

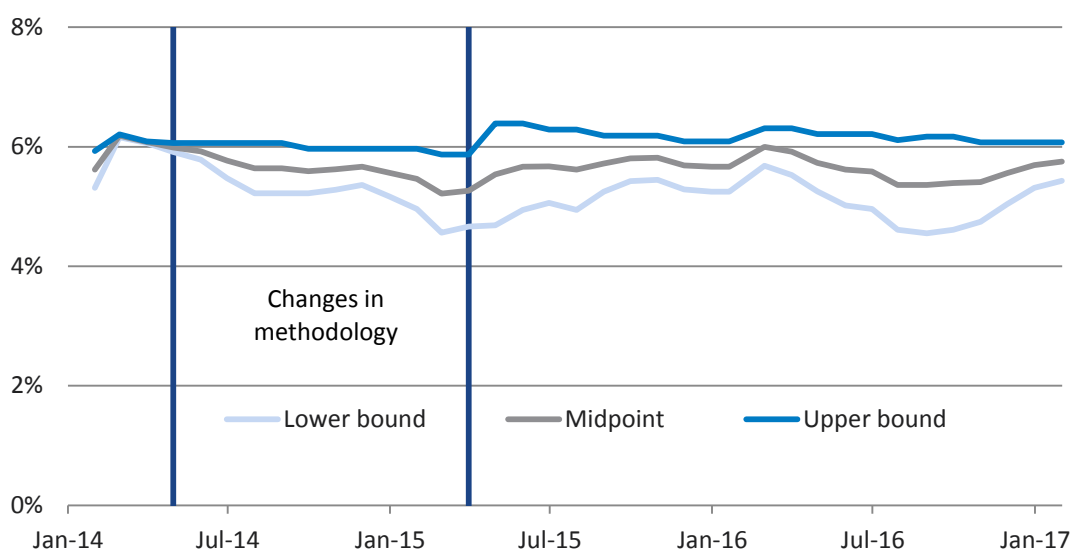
1 Introduction

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

2 Overview

Since the last update in August 2016, the WACC estimate (real post-tax WACC based on a market equity beta of 1 and a gearing ratio of 60%) has increased by 40 basis points (bps) to 5.8% (Table 1). Figure 1 presents the real post-tax WACC for the last three years.

Figure 1 Estimated real post-tax WACC midpoint and range based on a market 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 effects of these decisions are highlighted.

Source: IPART analysis

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 August 2016 update.

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
<i>29 July 2016</i>			
Nominal post-tax	7.1%	7.9%	8.7%
Real post-tax	4.6%	5.4%	6.1%
<i>31 January 2017</i>			
Nominal post-tax	8.0%	8.3%	8.6%
Real post-tax	5.4%	5.8%	6.1%

Source: IPART.

Table 2 Market-based parameters

	Risk free rate	Debt margin	Market risk premium	Inflation
<i>29 July 2016</i>				
40 days	2.0%	2.8%	8.6%	2.4%
10 years	4.4%	3.1%	6.0%	2.4%
Midpoint	3.2%	3.0%	7.3%	2.4%
<i>31 January 2017</i>				
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%

Source: IPART.

Our calculation of 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 increased by 80 basis points and the long-term (10-year) measure has fallen by 10 basis points.
- ▼ **Debt margin:** The current measure of the debt margin has decreased by 40 bps while long term measure has increased by 10 bps.
- ▼ **Market risk premium:** The current market risk premium however has increased by 70 bps. We do not update the long-term measure with changes in the market.
- ▼ **Inflation:** Our current and long-term inflation forecast remains at 2.4%.

¹ Select an industry from the drop-down menu in the accompanying [spreadsheet](#) for industry-specific WACC estimates.

3 Analysis

WACC analysis for the industries we regulate

Table 3 shows the industry-specific parameters that we have previously adopted for the industries we regulate.²

Table 3 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					
Bus	0.7	0.85	1.0	10 years	60%
Ferries	0.8	0.9	1.0	10 years	40% to 60%
Light rail	0.7	0.85	1.0	10 years	60%
Rail	0.8	0.9	1.0	10 years	60%
Gas retail	0.9	1.0	1.1	10 years	20%

^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.

^b For the transport industry, we determine a WACC for Sydney Trains, Sydney Ferries, light rail, private ferries, and metropolitan and outer metropolitan buses.

Table 4 shows the six-monthly WACC range and midpoint estimates over the last two years for the industries that IPART regulates.

² 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.

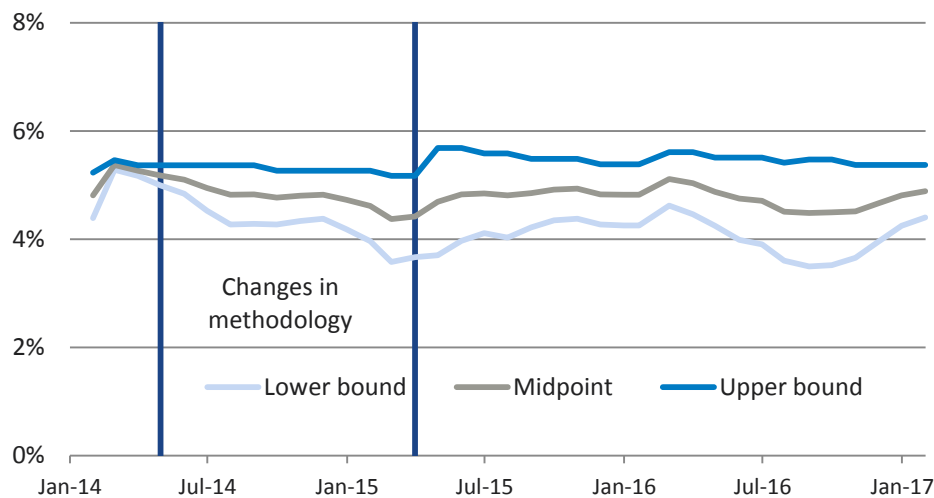
Table 4 Regulated industries half-yearly real post-tax WACC ranges and midpoints from January 2015 to January 2017

	Jan-15	Jul-15	Jan-16	Jul-16	Jan-17
Water					
Upper bound	5.3%	5.6%	5.4%	5.4%	5.4%
Midpoint	4.5%	4.8%	4.8%	4.5%	4.9%
Lower bound	3.8%	4.1%	4.3%	3.6%	4.3%
Rail					
Upper bound	5.7%	6.1%	5.9%	5.9%	5.8%
Midpoint	5.1%	5.4%	5.4%	5.1%	5.5%
Lower bound	4.4%	4.7%	4.9%	4.3%	5.1%
Light rail, bus					
Upper bound	5.6%	5.9%	5.7%	5.8%	5.7%
Midpoint	5.0%	5.2%	5.2%	5.0%	5.3%
Lower bound	4.5%	4.5%	4.8%	4.1%	4.9%
Ferry					
Upper bound	6.0%	6.3%	6.1%	6.1%	6.1%
Midpoint	5.6%	5.7%	5.7%	5.5%	5.9%
Lower bound	5.2%	5.1%	5.4%	4.8%	5.6%
Gas retail					
Upper bound	7.4%	7.5%	7.5%	7.2%	8.1%
Midpoint	7.3%	7.3%	7.4%	7.1%	7.6%
Lower bound	7.2%	7.1%	7.3%	6.9%	7.2%

Source: IPART calculations.

Water

Figure 2 shows the six-monthly WACC range and midpoint estimates over the last three years for the water industry. The WACC for the water industry ranges from 4.3% to 5.4%, with a midpoint of 4.9%. Six months ago, we reported in the August 2016 market update that the midpoint WACC was 4.5% for the water industry.

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

Note: Updates in our WACC approach have been highlighted.

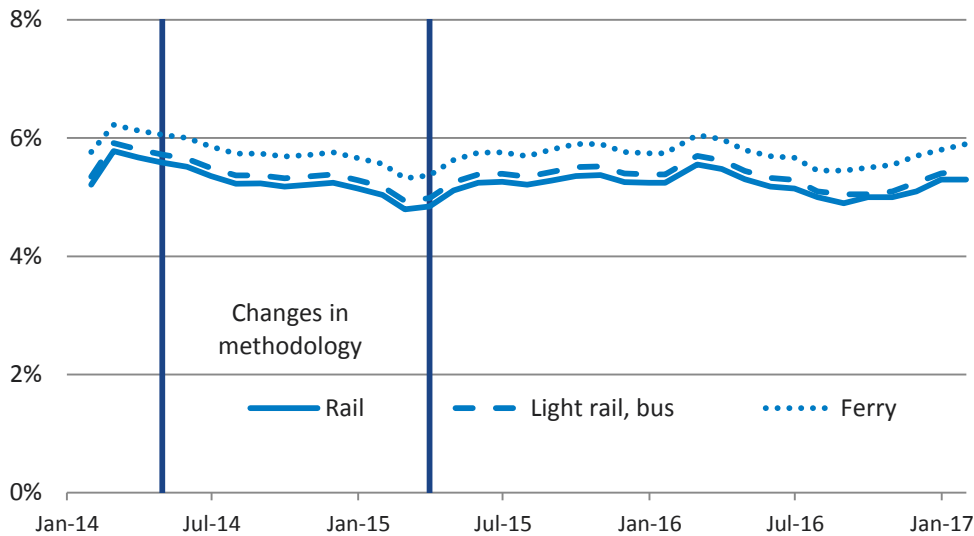
Transport

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.³

Figure 3 shows the monthly midpoint WACC estimates for the various modes of transport over the last three years, based on the industry-specific parameters we adopted in the final decision.

³ See IPART, *Information Paper No 10 – Weighted Average Cost of Capital*, May 2016, available [here](#).

Figure 3 Transport industries real post-tax WACC mid-points (industry-specific parameters in Table 3)



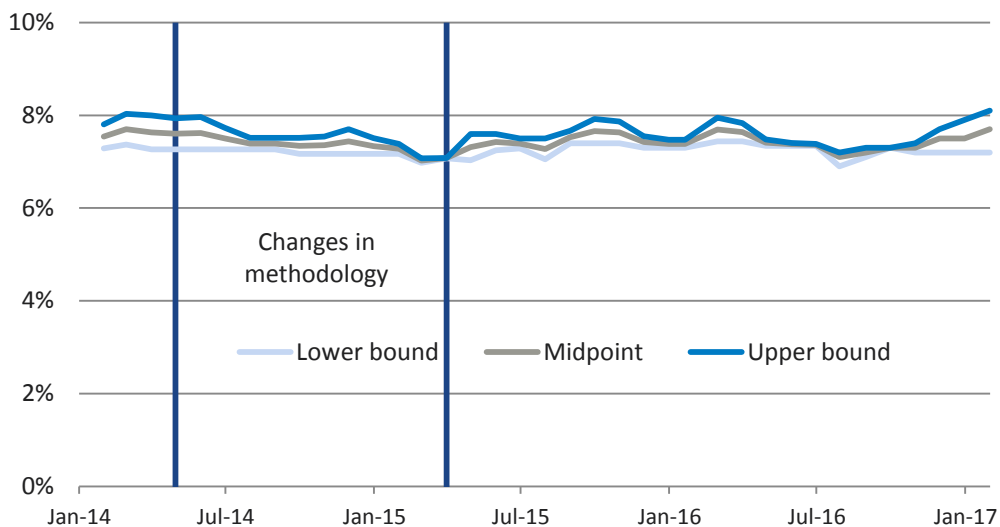
Note: Updates in our WACC approach have been highlighted.

Since the August 2016 market update, the WACC has increased by 30 to 40 bps for each of the transport modes.

Gas retail

Figure 4 shows the monthly WACC estimates for the gas retail industry over the last three years. The midpoint WACC at the end of January 2017 was 7.6%. This is 50 bps higher than that we reported in the last market update.

Figure 4 Gas retail real post-tax WACC midpoints and ranges



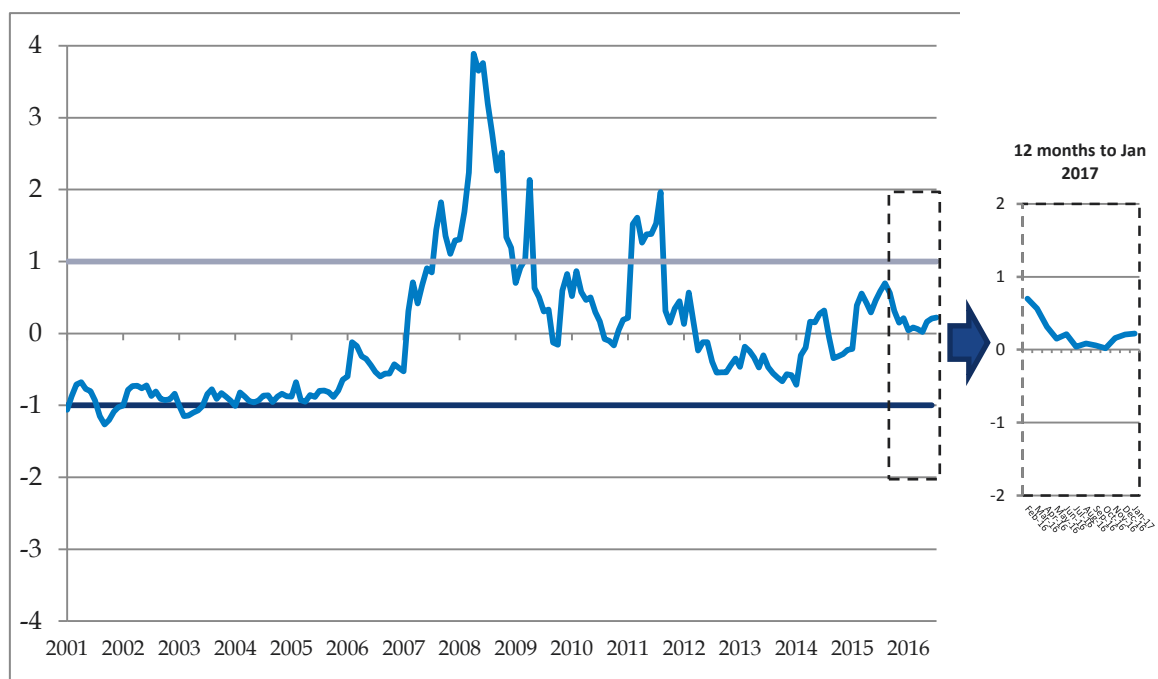
Note: Updates in our WACC approach have been highlighted.

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 January 2017. 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, we 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.