# WACC Biannual Update

August 2018

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 2018.

In February 2018, we published the final report[1] on the review of IPART's standard method for determining the WACC. We will apply this method to pricing decisions that take effect on or after 1 July 2018. This is our first biannual update using the revised method. In light of this, this update includes commentary on the differences under this method.

2 Change in method of determining the WACC

Our February 2018 method (the 2018 method) is thematically consistent with our previous method (the 2013 method)[2] of determining the WACC. However we have changed how we estimate the cost of debt and some cost of equity WACC parameters. Figure 1 shows our WACC estimates (real post-tax WACC midpoint based on an equity beta of 1 and a gearing ratio of 60%) from January 2015 to January 2018 under both methods.

Figure 1 Comparison of estimations of real post-tax WACC midpoint based on an equity beta of 1 and a gearing ratio of 60% using the 2013 and 2018 methods
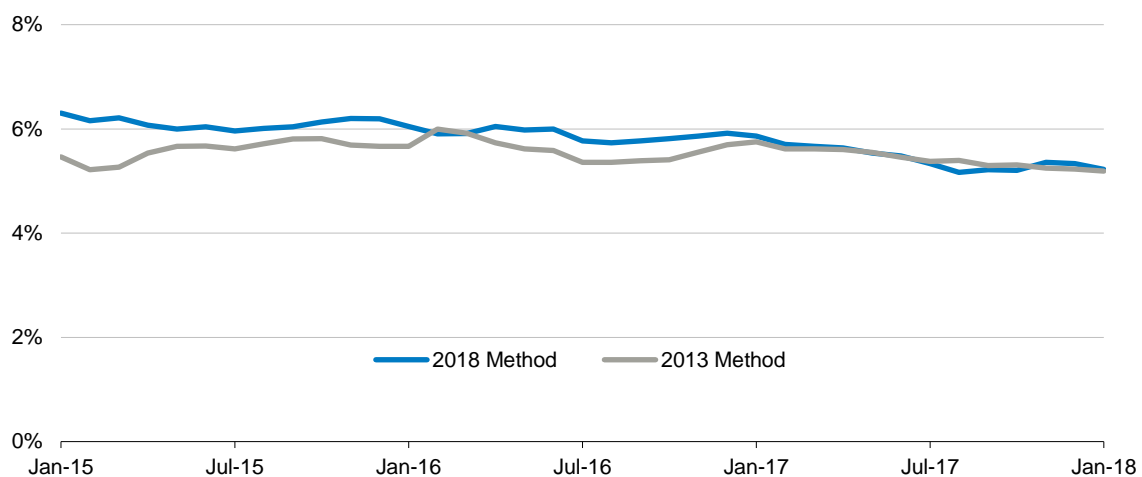
Data source: IPART analysis of Bloomberg, Reserve Bank of Australia and Thomson Reuters data.

The purpose of this Fact Sheet is to provide an indication of the WACC given the prevailing market parameters. As shown in Figure 1, comparisons between estimates of the WACC can be made between our February market update and this market update, despite the change in method between the two publications. Therefore data presented for time series comparison from prior to February 2018 will be consistent with that published in our previous market updates unless stated otherwise.
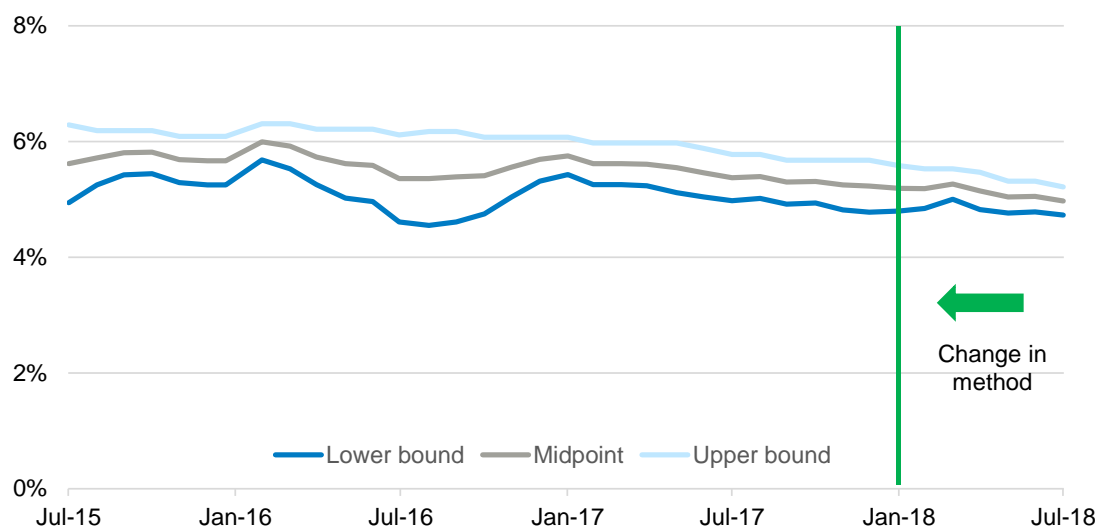
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1   IPART, *Review of our WACC method – Final Report*, February 2018.
2   IPART, *Review of WACC Methodology – Final Report*, December 2013.

3   Overview

Since the last update in February 2018, the WACC estimate (real post-tax WACC based on an equity beta of 1 and a gearing ratio of 60%) has decreased by 20 basis points to 5.0% (Table 1). Figure 2 presents the real post-tax WACC since 2015.

Figure 2   Estimated real post-tax WACC midpoint and range based on an equity beta of 1 and a gearing ratio of 60%

Note: In February 2018 we substantially changed our approach to estimating the WACC and its parameters. The effect of the change in methodology is highlighted.[3]
Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Thomson Reuters data.

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[3]   IPART, *Review of our WACC method – Final Report*, February 2018.

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 2018 update (the February 2018 update contains data sampled to 31 January 2018). 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 2018			
Nominal post-tax	7.4%	7.8%	8.2%
Real post-tax	4.8%	5.2%	5.6%
31 July 2018			
Nominal post-tax	7.2%	7.5%	7.7%
Real post-tax	4.7%	5.0%	5.2%

Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Thomson Reuters data.

Table 2   Market based parameters

	Risk free rate	Implied debt margin	Cost of debt	Market risk premium	Inflation
31 January 2018					
Current	2.7%	1.8%	4.5%	9.1%	2.5%
10 year	3.9%	3.2%	7.1%	6.0%	2.5%
31 July 2018					
Current	2.6%	2.2%	4.8%	8.3%	2.4%
10 year	3.6%	2.9%	6.5%	6.0%	2.4%

Note: We measure the current and 10-year estimate tranches either over 40 trading days or two months, depending on their data source. The current estimate assumes a determination period of four years ie. We estimate the current estimate on a four year trailing average.

Source: IPART analysis of Bloomberg, Reserve Bank of Australia and Thomson Reuters data.

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

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

▼ **Implied debt margin:**[4] The current measure of the implied debt margin has increased by 40 basis points while the long-term measure has fallen by 30 basis points.

▼ **Cost of Debt:** The current measure of the cost of debt has increased by 30 basis points while the long-term measure has fallen by 60 basis points.

▼ **Market Risk Premium (MRP):** The current measure of the MRP has fallen by 80 basis points. We do not update the long-term measure with changes in the market.

▼ **Inflation:** Our current and long-term inflation forecast has decreased by 10 basis points.

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4   The implied debt margin is the difference between the calculated values of the cost of debt and the risk free rate presented in Table 2.

Short-run Market Risk Premium (MRP)

To enhance the transparency of our WACC decisions, we publish our short-run estimates of the MRP.[5] 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 including imputation credits**

MRP measure	Estimate at 31 July 2018
Damodaran	8.38%
Bank of England (2002)	9.50%
Bank of England (2010)	8.38%
Bloomberg	-
SFG Market indicator (mean)	8.06%
SFG analysts implied	7.81%
Short Run MRP	**8.28%**

Source: IPART analysis of Bloomberg and Thomson Reuters data and Frontier Economics.
Note: Bloomberg MRP estimate withheld for copyright reasons

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[5] IPART, *MRP estimates at end of April 2017 – Fact Sheet*, May 2017.

4 Industry Analysis

Table 4 shows the industry-specific parameters that we have previously adopted for the industries we regulate.[6]

Table 4   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%
Bus (metro & outer metro)	0.7	0.85	1.0	10 Years	60%
Light rail	0.7	0.85	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) 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 the transport industry, we determine a WACC for Sydney Trains, Sydney Ferries, light rail, private ferries, and metropolitan and outer metropolitan buses. We have also estimated a WACC for rural and regional buses, estimating a gearing level for the rural and regional bus industry of 40% to 60% after reviewing the gearing level of a sample of firms with some bus operations (See IPART, *Maximum fares for rural and regional bus services from 1 January 2018 - Final report*, December 2017, pp 136-139).

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6   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 we would apply our current method given the prevailing 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' circumstances.

Table 5 shows the six-monthly WACC range and midpoint estimates over the last two years for the industries that IPART regulates.

Table 5   Regulated industries half-yearly real post-tax WACC ranges and midpoints from July 2016 to July 2018

	Jul-16	Jan-17	Jul-17	Jan-18	Jul-18
Water					
Upper bound	5.4%	5.4%	5.1%	4.9%	4.5%
Midpoint	4.5%	4.9%	4.5%	4.3%	4.1%
Lower bound	3.6%	4.3%	3.9%	3.7%	3.8%
Rail					
Upper bound	5.9%	5.8%	5.5%	5.3%	5.0%
Midpoint	5.1%	5.5%	5.1%	4.9%	4.7%
Lower bound	4.3%	5.1%	4.6%	4.4%	4.4%
Bus, Light rail					
Upper bound	5.8%	5.7%	5.4%	5.2%	4.9%
Midpoint	5.0%	5.3%	4.9%	4.7%	4.6%
Lower bound	4.1%	4.9%	4.4%	4.3%	4.2%
Ferries					
Upper bound	6.1%	6.1%	5.8%	5.6%	5.2%
Midpoint	5.5%	5.9%	5.5%	5.3%	5.1%
Lower bound	4.8%	5.6%	5.2%	5.1%	4.9%

Source: IPART calculations.

Water

Figure 3 shows the six-monthly WACC range and midpoint estimates since July 2015 for the water industry. The WACC for the water industry ranges from 4.5% to 3.8%, with a midpoint of 4.1%. In the February 2018 market update, we reported a midpoint WACC of 4.3% for the water industry.

**Figure 3   Water Industry real post-tax WACC midpoints and ranges**
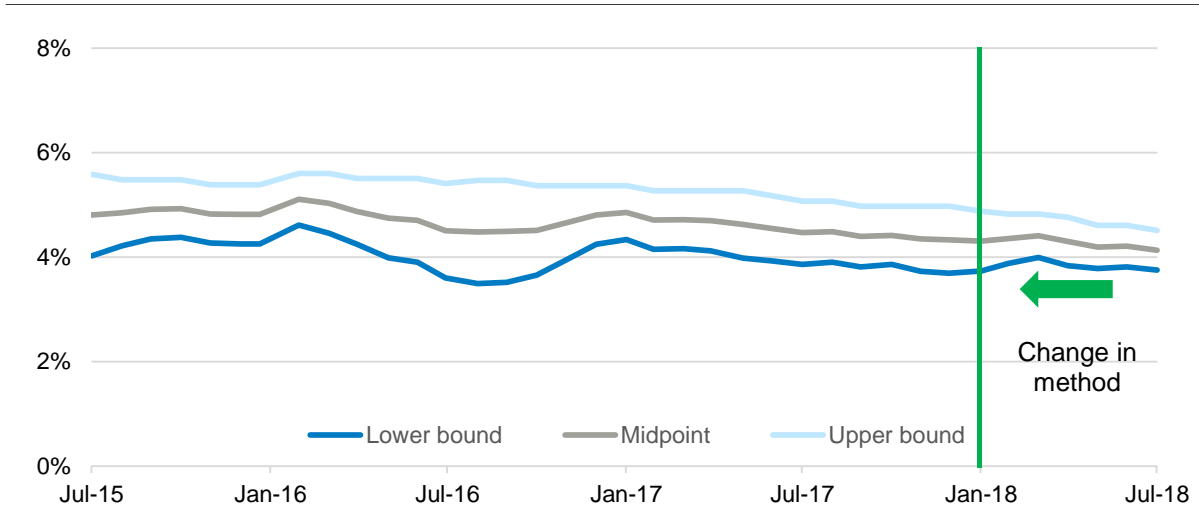
Transport

In 2016, we determined maximum public transport fares for four modes of transport to apply from July 2016. In making this determination, we estimated the WACC from each mode of transport. Figure 4 shows the monthly midpoint WACC estimates for the various modes of transport since July 2015 based on the industry-specific parameters:

▼ The rail industry has a midpoint WACC of 4.7%. In the February 2018 market update, we reported a midpoint WACC of 4.9%

▼ The bus and light rail industry has a midpoint WACC of 4.6%. In the February 2018 market update, we reported a midpoint WACC of 4.7%

▼ The ferry industry has a midpoint WACC of 5.1%. In the February 2018 market update, we reported a midpoint WACC of 5.3%.

**Figure 4   Transport industries real post-tax WACC midpoints**
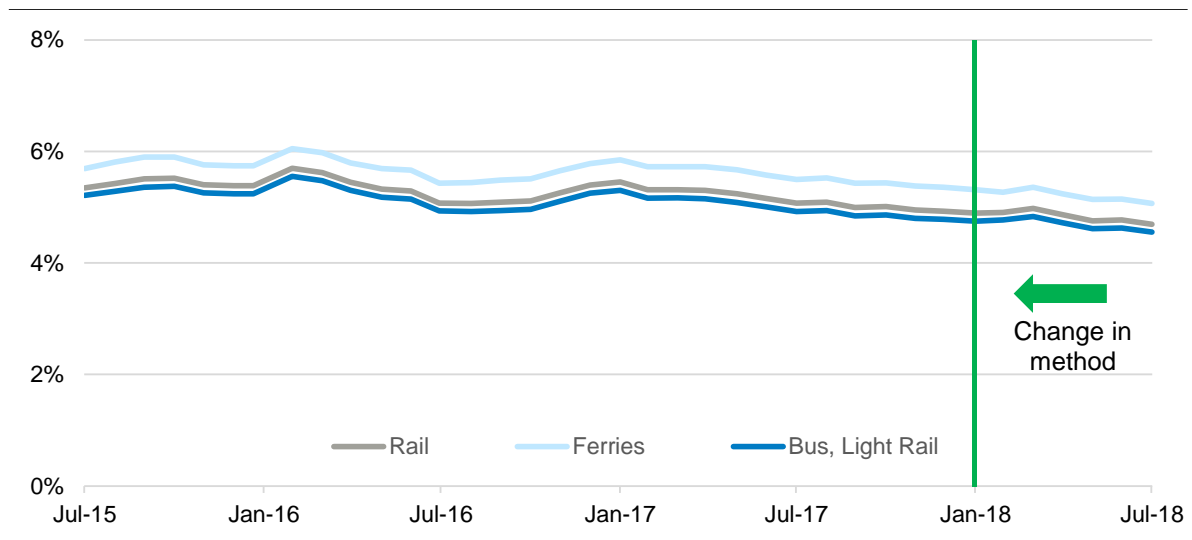
Note: Parameters for the modes of transport are shown in Table 4.

5 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 2018. 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[7], we would therefore use the midpoint WACC to estimate the return on capital invested by the regulated businesses.

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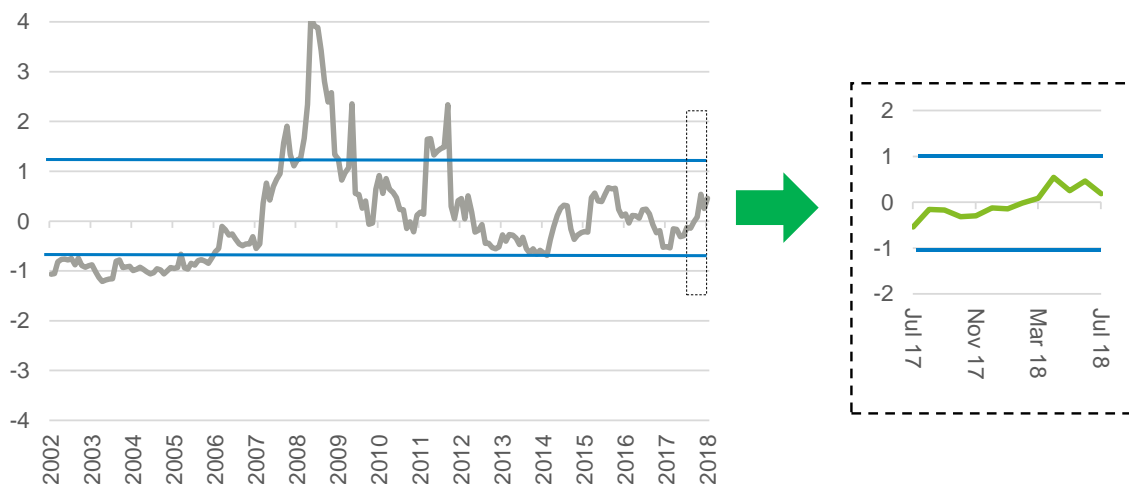
Source: IPART analysis.

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7   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