



Johan van Niekerk
Analyst, System Capacity
Independent Market Operator
Level 3, 197 St Georges Terrace
PERTH WA 6000

11 October 2012

Dear Johan

Debt risk premium using the ERA's debt yield methodology

The Independent Market Operator (IMO) engaged PricewaterhouseCoopers (PwC) to advise the debt risk premium that would be derived by applying the Economic Regulation Authority of Western Australia's (ERA) "bond yield" methodology. This estimate of the debt risk premium will be applied by the IMO to derive an estimate of the weighted average cost of capital (WACC) as an input in the determination of the Maximum Reserve Capacity Price (MRCP). For this purpose the IMO requested the estimate as at 30 September and 15 November 2012. This letter provides estimates of the debt risk premium as at 30 September 2012.

As instructed by you, we have applied the methodology that is set out in the ERA's final decision for WA Gas Networks Pty Ltd (ATCO) and the ERA's revised final decision for ATCO. However, we have also provided some sensitivities that reflect on how the ERA could refine the application of its method in view of the increased number of bonds now on issue. We have not commented upon the effect of other modest improvements to the ERA method (such as expanding the data source to include bonds other than those available on Bloomberg) nor more generally upon the relative merits of the ERA's method. A more detailed explanation of the ERA methodology and the results obtained by applying its methodology can be found in Appendix A.

Results

As shown in Table 1 below, we have derived a debt risk premium of 294 basis points when undertaking a strict application of the methodology the ERA applied in the final revised ATCO decision. As in the ATCO case, this estimate uses a sample of bonds with, amongst other criteria, Standard and Poor's credit ratings of BBB and BBB+.¹

In the ATCO case the ERA was targeting a BBB+ credit rating, and since there were too few observations of BBB+ debt risk premiums, it widened the sample to include BBB bonds. In contrast, the IMO is targeting a BBB credit rating, and there are now 13 BBB bonds in the sample, which is the same as the combined number of BBB and BBB+ bonds that was in the sample used by the ERA in the ATCO case. If we were to restrict the sample to only BBB bonds, we would obtain a slightly lower weighted average debt risk premium of 291 basis points.

¹ The bond sample size is 18, although the initial list of bonds was 44 bonds. The other 26 bonds could not be used because Bloomberg did not report yields for them (and consequently debt risk premium could not be estimated).



It is worth noting that the average term to maturity of both samples is approximately 4.68 years, which is materially lower than the 10 year term benchmark assumed by the IMO. Since bonds with lower terms to maturity, assuming all else equal, are expected to have lower debt risk premiums than those with higher terms to maturity, the estimate is likely to materially underestimate the debt risk premium at 10 years.

The ERA’s rationale for its methodology posited that there exists a trade-off between market relevance (i.e. estimates reflecting the market for funds) and consistency with other WACC parameters.² When it considered the ATCO case, the ERA decided that using bonds with a minimum term of 2 years was required to obtain enough observations to provide market relevance. As there are more bonds on issue than was the case at the time of the ATCO decision, applying the ERA’s logic suggests there is scope to increase the cut-off point for bond selection in order to achieve greater consistency with other WACC parameters. For example, if the cut-off point were to be increased to 3 years, the sample including both BBB and BBB+ bonds would reduce to 15 (from 18) and the debt risk premium would increase to 299 basis points. The sample size of 15 is still larger than the sample of 13 bonds used by the ERA in the final revised ATCO decision.³ However, we note that this still provides a sample with a term to maturity of only 5.09 years, which remains inconsistent with the IMO’s other WACC parameters.

Table 1 – Summary of debt risk premium estimates using the ERA’s bond yield methodology – 20 business days to 28 September 2012 (basis points)

| Sample | Average term to maturity | Average debt risk premium | Weighted average debt risk premium | Comment |
|------------------------------------------------------------------------------|--------------------------|---------------------------|------------------------------------|-------------------------------------------------------------------------------------|
| Two year cut-off: BBB – 13 bonds BBB+ – 5 bonds | 4.68 | 297 | 294 | Strict application of ERA approach in its ATCO final revised decision |
| Two year cut-off: BBB – 13 bonds | 4.67 | 292 | 291 | Constrained to include only BBB rated bonds |
| Three year cut-off: BBB – 10 bonds BBB+ – 5 bonds | 5.09 | 305 | 299 | Cut-off increased to 3 years to provide more consistency with other WACC parameters |

Source: PwC’s analysis of the ERA’s debt yield methodology, Bloomberg

² Economic Regulation Authority (1 December, 2010), *Measuring the Debt Risk Premium – A Bond Yield Approach*, p.8.

³ Economic Regulation Authority (25 June, 2012), *Revised decision pursuant to rule 6.4(4) of the National Gas Rules giving effect to the Economic Regulation Authority’s proposed access arrangement revisions for the Mid-West and South-West Gas Distribution System, Revised by reason of and pursuant to orders of the Australian Competition Tribunal made on 8 June 2012*, p.8.



If you wish to discuss further the derivation of these estimates, please do not hesitate to call me on the number provided below.

Yours sincerely

Jeff Balchin
Principal
T: +61 3 8603 4973

DRAFT



Appendix A – ERA’s debt risk premium methodology

The ERA’s debt risk premium methodology involves a two step process.

First, the ERA establishes a benchmark sample of Australian corporate bonds. Using the Bloomberg search function, it involves selecting bonds that meet the following criteria:

- The appropriate Standard and Poor’s credit rating⁴
- Term to maturity of 2 years and greater
- Bonds issued in Australia by Australian entities and denominated in Australian dollars
- Fixed and floating coupon bonds, and
- Bonds that are redeemed at maturity or have call or put options attached.

The application of this method also limits the sample to those bonds that have yields reported by Bloomberg.

The ERA’s second step involves estimating a weighted average debt risk premium for the sample of bonds described above. Two weighting variables are used and combined:

- The size of issuance, which provides greater weight to bonds that are part of a larger issue, reflecting the ERA’s expectation that larger issues will be more liquid, and therefore the ERA expects the yield estimate to be more reliable.
- The term of issuance, which provides greater weight to bonds with longer terms to maturity.

Each bond’s combined weight is then calculated as the bond’s size of issuance weight multiplied by its term of issuance weight (which is called the ‘individual contribution’), which are then divided by the sum of the individual contributions to derive weights that sum to 1.

The results from applying the ERA’s debt risk premium methodology are shown in Table 2. As discussed in the body of this letter, the ERA’s methodology that was applied in the ATCO case was targeting a notional credit rating of BBB+; however, the notional credit rating that the IMO assumes when estimating the MRCP is BBB. Therefore, in Table 3 we display the debt risk premium obtained by including only BBB bonds. Finally, in Table 4 we show the debt risk premium obtained by increasing the cut-off point from 2 years to 3 years.

⁴ The ERA’s final decision for ATCO used a sample of BBB-, BBB and BBB+ bonds, however the revised final decision restricted the sample to only BBB and BBB+ bonds pursuant to the Australian Competition Tribunal decision. Subsequently, we have only used BBB and BBB+ bonds.



Table 2 – Debt risk premium estimates applying the ERA’s debt yield methodology for 20 business days to 28 September 2012 (2 year cut-off, BBB and BBB+ bonds)

| Bond | S&P Credit rating | Issue size (\$m) | Maturity date | Term to maturity | Weighting | DRP (bps) | Contributed DRP(bps) |
|----------------------------|-------------------|------------------|---------------|------------------|-----------|------------|----------------------|
| APT Pipeline | BBB | 300 | 22/07/2020 | 7.84 | 0.14 | 310 | 44 |
| Brisbane Airport | BBB | 200 | 9/07/2019 | 6.81 | 0.08 | 275 | 23 |
| Holcim Finance | BBB | 200 | 4/04/2019 | 6.54 | 0.08 | 265 | 21 |
| Caltex Australia | BBB+ | 150 | 23/11/2018 | 6.18 | 0.06 | 266 | 15 |
| Dexus Finance | BBB+ | 120 | 10/09/2018 | 5.98 | 0.04 | 306 | 13 |
| Sydney Airport | BBB | 100 | 6/07/2018 | 5.8 | 0.04 | 330 | 12 |
| Crown Group | BBB | 300 | 18/07/2017 | 4.83 | 0.09 | 289 | 25 |
| Holcim Finance | BBB | 250 | 18/07/2017 | 4.83 | 0.07 | 240 | 18 |
| Dexus Finance | BBB+ | 210 | 21/04/2017 | 4.59 | 0.06 | 295 | 17 |
| United Energy Distribution | BBB | 265 | 11/04/2017 | 4.56 | 0.07 | 305 | 22 |
| New Terminal Financing | BBB | 100 | 20/09/2016 | 4.01 | 0.02 | 316 | 8 |
| Mirvac Group | BBB | 225 | 16/09/2016 | 4.00 | 0.05 | 336 | 18 |
| DBCT Finance | BBB+ | 150 | 9/06/2016 | 3.72 | 0.03 | 411 | 14 |
| Goodman | BBB | 175 | 19/05/2016 | 3.67 | 0.04 | 364 | 14 |
| Santos Finance | BBB+ | 100 | 23/09/2015 | 3.01 | 0.02 | 269 | 5 |
| Sydney Airport | BBB | 175 | 6/07/2015 | 2.8 | 0.03 | 268 | 8 |
| Holcim Finance | BBB | 250 | 27/03/2015 | 2.52 | 0.04 | 211 | 8 |
| Mirvac Group | BBB | 200 | 15/03/2015 | 2.49 | 0.03 | 286 | 9 |
| Simple Average | | | | 4.68 | | 297 | |
| Weighted Average | | | | | | | 294 |

Source: PwC’s analysis of the ERA’s debt yield methodology, Bloomberg



Table 3 – Debt risk premium estimates applying the ERA’s debt yield methodology for 20 business days to 28 September 2012 (2 year cut-off, BBB bonds only)

| Bond | S&P Credit rating | Issue size (\$m) | Maturity date | Term to maturity | Weighting | DRP (bps) | Contributed DRP(bps) |
|----------------------------|-------------------|------------------|---------------|------------------|-----------|------------|----------------------|
| APT Pipeline | BBB | 300 | 22/07/2020 | 7.84 | 0.18 | 310 | 56 |
| Brisbane Airport | BBB | 200 | 9/07/2019 | 6.81 | 0.1 | 275 | 29 |
| Holcim Finance | BBB | 200 | 4/04/2019 | 6.54 | 0.1 | 265 | 27 |
| Sydney Airport | BBB | 100 | 6/07/2018 | 5.8 | 0.04 | 330 | 15 |
| Crown Group | BBB | 300 | 18/07/2017 | 4.83 | 0.11 | 289 | 32 |
| Holcim Finance | BBB | 250 | 18/07/2017 | 4.83 | 0.09 | 240 | 22 |
| United Energy Distribution | BBB | 265 | 11/04/2017 | 4.56 | 0.09 | 305 | 28 |
| New Terminal Financing | BBB | 100 | 20/09/2016 | 4.01 | 0.03 | 316 | 10 |
| Mirvac Group | BBB | 225 | 16/09/2016 | 4 | 0.07 | 336 | 23 |
| Goodman | BBB | 175 | 19/05/2016 | 3.67 | 0.05 | 364 | 18 |
| Sydney Airport | BBB | 175 | 6/07/2015 | 2.8 | 0.04 | 268 | 10 |
| Holcim Finance | BBB | 250 | 27/03/2015 | 2.52 | 0.05 | 211 | 10 |
| Mirvac Group | BBB | 200 | 15/03/2015 | 2.49 | 0.04 | 286 | 11 |
| Simple Average | | | | 4.67 | | 292 | |
| Weighted Average | | | | | | | 291 |

Source: PwC’s analysis of the ERA’s debt yield methodology, Bloomberg



Table 4 – Debt risk premium estimates applying the ERA’s debt yield methodology for 20 business days to 28 September 2012 (3 year cut-off with BBB and BBB+ bonds)

| Bond | S&P Credit rating | Issue size (\$m) | Maturity date | Term to maturity | Weighting | DRP (bps) | Contributed DRP(bps) |
|----------------------------|-------------------|------------------|---------------|------------------|-----------|------------|----------------------|
| APT Pipeline | BBB | 300 | 22/07/2020 | 7.84 | 0.16 | 310 | 49 |
| Brisbane Airport | BBB | 200 | 9/07/2019 | 6.81 | 0.09 | 275 | 25 |
| Holcim Finance | BBB | 200 | 4/04/2019 | 6.54 | 0.09 | 265 | 23 |
| Caltex Australia | BBB+ | 150 | 23/11/2018 | 6.18 | 0.06 | 266 | 17 |
| Dexus Finance | BBB+ | 120 | 10/09/2018 | 5.98 | 0.05 | 306 | 15 |
| Sydney Airport | BBB | 100 | 6/07/2018 | 5.8 | 0.04 | 330 | 13 |
| Crown Group | BBB | 300 | 18/07/2017 | 4.83 | 0.1 | 289 | 28 |
| Holcim Finance | BBB | 250 | 18/07/2017 | 4.83 | 0.08 | 240 | 19 |
| Dexus Finance | BBB+ | 210 | 21/04/2017 | 4.59 | 0.06 | 295 | 19 |
| United Energy Distribution | BBB | 265 | 11/04/2017 | 4.56 | 0.08 | 305 | 25 |
| New Terminal Financing | BBB | 100 | 20/09/2016 | 4.01 | 0.03 | 316 | 9 |
| Mirvac Group | BBB | 225 | 16/09/2016 | 4 | 0.06 | 336 | 20 |
| DBCT Finance | BBB+ | 150 | 9/06/2016 | 3.72 | 0.04 | 411 | 15 |
| Goodman | BBB | 175 | 19/05/2016 | 3.67 | 0.04 | 364 | 16 |
| Santos Finance | BBB+ | 100 | 23/09/2015 | 3.01 | 0.02 | 269 | 5 |
| Simple Average | | | | 5.09 | | 305 | |
| Weighted Average | | | | | | | 299 |

Source: PwC’s analysis of the ERA’s debt yield methodology, Bloomberg