

WACC Biannual Update

22 February 2024

1 Introduction

Every 6 months, we publish a financial market update to provide transparency and enable our stakeholders to 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 January 2024.

2 Overview

This biannual update is published to inform stakeholders of current market conditions at the date of market observation, consistent with our standard WACC method. We periodically review our methodology, and we intend to review our WACC method in 2025.

Since the last update in August 2023, the WACC estimate (real post-tax WACC based on an equity beta of 1 and a gearing ratio of 60%) has remained unchanged at 3.7% (Table 1). Figure 1 presents the real post-tax WACC since January 2020.

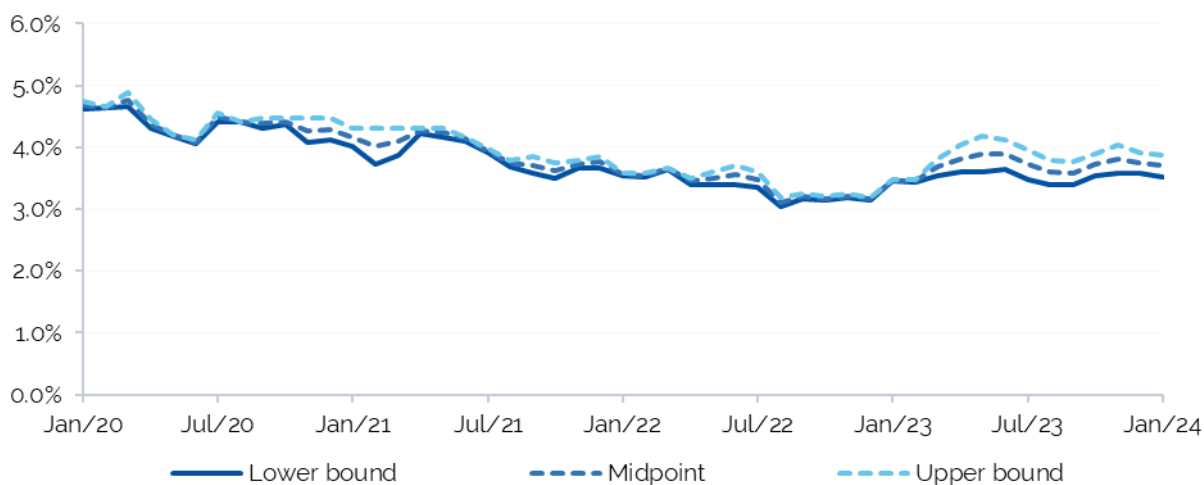
This biannual update is based on market data up to 31 January 2024. However, for price determinations we use the latest available market observations and estimate gearing and equity beta for estimating the WACC. We consult on our updated estimates in our draft reports before finalising our determinations.

The nominal post-tax WACC decreased by 10 basis points, but the inflation forecast decreased by 10 basis points, leading to the result that the real post-tax WACC remained unchanged.

The movement in the nominal WACC reflects movements in market interest rates, but the effect of recent rises is muted somewhat because we use trailing average calculations over 4 years for the current interest rates and over 10 years for the long-term average interest rates.

Our measure of inflation presented in this market update represents inflation expectations based on IPART's standard method, which may differ from instantaneous market inflation figures. Under our standard method, the inflation expectation is a geometric average of the RBA's 1-year forecast from the February 2024 Statement of Monetary Policy for the first year and the midpoint of the RBA's target range (i.e. 2.5%) thereafter.

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 Reserve Bank of Australia and Refinitiv (formerly Thompson Reuters) 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 August 2023 update (the August 2023 update contains data sampled to 31 July 2023).

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

| | Lower | Midpoint | Upper |
|------------------------|-------|----------|-------|
| 31 July 2023 | | | |
| Nominal post-tax | 6.3% | 6.5% | 6.8% |
| Real post-tax | 3.5% | 3.7% | 4.0% |
| 31 January 2024 | | | |
| Nominal post-tax | 6.2% | 6.4% | 6.6% |
| Real post-tax | 3.5% | 3.7% | 3.9% |

Note: Lower is the lower value of the current market data WACC and the long term average WACC, and Upper is the higher value of these two values. Midpoint is the average of current market data WACC and the long term average WACC.

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

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

Table 2 Market-based WACC parameters

| | Risk free rate | Cost of debt | Market risk premium | Inflation |
|------------------------|----------------|--------------|---------------------|-----------|
| 31 July 2023 | | | | |
| Current | 2.5% | 5.0% | 6.9% | 2.7% |
| 10 years | 2.5% | 4.8% | 6.0% | 2.7% |
| 31 January 2024 | | | | |
| Current | 2.6% | 4.9% | 6.5% | 2.6% |
| 10 years | 2.5% | 4.7% | 6.0% | 2.6% |

Note: The current estimates are measured either over 40 trading days or 2 months, depending on their data source.

Source: IPART analysis of Reserve Bank of Australia and Refinitiv (formerly Thomson 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 6 months:

- The current measure of the **risk-free rate** has increased by 10 basis points and the long-term (10-year) measure has remained constant.
- The current measure of the **cost of debt** has decreased by 10 basis points and the long-term measure has also decreased by 10 basis points.
- The current measure of the **Market Risk Premium (MRP)** has decreased by 40 basis points. We do not update the long-term measure with changes in the market.
- The current measure of **inflation** has decreased by 10 basis points, and the long-term measure has also decreased by 10 basis points.

2.1 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 6 measures of the MRP, reported to 2 decimal places.

Table 3 Short-run MRP

| Estimation method | Estimate at 31 January 2024 |
|-----------------------------|-----------------------------|
| Damodaran | 5.91% |
| Bank of England (2002) | 6.31% |
| Bank of England (2010) | 5.86% |
| Refinitiv | 5.57% |
| SFG Market indicator (mean) | 7.41% |
| SFG analysts implied method | 6.90% |
| Short Run MRP | 6.54% |

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

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

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

3 Industry analysis

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

Table 4 Industry-specific WACC parameters

| | Low | Equity beta Mid | High | Target term to maturity | Gearing ratio |
|------------------------------|-----|--------------------|------|----------------------------|---------------|
| Water | 0.6 | 0.7 | 0.8 | 10 Years | 60% |
| Transport | | | | | |
| 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% |

Table 5 shows the 6-monthly WACC range and midpoint estimates over the last 2 years for the industries that we regulate.

Table 5 Regulated industries half-yearly real post-tax WACC ranges and midpoints from January 2022 to January 2024

| | Jan-22 | Jul-22 | Jan-23 | Jul-23 | Jan-24 |
|------------------------|--------|--------|--------|--------|--------|
| Water | | | | | |
| Upper bound | 2.9% | 2.6% | 2.8% | 3.1% | 3.1% |
| Midpoint | 2.7% | 2.6% | 2.7% | 3.0% | 3.0% |
| Lower bound | 2.5% | 2.6% | 2.5% | 2.8% | 2.8% |
| Rail | | | | | |
| Upper bound | 3.4% | 3.3% | 3.3% | 3.7% | 3.6% |
| Midpoint | 3.3% | 3.2% | 3.2% | 3.5% | 3.5% |
| Lower bound | 3.2% | 3.1% | 3.1% | 3.3% | 3.3% |
| Rail Access | | | | | |
| Upper bound | 4.8% | 4.7% | 4.4% | 4.5% | 4.2% |
| Midpoint | 4.5% | 4.3% | 4.2% | 4.3% | 4.1% |
| Lower bound | 4.2% | 4.0% | 4.0% | 4.1% | 4.1% |
| Bus, Light Rail | | | | | |
| Upper bound | 3.2% | 3.1% | 3.1% | 3.6% | 3.5% |
| Midpoint | 3.1% | 3.0% | 3.1% | 3.3% | 3.3% |
| Lower bound | 3.0% | 3.0% | 3.0% | 3.1% | 3.2% |
| Ferries | | | | | |
| Upper bound | 3.8% | 3.8% | 3.6% | 4.0% | 4.0% |
| Midpoint | 3.7% | 3.6% | 3.6% | 3.8% | 3.8% |
| Lower bound | 3.7% | 3.4% | 3.6% | 3.6% | 3.6% |

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

Note 1: 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.

Note 2: 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 Rules 2010 until 30 June 2025 and IPART will determine a WACC for these valleys thereafter).

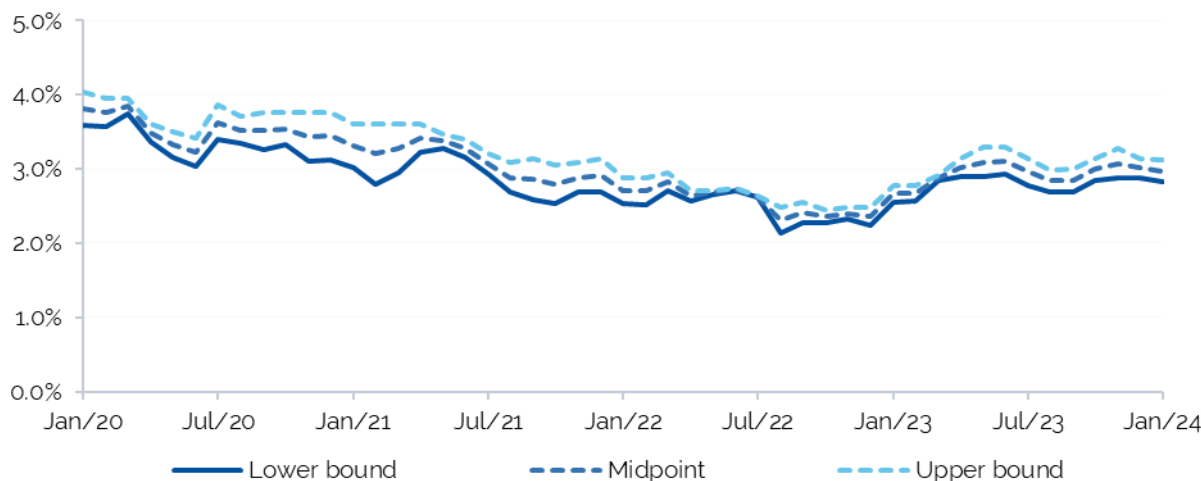
Note 3: For Opal fares refer to Maximum Opal fares 2020-2024 Final report February 2020. For rural and regional bus fares refer to Review of rural and regional bus fares from January 2021, Final report December 2020 and for rail access refer to Rate of return and remaining mine life 2019-2024 final report July 2019.

Note 4: 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.

3.1 Water

Figure 2 shows the 6-monthly WACC range and midpoint estimates since January 2020 for the water industry. The midpoint WACC for the water industry is 3%. In the August 2023 market update, we reported a midpoint WACC of 3% for the water industry.

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



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

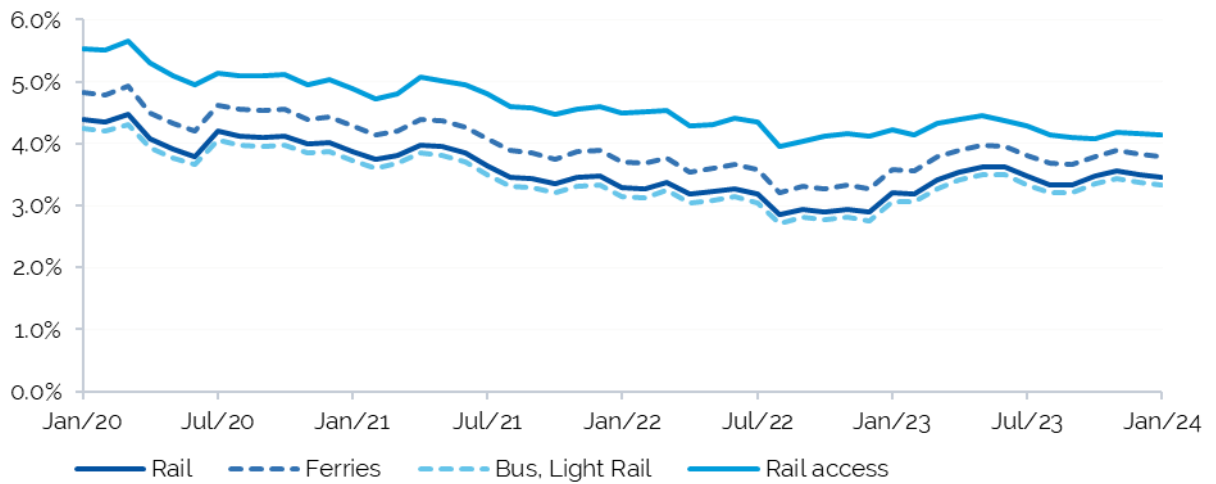
3.2 Transport

Figure 3 presents indicative WACCs for public transport and rail access based on updated market parameters and inputs. In recent reviews IPART has not used the building block method to recommend Opal prices for rail, bus, light rail and ferries and therefore does not currently have a WACC embedded in those pricing decisions. However, we continue to present the real WACC estimates for those industries here for stakeholders who remain interested. For rail access reviews, we use a WACC in pricing decisions.

The WACC estimates presented here show the indicative WACCs for these industries if we were to estimate them as at 31 January 2024. They do not imply a change to any in-place pricing determinations or undertakings.

- The rail industry has a midpoint WACC of 3.5%. In the August 2023 market update, we reported a midpoint WACC of 3.5%.
- The bus and light rail industries have a midpoint WACC of 3.3%. In the August 2023 market update, we reported a midpoint WACC of 3.3%.
- The ferry industry has a midpoint WACC of 3.8%. In the August 2023 market update, we reported a midpoint WACC of 3.8%.
- The rail access industry has a midpoint WACC of 4.1%. In the August 2023 market update, we reported a midpoint WACC of 4.3%.

Figure 3 Transport industries real post-tax WACC midpoints

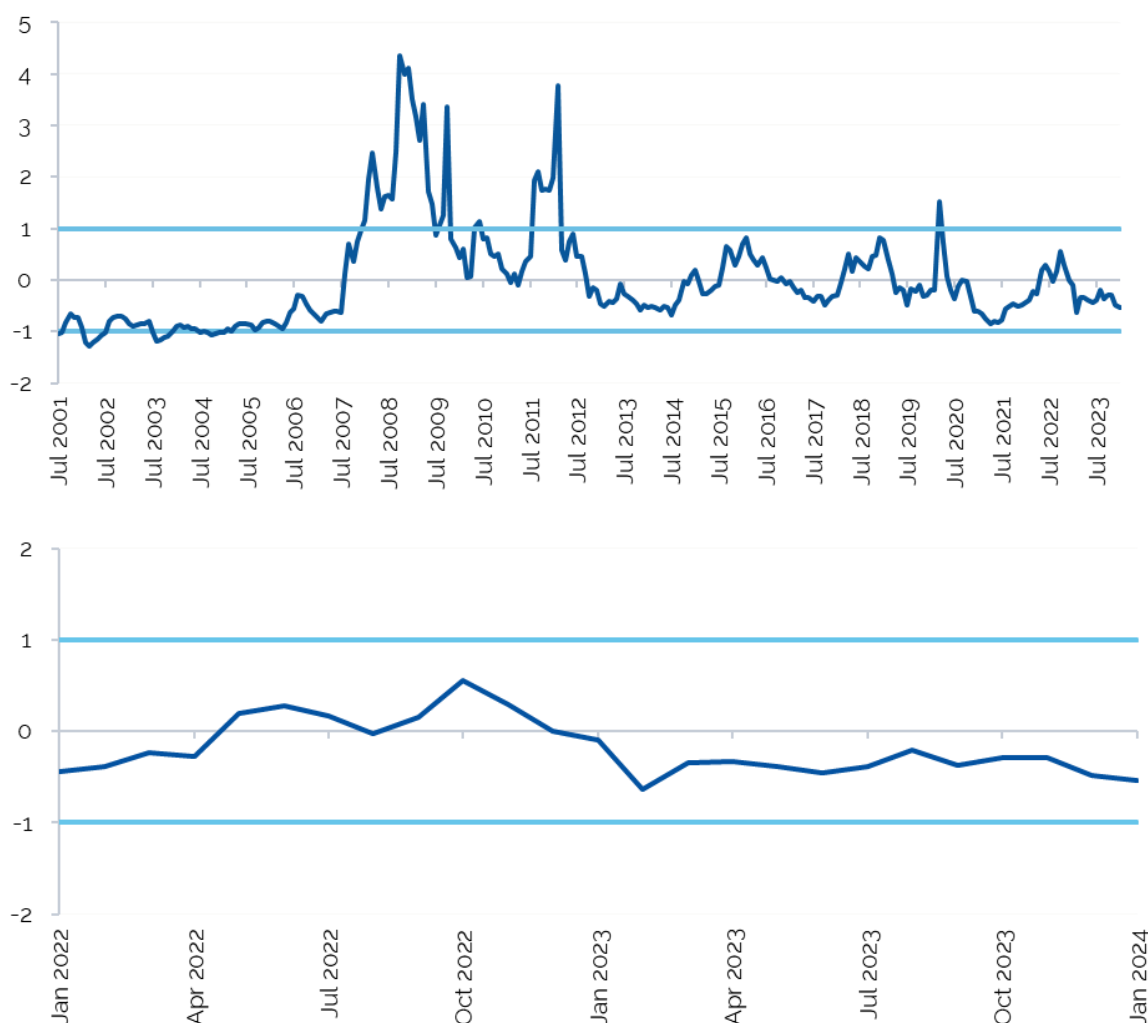


Source: IPART analysis of Reserve Bank of Australia and Refinitiv (formerly Thompson Reuters) data.

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 January 2024.^c 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,^d we would use the midpoint WACC to estimate the return on capital invested by the regulated business.

Figure 4 IPART's uncertainty index



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

^c From December 2022 the index is updated with the monthly average of daily 3-monthly Australian overnight indexed swaps data from OIAUD3M in Datastream, as AUGBILL3 (3-monthly Australian overnight indexed swaps data) was no longer available. From 4 January 2024, daily Australian Government Bond 10 year yields from ABND10Y from Datastream were no longer available – we used the RBA table F2 series FCMYGBAG10D yields from that date.

^d 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.

5 A and BBB rated corporate bond spreads

The RBA has discontinued publishing corporate bond spreads in its monthly statistical table F3. We had relied on this spread information to determine debt margins in our WACC calculations, and we require an alternative source for this data.

While the corporate bond spread information is no longer published, the RBA continues to publish other components of the F3 tables, including end of month yields on corporate bonds of various tenors and credit ratings.

We have derived an alternative measure of corporate bond spread measure by **subtracting the end of month government bond yield (Table F2) from the end of month corporate bond yield (Table F3) of 10 year tenor**. The data needed to perform that calculation continues to be published by the RBA monthly.

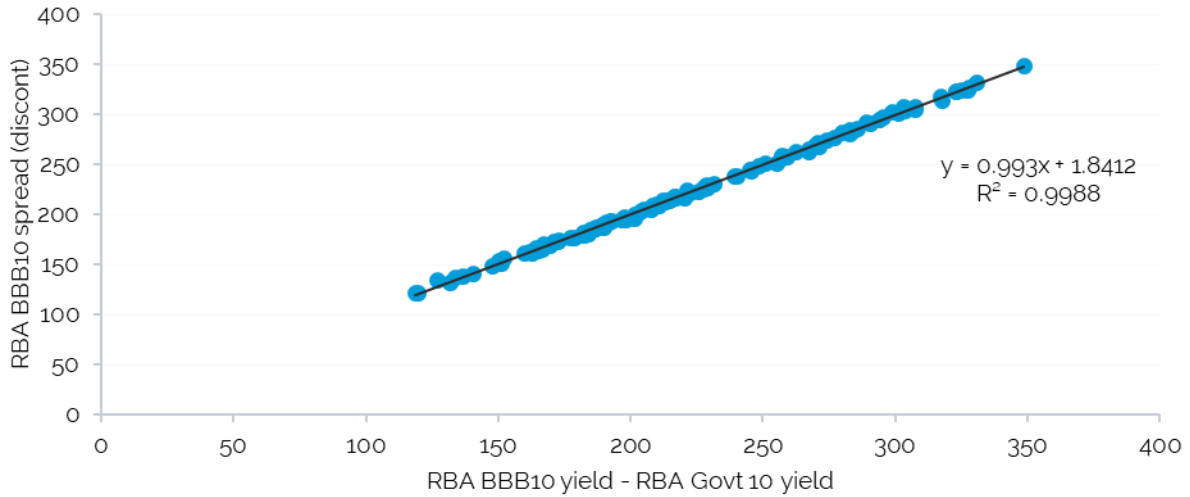
We compared the derived corporate spreads to the published corporate bond spreads for BBB rated bonds of 10 year tenor and A rated bonds of 10 year tenor from May 2013 to July 2023 and found a very close match – see Figure 5 and Figure 6.

Consequently, we added Table 2.5 and adjusted Tables 2.3 and 2.4 in the spreadsheet containing a working copy of our WACC model from August 2023 to derive A and BBB rated 10 year corporate bond spreads from government and corporate yields.

The RBA does not publish a 7 year tenor government yield in Table F2, so the calculation of BBB rated 7 year spread from tables F2 and F3 cannot be calculated using this method. But the 7 year spread is only used if the 10 year equivalent is not available. We will address this in future if the BBB rated 10 year spread cannot be calculated.

Figure 5 compares the derived debt margins (horizontal axis) to the discontinued corporate bond spread data for BBB rated 10 year bonds (vertical axis).

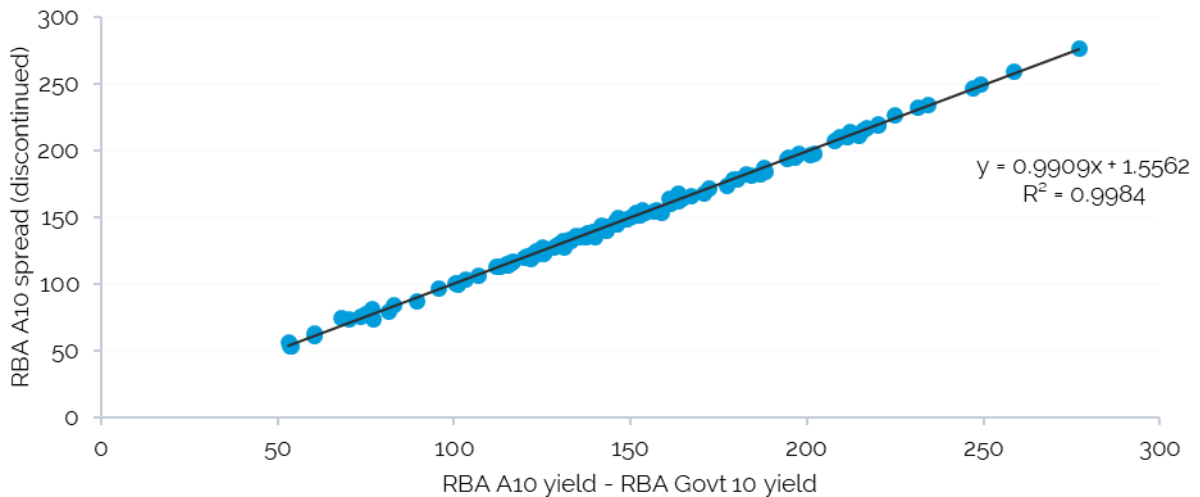
Figure 5 BBB rated 10-year corporate bond spread (bp)



Source: IPART analysis of Reserve Bank of Australia statistical table F2 and F3 data.

Figure 6 compares the derived debt margins (horizontal axis) to the discontinued corporate bond spread data for A rated 10 year bonds (vertical axis).

Figure 6 A rated 10-year corporate bond spread (bp)



Source: IPART analysis of Reserve Bank of Australia statistical table F2 and F3 data.