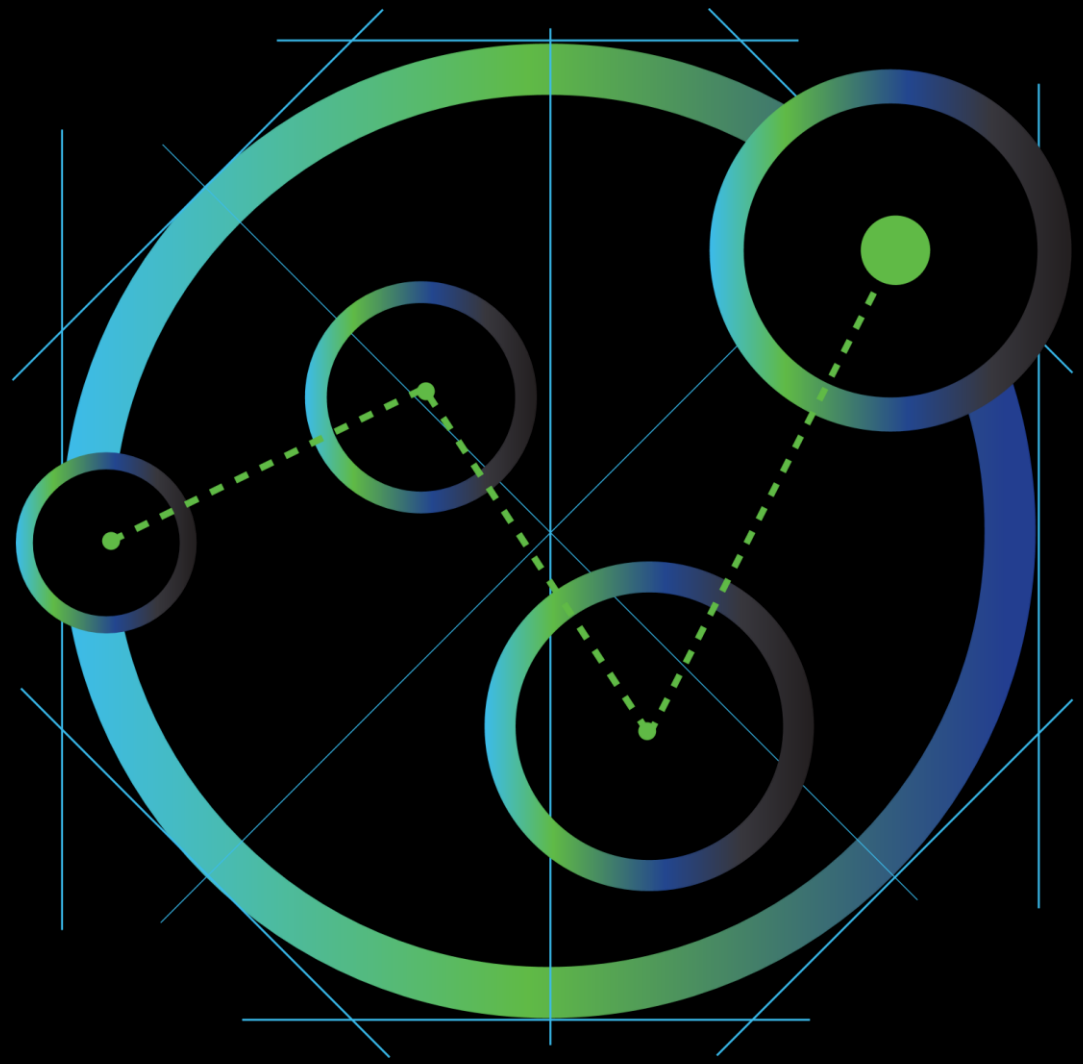
Deloitte.



Fletcher Building – economic uncertainty analysis

Scenarios for work put in place in New Zealand and work done in Australia

Forecasts current as at 9 May 2022

Deloitte Access Economics

Preparedness over prediction

In 2022, the world has become more uncertain

Heightened levels of uncertainty include:

- **Different COVID-19 recovery pathways** – what will be the impact of new COVID-19 variant 'waves' of different lengths or duration or the waning effectiveness of vaccines?
  What will be the continued impact on labour force behaviour, supply and wages?
- **Geopolitical risk** – how will the conflict in Ukraine further disrupt already stretched supply chains?
  How will this affect commodity prices and availability.
- **Policy response** – how will central banks respond to rapidly rising inflation?
  What could be the effect of changes in fiscal and migration policy?
- **Customer impact** – how will these uncertainties affect customers' disposable incomes, balance sheets and confidence? How will demand be affected across different market segments?

In the face of heightened uncertainty, Fletcher Building commissioned Deloitte Access Economics (DAE) to prepare this economic uncertainty analysis to help it to prepare and plan for a range of plausible economic scenarios.

Key insights

Deloitte Access Economics developed an outlook for work put in place in New Zealand and work done in Australia across three scenarios (i.e. base case, upside, downside)

While each scenario provides a different view of the potential path of recovery, there are a number of key themes that emerge.

- The base outlook for FY22 to FY25 for work put in place (WPIP) in New Zealand and work done in Australia shows resilience compared with FY21. This is particularly so for commercial work done and infrastructure work done in Australia – with our base outlook showing continued growth expected in real terms throughout the FY22 to FY25 period.
- Private and public investment are key drivers for commercial and infrastructure WPIP / work done. Moderate growth in private investment and strong public sector investment is expected to continue in the post-pandemic recovery environment.
- While slow disposable income growth, an increasing interest rate environment and growth in inflation, combined with a cooling housing market may limit demand for residential WPIP in New Zealand and work done in Australia – the outlook for FY22 to FY25 remains at above or near FY21 levels.
- The war in Ukraine is expected to have a modest impact on the New Zealand and Australian economies. Increased input costs are affecting both countries, although higher commodity prices may benefit Australia.
- Labour shortages remain acute – particularly in New Zealand. Inflation and interest rates are expected to be higher in the short run. These pose risks to the forward pipeline and we assess an asymmetry of risks – with greater risks to the downside scenario at present.
- Both the Australian and New Zealand economies are likely to enter a recession in the downside scenario. Residential WPIP / work done would be most affected in the downside scenario, while commercial and infrastructure WPIP / work done would be more resilient.
- Deloitte Access Economics' economic regression analysis suggests similar macroeconomic drivers across demand, supply and prices for New Zealand and Australia. Work done in Australia is generally more stable over time relative to New Zealand WPIP.

Deloitte Access Economics developed a methodology to translate economic uncertainty and analyse the impact on business activity drivers

Deloitte Access Economics developed an outlook for work put in place in New Zealand and work done in Australia across three scenarios to support planning at a time where we face heightened uncertainties.

*Forecasts in this Report are as at 9 May 2022

- Fletcher Building commissioned Deloitte Access Economics to develop an economic outlook for WPIP in New Zealand and work done in Australia.
- Deloitte Access Economics developed a set of three macroeconomic scenarios (base, downside and upside) current to 9 May 2022 to assess the potential impact of global uncertainties on the New Zealand and Australian economies, and the implications for WPIP / work done.
- Deloitte Access Economics then developed a set of customised economic regression models to test the relationship between key economic variables and WPIP / work done to identify a combination of economic variables with the greatest explanatory power.
- This was used to develop forecasts for year-to growth WPIP in New Zealand (in 2009/10 prices) and work done in Australia (in 2019/20 prices) based on the Deloitte Access Economics' outlook for relevant economic variables under different scenarios.
- The outlook for WPIP and work done provided a practical analysis of economic uncertainty and its potential impact on key measures of business activity that are likely to affect Fletcher Building's revenue.

Approach

Deloitte Access Economics adopted a four step methodology to develop the outlook scenarios for work put in place in New Zealand and work done in Australia.

Step 1: Uncertainty scenarios

- The first step defined a set of plausible scenarios relevant to the uncertainties that are likely to have the greatest impact on WPIP and work done.
- Uncertainties that informed the scenarios include:
  - The course and duration of COVID-19 recovery
  - Geopolitical risks
  - Supply chain disruption
  - Access to and pricing of inputs
  - Policy settings, including fiscal, monetary and migration settings
  - Global drivers and global relative demand for building materials.

Step 2: Macroeconomic forecasts

- The second step developed forecasts for the key economic variables across each scenario.
- The macroeconomic drivers of construction activity fit into four categories:
  - Demand, such as population and household disposable income.
  - Supply, such as investment and construction sector employment.
  - Prices, such as house prices and inflation.
  - Interest rates, such as the standard mortgage rate and the 10-year Treasury bond rate.

Step 3: Regressions for WPIP / work done

- The third step developed forecasts for WPIP in New Zealand and work done in Australia based on the macroeconomic drivers and scenarios.
- Deloitte Access Economics built customised forecast equations to test the relationship between economic drivers and residential, commercial and infrastructure WPIP / work done.
- The forecast equations included the economic drivers and combinations of auto-regressive and moving average lags that are statistically significant when back-cast against available data sets.

Step 4: Outlook for WPIP / work done

- The scenario forecasts of key economic variables were inputs into the econometric forecast equations to estimate the future impact across scenarios on WPIP / work done.
- The regression outputs provide forecasts for WPIP and work done across scenarios.
- The outlook for WPIP and work done in both New Zealand and Australia across scenarios provide a view to support planning at a time of heightened uncertainty.

Step 1: Uncertainty scenarios

Three scenarios were developed based on six key uncertainties.
The scenario definitions are asymmetric, with greater risks assessed to the downside at present.

Uncertainties	Base scenario	Downside scenario – 'stagflation'	Upside scenario – 'sigh of relief'
COVID-19	• The number of new cases subsides in the second half of 2022 and the population adjusts to a "new normal". • China avoids extended lockdowns.	• A new COVID-19 wave / variant emerges and domestic recoveries are delayed by 12 months – recovery starts in mid-2023, hampered by weak business and consumer confidence.	• Recovery from the Omicron wave is shorter than expected and rapidly fading COVID-19 concerns lead to a sharper, more prolonged consumer-led recovery in both New Zealand and Australia.
Geopolitical risk	• The war in Ukraine continues but does not become a larger international conflict. Effects on New Zealand and Australia are modest. • Higher commodity prices benefit Australia.	• The war in Ukraine is prolonged, lasting until 2023. While the direct military impact on New Zealand and Australia remains limited – the impacts are through higher commodity prices and inflation.	• There is an orderly resolution of the war in Ukraine. Disruption is contained in duration and scale. The effects on New Zealand and Australia remain modest.
Supply chain disruption	• Global supply chains begin to improve in the second half of 2022 but flow-on impacts remain from ongoing war in Ukraine and COVID-19 restrictions in China.	• Supply chain disruptions continue to weigh on the global economy through to the end of 2023 and begin to improve in the second half of 2024, but flow-on impacts remain.	• Global supply chains mend as the effects of COVID-19 and the war recede; flow-on impacts for New Zealand and Australia are less severe relative to the base scenario.
Input costs	• Supply chain disruption along with high inflation globally prolongs the elevated price of raw materials and key inputs.	• Inflationary pressure on raw materials increases strongly throughout 2023 and into 2024.	• Inflationary pressure decreases over 2022 and 2023, leading to moderation in the cost of building materials and commodity prices normalise before the end of 2022.
Policy	• Immigration policy settings remain tight. • Monetary policy response limits inflation and fiscal spending slows.	• Government does not restart stimulus packages and monetary policy is further hiked out to 2023. • No further border closures / domestic economic shutdowns are expected.	• Monetary policy is effective at bringing inflation under control. • COVID-19 related restrictions are fully relaxed and fiscal stimulus is removed.
Global recovery	• Global growth moderates, given increasing interest rates to curb inflationary pressures and ongoing supply chain disruptions.	• The prolonged war and new COVID-19 wave result in slower growth in 2022 and 2023. Recovery starts in 2024.	• The global economy recovers faster than expected. Supply of critical materials and commodities continues to recover through 2023 and 2024.

Informing macroeconomic drivers such as:

- Inflation
- Interest rates
- GDP
- Population
- Employment
- House prices

WPIP / work done

Steps 2-3: Macroeconomic forecasts and regressions for WPIP / work done

Deloitte Access Economics developed forecast equations to test the relationship between macroeconomic drivers and WPIP in New Zealand and work done in Australia

Step 2: Macroeconomic forecasts

Deloitte Access Economics modelled the outlook for a range of key macroeconomic variables across each scenario. Examples of key macroeconomic drivers include:

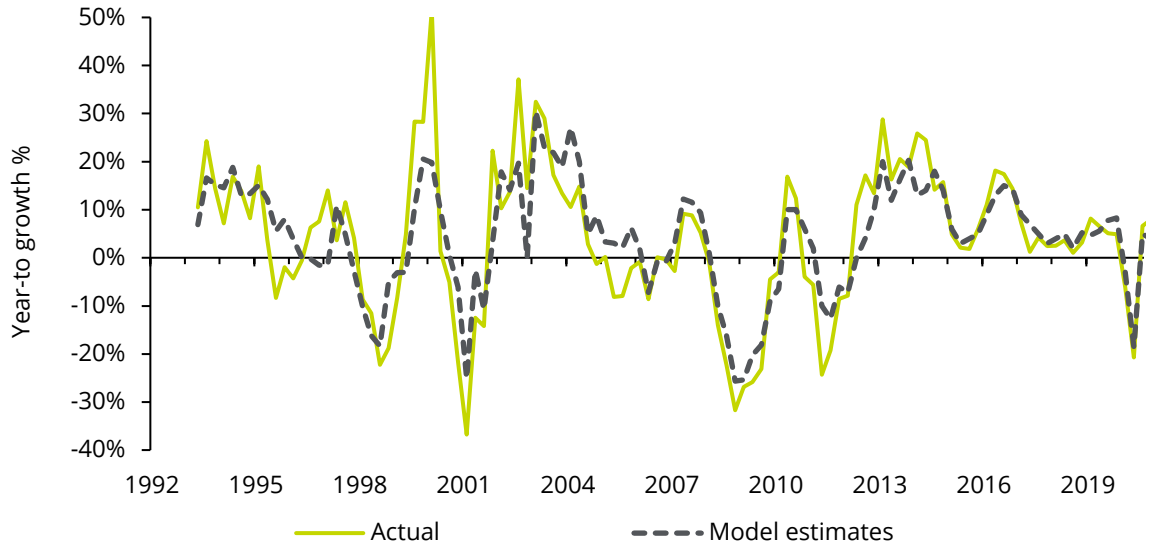
- Inflation
- Population
- Employment
- Interest rates
- GDP
- House prices

Step 3: Regressions for work put in place / work done

Deloitte Access Economics developed custom forecast equations for WPIP and work done based on specific macroeconomic variables.

- Forecast equations were developed for three WPIP or work done market segments (residential, commercial and infrastructure), across both New Zealand and Australia.
- Modelling WPIP or work done in year-to growth terms was selected because it removes the influence of units and best demonstrates the trends and cycles in the series.
- Back-testing showed the forecast equations have predictive value. The chart opposite is an example of the model estimates (black dashed lines) compared to the actual values (green solid lines) for residential WPIP in New Zealand.

Model estimates compared to actual values, NZ residential WPIP, year-to growth



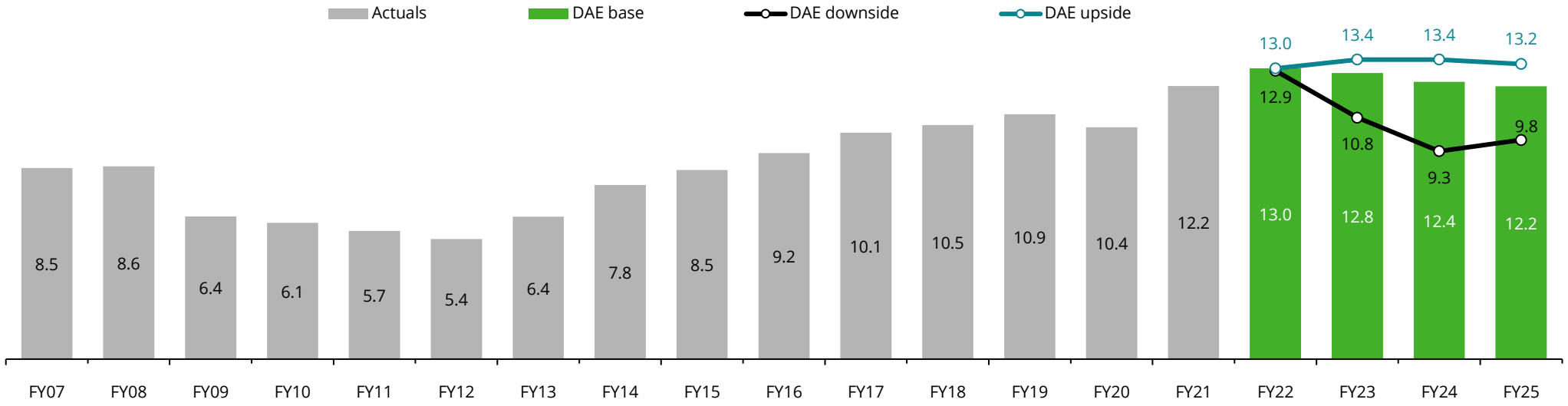
Source: Deloitte Access Economics

- A range of statistical measures were used to test the robustness of the forecast equations, including mean squared error (a measure of statistical accuracy).
- By back-testing the forecast equation, Deloitte Access Economics was able to obtain mean square error rates typically of less than 5% (which is the best practice benchmark) for residential, commercial and infrastructure work put in place / work done.

Step 4: Outlook for residential work put in place - New Zealand

The base outlook for residential WPIP shows resilience compared with FY21. However, residential WPIP is most impacted under the downside scenario relative to the other WPIP segments.

New Zealand **residential work put in place**, NZD$b, FY07 to FY25 (real values in constant 2009/10 prices)



Note: Data is in June years and in constant 09/10 prices

Base scenario

While residential WPIP is forecast to reduce between FY23 and FY25, primarily driven by slow disposable income growth, an increasing interest rate environment and growth in inflation, combined with a cooling housing market – the outlook remains at above or near FY21 levels.

Downside scenario – 'stagflation'

The combination of weak demand and supply side drivers, increased costs of borrowing and falling house prices drives weaker residential WPIP through to FY24 in the downside scenario when compared to the base scenario, with recovery occurring only in FY25.

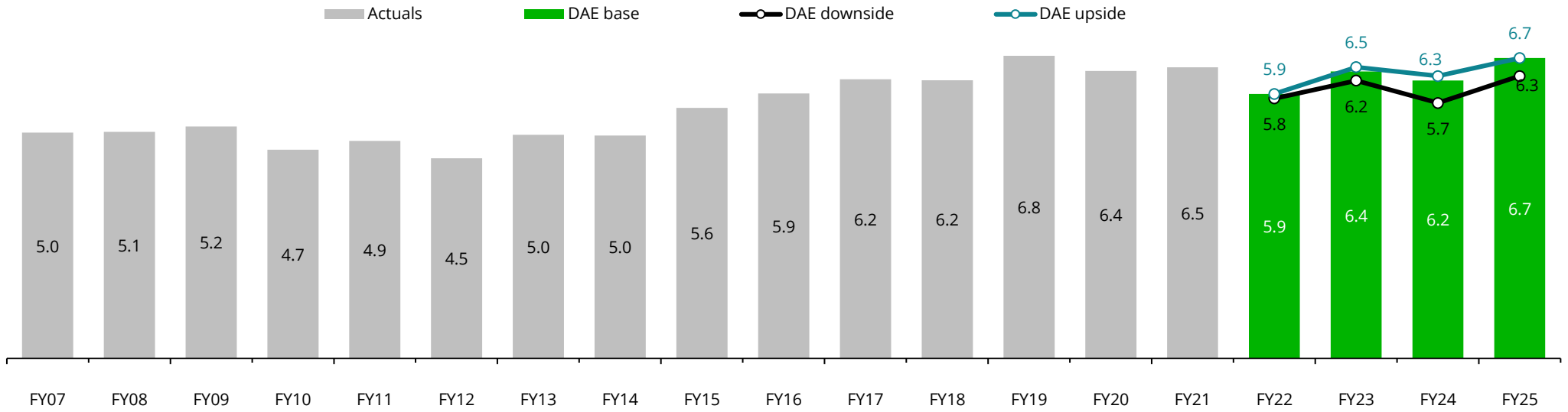
Upside scenario – 'sigh of relief'

The upside scenario sees a modest increase in residential WPIP in FY23, with WPIP remaining elevated when compared to both the base and downside scenarios. Under the upside scenario, stronger private investment and lower inflation drive a stronger outlook for residential WPIP.

Step 4: Outlook for commercial work put in place - New Zealand

The base outlook for commercial WPIP shows pre-pandemic levels of activity could be achieved by around FY25, supported by continued confidence to invest to alleviate capacity constraints.

New Zealand **commercial work put in place**, NZD $b, FY07 to FY25 (real values in constant 2009/10 prices)



Note: Data is in June years and in constant 09/10 prices

Base scenario

Commercial WPIP falls in FY22 and FY24 compared to the year prior but ultimately recovers to close to pre-pandemic levels by FY25, driven by public and private investment lifting following the shock of the first pandemic wave in this sector.

Downside scenario – 'stagflation'

The combination of weak demand and supply, and increasing costs means commercial WPIP under the downside scenario remains lower than the base case throughout the forecast period.

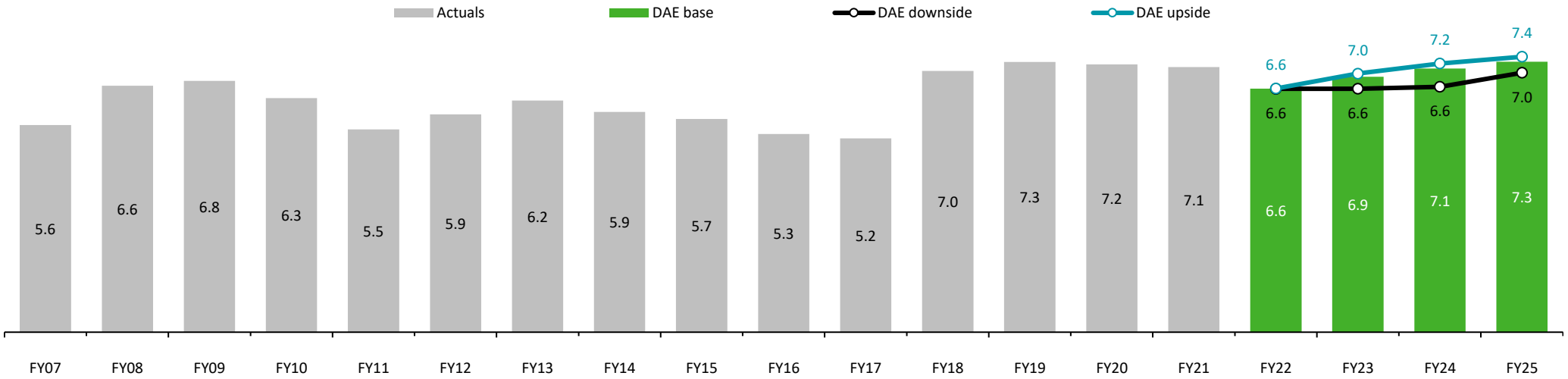
Upside scenario – 'sigh of relief'

Under the upside scenario, stronger private investment and lower inflation primarily drive a stronger outlook for commercial WPIP.

Step 4: Outlook for infrastructure work put in place - New Zealand

The outlook for infrastructure WPIP shows resilience under all three scenarios – as activity is underpinned by longer term investment decisions.

New Zealand **infrastructure work put in place**, NZD$b, FY07 to FY25 (real values in constant 2009/10 prices)



Note: Data is in June years and in constant 09/10 prices

Base scenario

Key drivers for a projected upward trend for infrastructure WPIP under the base scenario include relatively strong post-pandemic private and public investment over the forecast horizon.

Downside scenario – 'stagflation'

The combination of weak private and public sector spending on infrastructure drives a weaker outlook for infrastructure WPIP when compared to the base scenario, with recovery only occurring in FY25.

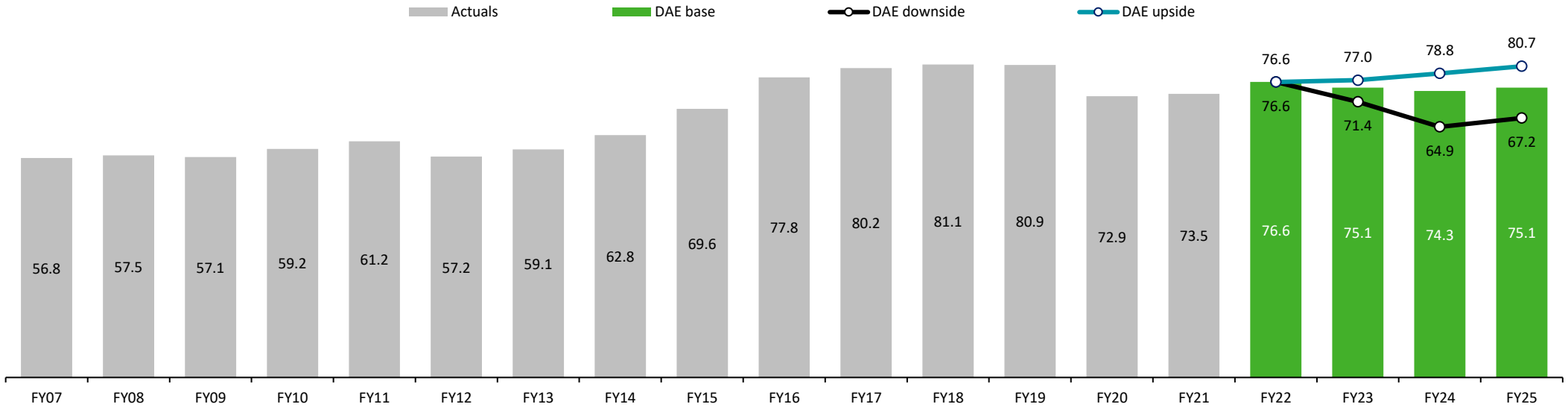
Upside scenario - 'sigh of relief'

There is steeper trajectory of growth for infrastructure WPIP throughout the forecast period under the upside scenario. In the upside scenario, private investment is more buoyant, driving higher infrastructure WPIP when compared to the base scenario.

Step 4: Outlook for residential work done - Australia

The base outlook for residential work done is resilient relative to FY21. While residential work done is the most sensitive to changes in economic conditions – it is less so in Australia compared to in New Zealand

Australian **residential work done**, AUD$b, FY07 to FY25 (real values in constant 2019/20 prices)



Note: Data is in June years and in constant 19/20 prices

Base scenario

Under the base scenario, residential work done falls throughout FY23 to FY25, primarily driven by rising interest rates and declining house prices. Growth is forecast to return to positive territory in FY25 as the gap in growth between house prices and house building materials prices steadies.

Downside scenario – 'stagflation'

The combination of a weak demand side and substantial cost pressures on the supply side drive larger falls in residential work done compared to our base scenario.

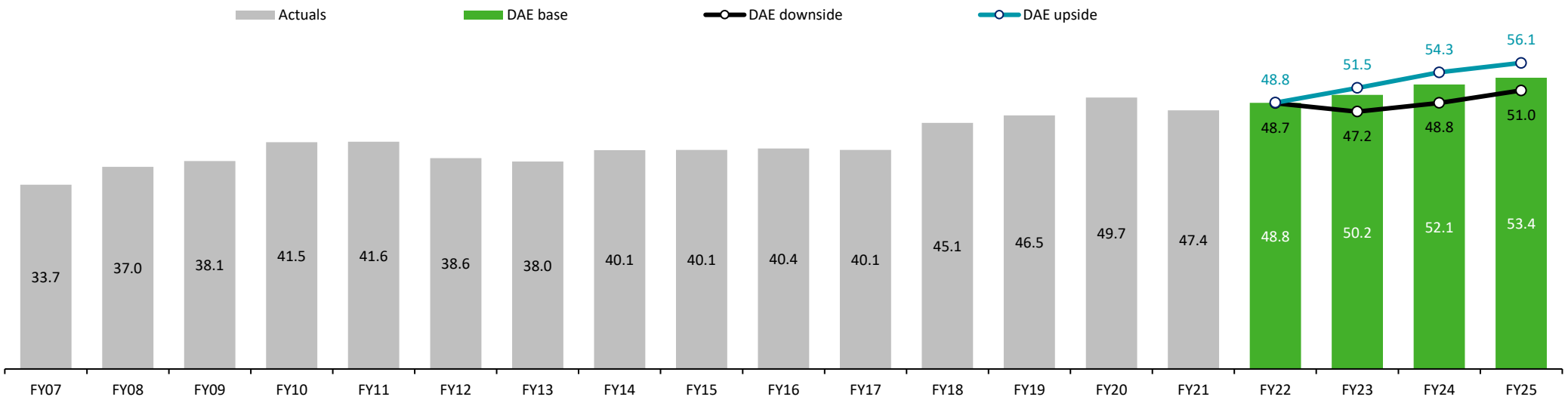
Upside scenario – 'sigh of relief'

Under the upside scenario, employment growth continues at a very strong pace, fuelling a strong demand side and flowing through to property price growth that catches up with materials price growth. The strong demand side in the upside scenario drives growth in residential work done.

Step 4: Outlook for commercial work done - Australia

The outlook for commercial work done shows relatively strong growth over the forecast horizon under all three scenarios underpinned by strong private and public investment

Australian **commercial work done**, AUD$b, FY07 to FY25 (real values in constant 2019/20 prices)



Note: Data is in June years and in constant 19/20 prices

Base scenario

Under the base scenario, commercial work done grows from FY22 through to FY25, driven by strong private and public investment.

Downside scenario – 'stagflation'

The combination of a weak demand side with cost and availability pressures on the supply side drives falling commercial work done in FY23 before a bounce back in public spending sees a return to growth.

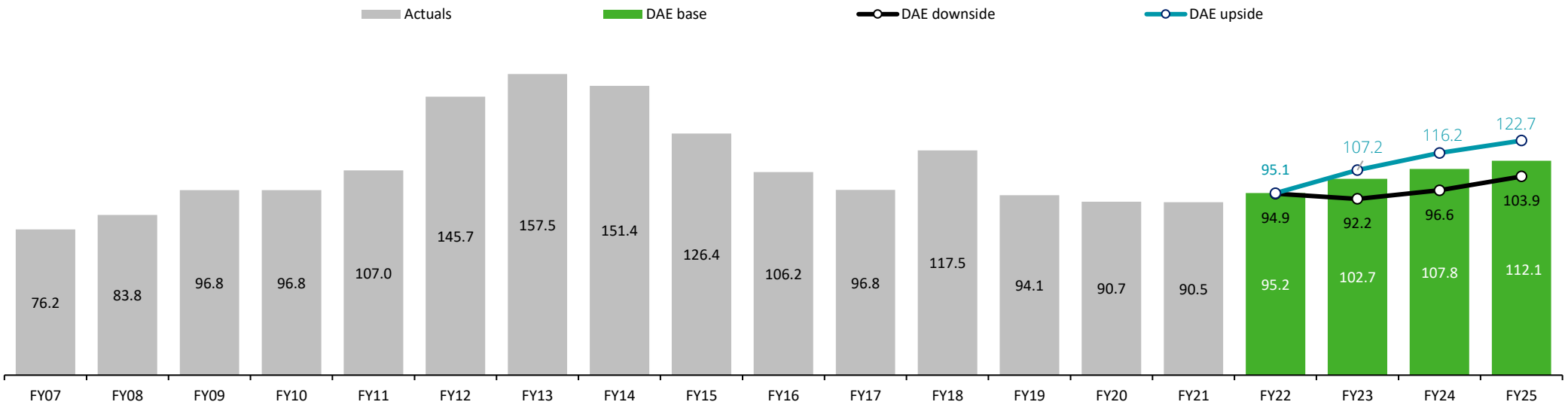
Upside scenario – 'sigh of relief'

Higher than base scenario demand from both the business sector and the public sector drives faster growth in commercial work done than compared to the base scenario.

Step 4: Outlook for infrastructure work done - Australia

The outlook for infrastructure work done grows at a strong pace across all scenarios, underpinned by strength in business investment and public spending growth

Australian **infrastructure work done**, AUD$b, FY07 to FY25 (real values in constant 2019/20 prices)



Note: Data is in June years and in constant 19/20 prices

Base scenario

Infrastructure work done grows at a strong pace, mostly supported by strength in business investment which is then taken over by public spending growth.

Downside scenario – 'stagflation'

Weak private and public spending drives falling infrastructure work done in FY23 before a return to growth in FY24, fuelled by public sector spending.

Upside scenario – 'sigh of relief'

Business investment grows rapidly and public sector spending only moderates very slightly post-pandemic, which drives faster growth in infrastructure work done under the upside scenario compared to the base scenario.

Appendix

Forecast tables

Note – Forecasts within this appendix are in financial years. The forecasts are provided in year-to growth terms for the base, downside and upside scenarios.

Scenario results for work put in place - **New Zealand**

Our outlook for residential, commercial and infrastructure work put in place, 2022 to 2025, June end years (real values in constant 2009/10 prices)

Base scenario	Residential	Commercial	Infrastructure
FY22	6.0%	-9.1%	-8.1%
FY23	-1.0%	8.5%	4.9%
FY24	-3.2%	-3.7%	3.2%
FY25	-1.9%	8.1%	2.6%

Downside scenario	Residential	Commercial	Infrastructure
FY22	5.7%	-10.5%	-8.2%
FY23	-16.6%	7.4%	0.1%
FY24	-14.0%	-8.8%	0.8%
FY25	6.3%	11.0%	5.7%

Upside scenario	Residential	Commercial	Infrastructure
FY22	6.3%	-8.6%	-8.1%
FY23	3.5%	9.8%	6.2%
FY24	-0.2%	-2.9%	3.9%
FY25	-1.4%	5.8%	2.5%

The New Zealand WPIP outlook has a 2009/10 base year, which is consistent with Statistics NZ data.

The Australian work done outlook has a 2019/20 base year, which is consistent with Australian Bureau of Statistics data.

Scenario results for work done - **Australia**

Our outlook for residential, commercial and infrastructure work done, 2022 to 2025, June end years (real values in constant 2019/20 prices)

Base scenario	Residential	Commercial	Infrastructure
FY22	4.2%	2.9%	5.2%
FY23	-1.9%	2.9%	7.8%
FY24	-1.1%	3.8%	5.0%
FY25	1.1%	2.4%	3.9%

Downside scenario	Residential	Commercial	Infrastructure
FY22	4.1%	2.8%	4.9%
FY23	-6.7%	-3.2%	-2.9%
FY24	-9.1%	3.4%	4.9%
FY25	3.5%	4.7%	7.5%

Upside scenario	Residential	Commercial	Infrastructure
FY22	4.1%	3.0%	5.1%
FY23	0.6%	5.6%	12.7%
FY24	2.3%	5.5%	8.3%
FY25	2.4%	3.2%	5.6%

The New Zealand WPIP outlook has a 2009/10 base year, which is consistent with Statistics NZ data.

The Australian work done outlook has a 2019/20 base year, which is consistent with Australian Bureau of Statistics data.

Notice

This report (the Report) provides a summary of economic uncertainty scenario modelling work that Deloitte completed for Fletcher Building.

Fletcher Building asked for, and we consented to, the publication of this Report to provide information on the basis upon which key economic scenarios were developed and our outlook for key measures of business activity, being: work put in place (New Zealand) and work done (Australia).

This Notice sets out the basis on which we are prepared to allow readers to access this Report.

We are prepared to allow you access to the Report on your acknowledgement of the following matters:

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    - solely for its benefit and not for any other person; and
    - in accordance with our terms of engagement.
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