

The Allen Consulting Group

MEMORANDUM

To: Independent Market Operator

From: The Allen Consulting Group

Date: 13 October 2008

Re: WACC Input Parameters for the Independent Market Operator in WA

The Brief

The Independent Market Operator (IMO) requires two market parameters to be updated as at 30 September for its weighted average cost of capital (WACC) calculation in accordance with clauses 1.13.8(g) to 8(i) of the (proposed) *Market Procedure for Determination of the Maximum Reserve Capacity Price*:

- (g) Nominal risk free rate, R_f , which is the rate determined for that Capacity Year by the IMO from the annualised yield on Commonwealth Government bonds with a maturity of 10 years,
 - using the indicative mid rates published by the Reserve Bank of Australia;
 - and
 - averaged over a 20 trading day period.
- (h) The debt risk premium, DRP, for a Capacity Year is the premium determined for that Capacity Year by the IMO as the margin between the observed annualized Australian benchmark corporate bond rate for corporate bonds which have a BBB+ (or equivalent) credit rating from Standard and Poors and a maturity of 10 years and the nominal risk free rate:
 - using the predicted yields for corporate bonds published by Bloomberg; and the nominal risk free rate calculated as directed above; and
 - the nominal risk free rate and Bloomberg yields averaged over the same 20-trading day period.
- (i) If there are no bonds with a maturity of 10 years on any day in the period referred to in Steps 1.13.8(g) and 1.13.8(h), the IMO must determine the nominal risk free rate and the DRP by interpolating on a straight line basis from the two bonds closest to the 10 year term and which also straddle the 10 year expiry date.

Results

The calculations of our analysis are provided in an accompanying excel file. The results are as follows:

1. Nominal risk free rate – the nominal risk free rate based on the average of annualised yield over the 20 trading day period to 30 September 2008 is 5.71 per cent.
2. Debt risk premium – It has not been possible to calculate the debt risk premium in accordance with the requirements for the IMO for “interpolating on a straight line basis from the two bonds closest to the 10 year term and which also straddle the 10

year expiry date.” The definition of interpolation is the calculation of a new data point in between two existing points. In the case of Bloomberg fair value yields, it is not possible to interpolate between two bonds closest to the 10 year term to derive the DRP for 10 years because the longest dated estimate of fair value yield for BBB bonds in the Bloomberg database is currently 8 years. Hence, interpolation is not possible, and the only way to estimate the 10 year fair value yield for a BBB bond is to extrapolate.

There are several ways that such an extrapolation can be undertaken, and the result is different for each of them:

- a. Bloomberg data using only BBB bonds - extrapolation of the 7 and 8 year fair value yields for BBB bonds using Bloomberg data. Since the 7 and 8 year fair value yields are 8.33 per cent and 8.40 per cent, the extrapolated 10 year yield is 8.54 per cent. Subtracting the 5.71 per cent 10 year CGS yield gives a DRP of 283 basis points.
- b. Bloomberg data using BBB and A bonds – derivation of a fair value yield estimate from the 10 year fair value yield estimate for A rated bond assuming the same spread between fair value yields of A and BBB bonds at 8 years is maintained for 10 years. The spread at 8 years is 13.7 basis points. Adding this spread to the Bloomberg 10 year fair value yield for A-rated bonds of 8.52 per cent gives an extrapolated 10 year BBB rate 8.65 per cent, and a DRP of 294 basis points.
- c. CBA Spectrum and Bloomberg data using A and BBB+ bonds – using the CBA Spectrum spread of 10 year BBB+ rated bond fair value yield over the 10 year A rated bond fair value yield (54 basis points) and adding this to the Bloomberg 10 year A rated bond fair value yield (8.52 per cent) gives a fair value yield estimate for 10 year BBB+ rated bonds of 9.06%, and a DRP of 335 basis points.
- d. CBA Spectrum data using BBB+ bonds – simply taking the CBA Spectrum 10 year BBB+ fair value yield estimate of 9.70% and subtracting the 10 year CGS yield gives a DRP margin of 399 basis points.

The estimated DRP is substantially different depending on which approach is used. If only Bloomberg data are allowed the answer is lower. If only Bloomberg BBB bonds are allowed the answer is the lowest, but the DRP is estimated by extrapolation not interpolation. In addition, Bloomberg does not distinguish BBB from BBB+ or BBB- bonds. However, the Bloomberg BBB yield is representative of a BBB+ yield as most of the bonds used to estimate it are BBB+ rated.

A higher result is obtained by extrapolating using Bloomberg A bonds as the base and adding the same margin as is observed between A and BBB yields at 8 years.

The highest results are obtained by using a combination of Bloomberg and CBA Spectrum data or CBA Spectrum data alone.

Notwithstanding the difference in results, we suggest that the first of the methods (extrapolation of the 7 and 8 year fair value yields for BBB bonds using Bloomberg data) may be closest to the envisaged intent of clause 8(i) of the *Market Procedure for Determination of the Maximum Reserve Capacity Price*.