumption and residential investment...

In this scenario, households resume housing equity withdrawal to finance consumption, resulting in the strong positive relationship between house prices and consumption over the 2000s reasserting itself (Figure 3.5). The resulting stronger debt-funded real consumption growth allows retailers to increase prices by more and inflation picks up considerably faster from its current subdued rate. Higher inflation results in increased short-term interest rates as the RBNZ tightens monetary policy sooner to maintain price stability. Despite higher interest rates, the exchange rate does not appreciate significantly as financial market participants see the increased activity as being unsustainable, demonstrated by the widening current account deficit.

It is also assumed that there is more complementary consumption associated with the pick up in residential investment than in the central forecast. This occurs as households buy new contents to fit out their new homes, with some of this expenditure financed out of earthquake insurance payouts. As the higher consumption is partly financed by borrowing against the increased value of housing, rather than higher incomes, the household saving rate is significantly lower than in the central forecast. The household saving rate reaches a low of -4.3% of household disposable income in the March 2016 year compared to the main forecast where it is 0.0% in 2016. This negative saving rate, along with higher interest rates at the end of the forecast period, suggests a slight adjustment to household balance sheets will be required sometime beyond the forecast period, which would likely constrain future consumption growth.

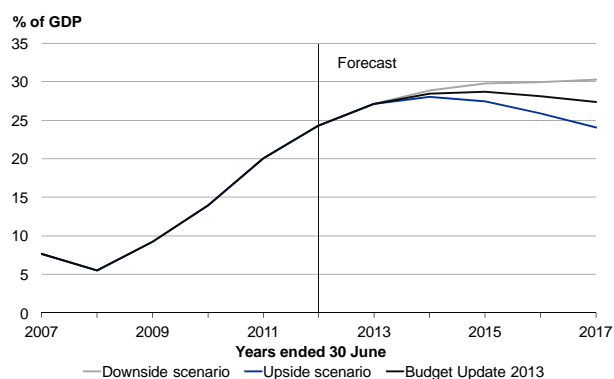
...which increases GDP and tax revenue

Stronger private consumption and residential investment result in nominal GDP being \$19 billion higher over the forecast period. The increased activity drives a stronger labour market, with the unemployment rate reaching a low of 5.0% in March 2017, 0.2% points lower than in the main forecasts. The annual current account deficit is wider and reaches 7.3% of GDP in March 2017, versus 6.5% in the central forecast. The current account deficit is wider as some of the increased consumption and investment is imported goods.

Core Crown tax revenue is a cumulative \$6.6 billion higher over the forecast period, mainly as a result of the higher nominal GDP. The stronger nominal consumption and residential investment boost GST revenue by \$2.1 billion over the forecast period. The stronger labour market and increased competition for workers pushes up wages and salaries, boosting source deductions revenue by a cumulative \$1.6 billion. The stronger economic activity allows firms to increase their margins, boosting profitability and increasing corporate tax by \$1.5 billion out to June 2017. Higher short-term interest rates, needed to control rising inflation, boost tax on interest by \$800 million. The increase in tax revenue is higher in the upside scenario than the fall in the downside scenario, despite the change in nominal GDP being similar. This asymmetry is because much of the decrease in GDP in the downside scenario comes from exports, which are not taxed other than to the extent to which they contribute to firm profits, while most of the gain to GDP in the upside scenario comes from consumption and residential investment which are both taxed through GST.

Core Crown expenses are slightly lower than in the central forecast as a fall in debt servicing costs more than offsets an increase in welfare payments. The increase in welfare payments is driven by higher rate adjustments to benefits and superannuation, reflecting both increased inflation and wage growth. In this scenario, the OBEGAL records a surplus of 0.6% of GDP in the June 2015 year, the same year surplus is achieved in the central forecast. Net core Crown debt as a percentage of GDP peaks at 28.0% in the June 2014 year, compared to 28.7% in the June 2015 year in the central forecast (Figure 3.6).

Figure 3.6 – Net core Crown debt



Source: The Treasury

General Fiscal Risks

The discussion up to this point has focused on the main near-term economic risks. The rest 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 59.

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 for some reason nominal GDP growth is one percentage point faster than we have forecast each year up to June 2017, tax revenue would be expected to be around \$3.0 billion (1.2% of GDP) higher than forecast in the June 2017 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 \$2.9 billion lower than forecast in the June 2017 year. However, these figures can be influenced by the composition of growth as different types of activity have different effective tax rates; for example, the upside and downside scenario both have around a \$19 billion impact on nominal GDP but their tax revenue impacts differ by \$1.2 billion.

A different interest rate path than that forecast would also impact on the fiscal position. A one percentage point lower interest rate would result in interest income being \$116 million lower in the June 2017 year. This would be more than offset by interest expenses being \$434 million lower in the June 2017 year.

Table 3.2 – Fiscal sensitivity analysis

Year ending 30 June (\$millions unless stated)	2013 Estimate	2014 Forecast	2015 Forecast	2016 Forecast	2017 Forecast
1% higher nominal GDP growth per annum on					
Tax revenue	-	620	1,335	2,125	2,985
(% of GDP)	-	0.3	0.6	0.9	1.2
Tax revenue impact of a 1% increase in growth of					
Wages and salaries	-	270	565	900	1,270
(% of GDP)	-	0.1	0.2	0.4	0.5
Taxable business profits	-	120	285	465	655
(% of GDP)	-	0.1	0.1	0.2	0.3
Impact of 1% point lower interest rates on					
Interest income ¹	(42)	(94)	(119)	(82)	(116)
(% of GDP)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)
Interest expenses ¹	(29)	(155)	(248)	(367)	(434)
(% of GDP)	(0.0)	(0.1)	(0.1)	(0.1)	(0.2)
Overall operating balance	(13)	61	129	285	318
(% of GDP)	(0.0)	0.0	0.1	0.1	0.1

Note:

1 Funds managed by the NZDMO only

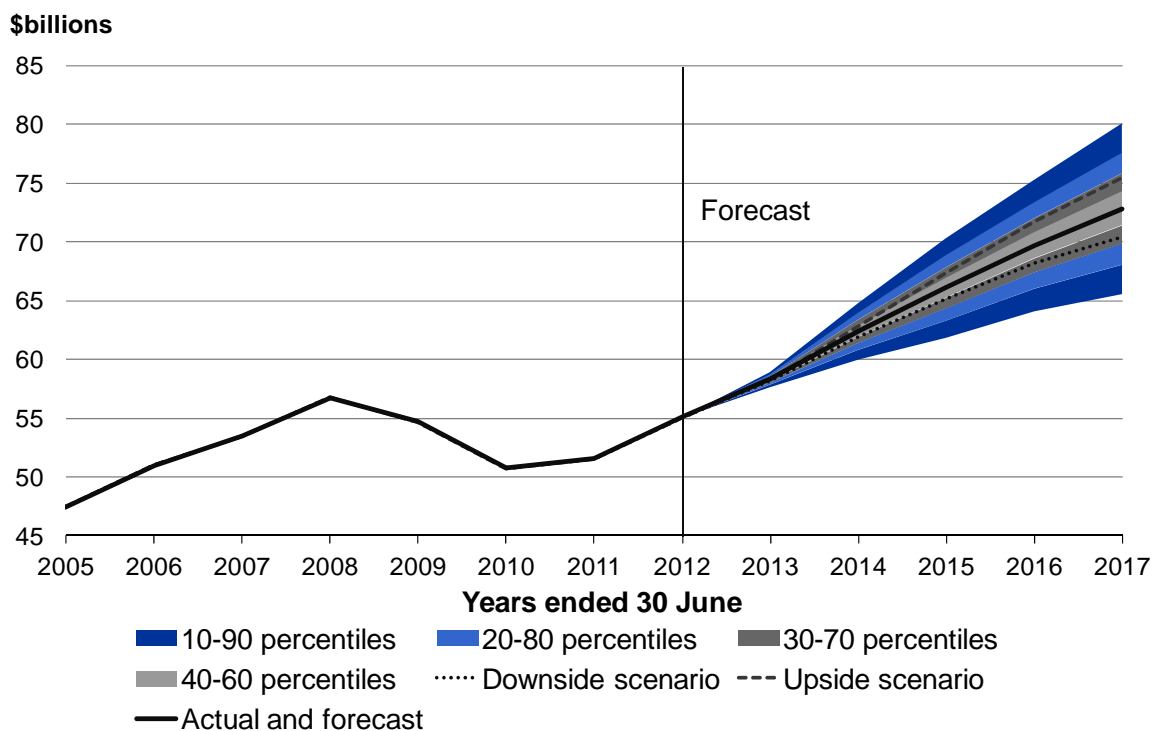
Source: The Treasury

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 accrues in a given year is closely linked to the performance of the economy. Figure 3.7 plots the main tax revenue forecast, along with confidence intervals around those forecasts based on the Treasury’s historical tax forecast errors and the assumption of an even balance of risks around the central forecast.¹⁰ The outermost shaded area captures the range (+/- \$7.3 billion in the June 2017 year) within which actual tax outturns fall 80% of the time.¹¹

The tax revenue forecasts from the upside and downside scenarios are also plotted. The recent global financial crisis showed that exogenous shocks can have severe impacts on government revenue. The recent drought is another example of a shock which is expected to decrease government revenue. Further adverse weather conditions or a global downturn would have a negative impact on the Government’s fiscal position. Should any of the uncertainties outlined in the Economic Risks section eventuate differently from the central forecast, government revenue would likely be different from forecast, with the upside and downside scenarios being examples of possible outcomes.

Figure 3.7 – Core Crown tax revenue uncertainty



Source: The Treasury

¹⁰ 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- and 3-year ahead forecasts are 0.9%, 3.2%, 5.3% and 6.6% of the actual result, respectively.

¹¹ 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.

Based on average historical forecast errors and an even balance of risks, Figure 3.7 suggests that tax revenue over the forecast period would be weaker than shown in the downside scenario around one-third of the time. For the upside scenario, tax revenue over the forecast period would be stronger than shown about one-third of the time. Tax revenue would be between the two scenarios approximately one-third 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 errors in forecasting the cost of various programmes (ie, policies that cost more than the Government allows for) can also have substantial ongoing effects on the fiscal position.

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 the recent 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, the Crown's financial position is exposed to risks from its balance sheet. While some are unavoidable, the Crown's general approach is to identify, avoid or mitigate these risks where practicable.

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".¹² 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. The Crown Ownership Monitoring Unit (COMU) estimates a 10% fall (rise) in world share markets would lead to a 4% to 5% fall (rise) in the value of the Crown's financial portfolio.

¹² Irwin, T and Parkyn, O (2009), "Improving the management of the Crown's exposure to risk", New Zealand Treasury Working Paper 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, 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 many Crown physical 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.

The Crown is also susceptible to "liquidity risk" with respect to its ability to raise cash to meet its obligations. This risk, however, is relatively small given NZDMO's ongoing management of the core Crown's liquidity position, as well as the Government's commitment to maintaining prudent debt levels.

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. The outlook is stable across all three agencies.

The 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 things being equal, any further 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.