1 Introduction

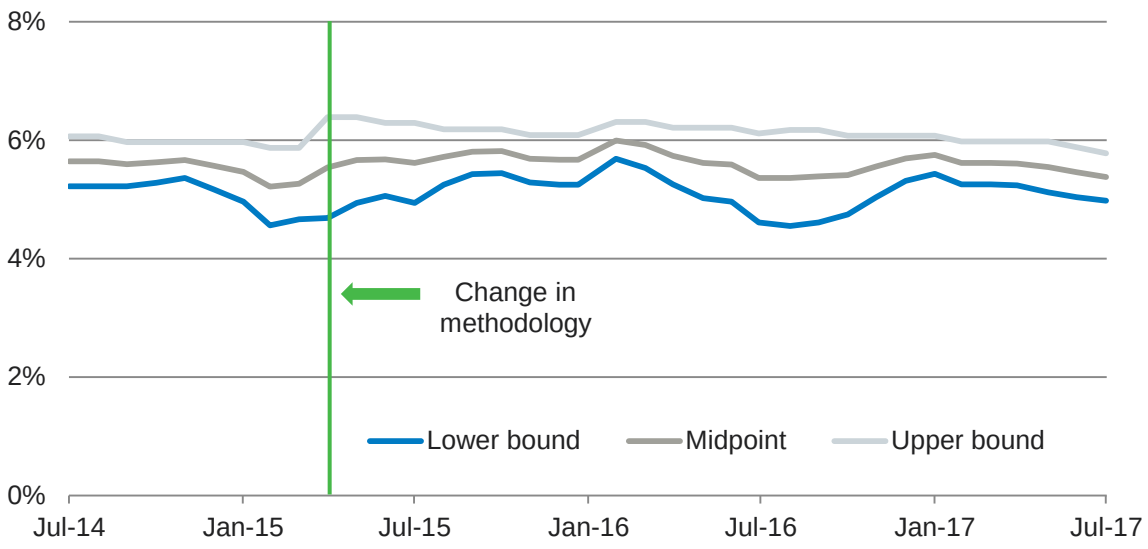
Every six months, we publish a financial market update to help our stakeholders understand and replicate our WACC decisions. We also publish a spreadsheet containing a working copy of our WACC model. This update and the accompanying spreadsheet contain market data sampled to 31 July 2017.

This update presents the WACC calculated using our current methodology. We are in the process of reviewing our methodology and expect to apply our updated methodology in pricing decisions that take effect on or after 1 July 2018.

2 Overview

Since the last update in February 2017, the WACC estimate (real post-tax WACC based on an equity beta of 1 and a gearing ratio of 60%) has decreased by 40 basis points (bps) to 5.4% (Table 1). Figure 1 presents the real post-tax WACC since 2014.

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



Note: We updated our WACC methodology in April 2014 and in March 2015. In 2014, we decided to use the RBA's credit spreads instead of Bloomberg corporate bond yields to estimate the debt margin. In 2015, we changed our approach to forecasting inflation for the purposes of converting the nominal post-tax WACC into a real post-tax WACC. The effect of the latter change in methodology is highlighted.

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

Table 1 summarises the range of our estimates of the nominal and real post-tax WACC range and the mid-points. It also compares the current WACC estimates with those we published in the February 2017 update (the February 2017 update contains data sampled to 31 January 2017).

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 2017			
Nominal post-tax	8.0%	8.3%	8.6%
Real post-tax	5.4%	5.8%	6.1%
31 July 2017			
Nominal post-tax	7.6%	8.0%	8.4%
Real post-tax	5.0%	5.4%	5.8%

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

Table 2 Market-based parameters

	Risk free rate	Debt margin	Market risk premium	Inflation
31 January 2017				
40 days	2.8%	2.4%	9.3%	2.4%
10 years	4.3%	3.2%	6.0%	2.4%
Midpoint	**3.6%**	**2.8%**	**7.7%**	**2.4%**
31 July 2017				
40 days	2.6%	2.0%	9.5%	2.5%
10 years	4.1%	3.2%	6.0%	2.5%
Midpoint	**3.4%**	**2.6%**	**7.8%**	**2.5%**

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

Our calculation of the WACC can be found in the accompanying spreadsheet.[1]

At the parameter level, Table 2 shows that over the last six months:

- **Risk free rate**: The current (40-day) measure of the risk free rate has fallen by 20 basis points and the long-term (10-year) measure has fallen by 20 basis points.
- **Debt margin**: The current measure of the debt margin has decreased by 40 bps while long-term measure has remained constant.
- **Market risk premium**: The current market risk premium however has increased by 20 bps. We do not update the long-term measure with changes in the market.
- **Inflation**: Our current and long-term inflation forecast increased from 2.4% to 2.5%.

1 Select an industry from the drop-down menu in the accompanying spreadsheet for industry-specific WACC estimates.

Short-run MRP

In April 2017, we decided to publish our short-run estimates of the MRP to further enhance the transparency of our WACC decisions.[2] 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. The lower bound, midpoint and upper bound of the current MRP range are also shown. We round these values to one decimal place in our WACC calculation.

Table 3 Short-run MRP

Short-run MRP including imputation credits	Estimate at 31 July 2017
Damodaran	8.73%
BoE (2002)	11.62%
BoE (2010)	9.10%
Bloomberg	7.83%
SFG Market indicator (mean)	7.30%
SFG analysts implied	8.57%
Lower	**7.3%**
Midpoint	**9.5%**
Upper	**11.6%**

Source: IPART analysis of Bloomberg and Thompson Reuters data; Frontier Economics.
Note: Lower, midpoint and upper MRP estimates are rounded to one decimal place for our WACC calculation.

2 IPART, *MRP estimates at end of April 2017 – Fact sheet,* May 2017.

3 Analysis

WACC analysis for the industries we regulate

Table 4 shows the industry-specific parameters that we have previously adopted for the industries we regulate.[3] In the past, our updates presented the retail gas WACC. We have not included a retail gas WACC update in this edition because we no longer regulate retail gas prices as they were deregulated in New South Wales on 1 July 2017.

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[c]	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, metropolitan, outer metropolitan, rural and regional buses.

c These parameters are for metropolitan and outer metropolitan buses. Industry-specific parameters for rural and regional buses have not yet been published.

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

[3] 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 5 Regulated industries half-yearly real post-tax WACC ranges and midpoints from July 2015 to July 2017

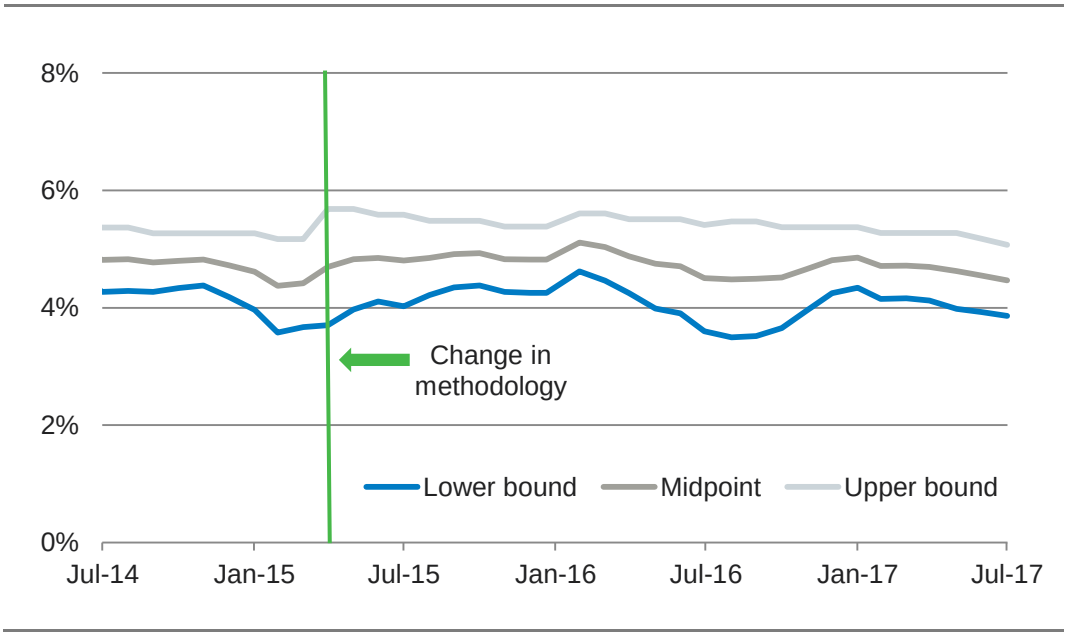
	Jul-15	Jan-16	Jul-16	Jan-17	Jul-17
Water					
Upper bound	5.6%	5.4%	5.4%	5.4%	5.1%
Midpoint	4.8%	4.8%	4.5%	4.9%	4.5%
Lower bound	4.1%	4.3%	3.6%	4.3%	3.9%
Rail					
Upper bound	6.1%	5.9%	5.9%	5.8%	5.5%
Midpoint	5.4%	5.4%	5.1%	5.5%	5.1%
Lower bound	4.7%	4.9%	4.3%	5.1%	4.6%
Bus, light rail					
Upper bound	5.9%	5.7%	5.8%	5.7%	5.4%
Midpoint	5.2%	5.2%	5.0%	5.3%	4.9%
Lower bound	4.5%	4.8%	4.1%	4.9%	4.4%
Ferries					
Upper bound	6.3%	6.1%	6.1%	6.1%	5.8%
Midpoint	5.7%	5.7%	5.5%	5.9%	5.5%
Lower bound	5.1%	5.4%	4.8%	5.6%	5.2%

Source: IPART calculations.

Water

Figure 2 shows the six-monthly WACC range and midpoint estimates since July 2014 for the water industry. The WACC for the water industry ranges from 3.9% to 5.1%, with a midpoint of 4.5%. In the February 2017 market update, we reported a midpoint WACC of 4.9% for the water industry.

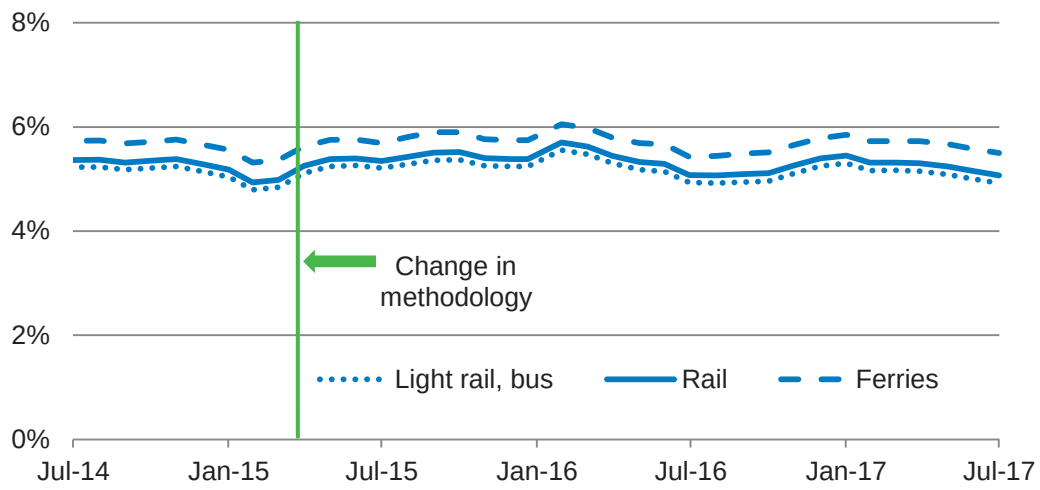
Figure 2 Water industry real post-tax WACC midpoints and ranges



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 for each mode of transport.[4] Figure 3 shows the monthly midpoint WACC estimates for the various modes of transport since 2014, based on the industry-specific parameters we previously adopted.

Figure 3 Transport industries real post-tax WACC mid-points



Note: Parameters for the modes of transport are shown in Table 4.

Since the February 2017 market update, the WACC has decreased by 40 bps for each of the transport modes.

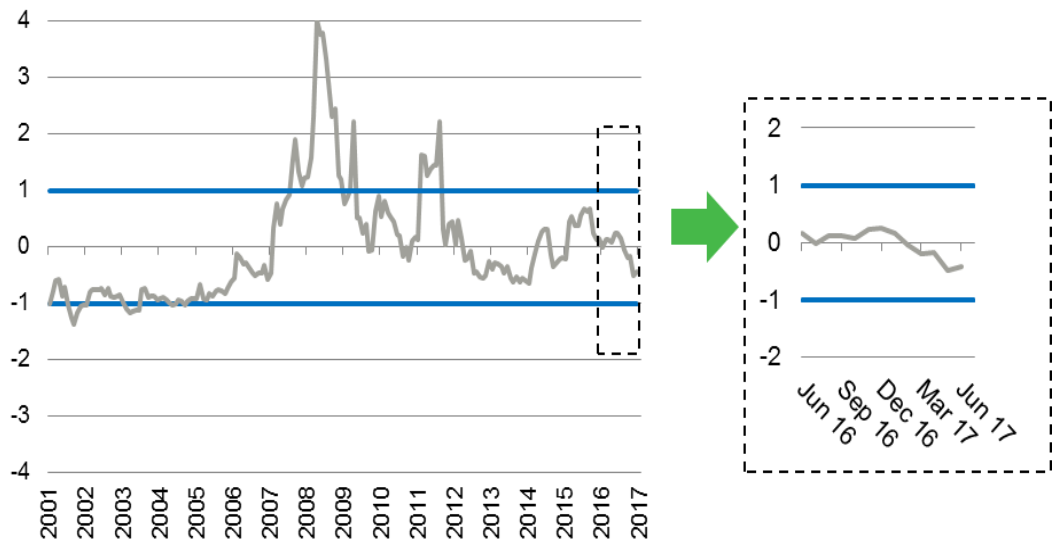
4 See IPART, *Information Paper No 10 – Weighted Average Cost of Capital,* May 2016, available here.

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 here.

We have updated the uncertainty index to the end of July 2017. As shown in Figure 4, the uncertainty index is currently within one standard deviation of the long-term average value of zero. According to our WACC decision rule, we would therefore use the midpoint WACC to estimate the return on capital invested by the regulated businesses.

Figure 4 IPART's uncertainty index



Source: IPART analysis.