The Allen Consulting Group

MEMO

Date: **Friday, December 17, 2010**

To: **Independent Market Operator (IMO)**

From: **Dr Richard Scheelings, Principal Economist**

Re: **Update of the values of the volatile WACC parameters**

Background

The Independent Market Operator is required to determine the cost of building an open cycle gas turbine peaking plant for the purpose of setting the Maximum Reserve Capacity Price used in the Reserve Capacity Auction.

The weighted average cost of capital is needed to determine the cost of such a peaking plant. The weighted average cost of capital is a weighted average of the cost of equity and the cost of debt for such a peaking plant.

The parameters used to estimate the cost of debt component of the weighted average cost of capital are called 'minor parameters'. The minor parameters are:

- Nominal interest rate;
- Real interest rate;
- Inflation rate; and
- Debt margin.

Data from bond markets are used to estimate the values of these minor parameters. Government bonds are used to estimate the values of the first three minor parameters, and corporate bonds are used to estimate the value of the debt margin.

The impact of the global financial crisis in 2008 created a period of substantially increased volatility in bond markets, especially corporate bond markets. This increased volatility has only recently subsided. For this reason, over the last few years the minor parameters (and especially the debt margin) are also called 'volatile parameters'.

Brief

In October 2010 the Allen Consulting Group (ACG) advised the Independent Market Operator with respect to the then prevailing values of the minor parameters.[1] The Independent Market Operator has requested an update of these parameter values.

For each of the minor parameters, we use the same methodology and data that we used in our October 2010 report.

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[1] See Allen Consulting Group, *Update of WACC Minor Parameters* (October 2010), available at:

http://www.imowa.com.au/f175,780962/ACG_Report_to_IMO_291010.pdf

Nominal and real risk free rates

As there are no Commonwealth Government securities (CGS) with precisely 10 years to maturity, approximate yields had to be obtained through linear interpolation.

We obtained yield data on CGS coupon bonds closest to 10 years in maturity from the Reserve Bank of Australia (RBA).[2] These bonds are not adjusted for inflation, and so can be used to derive the nominal risk free rate. We further interpolated the data to 10-year yields for the 20 trading days up to 14 December 2010, and then calculated the average equivalent annualised yield, which gave a nominal risk free rate of 5.59 per cent.

Using the same methodology, but with CGS inflation indexed bonds, gives a real risk free rate of 2.65 per cent.[3]

From these two types of risk free rate we can derive (from the Fisher Equation) a forecast of the long-term inflation rate of 2.86 per cent.

Debt margin

In the past we have identified a number of approaches utilising a number of sources for estimating the cost of BBB+ rated corporate debt. In our October 2010 report we highlighted the fact that only one of those methods remains available due to increasingly reduced data availability.[4]

The method we use is the same as the one we used in our October 2010 Report. This method involves extrapolating from the yields of five and seven year BBB bonds (obtained from the Bloomberg database) to obtain a ten year yield.[5] An average of the 20 days up to 14 December 2010 gives the final result, shown in Table 1.

The debt risk premium is then obtain by subtracting the value of the (nominal) risk free rate (obtained above) from the value of the ten year (20-day averaged) corporate BBB+ rated bond yield. This is also shown in Table 1 as 5.25 per cent. This is slightly higher than the value (5.19 per cent) reported in our October 2010 report, reflective of the well-known fact that yields in medium- and long-term wholesale corporate debt markets continue to rise.[6]

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[2] See bonds TB126 (maturing on 15 April 2020) and TB124 (maturing on 15 May 2021), found in F16 on the RBA website: http://www.rba.gov.au/statistics/tables/index.html#interest_rates. Note that the first of these bonds is different to the one used (TB122) in our October 2010 report.

[3] See bonds TI406 (maturing on 20 August 2020) and TI407 (maturing on 20 September 2025), found in F16 on the RBA website: http://www.rba.gov.au/statistics/tables/index.html#interest_rates.

[4] Since the subsidation in volatility in corporate bond markets, the issue of the correct choice of methodology is no longer as salient as it was even until recently. Nonetheless, the IMO might wish to give consideration to a review of methodology in light of the twin facts of subsidation in volatility in corporate bond markets and the recent drastic reduction in the availability of data of corporate debt instruments.

[5] Indices C3565Y and C3567Y in the Bloomberg Database.

[6] See the speech given on 15 December 2010 by RBA Assistant Governor (Financial Markets) Guy Debelle, *Bank Funding and Capital Flows*, available at: http://www.rba.gov.au/speeches/2010/sp-ag-151210.html.

Table 1

DEBT RISK PREMIUM ESTIMATE (PER CENT)

Description	Rates
20 day average yield (%)	10.84
Risk free rate (nominal) (%)	5.59
Debt Risk Premium (%)	5.25

Source: ACG analysis