

MEMORANDUM

To: Australian Competition and Consumer Commission

From: The Allen Consulting Group

Date: 23 February, 2006

Re: 'A' rating Debt Margin differential between Bloomberg and CBA Spectrum

Executive summary

In May 2005, NERA in a report to the ENA concluded that CBA Spectrum is likely to underestimate the fair yield on long dated, low rated bonds by around 25 basis points due to methodological issues.¹ This finding was corroborated by research undertaken by the Allen Consulting Group (ACG)² and was accepted by the Victorian ESC, the ERA of Western Australia and the Queensland Competition Authority.

Recently, ACG provided updated fair yield estimates to the ACCC for the 20 trading days up to 30 November 2005. In this Memorandum, we examine the relative estimates of fair yields for 10 year 'A' rated corporate bonds by the Bloomberg and CBA Spectrum services. With respect to 'A' rated bonds, as at 30 November, 2005, CBA spectrum estimate was found to be 22 basis points below Bloomberg's estimate.

ACG has been requested to undertake an additional analysis of the 22 basis point differential between Bloomberg and CBA Spectrum fair yield differentials. We have done this for the period since December 2001, and our conclusions are as follows:

- We find that in terms of the accuracy of estimating individual bonds for a given ratings category in the market, the Bloomberg service tends to provide significantly closer estimates of actual bond yields, as it is based on a regression model that uses only the bonds in the 'A' rating category. On the other hand, the CBA Spectrum service uses all data for all bonds simultaneously in its regression, and includes a dummy observation from the next highest rating, which tends to depress its estimates for lower rated, long dated bonds.
- A number of factors will influence the position of the 'fair yield' curve estimate at any point in time, including:
 - The number of long-dated bonds on issue in the credit rating category;
 - The risk associated with specific long-dated bonds, and in particular, how representative the issued bonds are of the bonds that are being benchmarked;

¹ NERA (May, 2005), *Critique of available estimates of the credit spread on corporate bonds*, A report for the ENA.

² ACG (11 July, 2005), *AGN cost of debt margin*, Memorandum to Mr. Peter Rixson, Manager Projects, Economic Regulation Authority.

- The steepness of the yield curve, which at the shorter end will be affected by Reserve Bank of Australia's (RBA) policy in setting the Cash Rate for Monetary Policy purposes.
- If it is considered that the bonds included by Bloomberg to estimate the fair yield for the A rated category are representative of the bond yield being benchmarked by the ACCC (i.e. a regulated utility with a notional 'A' rating), then the Bloomberg estimates should be applied when they provide a closer estimate of actual bond yields than do the CBA Spectrum fair yields. In the A rating category we note that most of the companies in Bloomberg's data base, which are issuing bonds with terms of 5 years or more, are either regulated infrastructure companies or property trusts.
- ACG concludes that for the A credit rating category, the Bloomberg estimate of the fair yield at 30 November 2005 should be applied as the benchmark for a regulated utility rather than the CBA Spectrum estimate.

A. Background on Bloomberg and CBA Spectrum fair yield estimates

In May 2005 NERA prepared a report that critiqued the Bloomberg and CBA Spectrum services with respect to their estimated fair value premiums for various bond issues.³ It was concluded that CBA Spectrum's methodology significantly understated the actual observed yield for a 10 year bond by at least 22.2 basis points, and the best estimate for BBB+ rated bonds was likely to be a differential of 25.6 basis points. Around the same time, ACG undertook a similar analysis in the context of price reviews being undertaken by the West Australian Economic Regulation Authority (ERA) and the Victorian Essential Services Commission (ESC) and concurred with the conclusion that had been reached by NERA.

B. Current fair yield estimates vs actuals for the 'A' rating

On 24 January, 2006, ACG extracted debt margins for the ACCC as at 30 November 2005, and found a different relationship between the Bloomberg and CBA Spectrum fair yield curves, and actual bond yields. Table 1 below shows that for A-rated bonds, CBA Spectrum's differential rose monotonically from -8 basis points at a 5 year term to -22 basis points at 10 years.

Table 2 displays the differences between Bloomberg and CBA Spectrum when compared against actual observations for A and A- ratings. In Table 2 we find that at 30 November 2005 (on the basis of a 20 day average to that date) for the A rated group of bonds Bloomberg accurately estimates the yields of each actual bond, with almost all bond yields being predicted to within 1 basis point. The CBA Spectrum bias is around -8 basis points for 5 to 6.5 year bonds and rises to -12 basis points for bonds over 7 years.

³ NERA (May, 2005), *Critique of available estimates of the credit spread on corporate bonds*, A report for the ENA.

Table 1: 'A' rating - Bloomberg vs CBA Spectrum: 30 November, 2005

Years to maturity	Bloomberg	CBA Spectrum	Difference basis points
5 years	6.30%	6.23%	-8
6 years	6.36%	6.26%	-9
7 years	6.41%	6.29%	-12
8 years	6.48%	6.32%	-17
9 years	6.54%	6.33%	-21
10 years	6.56%	6.35%	-22

Source: Bloomberg and CBA Spectrum

Table 2: A and A- Rating – Bloomberg and CBA Spectrum estimation bias vs actual bond yields (20 day averages to 30 November, 2005)

Bond issuer	Term to maturity	Actual Yield	Bloomberg estimate	CBA Spectrum estimate	Bloomberg bias	CBAS bias	CBAS less Bloomberg basis points
Gandel	5	6.30%	6.30%	6.23%	0.00%	-0.08%	-8
SGP	5.5	6.38%	6.39%	6.32%	0.00%	-0.06%	-7
Singapore Power	6	6.36%	6.36%	6.26%	0.00%	-0.09%	-9
Singapore Power	6	6.35%	6.36%	6.26%	0.01%	-0.08%	-9
Gandel	7	6.41%	6.41%	6.29%	0.00%	-0.12%	-12
China Power	7	6.46%	6.46%	6.37%	0.00%	-0.09%	-9
SGP	7.5	6.49%	6.49%	6.38%	0.00%	-0.11%	-11
Gandel	9	6.55%	6.54%	6.33%	-0.01%	-0.22%	-21
PBL	9.5	6.51%	6.57%	6.42%	0.05%	-0.09%	-15
Average under 7yr						-0.08%	-8
Average All						-0.11%	-11
Average over 7yr						-0.12%	-13

Source: Bloomberg and CBA Spectrum Notes: a) Terms to maturity are approximate b) The SGP, China Power & Light and PBL bonds were rated A-, while all others were rated A flat.

C. Analysis of the current fair yield differentials

ACG has analysed the observed change in CBA Spectrum and Bloomberg fair yield estimates from a number of perspectives, including methodology, sample composition and shape of the yield curve.

Methodological differences between Bloomberg and CBA Spectrum

Bloomberg's methodology is to fit the data that is available for a particular rating category, and perform a regression in which allows changes in slope as long as it improves explanatory power. CBA Spectrum's methodology differs from Bloomberg's, as it:

- does not allow crossing of yield curve lines;
- adds a dummy observation at the 10 year mark from the estimate for the next highest rating; and
- runs the regression effectively applying data for all bonds simultaneously, rather than for a single ratings category.

For low rated long dated positions where there are few observations of actual bonds, CBA Spectrum's methodological approach is expected to result in an underestimate of the debt premium position relative to the Bloomberg methodology. This is because CBA Spectrum's dummy observation will then tend to have a strong influence in dragging down the slope of the regression line.

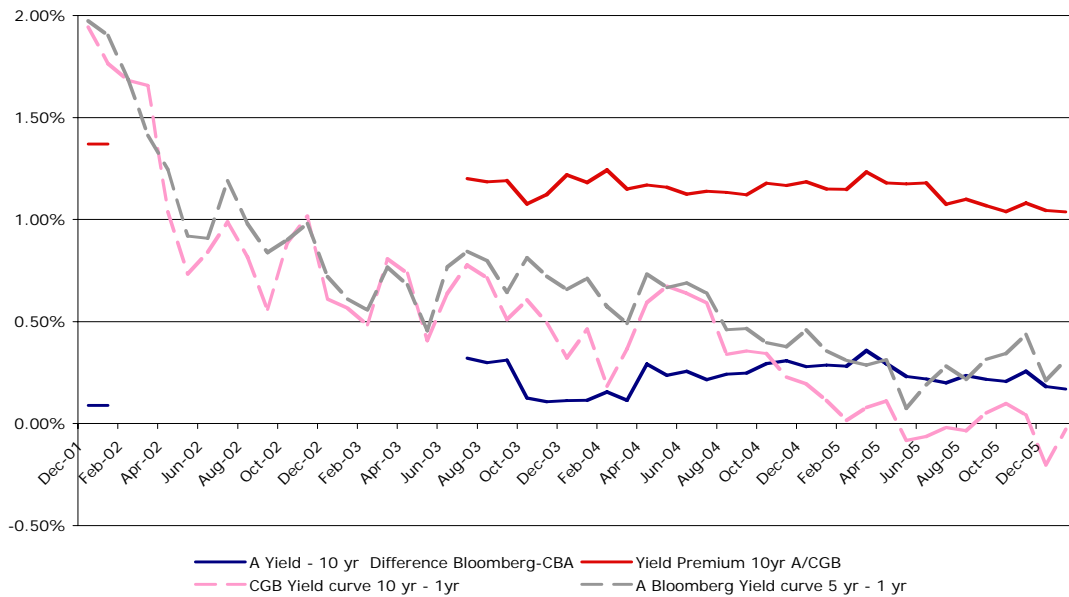
Sample composition

Bonds within a given credit-rating category are not homogenous with respect to risk characteristics and investor demand. This means that there will sometimes be significant differences in the yields for specific bonds within the same ratings category. Thus, a regression line approach can produce significant residuals (vertical differences of actual observations from the regression line estimate) for bonds in the same credit rating category. In the regression analysis undertaken by Bloomberg, the regression line (or line of best fit) is defined as the one that minimises the sum of the squared residuals. In the CBA Spectrum methodology, the set of regression lines for all ratings categories minimise the sum of squared residuals for all the bond observations subject to the constraint that the regression lines must not cross.

The following chart shows the Bloomberg yield premium (over the CGB yield) for 10 year 'A' rated bonds has tended to fall as the CGB yield curve has flattened. While the Bloomberg curve has flattened, in recent months the CGB yield curve has

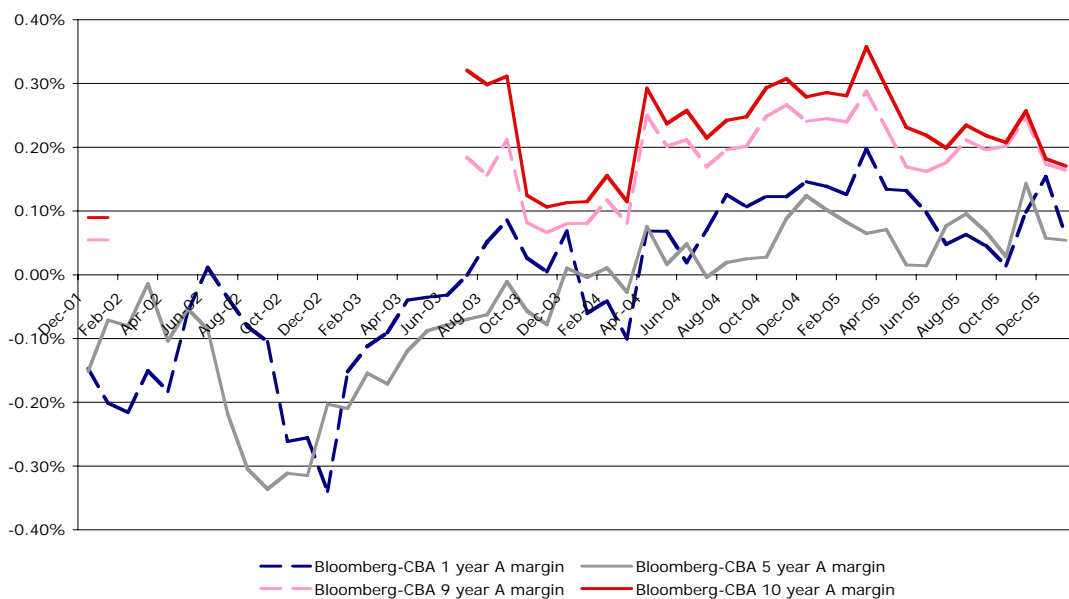
inverted.

A rating: Yield premia vs shape of CGB/Bloomberg yield curves



The flattening of the yield curve has been associated with a reduction in the Bloomberg-estimated debt margin over the 10 year CGB. The 10 year ‘A’ rating yield estimate differential between Bloomberg and CBA Spectrum has since August 2003 generally remained in the range of 15 to 30 basis points. For the brief period around December 2001, when the yield curve was steeply sloped, the Bloomberg-CBA Spectrum difference was relatively small at around 10 basis points. This earlier result is counter-intuitive, but it would be very difficult to reconstruct the bonds actually used in the Bloomberg sample at that time in order to investigate this anomaly further. Our examination of current A rated bonds confirms that the Bloomberg-CBA Spectrum differential is justified.

Bloomberg vs CBA Spectrum: A-rated bond yield differentials



Slope of the yield curve

The slope of the yield curve can also be expected to influence the differential between Bloomberg and CBA Spectrum.⁴

In Table 3 (and in the charts in Appendix A) we examine the shape of the fair yield curves generated by Bloomberg and CBA Spectrum at three points in time. Between 30 September, 2003, and 30 November, 2005 the A yield curve flattened, but the Bloomberg curve remained almost consistently above the CBA Spectrum curve, with the difference generally increasing with time to maturity. At 10 years to maturity the Bloomberg estimate remained consistently above the CBA Spectrum estimate by 31 to 22 basis points. The differential between Bloomberg and CBA Spectrum has reduced from 32 basis points to between 22 and 26 basis points as the curves flattened.

Table 3:A rated bonds – Bloomberg vs CBA Spectrum yield differential

Years to maturity	Bloomberg fair yield curve	CBA Spectrum fair yield curve	Bloomberg less CBA Spectrum (basis points)
30 September, 2003:			
1	5.42%	5.34%	8
5	6.07%	6.08%	-1
9	6.51%	6.30%	21
10	6.64%	6.33%	31
30 September, 2005:			
1	5.93%	5.89%	4
5	6.25%	6.18%	7
9	6.47%	6.27%	20
10	6.50%	6.28%	22
30 November, 2005:			
1	5.88%	5.79%	9
5	6.32%	6.18%	14
9	6.51%	6.26%	25
10	6.53%	6.27%	26

Note: Yields and differentials calculated on the actual days

⁴ In Appendix A to NERA (May, 2005), pp.22-28, Professor Bruce Grundy shows with a simulation that as the yield curve flattens the degree of under-estimation by the CBA Spectrum methodology reduces, but is not eliminated, even for a downward sloping yield curve.

Appendix A:

