3

Risks and Scenarios

Overview

- The global economic outlook remains uncertain and poses risks to the New Zealand economy. While the initial short-term challenges, in Europe for example, have partly been addressed, ongoing medium-term challenges for the global economy remain.
- The uncertainties around the pace of growth in the domestic economy lie mainly with the growth in household spending and the timing and scale of the Canterbury earthquake rebuild.
- There are upside and downside risks to the forecasts included in the *Economic Outlook* and *Fiscal Outlook* chapters. In pre-global financial crisis conditions, we might expect outcomes better or worse than the main forecasts with roughly a 50-50 split. However, the balance of risks in these forecasts is on the downside.
- The balance of these risks also means that the Government's fiscal strategy will remain challenging, as illustrated by the scenarios presented in this chapter. In the downside scenario nominal GDP is $25 billion lower than the main forecasts, compared to $15 billion higher in the upside scenario. Also, the operating balance remains in deficit over the forecast period in the downside scenario. While the operating surplus in the upside scenario is larger than in the main forecasts, a surplus is achieved in the same year.

Table 3.1 – Comparison of scenarios with the main forecasts

	Nominal GDP[1]	**Tax revenue**[1]	**Operating surplus**[2]	**Net core Crown debt as at June 2016**[3]
Upside Scenario	+$15 billion	+$5.4 billon	Yes (same year, 2015)	-1.9% of GDP
Downside Scenario	-$25 billion	-$8.1 billion	No (outside forecast period)	+4.4% of GDP

Notes:

1 5-year cumulative change from main forecasts

2 Operating balance before gains and losses. "Yes" or "No" refers to whether or not a surplus is achieved within the forecast period, June 2012-June 2016

3 Change from main forecasts

Source: The Treasury

Introduction

The first part of this chapter outlines the key risks to the economic outlook. In the second part of the chapter we present upside and downside scenarios for the New Zealand economy. The chapter then focuses on the established channels between the risks facing the economy and the Crown's fiscal position.

Economic Risks

Global outlook remains uncertain...

The global economy faces several medium-term challenges. Actions by euro area authorities have alleviated some financial market tensions and the risk of extremely negative outcomes. Nonetheless, further measures are required to restore sovereign balance sheets to sustainable positions. Our main forecasts assume that European authorities manage through further crises as they arise. However, any worsening of the euro area debt crisis would lead to tighter financial conditions and increased risk-aversion worldwide, subduing growth.

Also, many developed-economy governments face the challenge of continuing fiscal austerity measures without overly compromising fragile recoveries. Failure to manage this process will have effects on growth in parts of the euro area, the UK and US, with spillover effects on growth in other regions of the global economy. Political uncertainty around structural reform and changing governance arrangements may similarly lead to increased risk aversion and lower growth.

A sharp slowing in emerging market economies (eg, from a tightening in bank lending standards in Asia) would lead to slower world growth. Geo-political tensions in the Middle East could lead to an increase in oil prices, and, if prolonged, would hinder the global recovery. On the other hand, growth slowing at a manageable pace and inflation easing in China, as well as room for authorities to stimulate the economy, if necessary, could underpin a more sustainable medium-term growth outlook.

Any positive or negative risks to the outlook for China will be amplified through Australia. With a mining-related investment boom largely locked in, risks to Australian growth over the forecast period are small. However, with consumer confidence modest, the economy outside of mining remains subdued.

Other positives include recent US data indicating that growth is stabilising. In addition, positive corporate earnings may underpin growth in the short term. Overall, while extreme or "tail" risks have receded, the global outlook remains skewed to the downside.

...posing risks to New Zealand's economy

If international activity turns out to be weaker than we have built into our main forecasts, demand for our exports would fall. Reduced demand would lead to lower volumes of manufactured goods exports and lower tourist arrivals and spending. For commodity exports, production tends to respond less to reduced demand; instead, the reduced demand is reflected in falling prices of commodity exports. Lower export prices would result in a lower terms of trade.

Our main forecasts assume that the terms of trade decline in the near term, but remain high relative to historical standards over the five-year forecast period. Should the terms of trade, in contrast, fall much further and reach their 30-year average, a sharp drop in incomes for agricultural producers would flow through into weaker domestic demand, less income for investment and debt repayment, and a significantly wider current account deficit. Lower commodity prices could also impact on New Zealand goods and services providers that export to Australia, which would also experience a cut in its national income from international commodity sales.

On the financial side, a drop in confidence and pick-up in global risk-aversion would be expected to reduce the availability, and raise the cost, of credit for New Zealand. With a high current account deficit, there is a risk that markets would demand a higher risk premium for New Zealand's debt in the future. That said, there is room for the Reserve Bank to provide liquidity as needed and, if the outlook for inflation permits, to facilitate easier monetary conditions to help domestic borrowers adjust.

Finally, lower world growth may lead to falls in consumer and business confidence. With lower confidence, households may lower their spending and increase their saving more than assumed in the main forecasts. Similarly, businesses may invest less and hire fewer workers than assumed in the main forecasts.

The economy faces domestic challenges as well...

There are risks to our forecasts arising from domestic sources as well. Private consumption growth is expected to be held back by modest house price growth and households' aggregate desire to reduce their debt-to-income ratios to more comfortable levels. Given the greater potential for tighter conditions in global funding markets, the risk is that the degree of household consolidation could be more intense than expected, with households seeking to move to an even lower level of debt than we have forecast. While this might bring forward some rebalancing in the economy from later years, such a scenario would involve weaker domestic activity in the near term. At present, the risk of a large-scale increase in borrowing by households, reflecting an increased willingness by banks to lend, seems small. If this were to occur, it would drive a stronger economy in the near term and defer household rebalancing until later years.

...including ongoing uncertainty over the timing of the Canterbury rebuild ...

The timing and extent of the Canterbury earthquake rebuild is difficult to forecast. If large aftershocks cause further damage, the risk is that the current $20 billion damage estimate factored into our main forecasts would clearly rise, as would the risk that the rebuild would be slower and overall economic activity lower in the short term. Conversely, if the issues delaying the process (including aftershocks and insurance claim delays), were to be rectified sooner than assumed, the rebuild could gather pace more quickly. Accordingly, residential and non-residential construction, imported goods and employment would all be stronger than in the main forecasts. As a result, we would expect wages in and around the rebuild area to come under upward pressure, as well as prices for some goods – particularly housing construction-related goods and services.

On the other hand, higher worker migration into Canterbury, as well as increased productivity in the construction sector owing to the localised nature of the rebuild, may help to relieve pressure on prices in the construction sector. On top of this, a more rapid rebuild could boost wider confidence in the economy, providing a lift to consumer spending and business investment.

...and risks from non-economic events

There are also non-economic risks that may impact on the economy, particularly climatic conditions here and abroad. Poor weather and droughts have adversely affected domestic agricultural production in the past; equally, climatic conditions can lift production as we have seen in New Zealand over the past season. Any impact on agricultural incomes from production may be offset by prices moving in the opposite direction, although this will depend on many factors, particularly production abroad. Other risks may impact on the economy, including the potential for biosecurity issues to hit the agricultural sector.

Table 3.2 – Summary of key economic variables for main forecasts and scenarios

March years	2011 Actual	2012 Forecast	2013 Forecast	2014 Forecast	2015 Forecast	2016 Forecast
Real GDP (annual average % change)						
Main forecast	**1.2**	**1.6**	**2.6**	**3.4**	**3.1**	**2.9**
Upside scenario		1.6	3.0	4.2	3.5	2.6
Downside scenario		1.6	2.5	2.6	2.1	2.7
CPI inflation (annual % change)[1]						
Main forecast	**4.5**	**1.6**	**2.6**	**2.5**	**2.4**	**2.4**
Upside scenario		1.6	2.6	2.6	2.9	3.0
Downside scenario		1.6	3.2	2.8	1.7	1.6
Unemployment rate[2]						
Main forecast	**6.6**	**6.3**	**5.7**	**5.2**	**5.0**	**4.7**
Upside scenario		6.3	5.7	5.1	4.6	4.3
Downside scenario		6.3	6.0	5.7	5.9	5.8
Nominal GDP (expenditure measure, $billions)						
Main forecast	**198**	**206**	**215**	**229**	**241**	**253**
Upside scenario		206	215	231	246	258
Downside scenario		206	211	223	235	245
Current account balance (% of GDP)						
Main forecast	**-3.6**	**-4.2**	**-4.6**	**-5.9**	**-6.3**	**-6.7**
Upside scenario		-4.2	-4.6	-6.3	-7.0	-7.5
Downside scenario		-4.2	-6.6	-8.3	-6.8	-6.7

Notes:

1 Annual percentage change, 2012 is actual figure

2 March quarter, seasonally adjusted

Source: The Treasury

Downside Scenario

Growth in emerging Asia, particularly China, is lower over the forecast period…

The downside scenario stems from a lower growth outlook across emerging Asia, particularly China, over the forecast period. The lower growth could arise from a tightening in lending standards by banks and authorities, given heightened concern about the quality of banks' commercial and residential loans.

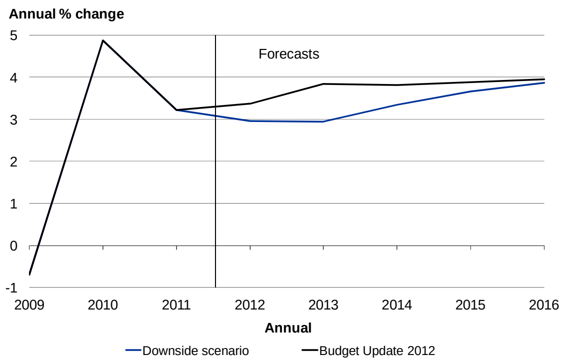
Weaker-than-assumed activity flows through to New Zealand in the form of lower prices for key commodity exports, particularly dairy, meat and forestry products. In addition, growth in our largest single trading partner, Australia, slows as demand for hard commodities from emerging Asia falls in the face of weaker growth. The consequences of this scenario highlight the increasing trade linkages in the Asia-Pacific region, with emerging Asia and Australia currently taking around half of New Zealand's goods exports. Trading partner growth is lower in every year and 2.1% points cumulatively lower over the five years to 2016 than in the main forecasts (Figure 3.1).

An escalation of the sovereign debt crisis in Europe, leading to slower global growth, is a plausible alternative to this scenario and would have broadly similar effects. Given our larger reliance on Asia for trade, the impact may be less direct, but still large. On the other hand, Australasian banks are more reliant on Europe for funding and the impact on funding costs and its availability may be larger and more direct in a Europe-based scenario. For more discussion of a Europe-based scenario see the *Pre-election Update*.

...with a lower terms of trade and reduced incomes...

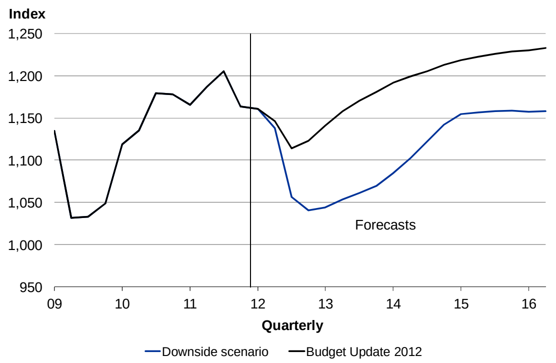
In this scenario, the merchandise terms of trade fall sharply (Figure 3.2), down around 9% in the March 2013 year, reflecting lower prices for export commodities. The lower terms of trade result in a more rapid deterioration in the current account balance. The current account deficit increases to 8.3% of GDP in the March 2014 year compared to 5.9% in the main forecasts. However, as the terms of trade rebound in 2015 along with growth in export volumes, the current account deficit decreases to 6.7% by March 2016, the same level as in the main forecasts.

Figure 3.1 – Trading partner growth



Sources: IMF, the Treasury

Figure 3.2 – Merchandise terms of trade (SNA)



Sources: Statistics New Zealand, the Treasury

A slow-down in Australasia may mean that Australian and New Zealand banks face a higher risk premium on their international wholesale borrowing. While part of these increased funding costs may be absorbed in falling bank margins, the remainder would be passed on to household and business borrowers. This scenario assumes that households and businesses are charged an additional 50 basis point premium on their borrowing compared to the main forecasts.

The rapid fall in the terms of trade leads to lower incomes. Higher retail interest rates compound the fall in incomes, resulting in a more subdued outlook for household spending. Private consumption averages around 2% over the four years to March 2016, compared with 2.6% in the main forecasts and over 3% in the upside scenario. The higher interest rates along with falling profitability lead to around 2% and 1% lower market and residential investment for the March 2014 year respectively, compared to the main forecasts. Nevertheless, residential investment activity remains high, underpinned by the earthquake rebuild.

Weaker domestic activity, combined with lower terms of trade and inflation, results in nominal GDP being a cumulative $25 billion lower through to June 2016.

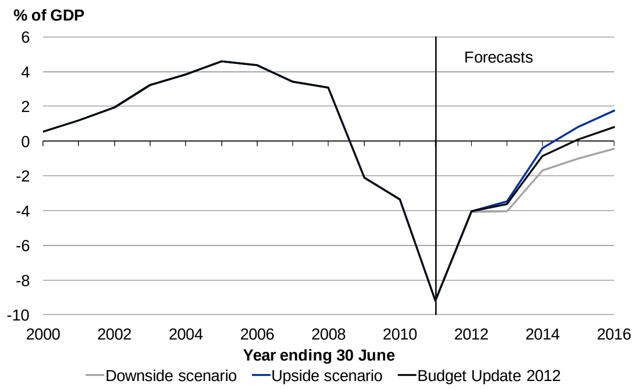
…leading to lower tax revenue while raising operating deficits and net debt

Core Crown revenue is a cumulative $8.1 billion lower in the downside scenario, owing mainly to lower income taxes. The weaker domestic economy reduces source deductions and corporate tax by about $2 billion each, compared to the main forecasts, while other persons tax falls by $0.6 billion. Also, lower private consumption and residential investment lead to $1.2 billion lower GST revenue, compared to the main forecasts, while the fall in interest rates reduces resident withholding tax.

In the downside scenario, core Crown expenses are $0.8 billion higher, as the weaker labour market flows through to increased Unemployment Benefit recipient numbers. In addition, finance costs are higher, owing to higher government borrowing.

In this scenario, the operating balance (before gains and losses) does not move into surplus within the forecast period and, consequently, net core Crown debt as a proportion of GDP is still rising at the end of the forecast period (June 2016), reaching 32.0% at that time.

Figure 3.3 – Operating balance (before gains and losses)



Source: The Treasury

Upside Scenario

A faster earthquake rebuild and higher household spending increase growth...

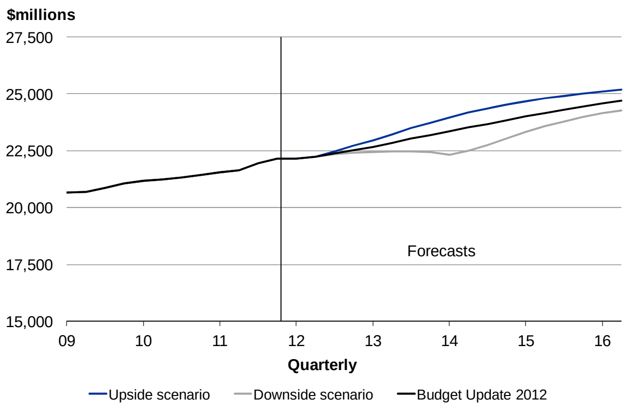
There is a large degree of uncertainty around the timing and scale of the Canterbury rebuild. In the upside scenario, we allow for a faster rebuild compared to the main forecasts and bring more of the rebuild inside the forecast period. Immigration is higher in 2013 with most of the increase assumed to be workers moving into Canterbury. In addition, productivity in the construction sector is higher with the localised rebuild helping the sector to achieve more economies of scale than assumed in the main forecasts.

The higher migration of workers into Canterbury and increased productivity combine to increase residential investment, with growth around 1% point higher in the March 2014 year than in the main forecasts. Also, the higher productivity and increased supply of workers lower pressure on construction prices.

We also assume stronger private consumption in the upside scenario, with growth 0.6% and 1.6% points higher in the March 2013 and 2014 years respectively than in the main forecasts. Higher private consumption translates into lower household saving as well as higher imports compared to the main forecasts. Part of the higher spending is owing to households spending more on durables to accompany the rebuild of their homes. This would be more consistent with the historical relationship between residential investment and durables spending than assumed in the main forecasts.

With more household spending, profits improve, leading to higher employment and investment growth compared to the main forecasts, particularly in the retail sector. Reflecting employment growth, the unemployment rate falls below 5% by September 2014 – one year earlier than in the main forecasts. The stronger-than-expected domestic economy means CPI inflation is around the top of the 1% to 3% band over the forecast period. The higher inflation, together with increased real activity, results in about $15 billion higher nominal GDP cumulatively by June 2016 compared with the main forecasts.

Figure 3.4 – Real private consumption



Sources: Statistics New Zealand, the Treasury

With higher inflation over the forecast period, monetary conditions are tighter. Ninety-day bank bill rates are 0.4% points higher than in the main forecasts on average in the year to March 2014, with the difference increasing to 1.2% points by the year to March 2016.

…giving a modest increase in the operating surplus in 2015

Core Crown revenue is a cumulative $5.4 billion higher in the upside scenario, led by increases in various tax types. Increased income driven off the stronger domestic economy lifts corporate tax and source deductions by about $1.9 and $0.9 billion respectively compared to the main forecasts. The boosts to private consumption and residential investment flow through to $1.7 billion higher GST revenue, compared to the main forecasts, while the faster increase in interest rates lifts resident withholding tax.

Core Crown expenses are $0.5 billion lower, as the stronger labour market flows through to fewer Unemployment Benefit recipients. In addition, finance costs are lower, owing to less government borrowing.

In this scenario, the operating balance (before gains and losses) moves into surplus in the June 2015 year, the same year as the main forecasts, with the surplus 0.7% points of GDP higher than in the main forecasts. Net core Crown debt as a proportion of GDP peaks at 27.8% of GDP in the June 2013 year.

These results are consistent with the balance of risks remaining on the downside

In pre-global financial crisis conditions, we might expect outcomes better or worse than the main forecasts with roughly a 50-50 split. Similarly, if the risks were balanced we would expect that the differences between the scenarios and the main forecasts would be broadly equal. However, we have assumed that the risks are skewed to the downside. This is illustrated in Table 3.1 which shows that in the downside scenario nominal GDP is $25 billion lower than in the main forecasts, compared to $15 billion higher in the upside scenario. Tax revenue is $8.1 billion lower in the downside scenario, while it is $5.4 billion higher in the upside scenario. Moreover, in the downside scenario, the operating balance remains in deficit over the forecast period, and in the upside scenario, while the operating surplus is larger than in the main forecasts, it is achieved in the same year. Overall, these results reflect our view that the balance of risks remains skewed to the downside.

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 inherent risks to the performance of the economy and the Crown's fiscal position.

Table 3.3 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 1 % point slower than we have forecast each year up to the year ending June 2016, we would expect tax revenue to be around $3.5 billion (1.7% of GDP) lower than forecast as a result. The sensitivities are broadly symmetric; that is, if nominal GDP growth is 1% point faster each year than we expect, tax revenue would be around $3.5 billion *higher* than forecast instead.

Fiscal Sensitivities

Table 3.3 – Fiscal sensitivity analysis

Year ending 30 June ($millions unless stated)	**2012 Forecast**	**2013 Forecast**	**2014 Forecast**	**2015 Forecast**	**2016 Forecast**
1% lower nominal GDP growth per annum on					
Tax revenue	(560)	(1,180)	(1,895)	(2,670)	(3,520)
(% of GDP)	(0.3)	(0.6)	(0.9)	(1.3)	(1.7)
Revenue impact of a 1% decrease in growth of					
Wages and salaries	(240)	(510)	(810)	(1,145)	(1,510)
(% of GDP)	(0.1)	(0.2)	(0.4)	(0.6)	(0.7)
Taxable business profits	(100)	(230)	(380)	(545)	(725)
(% of GDP)	(0.0)	(0.1)	(0.2)	(0.3)	(0.3)
Impact of 1% point lower interest rates on					
Interest income[1]	(55)	(135)	(75)	(105)	(55)
(% of GDP)	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)
Expenses[1]	(40)	(230)	(280)	(450)	(535)
(% of GDP)	(0.0)	(0.1)	(0.1)	(0.2)	(0.2)
Overall operating balance	(15)	95	205	345	480
(% of GDP)	(0.0)	0.0	0.1	0.1	0.2

Note:

1 New Zealand Debt Management Office holdings 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 3.5 plots our main tax revenue forecast, along with confidence intervals around those forecasts based on the Treasury's historical tax forecast errors.[11] The outermost shaded area captures the range (+/- $5 billion in the June 2015 year) within which actual tax forecasts would typically fall for 80% of the time.[12] The tax revenue forecasts from the upside and downside scenarios are also plotted; tax revenue in the June 2015 year is $1.7 billion higher and $2.5 billion lower than in the main forecasts in the upside and downside scenarios, respectively.

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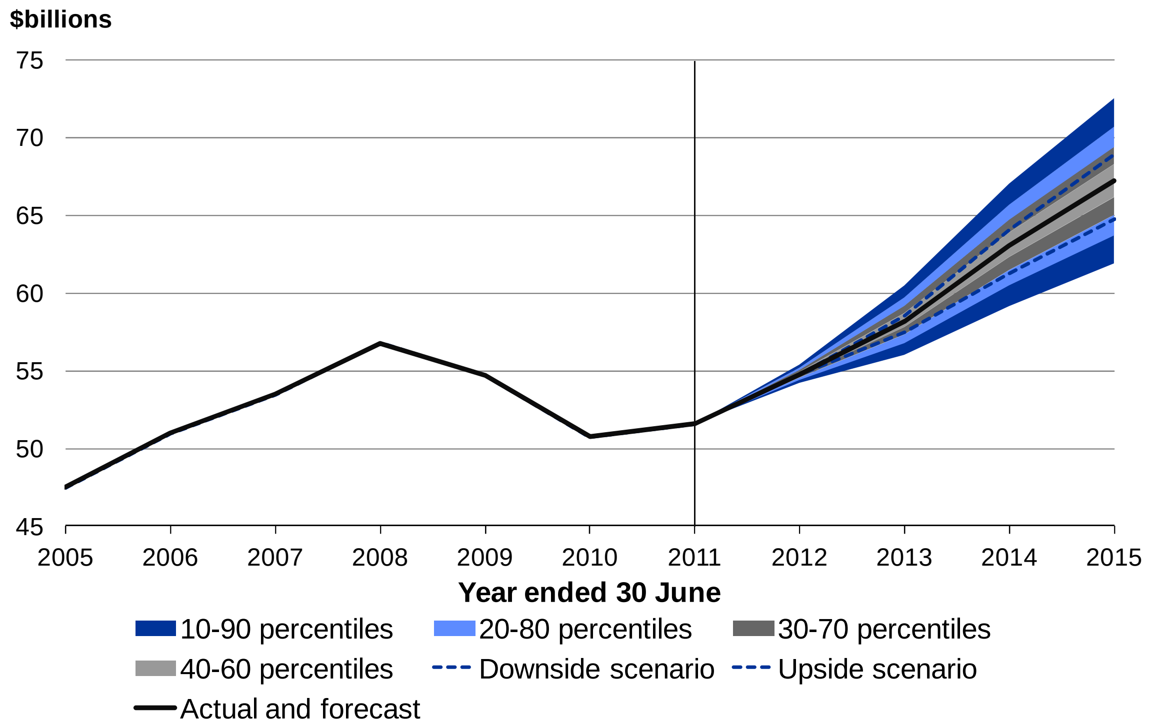
11 A full summary of the methodology and critical assumptions is included in New Zealand Treasury Working Paper 10/08. Standard deviation assumptions used for 0-, 1-, 2- and 3-year ahead forecasts are 0.9%, 3.2%, 5.3% and 6.6% of the actual, respectively.

12 Recent Treasury analysis shows that a shock that has a significant and persistent impact on economic growth can result in tax revenues coming in significantly below the outermost shaded area. See Fookes, C (2011), "Modelling shocks to New Zealand's fiscal position," New Zealand Treasury Working Paper 11/02.

Figure 3.5 – Core Crown tax revenue uncertainty



Source: The Treasury

Based on average historical forecast errors and an even balance of risks, Figure 3.5 shows that tax revenue over the forecast period would come in weaker than shown in the downside scenario approximately one-quarter of the time, and conversely come in stronger approximately three-quarters of the time. For the upside scenario, tax revenue over the forecast period would come in stronger than shown in the upside scenario approximately one-third of the time, and come in weaker approximately two-thirds of the time.

However, as discussed previously, the forecast risks are not evenly balanced – they are skewed to the downside. Accordingly, the probability of tax revenue undershooting the downside scenario is likely to be higher than one-quarter, and the probability of tax revenue overshooting the upside scenario is likely to be lower than one-third.

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 with regard to 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, and tax revenues higher (lower).

Meanwhile, the destructive seismic events of recent years have underlined the inherent exposure of the Crown's fiscal position to exogenous shocks on the capital side. 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.

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. Of the Crown's aggregate financial risk, roughly a third is estimated to be attributed to this "market risk".[13] Three areas of the balance sheet are particularly susceptible:

- Financial assets held by the Crown financial institutions (CFIs) are sensitive to financial-market volatility. While practices such as hedging are used where practicable, the Crown Ownership Monitoring Unit (COMU) estimates a 10% fall (rise) in the MSCI World Equity Index would lead to a 4.4% fall (rise) in the value of the Crown's financial portfolio.

- Insurance and retirement liabilities and provisions are prone to market volatility through their actuarial valuations, which are sensitive to assumptions around variables such as interest and inflation rates, and risk margins. For example, a 1% fall in the risk-free discount rate used is estimated to result in a $5.5 billion increase in the combined value of the Crown's liabilities from ACC, the Earthquake Commission, AMI and the Government Superannuation Fund.[14]

- Physical assets such as land, buildings, state highways, and military equipment are susceptible to market movements through their accounting valuations. Changes in property market conditions, interest rates and changes in the costs of construction 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 small given the New Zealand Debt Management Office's ongoing management of the core Crown's liquidity position, as well as the Government's commitment to maintaining prudent debt levels.

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

14 For more information, see the Notes to the *Financial Statements of the Government of New Zealand 2011*.

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.