# WACC Biannual Update
20 August 2021

1   Introduction

Every six months, we publish a financial market update to help our stakeholders understand and replicate our Weighted Average Cost of Capital (WACC) decisions. We also publish a spreadsheet containing a working copy of our WACC model. This update and the accompanying spreadsheet contain market data sampled to 31 July 2021.

2   Overview

Since the last update in February 2021, the WACC estimate (real post-tax WACC based on an equity beta of 1 and a gearing ratio of 60%) has decreased by 30 basis points to 3.9% (Table 1). Figure 1 presents the real post-tax WACC since 2018.

Figure 1 Estimated real post-tax WACC midpoint and range based on an equity beta of 1 and a gearing ratio of 60%
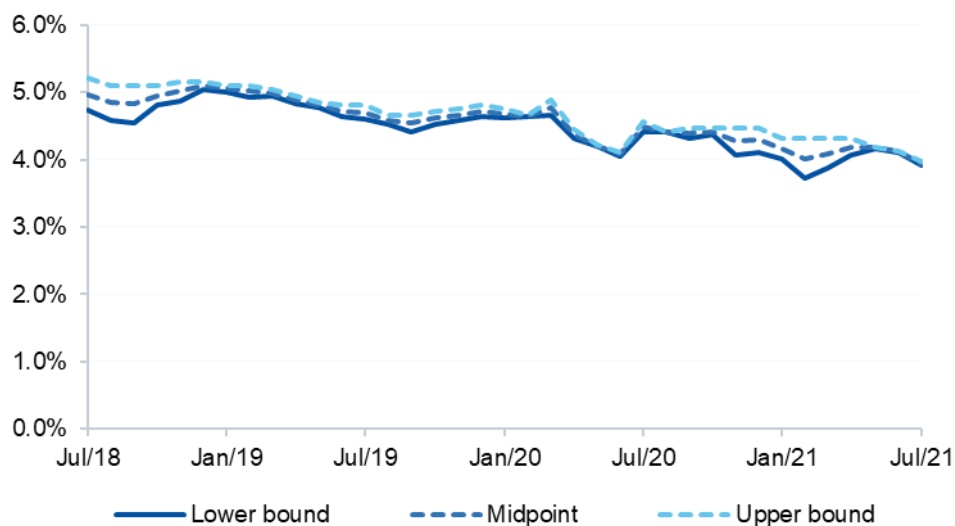
Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Refinitiv data.

Table 1 summarises our estimates of the nominal and real post-tax WACC range and the midpoints. It also compares the current WACC estimates with those we published in the February 2021 update (the February 2021 update contains data sampled to 31 January 2021).

Table 2 summarises the underlying market-based WACC parameters over the same period.

Table 1 IPART's WACC range using an equity beta value of 1 and a gearing ratio of 60%

	Lower	Midpoint	Upper
31 January 2021			
Nominal post-tax	6.3%	6.5%	6.6%
Real post-tax	4.0%	4.2%	4.3%
31 July 2021			
Nominal post-tax	6.3%	6.4%	6.4%
Real post-tax	3.9%	3.9%	4.0%

Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Refinitiv (formerly Thompson Reuters) data.

Table 2 Market-based parameters

	Risk free rate	Cost of debt	Market risk premium	Inflation
31 January 2021				
Current	1.8%	3.7%	8.4%	2.2%
10 years	2.7%	5.2%	6.0%	2.2%
31 July 2021				
Current	1.6%	3.6%	8.9%	2.3%
10 years	2.4%	4.9%	6.0%	2.3%

Note: The current estimates are measured either over 40 trading days or two months, depending on their data source.
Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Refinitiv (formerly Thompson Reuters) data.

Our calculation of the WACC can be found in the accompanying spreadsheet.[a] At the parameter level, Table 2 shows that over the last six months the:

▼ **Risk free rate:** The current measure of the risk free rate has decreased by 20 basis points and the long-term (10-year) measure has fallen by 30 basis points.

▼ **Cost of Debt:** The current measure of the cost of debt has decreased by 10 basis points while the long-term measure has decreased by 30 basis points.

▼ **Market Risk Premium (MRP):** The current measure of the MRP has increased by 50 basis points. We do not update the long-term measure with changes in the market.

▼ **Inflation:** Our current measure of inflation has increased by 10 basis points and the long-term measure has also increased by 10 basis points.

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[a]   Select an industry from the drop-down menu in the accompanying spreadsheet for industry-specific WACC estimates

Short-run Market Risk Premium (MRP)

To enhance the transparency of our WACC decisions, we publish our short-run estimates of the MRP.[b] We base our current MRP estimate on the short-run estimates. Table 3 provides the short-run MRP estimate using our six measures of the MRP, reported to two decimal places.

Table 3 Short-run MRP

Short-run MRP including imputation credits	Estimate at 31 July 2021
Damodaran	9.72%
Bank of England (2002)	10.41%
Bank of England (2010)	9.26%
Bloomberg	–
SFG Market indicator (mean)	7.36%
SFG analysts implied	9.33%
Short Run MRP	**8.90%**

Source: IPART analysis of Bloomberg and Refinitiv (formerly Thompson Reuters) data; Frontier Economics.
Note: Bloomberg MRP estimate withheld for copyright reasons

We are updating one of the inputs into our short-run MRP estimate

Calculating our estimate of the current MRP involves several steps.

1. We take five estimates of the MRP using Dividend Discount Models (DDMs) these are the: The Damodaran model, the Bank of England 2002 model, the Bank of England 2010 model, the Bloomberg model and the analysts implied model.

2. From the pool of five DDMs we take the median value.

3. We then calculate an estimate of the MRP using the market indicators model.

4. We then take a weighted average of the median DDM estimate and the market indicators model estimate, with a two-thirds weight on the DDM and one-third weight on the market indicators model.

The MRP estimate that comes out of this process is our estimate of the short run MRP that is shown in Table 3 above.

For WACC decisions that occur after August 2021 we will replacing the Bloomberg MRP estimate with the Refinitiv MRP estimate. The Refinitiv model is also a DDM and will fit into the pool of DDMs from which we take the median to go into our weighted average calculation. This represents no change to our calculation methodology, only to an input into that method.

Table 4 shows our short-run MRP estimate for July 2021 were we to use the Refinitiv DDM instead of the Bloomberg DDM. Figure 2 shows a comparison of our final short-run MRP estimate since 2015 were we to use either data source in the pool of DDMs.

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b   IPART, MRP estimates at end of April 2017 – Fact Sheet, May 2017.

Table 4 Short-run MRP

Short-run MRP including imputation credits	Estimate at 31 July 2021
Damodaran	9.72%
Bank of England (2002)	10.41%
Bank of England (2010)	9.26%
Refinitiv	8.11%
SFG Market indicator (mean)	7.36%
SFG analysts implied	9.33%
Short Run MRP	**8.70%**

Source: IPART analysis of Bloomberg and Refinitiv (formerly Thompson Reuters) data; Frontier Economics.

Figure 2 Comparison of our Final MRP estimate using either data source
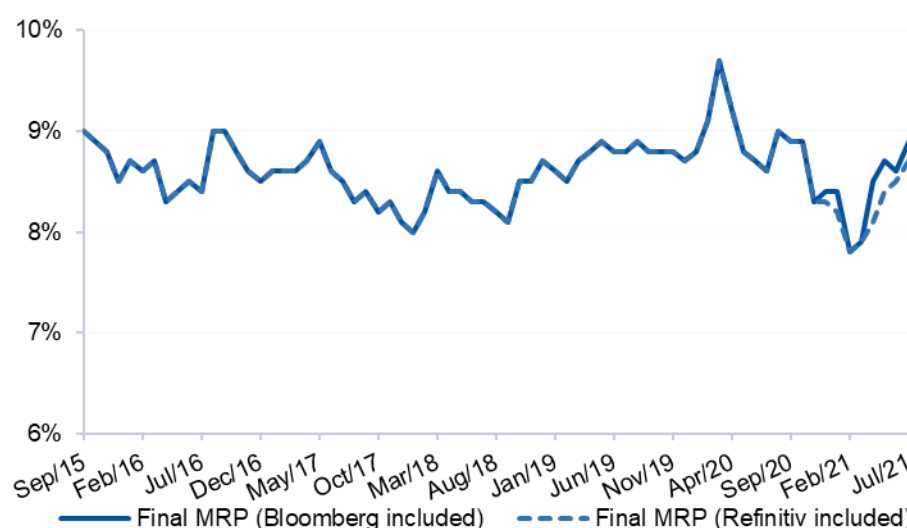
Note: These MRP estimates are exclusive of the risk-free rate and after the adjustment for imputation credits.

Source: Bloomberg, Refinitiv and IPART calculations.

Were IPART to have used the Refinitiv MRP estimate instead of the Bloomberg MRP estimate since September 2015[c] we would have had the same MRP in 65 of the 71 months with a maximum difference of 0.4%.

Changing our data provider for this input will enable IPART to achieve internal efficiencies and to provide greater transparency on its WACC method going forward.

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[c] IPART did not use its current MRP methodology prior to 2018. However, we have calculated these estimates from 2015 using the 2018 WACC methodology for illustrative purposes only.

3   Industry analysis

Table 5 shows the industry-specific parameters that we have previously adopted for the industries we regulate.[d]

Table 5 Industry-specific WACC parameters

	Equity beta			Target term to maturity	Gearing ratio
	Low	Mid	High		
Water[a]	0.6	0.7	0.8	10 Years	60%
Transport[b]					
Rail	0.8	0.9	1.0	10 Years	60%
Rail Access	1.0	1.0	1.0	10 Years	45%
Bus (metro & outer metro)	0.7	0.9	1.0	10 Years	60%
Light rail	0.7	0.9	1.0	10 Years	60%
Ferries	0.8	0.9	1.0	10 Years	40% to 60%

a: For the water industry, we determine a WACC for Central Coast Council, Essential Energy, Hunter Water Corporation, Sydney Desalination Plant, Sydney Water Corporation, Water Administration Ministerial Corporation (WAMC), the Wentworth to Broken Hill Pipeline and WaterNSW (for the Murray-Darling Basin valleys, we apply the ACCC's WACC methodology prescribed under the Water Charge (Infrastructure) Rules 2010).

b: For our approach to determination Opal fares refer to Maximum Opal fares 2020-2040 Final report February 2020. For rural and regional bus fares refer to Review of rural and regional bus fares from January 2021, Final report December 2020 and for rail access refer to Rate of return and remaining mine life 2019-2024 final report July 2019.

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5   Please note that the methodology and parameters in this note and spreadsheet do not pre-empt the outcome of IPART's future decisions. They should be used as an illustration of how our current methodology would be applied to the given parameter values. This is because at each price review, we assess the appropriate valuation for each WACC parameter. In some cases, we may depart from our standard industry parameter valuations taking account of the individual regulated business's circumstances.

Table 6 shows the six-monthly WACC range and midpoint estimates over the last two years for the industries that IPART regulates.

Table 6 Regulated industries half-yearly real post-tax WACC ranges and midpoints from July 2019 to July 2021

|	Jul-19	Jan-20	Jul-20	Jan-21	Jul-21
Water					
Upper bound	4.1%	4.0%	3.9%	3.6%	3.2%
Midpoint	3.8%	3.8%	3.6%	3.3%	3.1%
Lower bound	3.6%	3.6%	3.4%	3.0%	2.9%
Rail					
Upper bound	4.6%	4.5%	4.3%	4.1%	3.7%
Midpoint	4.4%	4.4%	4.2%	3.9%	3.6%
Lower bound	4.3%	4.3%	4.1%	3.7%	3.6%
Bus, Light rail					
Upper bound	4.5%	4.4%	4.2%	4.0%	3.6%
Midpoint	4.3%	4.2%	4.1%	3.7%	3.5%
Lower bound	4.1%	4.1%	3.9%	3.5%	3.4%
Ferries					
Upper bound	4.8%	4.8%	4.6%	4.4%	4.2%
Midpoint	4.8%	4.8%	4.6%	4.3%	4.1%
Lower bound	4.8%	4.8%	4.6%	4.2%	4.0%

Source: IPART calculations.

Note: These WACC ranges are prepared on the basis that a business has completed the transition to, and is using the trailing average cost of debt.

3.1   Water

Figure 3 shows the six-monthly WACC range and midpoint estimates since July 2018 for the water industry. The WACC for the water industry ranges from 2.9% to 3.2%, with a midpoint of 3.1%. In the February 2021 market update, we reported a midpoint WACC of 3.3% for the water industry.

### Figure 3 Water industry real post-tax WACC midpoints and ranges
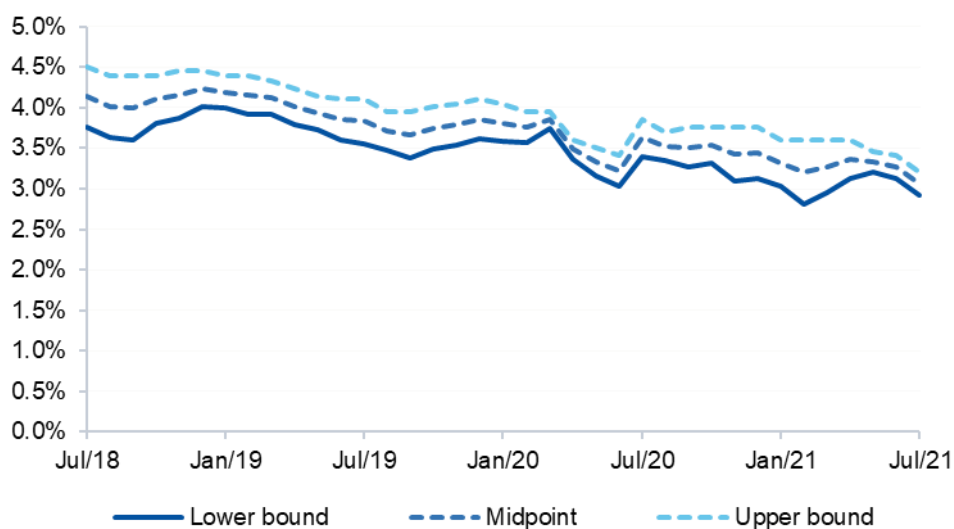
Source: IPART analysis of Bloomberg and Refinitiv (formerly Thompson Reuters) data; Frontier Economics.

3.2   Transport

Figure 4 presents notional WACCs for public transport based on updated market parameters and inputs from our previous reviews in 2017. It shows the monthly midpoint notional WACC estimates for the various modes of transport since July 2018 based on the industry-specific parameters:

- The rail industry has a midpoint WACC of 3.6%. In the February 2021 market update, we reported a midpoint WACC of 3.9%
- The bus and light rail industry has a midpoint WACC of 3.5%. In the February 2021 market update, we reported a midpoint WACC of 3.7%
- The ferry industry has a midpoint WACC of 4.1%. In the February 2021 market update, we reported a midpoint WACC of 4.3%
- The rail access industry has a midpoint WACC of 4.8%. In the February 2021 market update, we reported a midpoint WACC of 4.9%

### Figure 4 Transport industries real post-tax WACC midpoints
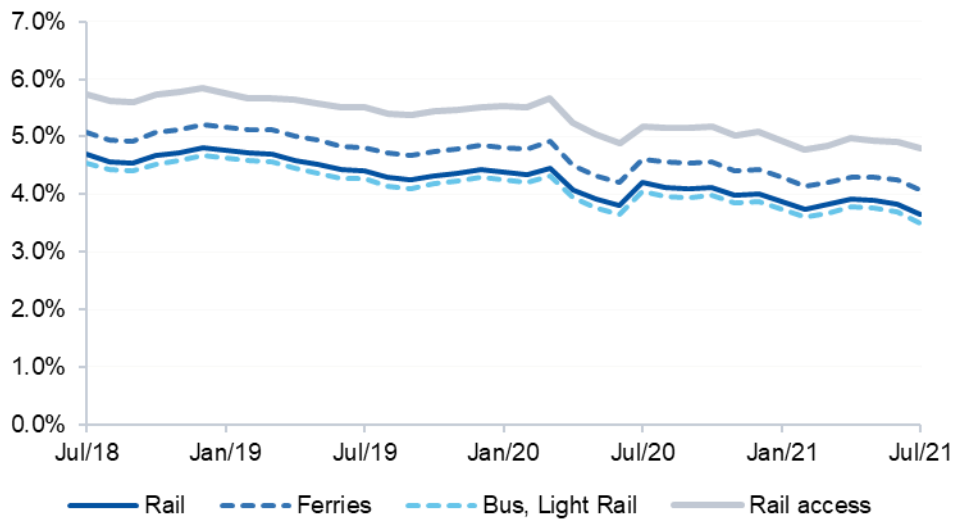
Source: IPART analysis of Bloomberg and Refinitiv (formerly Thompson Reuters) data; Frontier Economics.

4   Financial market uncertainty index

In our 2013 Final Report on the review of our WACC methodology, we developed an index to monitor financial market uncertainty. Our uncertainty index calculator and accompanying factsheet are available on our website. We have updated the uncertainty index to the end of July 2021. As shown in Figure 5, the uncertainty index is currently within one standard deviation of the long-term average value of zero. According to our WACC decision rule[e], we would use the midpoint WACC to estimate the return on capital invested by the regulated business.

Figure 5 IPART's uncertainty index
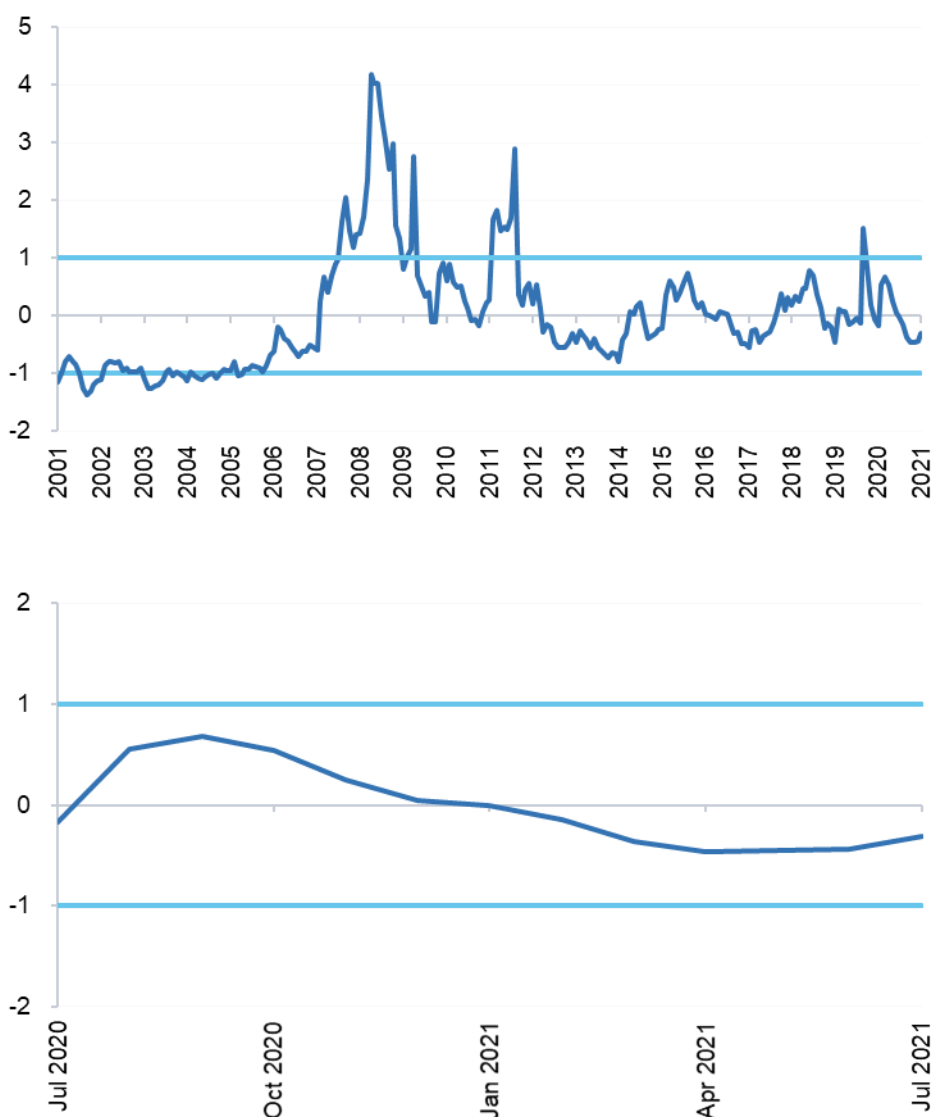
Source: IPART analysis.

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e   The WACC decision rule states that if the uncertainty index is within one standard deviation of the long term average of zero, then utilise the midpoint WACC. If the uncertainty index is greater than one standard deviation from the long term average of zero, consider moving away from the midpoint WACC