AER draft determination on 2009-2011 AMI budget and charges applications

Joint submission by the Victorian DNSPs on the debt risk premium

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Contents

1. Executive summary

On 31 July 2009, the AER released its draft determination on the Victorian DNSPs' initial AMI budget and charges applications (**draft determination**).

This submission is a joint submission by the Victorian DNSPs (CitiPower, Powercor, UED, Jemena and SPI Electricity) in relation to the calculation of the debt risk premium by the AER in the draft determination.

Attached as Appendix 1 to this submission and referred to throughout this submission is an independent expert report that has been provided by Tom Hird of CEG entitled *Estimating the cost of 10 year BBB+ debt during the period 17 November to 5 December 2008* (**the CEG report**).

In the draft determination, the AER determined that the debt risk premium should be 3.09%. The AER based its debt risk premium on the BBB 8 year fair yield curve published by Bloomberg plus the spread between the 8 and 10 year A rated Bloomberg fair yields.

The DNSPs consider that the AER's debt risk premium cannot be supported after giving proper consideration to all of the relevant considerations.

The DNSPs propose a debt risk premium of 4.84%. This debt risk premium is calculated based on the corporate bond issued by Tabcorp in April 2009, and is supported by a wide range of other indicators of the debt risk premium that are set out in this submission.

The DNSPs consider that their proposed debt risk premium is a conservative estimate, and is supported by various other sources of evidence regarding 10 year BBB+ corporate bond rates.

The AMI OIC sets out four requirements for the calculation of the debt risk premium:

- it must be determined using the 'observed annualised Australian benchmark corporate bond rate for corporate bonds';
- the bonds must have a BBB+ credit rating;
- the bonds must have a maturity period of 10 years; and
- measurement must occur between 17 November and 5 December 2008.

However, due in large part to the effects of the global financial crisis, there is no measure of the debt risk premium that meets all four of these requirements.

In these circumstances, the AER is required to have regard to all relevant evidence and to determine the best approximation of a debt risk premium that meets the AMI OIC requirements. That exercise requires the AER to consider all applicable measures of the debt risk premium, have regard to the reliability of each measure, and consider the overall picture that emerges from those measures regarding the most likely value of the debt risk premium.

In this submission, the DNSPs analyse the Bloomberg fair yield curves that the AER relies on in the draft determination. That analysis demonstrates that the AER's approach fails to meet three of the four AMI OIC requirements.

This submission also analyses the reliability of the Bloomberg fair yield curves that the AER relies on and shows that those curves are not reliable for a number of reasons, including:

- the fair yield curves are not based on actual trades, and during the AMI measurement period there was insufficient data for them to be a reliable measure, particularly in relation to 10 year bonds. This fact is supported by Bloomberg's recent decision to cease publishing its long maturity curves, including the 8 year BBB curve that the AER relied on;
- the manner in which the curves are calculated is not transparent and involves considerable discretion;
- the approach by Bloomberg and the AER to the removal of outliers cannot be justified; and
- the movement of the Bloomberg curves is inconsistent with consensus opinion on the effects of the global financial crisis.

Bloomberg's fair yield curves are an analytical tool that is intended by Bloomberg to be used to show if a bond is trading expensive or cheap when compared to similar bonds. The Bloomberg fair yield curves were never designed or intended by Bloomberg to operate as a regulatory measure of the cost of debt. Due in large part to the effects of the global financial crisis, the Bloomberg fair yield curves are simply unsuited as a measure of the debt risk premium during the AMI measurement period.

The DNSPs' proposed debt risk premium is then explained and it is demonstrated that the Tabcorp bond issue is a reliable measure of the debt risk premium during the AMI measurement period.

This submission also examines a wide variety of other relevant methods of determining the debt risk premium that are at least as reliable as Bloomberg as an indicator of a debt risk premium that meets the AMI OIC requirements. The results of those alternative methods of determining the debt risk premium are contrasted with the AER's approach and show that the AER's approach results in a debt risk premium that is markedly lower than all other measures of the debt risk premium.

That analysis includes CEG's analysis of the yields of over 600 corporate bonds during the AMI measurement period. CEG's analysis produced several measures of the debt risk premium, all of which are significantly higher than the AER's position in the draft determination.

Based on this analysis, the CEG report concluded that:[1]

> 238. Based on the facts and analysis reported earlier in this report I consider that all of the available evidence suggests that the AER/Bloomberg BBB+ fair value curve is unreliable and downward biased as a proxy for determining a benchmark rate. On this basis I do not consider that sole reliance on this method can comply with the legislative requirements.
>
> 239. I conclude that the there are more reliable alternative proxies as set out in section 6. Adopting one, or a combination of these proxies, will result in a benchmark rate at least 1.5% higher than derived using the AER/Bloomberg BBB+ fair value curve.

[1] CEG report, page 77.

The following table summarises all of the relevant measures of the debt risk premium that are discussed in this submission. The results are ordered from the lowest to the highest debt risk premium.

DRP measure	Yield	Debt risk premium
Draft determination, based on Bloomberg fair yield curves	**7.72%**	**3.09%**
RBA (average of November and December 2008 BBB spreads for 1-5 year maturity)	9.11%	4.48%
AMP March 2009 A- bond issue	9.12%	4.49%
Secondary trades during the AMI measurement period of bonds issued by Australian corporates in the US market	9.24%	4.61%
CEG report: BBB+ mean (4 to 16 year fixed and floating rate observations)	9.43%	4.80%
Tabcorp April 2009 BBB+ bond issue	**9.48%**	**4.84%**
CEG report: BBB+ mean (4 to 16 year fixed rate observations)	9.55%	4.92%
CBASpectrum BBB+ 10 year fair yield curve	9.55%	4.92%
CEG report: BBB+ mean (all fixed rate observations)	9.71%	5.08%
CEG report: BBB+ to A- mean (4 to 16 year fixed and floating rate observations)	9.80%	5.17%
Overseas issues during the AMI measurement period: mean of A rated 10 year bonds	9.90%	5.27%
CEG report: BBB+ mean (all fixed and floating rate observations)	10.05%	5.42%
CEG report: BBB+ to A- mean (all fixed rate observations)	10.09%	5.46%
CEG report: BBB+ to A- mean (4 to 16 year fixed rate observations)	10.28%	5.65%
DNSPs' bond pricing envelope: raw average (8 to 11 years)	10.65%	6.02%
Bonds issued by Australian corporates in the US market (mean of all bonds)	10.98%	6.35%
Bonds issued by Australian corporates in the US market (mean of 10 year bonds)	11.18%	6.55%
Overseas issues during the AMI measurement period: mean of BBB rated 10 year bonds	11.26%	6.63%

DRP measure	Yield	Debt risk premium
DNSPs' bond pricing envelope: adjusted average (8 to 11 years)	11.32%	6.69%
CEG report: BBB+ to A- mean (all fixed and floating rate observations)	11.34%	6.71%

This table shows that the approach taken in the draft determination produces the lowest possible debt risk premium. That debt risk premium is clearly out of line with all other estimates of the debt risk premium.

The debt risk premium calculated based on the Tabcorp issue also results in a debt risk premium that is lower than almost three-quarters of the other estimates of the debt risk premium. However, the Tabcorp result is much closer to the majority of the other results. It is within 0.5% of nine other results, including CBASpectrum, the RBA average, AMP's March 2009 A- bond issue, the CEG report's calculation of the mean spread to CGS on BBB+ bonds and the mean yields on longer maturity BBB+ and BBB+ to A- bonds, and two measures of overseas bond rates.

The AER's approach is accordingly unsupportable when proper consideration is given to all relevant considerations.

The DNSPs' proposed debt risk premium, which is based on the Tabcorp bond issue, is significantly more consistent with the weight of the supporting evidence.

Proper consideration of all relevant matters shows that the Tabcorp yield is a conservative estimate of the debt risk premium, and that there would be strong grounds for arguing that the debt risk premium should be higher than indicated by the Tabcorp issue. However, for the purposes of the AMI determination, the DNSPs propose that the debt risk premium should be 4.84% based on the conservative indicator of the Tabcorp bond issue and all of the other supporting evidence contained in this submission.

2 The AMI OIC requirements for the debt risk premium

2.1 The regulatory framework for determining the debt risk premium

The requirements for determining the debt risk premium and the other aspects of the WACC are governed by the Advanced Metering Infrastructure Order in Council of 25 November 2008 (**AMI OIC**).

The AMI OIC provides that the AER will apply a building block approach to determine the costs that can be passed through by the businesses as part of the AER's charges determination. Those building blocks include a return on capital, which is to be calculated using the WACC.

'WACC' is defined in the AMI OIC as:

> benchmark weighted average cost of capital calculated in accordance with the formula set out in clause 6.5.2(b) of the National Electricity Rules.

Clause 6.5.2(b) of the NER includes the debt risk premium as one of the parameters in the WACC formula. Clause 6.5.2(e) of the NER defines the debt risk premium for the purposes of that formula as follows:

> The debt risk premium for a regulatory control period is the premium determined for that regulatory control period by the AER as the margin between the annualised nominal risk free rate and the observed annualised Australian benchmark corporate bond rate for corporate bonds which have a maturity equal to that used to derive the nominal risk free rate and a credit rating from a recognised credit rating agency.

Clause 4.1(i)(i) of the AMI OIC provides that the input parameters used to calculate the WACC for the initial AMI WACC period must be calculated:

> with measurement of the market observables to occur on:
>
> (A) the last 10 business days of November 2008; and
>
> (B) the first 5 business days of December 2008,
>
> with the market observables to be determined on the basis of that measurement and otherwise in accordance with the Statement of Regulatory Intent issued by the AER pursuant to clause 6.5.4 of the National Electricity Rules.

The AMI OIC defines the debt risk premium as one of the 'market observables' to be used in determining the WACC.

The debt risk premium itself was not subject to review in the AER's WACC Statement of Regulatory intent (**SORI**). However, the SORI did address:

- the appropriate credit rating for the debt risk premium, which the SORI stated to be BBB+; and
- the maturity period for the nominal risk free rate (which under clause 6.5.2(e) of the NER is also the maturity period that applies to the debt risk premium), which the SORI stated to be 10 years.

2.2 The AMI OIC requirements

It follows from the above regulatory framework that there are four requirements for the calculation of the debt risk premium:

- it must be determined using the 'observed annualised Australian benchmark corporate bond rate for corporate bonds' (see clause 6.5.2(e) of the NER and the definition of 'WACC' in the AMI OIC);
- the bonds must have a BBB+ credit rating (see the SORI, clause 6.5.2(e) of the NER, the definition of 'WACC' in the AMI OIC and clause 4.1(i)(i) of the AMI OIC);
- the bonds must have a maturity period of 10 years (see the SORI, clause 6.5.2(e) of the NER, the definition of 'WACC' in the AMI OIC and clause 4.1(i)(i) of the AMI OIC); and
- measurement must occur between 17 November and 5 December 2008 (the **AMI measurement period**) (see clause 4.1(i)(i) of the AMI OIC).

In this submission, we refer to these four requirements as the **AMI OIC requirements**.

2.2.1 The meaning of 'observed'

The AMI OIC requires the debt risk premium to be determined using the 'observed annualised Australian benchmark corporate bond rate for corporate bonds'.

There is no definition of 'observed' in the AMI OIC, the NER or any other relevant legislative material.

The meaning of 'observed' therefore must be based on its ordinary meaning, although given that it is used in a highly technical area (WACC and the calculation of corporate bond rates) that meaning would be influenced by the context in which it is used and any specialist meaning the term has in the finance industry.

The most relevant dictionary definition of ‘observed’ is the first definition given in the Macquarie Dictionary (3rd edition), which is ‘to see, perceive or notice’.

The DNSPs consider that the common understanding of the term 'observed' in the finance industry is that it refers to a number that can be produced from data that can be pointed to as being 'real' in the market. It is most likely to be used to refer to a traded price, and would not generally be understood as including an 'estimate'.

This interpretation is supported by the AMI OIC's reference to the debt risk premium as a 'market observable'. The use of that term clearly indicates that the drafters of the AMI OIC intended the debt risk premium to be determined based on market data. The specification of a three-week window for measuring the debt risk premium also suggests that the drafters intended it to be based on actual market activity during that period.

The DNSPs consider that 'observed' means based on actual market data. Using market data implies that the bond rates that are used are based on two-way price activity between a willing buyer and a willing seller to arrive at a market price. A bid or offer by one party that is not accepted by any other party, and is therefore not traded, cannot be a market price

In the case of corporate bond rates, the 'observed' data should therefore consist of actual trades, whether new issues or secondary market trades. Estimates or indicative prices that are prepared by banks or other people and that are not based on actual trades cannot be classed as 'observed'.

2.2.2 The meaning of 'benchmark'

There is also no applicable definition of 'benchmark' in any of the relevant legislative materials.

The DNSPs consider that 'benchmark' in this context refers to a typical corporate bond rate. That interpretation is consistent with the ordinary meaning of the term 'benchmark'.

The DNSPs also consider that the meaning of benchmark is coloured by the preceding use of 'observed'. The use of these terms together show that the debt risk premium is to be based on the usual rates seen in the market.

As with the meaning of 'observed', this interpretation of 'benchmark' is also consistent with the AMI OIC referring to the debt risk premium as a 'market observable'. If the drafters of the AMI OIC had intended the debt risk premium to be based on something other than the typical corporate bond rate in the market, such as an 'efficient' rate (whatever that might mean), then they would not have referred to the debt risk premium as a 'market observable'. It is not possible to observe an 'efficient' rate by reference to the market.

The AER makes the following statement in the draft determination (in the context of excluding alleged 'outliers'):

> The AER considers that these bonds should not be included in any sample of bonds used to estimate an efficient benchmark corporate bond rate.[2]

This reference to estimating an 'efficient' benchmark bond rate shows that the AER has misdirected itself as to the requirements of the AMI OIC. There is nothing in the AMI OIC to support an interpretation that the debt risk premium is to be based on an 'efficient' corporate bond rate. The NER imposes requirements of efficiency in several other contexts, but it always does so explicitly, and in any event those other provisions of the NER are not relevant to the AMI OIC.

Instead, the AMI OIC expressly requires the debt risk premium to be based on the 'observed' benchmark corporate bond rate.

It is also extremely unclear what efficiency means in the context of a corporate bond rate, and how that concept could be relevant to determining a corporate bond rate.

2.2.3 The meaning of 'BBB+'

The credit rating for the debt risk premium is the credit rating determined by the AER in the SORI.

In the SORI, the AER determined that '[t]he credit rating level is BBB+'. The SORI does not explain what ratings agency this rating is based on. However, the final decision that

[2] Draft determination, page 121.

accompanies the SORI makes it reasonably clear that the AER intended this rating to refer to a rating from Standard and Poor's.

The DNSPs have therefore taken the approach that the credit rating for the debt risk premium in the AMI determination must also be BBB+ from Standard and Poor's.

2.3 There is no measure of the debt risk premium that meets all four of the AMI OIC requirements

The AMI OIC requires that all four of the AMI OIC requirements be satisfied. However, due in large part to the effects of the global financial crisis, there is no measure of the debt risk premium that meets all of the AMI OIC requirements.

The global financial crisis significantly affected the market for corporate bonds, especially corporate bonds with long terms to maturity and BBB+ (or lower) credit ratings. The loss of confidence in the markets and the flight to Government guaranteed debt made it almost impossible for a BBB+ corporate to issue new debt during the AMI measurement period. The level of trading in the secondary market for corporate bonds also declined to unprecedented levels.

These changes had a dramatic effect on the ability to measure a debt risk premium that complies with all of the AMI OIC requirements, as is shown from the following quotes that are referred to in the CEG report:

> "The market for non-financial institutions corporate bonds, similar to the assumed BBB+ grade used in the WACC model, effectively vanished from capital markets in the first half of 2008 against a total for $6.5 billion for the whole of 2007".[3]
>
> ...
>
> "Funding markets shut completely following the collapse of Lehman Brothers [in September 2008]. All global financial markets were dislocated by this event, but not surprisingly term debt markets were about the most affected."[4]

CEG summarises the effects of the global financial crisis on the market for BBB+ 10 year corporate bonds as follows:[5]

> In summary, during the AMI period the conditions in the secondary market for corporate bonds, which is the market covered by Bloomberg and CBASpectrum (being the other publisher of BBB+ fair value estimates), were such that:
>
> - there were few, if any, actual transactions in the secondary bond market;
> - there were no long dated BBB+ fixed coupon bonds and there have been very limited issue of new bonds (especially at the BBB+ credit rating); and
> - there was very low liquidity (in the sense that it is difficult to buy and sell without affecting prices) and there is a high premium associated with liquidity.

[3] Quote from Deloitte in a November 2008 report for the AER, see page 8 of the CEG report.

[4] Quote from a speech by the RBA Assistant Governor (Financial Markets) on 31 March 2009, see page 12 of the CEG report.

[5] CEG report, page 12.

2.4 The AER must therefore have regard to all relevant indicators of the DRP and adopt a measure that is consistent with all of the evidence

The result is a situation that the drafters of the AMI OIC did not foresee, where there is no available measure of the debt risk premium that meets all of the AMI OIC requirements.

In these circumstances, the AER is required to have regard to all relevant evidence and to determine the best approximation of a debt risk premium that meets all of the AMI OIC requirements.

That exercise necessarily involves the exercise of some discretion by the AER. However, the AER must exercise its discretion in a reasonable manner after having regard to all relevant considerations. The AER cannot ignore or give no weight to relevant considerations, such as the various measures of the corporate bond rate that have previously been provided by the DNSPs and the additional measures that are provided in this submission. The AER also cannot exercise its discretion in an unreasonable way by basing its decision on a measure of the corporate bond rate that is unreliable and inconsistent with the overwhelming majority of the evidence that is before the AER.

The DNSPs consider that the AER's approach to calculating the debt risk premium in the draft determination fails to meet these requirements.

3 The AER's use of the Bloomberg fair yield curves

3.1 Overview of the approach taken in the draft determination

In the draft determination, the AER determined that the debt risk premium should be 3.09%. The AER based its debt risk premium on the BBB 8 year fair yield curve published by Bloomberg plus the spread between the 8 and 10 year A rated Bloomberg fair yield.

The AER rejected the debt risk premium that was proposed by the DNSPs of 4.84%. The basis for the DNSPs' proposed debt risk premium was set out in the DNSPs' joint paper on the debt risk premium of 1 June 2009.[6] The DNSPs' proposed debt risk premium was calculated based on the 5 year BBB+ corporate bond issued by Tabcorp in April 2009, and was supported by various other sources of evidence regarding 10 year BBB+ corporate bond rates.

In the draft determination, the AER agreed that the DNSPs' analysis shows that the BBB Bloomberg fair yield curve is below all of:

- the CBASpectrum BBB+ fair yield curve;
- the yield on BBB corporate bonds as published by the RBA;
- yields for United States BBB/BBB+ bonds, including bonds issued by Australian corporates in the United States; and
- the Tabcorp bond.[7]

However, the AER did not accept that this information indicates that the Bloomberg fair yield curves are not a reliable measure of the debt risk premium.

Instead, the AER supported its use of Bloomberg by comparing it to:

- Bloomberg's data for the Snowy Hydro bond on two days during the AMI measurement period; and
- UBS and CBASpectrum data for the Snowy Hydro, GPT and Santos bonds (although the AER excluded GPT, which had a significantly higher yield, on the basis that it was an 'outlier').[8]

Based on the supporting evidence of these two individual bonds, and dismissing the contrary evidence of all of the bonds that the DNSPs analysed in the DNSPs' June 2009 paper, the AER determined that:

> Consequently, having considered the observed yields over the entire averaging period, and the yields published by other data sources, the AER found no evidence that the

[6] *Debt risk premium for use in the initial AMI WACC period, paper produced jointly by the Victorian Electricity Distribution Businesses, 1 June 2009* (the **DNSPs' June 2009 paper**).

[7] Draft determination, page 121.

[8] Draft determination, pages 121-122.

> Bloomberg fair yield curve underpriced yields observable in the Australian corporate bond market.[9]

This claim that there is 'no evidence' that Bloomberg underpriced the observed corporate bond rate is extremely surprising and is not supportable on the evidence that was before the AER. All of the information that the DNSPs provided to the AER is relevant evidence that Bloomberg underpriced the observed bond rate. The AER appears to have decided to not have regard to that evidence, or to give it zero weight.

In any event, this submission (and the attached CEG report) contains considerable new information that further supports the DNSPs' proposed debt risk premium and the fact that the Bloomberg fair yield curves produce a result that is significantly lower than the observed benchmark 10 year BBB+ corporate bond rate.

3.2 How the Bloomberg fair yield curves are calculated

Bloomberg's process for calculating fair yield curves

The exact process that Bloomberg uses to calculate its fair value curves is very unclear and non-transparent.

The DNSPs have asked Bloomberg a number of questions regarding the process. However, Bloomberg has been unwilling to provide the DNSPs with details as to how the curves are generated saying that this information is proprietary. The DNSPs have also been provided by Bloomberg with the response that Bloomberg sent to the ACCC/AER in response to a letter by the ACCC/AER dated 29 July 2009 asking Bloomberg a number of questions (**Bloomberg's letter to the AER**). [10]

Based on the information that is available to the DNSPs, Bloomberg's system of deriving the fair curves appears to be based on five steps:

1. Banks contribute prices for the bonds. There is no way of knowing whether these quotes were traded prices. Indeed, the DNSPs' analysis and research strongly suggests that there were few, if any, trades among the bonds in the Bloomberg BBB fair yield curve during the AMI measurement period and that the quotes given to Bloomberg were only estimates.

2. An input into the generation of the Bloomberg curve is the Bloomberg Generic Price ('BGN'). This BGN is based on the quotes of five dealers. The prices do not have to be traded or even 'executable' to be used. Bloomberg uses an undisclosed algorithm to convert the dealer quotes used to the BGNs. The BGNs are often different to the data that was input in step 1. The DNSPs do not know what Bloomberg does to the dealer quotes in converting them to the BGNs, as Bloomberg is unwilling to disclose any details regarding this process.

[9] Draft determination, page 122.

[10] Letter (undated) from Robin Pickover of Bloomberg to Anne Plympton, General Manager, Regulatory Development Branch, ACCC entitled *Re: Criticisms of Bloomberg FMC methodology and results*.

3. Bloomberg then inputs the BGN prices into an undisclosed algorithm to generate the fair curve, which includes the exclusion of 'outliers' on an undisclosed basis. The proprietary algorithms that Bloomberg uses are not disclosed, although the DNSPs understand this process is based on some kind of 'least squares' model together with an 'options adjusted spread' model. The prices Bloomberg uses for this step may be the BGNs, but Bloomberg has stated that it can also use other prices and even quotes from outside the credit category. Bloomberg will not disclose the additional pricing that it uses as inputs to the fair curve generation.

4. There is also an override capacity that allows Bloomberg analysts to vary the results from step 3 in an undisclosed manner. Bloomberg will not disclose the circumstances in which the Bloomberg analysts 'override' the straight 'mathematical' or formulaic derivation of the fair curve.

5. There also seems to be a process whereby Bloomberg uses assumptions about the line fit between two maturity points where there is no data or only scant data, but again this process is purposively undisclosed by Bloomberg and unknown by the DNSPs.

The AER's adjustments to the Bloomberg BBB fair yield curve

In the draft determination, the AER modifies the Bloomberg fair yield curves to produce its estimate of the debt risk premium for a BBB+ 10 year bond.

This additional step is necessary because Bloomberg does not produce a fair yield curve for 10 year BBB+ bonds. The AER acknowledges in the draft determination that 'Bloomberg has ceased publishing a 10 year BBB fair yield due to the lack of long dated BBB rated bonds in the market'.[11]

As a result, the AER uses the bond rate calculated from the Bloomberg 8 year BBB fair yield curve and then adjusts that curve for the spread between Bloomberg's 8 and 10 year A rated fair yields. The AER claims in the draft determination that the result is a measure of the rate for corporate bonds with a BBB+ rating and 10 year maturity.

The AER also averages the results from the Bloomberg fair yield curve over the AMI measurement period.

3.3 The Bloomberg fair yield curves do not meet the AMI OIC requirements

The AER's process therefore involves taking an 8 year fair yield curve that is based on estimates of BBB rated bonds and modifying it by reference to 8 and 10 year curves that are based on estimates of A rated bonds. None of these curves reflect the observed BBB+ 10 year bond rate during the AMI measurement period.

As a result, the Bloomberg BBB 8 year fair yield curve that the AER bases its draft determination on clearly does not meet all of the AMI OIC requirements. It only meets one of those requirements (it is measured during the AMI measurement period), and does not meet the other three requirements:

[11] Page 120 of the draft determination.

- **Not observed**: The Bloomberg fair yield curves are not based on 'observed' corporate bond rates, and are instead based on estimates that are provided by banks and then subjectively modified by Bloomberg in a highly non-transparent fashion.

- **Not 10 years**: The AER's debt risk premium is based on Bloomberg's 8 year BBB curve. That 8 year curve is based on estimates of corporate bonds that almost without exception have a maturity period of three to four years or less, and none of the corporate bonds have 8 or 10 years to maturity.

- **Not BBB+**: The AER uses Bloomberg's BBB curve, and modifies it by reference to Bloomberg's A curves. None of those curves are a measure of BBB+ corporate bonds.

Each of these points is explained below.

3.3.1 The fair yield curves are not 'observed'

The rates produced by the Bloomberg fair yield curves are not a measure of 'observed' corporate bond rates. The reasons for this fact are demonstrated by the description in section 3.2 above of how the Bloomberg fair yield curves are calculated.

The Bloomberg fair yield curves are based on estimates not actual market trades

The first reason why the Bloomberg curves are not a measure of the 'observed' bond rate is that the input data that Bloomberg uses is based on estimates rather than actual trades of corporate bonds in the market.

This fact is confirmed in Bloomberg's letter to the AER, which states:[12]

> BFV curves are created daily based off of bonds that fulfil the criteria of a curve, ie: rating, currency, market, etc. If a bond meets this curve and has a BGN price the bond will be included in the curve. There are times when Trade prices will be utilized in the creation of the curve, but it is not a requirement for the basic curve construction.

The particular weaknesses of the estimates relied on by Bloomberg during the AMI measurement period are discussed in more detail in section 3.4.1 below.

Bloomberg then adjusts the input data in a subjective and non-transparent way to produce the fair yield curves

This input data is then used by Bloomberg to create Bloomberg generic prices (BGNs), to which Bloomberg then applies undisclosed algorithms to create a fair yield curve. Bloomberg has also stated that it can input prices other than BGNs into these algorithms, including quotes from outside the credit category. Bloomberg also uses assumptions about the line fit between two maturity points where there is no data or only scant data available, which is particularly the case for longer maturity periods. Finally, Bloomberg analysts have discretion to override this curve to create a curve that the analyst considers to be more appropriate.

This process means that, even if the data that was used to create the fair field curves was a reasonable estimate for the observed market rate, the resulting fair yield curves are created

[12] Bloomberg's letter to the AER, page 1.

after a process involving considerable adjustments by Bloomberg and the curves cannot be said to be an observed measure of the market rate.

The non-transparency of this process is discussed in more detail in section 3.4.3 below.

The AER then adjusts the Bloomberg fair yield curves further to try to create a 10 year measure

As is discussed in more detail below in relation to the 10 year maturity requirement, the AER does not simply use one of the Bloomberg fair yield curves as the measure of the corporate bond rate. Instead, the AER takes the Bloomberg BBB 8 year fair yield curve and modifies it to create an estimate of a 10 year fair yield curve.

The AER has previously recognised that Bloomberg's fair yield curves are not an observed measure of the debt risk premium

The AER has made several previous comments that the Bloomberg fair yield curves are not an 'observed' measure of corporate bond rates and are instead only 'estimates' or 'predictors' of the observed yield. The following comments from the recent NSW distribution determination are examples of the AER's acknowledgement of this fact:

> The Babcock and Brown Infrastructure Group and the Adelaide Airport bonds were excluded because the yields reported by Bloomberg were fair yield estimates not yields based on prices from observed trades.[13]
>
> The review indicated that Bloomberg provided *estimates* of BBB+ rated long-term fair yields that were more consistent with the *observed yields of similarly rated actual bonds*.[14] [our emphasis]
>
> Bloomberg fair yields are a better *predictor of observed yields* than an average of Bloomberg and CBASpectrum fair yields or CBASpectrum fair yields alone. [our emphasis][15]
>
> Bloomberg data *should be used to estimate the debt risk premium* based on its analysis of the fair yields reported by Bloomberg and CBASpectrum, observed yields of BBB+ corporate bonds and the methodologies adopted by these two data providers. [our emphasis][16]

The resulting measure that is used by the AER is therefore several steps removed from anything that could be described as an 'observed' corporate bond rate. The Bloomberg curves therefore do not meet this AMI OIC requirement.

More compliant measures of 'observed' corporate bond rates include the Tabcorp bond issue (see section 4 below), the AMP bond issue (see section 5.2 below) and US and other overseas data (see sections 5.5 to 5.7 below).

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[13] Page 223 of the AER's *New South Wales distribution determination 2009-2010 to 2013-2014, Final decision, 28 April 2009*.

[14] As above, at page 226.

[15] As above, at page 232

[16] As above, at page 232

3.3.2 The fair yield curves are not based on corporate bonds with a 10 year maturity

As noted above, the AER acknowledges in the draft determination that 'Bloomberg has ceased publishing a 10 year BBB fair yield due to the lack of long dated BBB rated bonds in the market'. Instead, the AER uses Bloomberg's BBB fair yield curve, which is stated to be an 8 year curve, and then adjusts that curve to create an estimate of the rate for a 10 year maturity.

As a result, the Bloomberg BBB fair yield curve is not an observed benchmark for a 10 year corporate bond rate. At best, the Bloomberg fair yield curve is an observed benchmark for an 8 year corporate bond rate (although as discussed above the DNSPs consider that Bloomberg cannot be considered to be an 'observed' rate for even an 8 year maturity period).

However, the Bloomberg BBB fair yield curve cannot even be accurately described as a measure of 8 year corporate bond rates. The Bloomberg BBB fair yield curves during the AMI measurement period were not based on any bonds with a maturity of 8 years. Based on the limited information that is available regarding the bonds that were actually used by Bloomberg, it appears that almost all of the bonds that were used by Bloomberg to calculate this fair yield curve had maturity periods of no more than three to four years.

Accordingly, on no interpretation could the Bloomberg BBB curve be considered to be a measure of the 'observed annualised Australian corporate bond rate' for bonds with a 10 year maturity.

The Bloomberg curves therefore do not meet this AMI OIC requirement.

The AER's decision to use the Bloomberg fair yield curves is no more compliant with the 10 year maturity period requirement than the DNSPs' proposal to use the Tabcorp 5 year bond. It is less compliant with this requirement than several of the alternative measures the DNSPs discuss below, such as CEG's analysis of bond issues during the AMI measurement period with maturities of 4 to 10 years (see section 5.1 below), bond issues by Australian corporates into the US market (see section 5.5 below) and bonds issued in overseas markets during the AMI measurement period (section 5.7 below).

3.3.3 There is no BBB+ fair yield curve

The AER's debt risk premium is based on Bloomberg's 8 year fair yield curve for BBB rated bonds. The AER then modifies that curve by reference to Bloomberg's 8 year and 10 year curves for A rated bonds. None of these curves are a measure of the 'observed annualised Australian corporate bond rate' for bonds with a BBB+ rating.

The fact that the Bloomberg BBB fair value curve that the AER has relied on is not a measure of the BBB+ corporate bond rate is confirmed by the following statement in Bloomberg's letter to the AER:[17]

[17] Bloomberg's letter to the AER, page 2.

e) The Bloomberg BBB FMC was generated using bonds other than those rated BBB+ by S&P.

Comment:

Correct. This curve includes all BBB bonds BBB-/BBB/BBB+. At the current time we are unable to separate the curves into separate rating specific curves as there are insufficient bonds available with pricing in order to populate 3 separate curves.

The Bloomberg curves therefore do not meet this AMI OIC requirement. More compliant measures of a BBB+ corporate bond rate include the Tabcorp bond (see section 4 below) and CEG's analysis of BBB+ bond yields during the AMI measurement period (see section 5.1 below).

3.4 The Bloomberg fair yield curves are not a reliable indicator of a corporate bond rate that complies with the AMI OIC requirements

As demonstrated above, the Bloomberg BBB fair yield curve does not meet the AMI OIC requirements. The Bloomberg fair yield curves are therefore, at best, just one relevant consideration that the AER may have regard to when estimating a debt risk premium that complies with the AMI OIC requirements.

As explained in this section 3.4, there are also significant problems with the reliability of the Bloomberg fair yield curves that mean that it is unreasonable for the AER to base the debt risk premium on the Bloomberg curves.

Bloomberg's fair yield curves are an analytical tool that is intended by Bloomberg to be used to show if a bond is trading expensive or cheap when compared to similar bonds. The Bloomberg fair yield curves were never designed or intended by Bloomberg to operate as a regulatory measure of the cost of debt. Due in large part to the effects of the global financial crisis, the Bloomberg fair yield curves are not appropriate as a measure of the debt risk premium during the AMI measurement period. The following comments are not a criticism of Bloomberg, but are intended to show that the AER is attempting to use the Bloomberg fair yield curves for a purpose that those curves are simply not suited.

3.4.1 The fair yield curves are not based on actual trades and during the AMI measurement period there was insufficient data for them to be a reliable measure of BBB+ 10 year bonds

As explained above:

- the Bloomberg fair yield curves are based on estimates that are provided by banks, not actual market trades; and
- during the AMI measurement period, there were very few actual trades of corporate bonds, and no trades of BBB+ corporate bonds with 10 years to maturity.

As a result, the Bloomberg fair yield curves were based on estimates that were created with very limited information.

The difficulty in obtaining reliable information on corporate bond rates during the AMI measurement period is illustrated by the following quote from John Kimpton, Client Relationship Manager of Yieldbroker:

> The period from late November to early December 2008 was characterised by overall low market turnover and a broadening in market spreads for all asset classes. Corporate spreads (in both fixed and floating rate debt) were particularly affected with participant banks unwilling to provide pricing to end investors, with turnover in this sector being negligible. Yieldbroker also experienced difficulty in obtaining reliable indicative pricing data for corporate debt over this period, with the indicative yields for individual securities provided by pricemakers at participating banks varying widely.[18]

As a result of this absence of new bond issues and very low level of trades in the secondary market during the AMI measurement period, there is considerable doubt as to the reliability of the estimates that were used as inputs into the Bloomberg fair yield curves. This lack of actual market data meant that the banks that provided estimates to Bloomberg had very limited information on which to base their estimates. It appears that the estimates were based on trades from well before the AMI measurement period despite overwhelming evidence that the corporate bond rates had materially increased during the AMI measurement period.

In order to assess the level of actual trades during the AMI measurement period, the DNSPs asked seven banks whether any BBB to A rated corporate bonds were traded in this period and the term of those bonds. The results of this exercise are described in Appendix 4.

The answers of the five banks that provided information showed that:

- there appear to have been 30 or less trades during the entire AMI measurement period; and
- almost all of those trades related to bonds with less than three years to maturity, with the remainder being less than five years to maturity except for three trades in an A rated 6.5 year bond.

This lack of corporate bond issues and trades particularly affected the reliability of the Bloomberg curves in measuring the yields of bonds with long maturity periods. The AMI OIC requires the debt risk premium to be a measure of the yield on a corporate bond with a 10 year maturity period.

The lack of transparency in the Bloomberg data makes it difficult to know exactly what bonds were used to calculate the relevant fair yield curves, but it is reasonably clear that during the AMI measurement period the Bloomberg fair yield curves were not based on any bonds with a maturity close to 10 years. The information that is available to the DNSPs indicates that the Bloomberg curves were not based on any bonds with more than 6-7 years to maturity (and the only bond with such a maturity was Santos) and almost all of the bonds had no more than three to four years to maturity.

[18] Email from John Kimpton to Matthew Lemke (consultant to Powercor), 2 September 2009. Yieldbroker is the major broker in the fixed income market in Australia. It gives investors the ability to view live indicative prices and request competitive two-way markets in over 700 debt securities and captures over 30% of secondary market transactions in the dealer-to-client market.

Bloomberg's letter to the AER acknowledges these facts (although also recognising that the actual composition of the fair yield curves is not transparent so there is no way to confirm which bonds were used) in the following statement:

> **h) The Bloomberg BBB FMC was overly reliant on the yield of a single bond (Santos) in its projection of longer term maturities.**
>
> Comment:
>
> Again, similar to stated previously, the current bond makeup of the curve does not necessarily indicate what the makeup of the curve was historically. At this time, it is correct that Santos is the only bond that we have on the curve in the longer maturities.[19]

Given that rates will generally be higher for a longer term bond, this absence of data regarding longer term bonds makes the Bloomberg curves a particularly unreliable estimate of the yield on a 10 year bond and means that the Bloomberg curves are likely to materially underestimate the rate for a 10 year bond.

The following sections from the CEG report demonstrate how Bloomberg's reliance on estimates that were prepared during a time of unprecedented illiquidity and uncertainty affected the reliability of the Bloomberg fair yield curves: [20]

> 30. Consistent with the above views few, if any, actual transactions in the secondary bond market occurred during the AMI averaging period. In any case, given that such bonds are not generally traded in a centralised exchange but are bought and sold 'over the counter' it can be difficult to observe the prices on the trades that actually take place.
>
> 31. Even in normal market conditions yields attributed to a bond will generally not represent the results of actual trading on that day. Indeed Bloomberg has stated in 2007, before the full onset of the financial crisis, that up to 90% of the prices in its bonds database were indicative, not executable. The prices reported by financial institutions, to a large extent, simply reflect the informed opinion of industry players about a fair price for a particular bond.
>
> 32. It comes as no particular surprise then, that the yields reported for the same bond on the same day often vary considerably. For example, on 5 December 2008 various sources were quoting the yields shown in Table 1 below.
>
> **Table 1: Comparison of estimated yields on 5 December 2008**

Issuer	Maturity	UBS	CBA	NAB Markets	ABN Amro
GPT	22/08/2013	13.140	16.608	13.538	10.939
Santos	23/09/2015	7.356	6.704	9.211	6.580

> *Source: Bloomberg, CBASpectrum, UBS.*
>
> 33. Clearly, there would be significant arbitrage profits to be had if all of these yields reflected yields at which these institutions were willing to trade. For example, it would be very profitable to buy the Santos bond from NAB (quoting the highest yield which implies the lowest price for the bond) and sell it to ABN Amro (quoting the lowest yield). On the GPT bond it would be most profitable to buy from ABN Amro and sell to UBS.

[19] Bloomberg's letter to the AER, page 3.

[20] CEG report, page 13 (footnotes omitted).

34. Two observations can be made about this. First, the quotes in the above table simply cannot be prices at which the banks are willing to trade (or even prices at which they have traded on that day). Rather, they simply represent yields at which these institutions believe a trade would take place if it did take place on that day. Second, the wide divergence between the yield estimates for the same bond suggests that there has not been any recent known trades (ie, prior to the end of the AMI averaging period on 5 December 2008) of the bonds to anchor price expectations.

The DNSPs have also undertaken an analysis of the Santos bond that is believed to have been the only bond with a longer maturity that was used by Bloomberg to create the fair yield curves. This analysis is attached as Appendix 2. It shows that, prior to the global financial crisis, estimates of the yield for the Santos 2015 bond were reasonably consistent, but that during the AMI measurement period yield estimates for this bond were highly divergent and there was no market consensus price.

This analysis shows that the Bloomberg fair yield curves were based on data that was highly unreliable and does not reflect actual market trades. It also shows that there was considerable uncertainty in the market regarding the true value of BBB+ corporate bonds during this period.

The DNSPs proposed debt risk premium is based on an actual new bond issue by Tabcorp, and therefore does not suffer the same problems as the Bloomberg measure in this respect.

3.4.2 The fact that there is insufficient data for Bloomberg to calculate a fair yield curve for long maturity bonds is confirmed by Bloomberg's recent decision to cease publishing its long maturity curves

Bloomberg no longer publishes the 8 year BBB fair yield curve that the AER relied on in the draft determination.

On 29 August 2009, Bloomberg ceased publishing this curve. The longest BBB fair yield curve that Bloomberg now publishes is a 7 year curve. Bloomberg has advised the DNSPs that it shortened the 8 year curve to 7 years because there are 'no longer 8 year securities to calculate these curves'.[21]

On the same date, Bloomberg also ceased publishing its 8 year, 10 year and 15 year A fair yield curves. The longest fair yield curve that Bloomberg publishes for A rated securities is now 7 years, less than half of the previous longest term.

This shortening of the curves that Bloomberg publishes appears to represent an acknowledgement by Bloomberg that its curves are not a reliable indicator of the true value of longer term corporate bonds. Although this shortening occurred after the AMI measurement period, there has been a significant increase in liquidity in corporate bonds in the nine months since the AMI measurement period, so this weakness would have been even greater during the AMI measurement period.

This shortening of the curves appears to be part of a pattern of continued shortening of the fair yield curves by Bloomberg due to a lack of data on longer term maturity bonds. As the AER acknowledges in the draft determination, Bloomberg previously published a 10 year BBB fair

[21] Discussion between Matthew Lemke (consultant to Powercor) and the Helpdesk at Bloomberg on 3 September 2009.

yield but ceased publishing that curve prior to the draft determination 'due to the lack of long dated BBB rated bonds in the market'.[22]

The shortening of these curves therefore supports the view that Bloomberg's fair yield curves are not a reliable indicator of the 10 year corporate bond rate.

3.4.3 The manner in which the fair yield curves are calculated is not transparent

As noted above, the DNSPs have asked Bloomberg a number of questions as to how the fair yield curves are created, and the summary of the Bloomberg process in this submission is based on several months of questions and answers backwards and forwards with Bloomberg. However, the DNSPs still do not have a full understanding of how Bloomberg creates the fair value curves.

As explained in section 3.2 above, based on the information that is available to the DNSPs, Bloomberg's system of deriving the fair curves appears to be based on five steps:

1. Banks contribute prices for the bonds. There is no way of knowing whether these quotes were traded prices. Indeed, the DNSPs' analysis and research strongly suggests that there were few if any trades among the bonds in the Bloomberg BBB (and A) fair yield curves during the AMI measurement period and that the quotes given to Bloomberg were only estimates.

2. An input into the generation of the Bloomberg curves is the Bloomberg Generic Price ('BGN'). This BGN is based on the quotes of five dealers. The prices do not have to be traded or even 'executable' to be used. Bloomberg uses an undisclosed algorithm to convert the dealer quotes used to the BGNs. The BGNs are often different to the data that was input in step 1. The DNSPs do not know what Bloomberg does to the dealer quotes in converting them to the BGNs, as Bloomberg is unwilling to disclose any details regarding this process.

3. Bloomberg then inputs the BGN prices into an undisclosed algorithm to generate the fair curve, which includes the exclusion of 'outliers' on an undisclosed basis. The proprietary algorithms that Bloomberg uses are not disclosed, although the DNSPs understand this process is based on some kind of 'least squares' model together with an 'options adjusted spread' model. The prices Bloomberg uses for this step may be the BGNs, but Bloomberg has stated that it can also use other prices and even quotes from outside the credit category. Bloomberg will not disclose the additional pricing that it uses as inputs to the fair curve generation beyond the BGNs.

4. There is also an override capacity that allows Bloomberg analysts to vary the results from step 3 in an undisclosed manner. Bloomberg will not disclose the circumstances in which the Bloomberg analysts 'override' the straight 'mathematical' or formulaic derivation of the fair curve.

5. There also seem to be a process whereby Bloomberg uses assumptions about the line fit between two maturity points where there is no data or only scant data, but again this process is purposively undisclosed by Bloomberg and unknown by the DNSPs.

[22] Page 120 of the draft determination.

The manner in which each of these steps occur is highly non-transparent and it is unclear precisely what occurs at each stage.

Bloomberg states that it does not retain any of the input data that it uses to create its fair yield curves. Bloomberg also does not disclose its algorithms or the way in which the curves can be modified by analysts at the final stage, and Bloomberg states that this information is confidential and proprietary. As a result, the AER has not been able to scrutinise the Bloomberg methodology to determine that it will result in a reasonable and reliable estimate of the debt risk premium.

These facts are confirmed in Bloomberg's letter to the AER:

> When referencing which bonds are on the curve, unless a screen shot has been taken of the bonds on the curve, on the date in question, there is no way for us to know what bonds were on the curve, on the date in question. Although at this time there is no bond at that maturity point, there may have been previously. Further details of how we determine maturity points where there are no bonds, are proprietary.[23]

In Appendix 3 to this submission, the DNSPs have set out an analysis of the process used by Bloomberg and whether it meets the normal global standards for calculating a reference rate.

3.4.4 The calculation of the fair yield curves involves significant discretion

The creation of the fair yield curves by Bloomberg is a multi-step, complicated, non-transparent, unverifiable process involving undisclosed proprietary models, and considerable Bloomberg discretion on a non-disclosed basis.

In particular, Bloomberg has stated that: [24]

- 'The absence of a BGN cannot always be taken to mean that the bond in question was not taken into consideration in curve creation.'
- 'The Bloomberg analyst has discretion to use approved alternate pricing to flesh out a curve when it is needed. Bloomberg could also use, depending on the reliability of the pricing source, another source such as a CBBT or a BCMP price to flesh out a curve.'
- 'Analysts do have the discretion to refer to other curves in a 'set' (which might be other Australian dollar credit curves) to 'flesh out' a curve. If there are bonds on the curves in other ratings then Bloomberg may determine that they will keep a curve out longer than they have bonds, and monitor the shape and movement by that of the curves in other ratings.'
- 'Bloomberg fits 'point to point' according to a 'least squares method' to minimise the option adjusted spread for bonds of a given credit quality. So if there is only 1 extant BBB bond between constant maturity points Bloomberg will generally still fit the curve between the 5 and 7 year points.'

[23] Bloomberg's letter to the AER, page 2.

[24] Emails from Robin Pickover of Bloomberg to Matthew Lemke (consultant to Powercor) dated 15 July 2009 and 10 September 2010, and email from Robin Pickover of Bloomberg to Julie Williams dated 18 May 2009.

Appendix B of the CEG report also analyses the level of discretion exercised by Bloomberg in creating the fair value curves. The CEG report demonstrates that there is a high level of discretion exercised by Bloomberg in relation to:

- estimating 'consensus' bond yields;
- excluding outliers; and
- fitting curves.

The CEG report concludes in relation to the implications of this high level of discretion that:[25]

> i) Bloomberg uses discretion and a proprietary approach in arriving at its pricing for individual bonds. The effect of the exercise of this discretion on its estimated pricing for individual bonds is unknown;
>
> ii) Bloomberg appears to limit the construction of its fair value curves to rely heavily on information contained in bond prices within that credit rating and only peripherally to information contained in bonds in other credit ratings. This can be advantageous where that bond pricing data is plentiful. However, in the current market circumstances when bond pricing data is scarce it can be problematic.
>
> iii) Bloomberg uses discretion in determining which of these bonds it will use to determine the fair value curves. The basis for this discretion in unknown. The effect of this discretion in recent history appears to be to reduce estimated fair value curves.
>
> iv) To the extent that this reflects a Bloomberg policy of estimating fair value curves for liquid corporate bonds then it is likely to make the Bloomberg fair value curves an inappropriate proxy for the NER benchmark corporate bond rate in a market where most corporate bonds are illiquid.
>
> v) Bloomberg uses discretion in the construction of the fair value curves (both within periods it has data and beyond the periods for which it has data). The effect of this discretion is to reduce the estimated fair value spread to CGS for long dated bonds. It is unclear what basis Bloomberg might have for assuming that this is appropriate.

3.4.5 The approach to the removal of 'outliers' cannot be justified

In the draft determination, the AER states that:

> it is not unexpected that the fair yields published by Bloomberg were lower than the yields published by CBASpectrum and the RBA because Bloomberg excludes outlier bonds in the derivation of its fair yield values. The AER understands that CBASpectrum and the RBA did not exclude outliers in the calculation of their yields.[26]

There are several serious problems with this inference that the exclusion of outliers makes the Bloomberg fair yield curves a more reliable measure of the debt risk premium than alternative measures that do not exclude outliers.

The first problem is that it is not known what approach Bloomberg took to the exclusion of outliers, which bonds Bloomberg classified as outliers, or what was the basis for that classification. The AER has not described Bloomberg's approach to the exclusion of outliers, and it appears that the AER has no information on Bloomberg's approach.

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[25] CEG report, page 94.

[26] Draft determination, page 121.

It appears from comments by Bloomberg that Bloomberg does not have any specific rules that it applies to exclude outliers. Instead, outliers are excluded in a non-transparent and discretionary manner.

Bloomberg's letter to the AER states this fact very clearly in the following passage:

> In response to bonds that are considered outliers on a curve, the criteria for exclusion are not transparent.[27]

While it may in some circumstances be appropriate to exclude certain bonds as outliers, or at least to reduce the weight given to those outliers, it is not possible to say that the Bloomberg approach is more reliable simply because it excludes outliers. It is equally likely that the exclusion of outliers causes the Bloomberg fair yield curves to be unreliable and not reflect the observed market rate.

The AER has made no attempt to undertake an examination of which bonds to have regard to or not have regard to and the implications of excluding outliers for the reliability of the curve, and it appears that it does not have sufficient information to enable it to do so. Classifying a bond as an outlier simply because its yield is higher than the yield of other bonds does not make the measure more reliable. Instead, it simply makes the measure inherently biased towards lower yielding bonds, especially given that no low yielding bonds are excluded as outliers.

The AER states in the draft determination that:

> During the AMI measurement period some bonds were reporting significantly higher yields indicating that investors no longer considered these bonds to be of investment grade. The AER considers that these bonds should not be included in any sample of bonds used to estimate an efficient benchmark corporate bond rate.[28]

Even putting to one side the fact that the AER does not know which bonds were excluded by Bloomberg as outliers or why they were excluded, this statement is also problematic because it asserts that the reason why the yields for several bonds have risen is that 'investors no longer considered these bonds to be of investment grade'. That assertion is not consistent with supporting evidence regarding the effects of the global financial crisis. There is strong evidence that yields for corporate bonds were increasing dramatically during this period as a result of the global financial crisis, particularly for relatively low rated BBB+ bonds.

An increase in the yields of BBB+ bonds during this period is entirely consistent with Standard and Poor's description of the BBB rating, which is:

> BBB: An obligation rated 'BBB' exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation.[29]

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[27] Bloomberg's letter to the AER, page 2.

[28] Draft determination, page 121. As noted in section 2.2.3 above, the AER's reference to estimating an efficient benchmark also shows that the AER has misunderstood the requirements of the AMI OIC, which require the debt risk premium to be based on observed corporate bond rates, not an estimate of an 'efficient' corporate bond rate, whatever that may mean.

[29] CEG report, page 18 (footnote omitted).

The global financial crisis was a time of unprecedented 'adverse economic conditions' and 'changing circumstances' so it was entirely expected that the yields on many BBB+ bonds would increase during this period.

The exclusion of those bonds as outliers solely on the basis that their yields were materially higher than some of the other bonds cannot be justified. There is no evidence that these higher yields did not simply relate to more up-to-date estimates of the market's actual value of BBB+ corporate debt at the relevant time, or the fact that estimates of actual yields varied more than usual during this period.

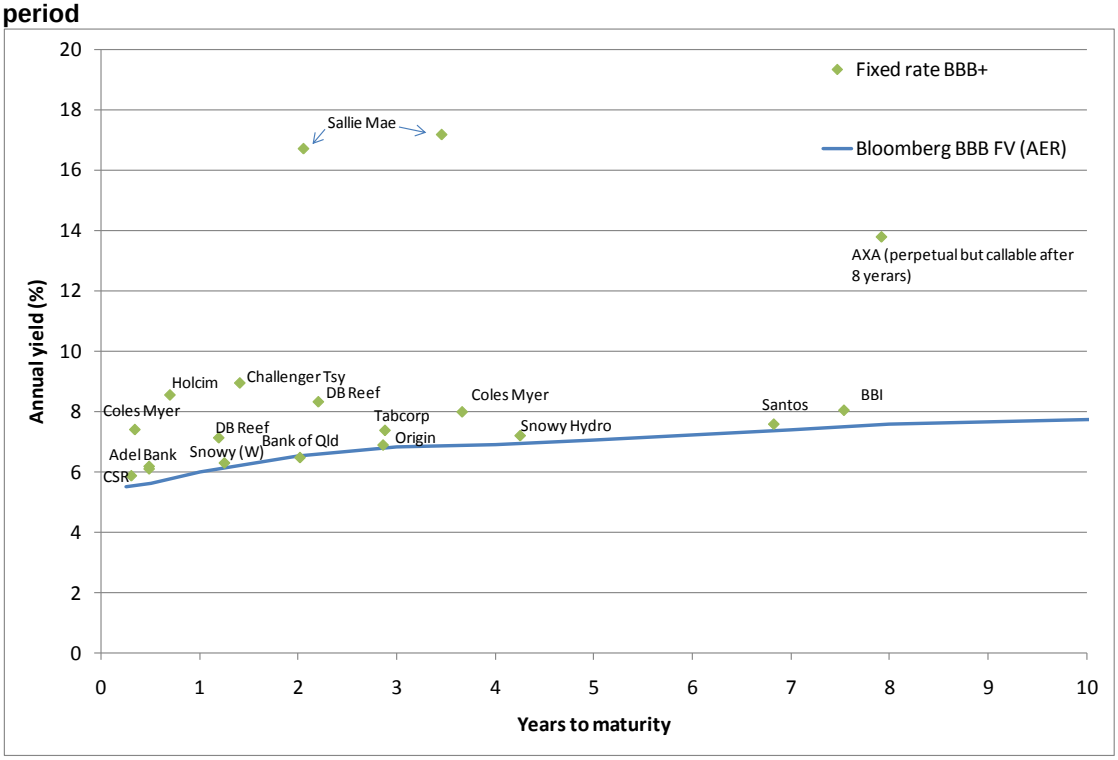
The exclusion of outliers is also particularly problematic given that the data set of corporate bonds in the Australian corporate bond market is small and some of the longer dated bonds have a relatively small amount of bonds on issue (eg Santos 2015 has just $100 million of bonds on issue). In an environment already constrained for price information, the exclusion of outliers only serves to further reduce the information pool on which the data is based, and makes it difficult to arrive at a reliable method for identifying outliers.

CEG's analysis of bond yields during the measurement period also shows that the differences between Bloomberg's fair yield curves and all other measures of the debt risk premium cannot be explained by any reasonable approach to the exclusion of outliers. The only way in which the exclusion of outliers could explain the differences between the Bloomberg fair yield curves and the bond data that CEG has analysed is if Bloomberg excluded the majority of the bonds as outliers, including all the bonds that are materially above the fair yield curve but no bonds that are below the fair yield curve.

The following graphs and commentary from the CEG report are particularly compelling in this respect:[30]

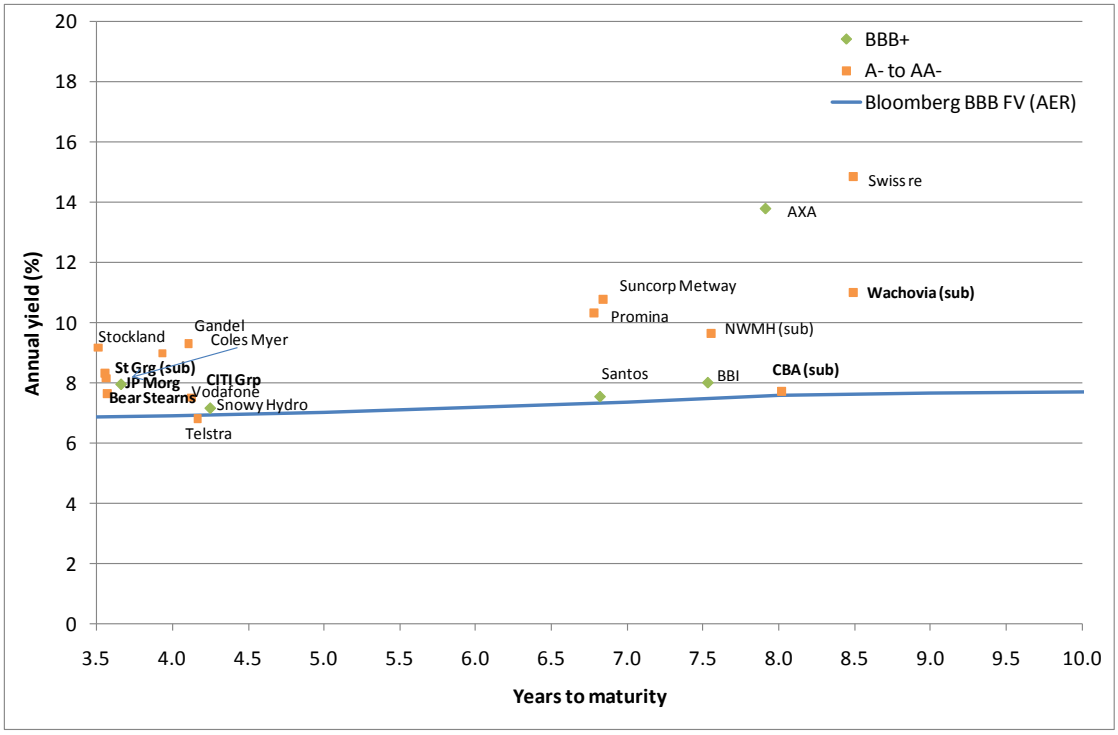
[30] CEG report, pages 25, 30, 32 and 33.

Figure 3: Average yield estimates for BBB+ fixed coupon bonds during AMI averaging period



...

Figure 8 Average yield estimates for BBB+ to AA- rated fixed coupon bonds during AMI averaging period – bonds with maturity between 3.5 and 10 years



...

96. I now turn to whether the bond yields included in the UBS rate sheet are somehow skewed by the inclusion of "outliers" in the analysis and whether this could explain why the AER proxy for the benchmark corporate bond rate underestimates the average of these bond yields.

> 97. Consideration of this issue is straight forward. Of the 20 unique issuers of fixed rate bonds with ratings between BBB+ and AA- all but one have a higher yield than the AER/Bloomberg fair value curve predicts for BBB+ bonds. The exceptional issuer is Telstra which is A rated and has only a fractionally lower yield than the AER/Bloomberg BBB+ fair value. The only basis for concluding that this effect was explained by "outliers" would be to assume that all, or almost all, corporate bond issuers are outliers. This is despite the fact that most of these bonds have a rating higher than BBB+ and, consequently, the AER/Bloomberg BBB+ fair value curve should be overestimating the yields on these bonds.
>
> 98. I am unaware of any definition of an outlier that would involve treating most, let alone all, of the available data as outliers.

The CEG report also discusses the treatment of outliers in more detail at pages 55 to 57.

3.4.6 The rate at which a DNSP could issue a new bond in the market will be at a significant premium to the Bloomberg fair yield curves

Bloomberg has advised the DNSPs that:

> Bearing in mind that the curves are representative of secondary market prices and trading sizes, new issues have always been issued at a premium to this curve. In settled market conditions, the premium required to 'get away' a new issue might have been quite small. My experience has been that the premium has increased during this period of market turbulence as buyers have demanded a greater risk premium.[31]

Similar comments are made in the CEG report: [32]

> 17. Finally, it is relevant to note that the cost of debt to a firm is the interest rate incurred by the firm at the time of issue. There are sound economic reasons for believing that the interest rate at which bonds trade at in the secondary market will be lower than the interest rate at which those bonds are issued initially (other things constant). This reflects the fact that the initial sale of the bonds represents the sale of 100% of the relevant bonds over a short period (often over a single day in a book build process). By contrast, secondary trades of the bond are almost always for much smaller parcels of the bond (a few percent of the total amount outstanding). Unless the corporate bond market is perfectly liquid then an initial sale of a large volume of bonds will always, other things equal, result in a lower bond price (higher yield) than subsequent secondary sales.
>
> ...
>
> 95. I consider that the secondary market yields estimated by UBS (and others) are likely to be materially lower than the yields that would have had to be paid by similar companies to issue new debt during the AMI averaging period (which was particularly affected by the impact of the global financial crisis).

Accordingly, the Bloomberg fair yield curves will necessarily provide an estimate of the debt risk premium that is lower than the debt risk premium that the DNSPs would incur if they sought to raise funds in the market.

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[31] Email from Robin Pickover of Bloomberg to Julie Williams of Powercor dated 17 May 2009. Also referred to in the DNSPs June 2009 paper to the AER.

[32] CEG report, pages 6 and 32 (footnotes omitted).

Bloomberg has also stated that:

> BFV is not intended to be used as a predictive price of newly issued bonds. BFV, by definition, is a value, intended to indicate if a bond is trading rich or cheap as compared to peer bonds (as defined by the curve).[33]

Bloomberg therefore expressly disclaims any suggestion that its fair yield curves can be used as a benchmark of the actual cost of capital that would be faced by a DNSP. That disclaimer raises significant questions about the appropriateness of the AER placing sole reliance on those curves to calculate the debt risk premium.

3.4.7 The movement of the fair yield curves is inconsistent with consensus opinion on the effects of the global financial crisis

The global financial crisis had a dramatic effect on bond markets. The rates for Government bonds fell to record lows while the rates for corporate bonds increased markedly as investors' appetite for risk disappeared.

The result should be a significant increase in the debt risk premium, which measures the spread between the observed rates of 10 year Commonwealth Government bonds and 10 year corporate bonds. This effect should have been particularly pronounced for relatively low rated BBB+ corporate bonds.

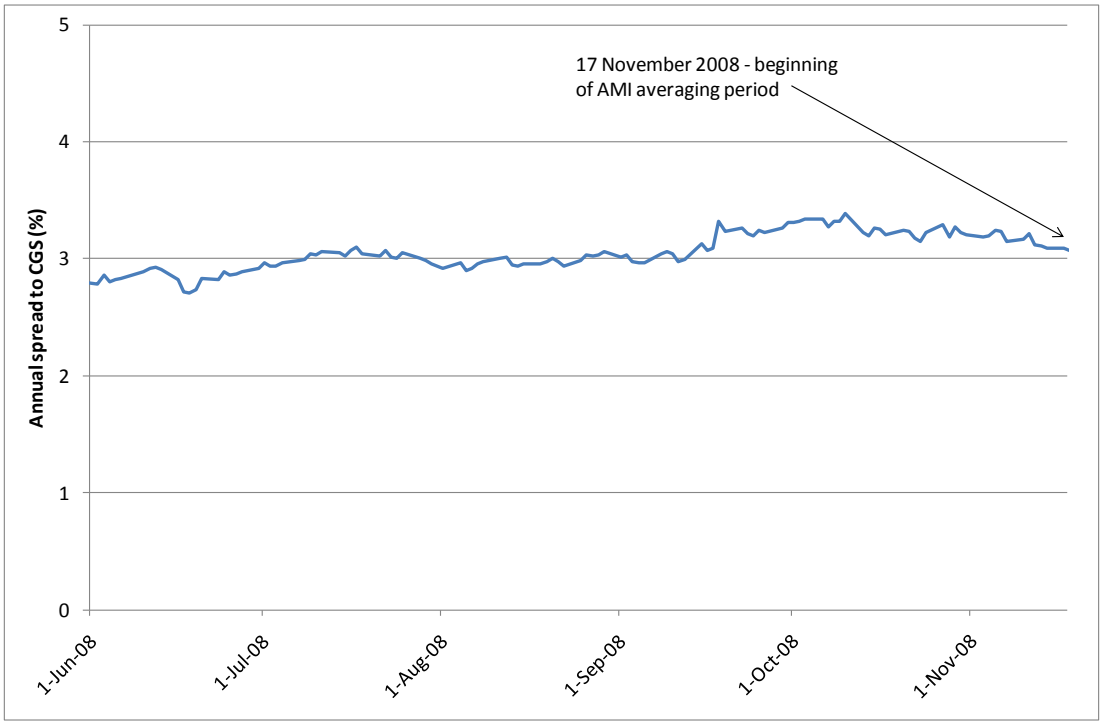
However, during the worst of the global financial crisis, the Bloomberg fair yield curves did not show any material increase in the debt risk premium. That lack of change is totally at odds with all evidence regarding the effect of the global financial crisis. It is a clear sign that the Bloomberg fair yield curves were not a reliable measure of the debt risk premium during this period and that the estimates on which the curves were based had not been updated to reflect what was occurring in the market.

The effects of the global financial crisis on bond markets are described in section 3.1 of the CEG report. The following graph and commentary from the CEG report summarises the lack of change in the debt risk premium as measured by Bloomberg during the global financial crisis:[34]

[33] Bloomberg's letter to the AER, page 3.

[34] CEG report, page 19.

Figure 1: Bloomberg (AER) estimated spreads to CGS on 10-year BBB+ corporate bonds



Source: Bloomberg, RBA

This figure shows that debt premia as estimated by Bloomberg did not rise materially over the period September to November. There appears to be no significant reaction to the events of September and October 2008. This pattern does not appear to accord with what one would reasonably expect to be the case given the perceived financial and economic conditions and the definition of BBB credit ratings.

The CEG report then compares Bloomberg's corporate bonds spreads with RBA estimates and concludes that:[35]

66. The Bloomberg data indicate a levelling off of spreads from about June 2008, at around or just less than 300 basis points. However, the RBA's estimates indicate that, after a brief downturn, spreads continue to increase to over 400 basis points.

67. In my opinion the Bloomberg fair value yields did not adequately capture the effect of the global financial crisis on debt markets over the period through to the beginning of the AMI averaging period on 17 November 2008, either in terms of:

    - what would have been expected as a result of the crisis, as per the statements of experts (including the RBA) as described at section 2 above; and
    - the data for BBB bond yields published by the RBA.

[35] CEG report, page 23.

3.4.8 The information that the AER uses to support the Bloomberg fair yield curves is not reliable

In the draft determination, the AER seeks to support its use of the Bloomberg fair yield curve by comparing it to:

- Bloomberg's data for the Snowy Hydro bond on two days during the AMI measurement period; and
- UBS and CBASpectrum data for the Snowy Hydro, GPT and Santos bonds.[36]

However, the AER decided not to have regard to the GPT bond, which had an average yield of 13.8%, on the basis that it should be treated as an 'outlier'.[37]

As a result, the AER only considered the bond rates for two bonds. Those two bonds had only 4 years (Snowy Hydro) and 6-7 years (Santos) to maturity.

The AER has not provided any evidence that the information regarding these two bonds is based on actual trades in these bonds during the AMI measurement period. The DNSPs inquiries of banks (see Appendix 4) did not reveal any evidence that there were any trades in either Santos bonds or Snowy Hydro bonds during the AMI measurement period.

Even this limited evidence could only support the Bloomberg curves because the AER chose to treat the highest of the three bonds that it had information about as an 'outlier' but not treat Santos as an outlier despite Santos not being reflective of a typical BBB+ corporate bond. That approach cannot be justified and leads to a misleading result.

The approach of excluding GPT as an outlier with a high yield but not excluding Santos as an outlier with a low yield is unjustified and unreliable. As discussed in the CEG report, Santos was effectively debt free at the time and as a result the market would have perceived the risk associated with Santos bonds to be significantly lower than usual for BBB+ bonds.

The CEG report states in relation to Santos:[38]

> 215. The explanation for this peculiarly low yield would appear to be at least partly explained by the fact that at the time Santos was effectively debt free. On 31 December 2008 Santos reported current assets (cash and cash equivalents plus other liquid assets) of $2.48bn which exceeded interest bearing loans and borrowing of $2.45bn. Santos' cash and cash equivalents plus the value of swap contracts alone were reported at $1.95bn leaving net debt (interest bearing loans less $1.95bn) at only $0.51bn. On 31 December 2008 Santos equity market capitalisation was around 8.5bn. This gives Santos a debt to market equity ratio of around 6% and a debt to total assets (equity plus debt) of around 5%. This very low level of debt, combined with a long maturity profile for the debt it had, would appear to have insulated Santos' from the events in credit markets at the time – a fact explicitly acknowledged by Santos.
>
> ...
>
> 217. It is reasonable to conclude that the very low levels of debt owed by Santos meant that it was not typical of a BBB+ rated firm – and certainly was not typical of the hypothetical

[36] Draft determination, pages 121 to 122.

[37] Draft determination, page 122.

[38] CEG report, pages 67 to 68 (footnotes omitted).

> benchmark 60% geared regulated utility. This is not a reason for excluding the yield on the Santos bond from calculations of a BBB+ benchmark rate. The Santos bond was BBB+ rated at the time and other factors would have entered into this long term credit rating (including expected increases in Santos' future capital expenditure and volatility in energy prices to which it is exposed).

The AER's only evidence to support the use of the Bloomberg fair yield curves is therefore based on indicative estimates of two corporate bonds with maturity period of 4 and 6-7 years.

The AER has also failed to adjust the yields on these two bonds to reflect the fact that their terms are less than 10 years and they would therefore be expected to underestimate the yield on a 10 year bond.

This evidence therefore provides very little support for the use of the Bloomberg fair yield curves. The unreliable nature of relying on just these two corporate bonds is further demonstrated in section 5.1 below which discusses CEG's analysis of over 600 corporate bonds, which shows that the Bloomberg fair yield curve is below almost all relevant corporate bond yields during this period.

3.4.9 Conclusion on the reliability of the Bloomberg fair yield curves

The above weaknesses with the data used by Bloomberg and the process undertaken by Bloomberg mean that the Bloomberg fair yield curves are not a reliable indicator of a debt risk premium that meets the AMI OIC requirements.

The conclusion of the CEG report on the reliability of the Bloomberg fair yield curves is as follows:[39]

> Based on the empirical evidence outlined above it is my opinion that the AER/Bloomberg BBB+ fair value curve is not a reliable estimator of benchmark BBB+ yields based on observations from the corporate bond market. This conclusion holds at every maturity level but is especially strong at longer maturities approaching 10 years.

[39] CEG report, page 46.

4 The DNSPs' proposed measure of the debt risk premium: the Tabcorp bond issue in April 2009

The DNSPs propose that the appropriate debt risk premium is 4.84%. This debt risk premium is based on the bond issue by Tabcorp in April 2009.

The DNSP's June 2009 paper discusses Tabcorp's bond issue in detail. The Tabcorp bond issue is also summarised in the following section of the CEG report:[40]

> Tabcorp announced the issue of a 5 year BBB+ rated bond on 24 March 2009. The Tabcorp bond issue is a 5 year issue and was rated at BBB+ by Standard and Poors immediately prior to its issue. It will pay a floating interest rate which is reset every three months to be equal to the then prevailing 3 month bank rate plus a margin of 400bp to 450bp. On 1 April 2009 Tabcorp announced the results of a bookbuild process that set the margin in the middle of this range at 425bp. Tabcorp will also pay a 'bonus' interest payment of 0.25% for the first year to some retail investors. The issue size is expected to be around $200m.

The DNSPs' June 2009 paper and the CEG report describe how the rate of the Tabcorp bond issue can be converted into an annualised fixed yield to maturity rate. The CEG report states that this process results in an equivalent fixed annualised yield in excess of 8.87% (the actual equivalent rate may be higher due to bonus interest that is payable by Tabcorp).

The DNSPs have then adjusted this rate to arrive at an estimate of the yield on the Tabcorp bond had it been issued during the AMI measurement period and had it had a maturity period of 10 years. This process results in a yield of 9.48%, which equates to a debt risk premium of 4.84%.

The process used to reach this figure is described in the DNSPs' June 2009 paper and in the CEG report. The CEG report states:[41]

> In my view converting observed trades from outside the AMI period into equivalent yields inside the AMI period is a reliable approach to determining the benchmark rate in the AMI period given the paucity of traded data during the AMI averaging period. I also note that the Victorian DB's estimate falls within a reasonable range given other available data.

This Tabcorp issue is a very reliable measure of the debt risk premium for the AMI determination. Although the issue was outside the AMI measurement period, it is the first non-financial sector corporate bond and first BBB+ corporate bond issued in Australia since October 2007. The Tabcorp issue is therefore very clearly a measure of the BBB+ observed Australian corporate bond rate.

The Tabcorp issue is for a maturity of 5 years, which is less than the 10 year maturity required by the AMI OIC, but there is no available data on 10 year bonds issued or traded in Australia during or near the AMI measurement period. The Bloomberg 8 year fair yield curve that the AER has relied on is also not a measure of 10 year bond rates, and the data that was used to prepare those curves primarily related to bonds with maturity period of three years or less.

[40] CEG report, page 36 (footnotes omitted).

[41] CEG report, pages 52 to 53.

Given that yields can reasonably be expected to be higher for longer term bonds, the unadjusted Tabcorp 5 year bond can reasonably be interpreted as a conservative estimate of a 10 year BBB+ bond rate. The Tabcorp rate will also be an underestimate because of the issuing costs that are incurred for new issues. Those costs are discussed in Appendix A of the CEG report.

The Tabcorp bond issue therefore provides important current information on the yield demanded by investors for BBB+ corporate debt in the current environment, and acts as a lower bound on the actual BBB+ corporate bond rate.

The CEG report considers the reliability of the Tabcorp bond as a measure of the 10 year BBB+ corporate bond rate and reaches the following conclusions:[42]

> 141. The best available evidence of actual trades in BBB+ (and other) rated bonds proximate to the AMI averaging period confirms the analysis undertaken in prior periods (ie, the lead up to and during the AMI averaging period). Namely, the AER/Bloomberg BBB+ fair value curve significantly underestimates the market observed yields on BBB+ bonds (and even on higher rated bonds).
>
> 142. The Tabcorp bond is the best observation available of a traded BBB+ bond with a medium term maturity that is proximate to the AMI averaging period. Importantly, it is also an observation of the cost of debt *to an issuer* and therefore is desirable as a source of information on the benchmark rate (see criterion i at paragraph 50). The yield at issue on the Tabcorp bond issue can reasonably be viewed as an underestimate of the benchmark rate because the issue was a retail issue and, as such, incurred higher direct transaction costs in reaching retail customers with the pay-off for incurring these costs being lower interest costs paid by Tabcorp.
>
> 143. This observation provides a clear basis for believing that Bloomberg fair value estimates underestimate the benchmark rate.
>
> 144. Of course, the Tabcorp issue is only one observation for one bond. However, the AER/Bloomberg methodology is also effectively based on a single bond (as described below, Santos drives the value of the Bloomberg BBB 8 year fair value). There is also no evidence that the Bloomberg Santos price reflects an actual trade of the bond as opposed to an estimate of its yield. In addition, the Bloomberg estimate for Santos is based on an estimate of the yield associated with a hypothetical trade in the secondary market and not the interest costs to the issuer (as is the case for the Tabcorp observation).
>
> 145. On this basis, to the extent that one was required to set the benchmark on the basis of a single observation it would be preferable for that observation to be based on the actual traded price for the Tabcorp new issue than on a Bloomberg estimate of the hypothetical secondary market traded price for Santos.

Given the inability to observe the corporate bond rate accurately during the AMI measurement period, the AER must have regard to and place considerable weight upon actual bond issues outside of that period. In circumstances where there is no measure of the debt risk premium that meets all four of the AMI OIC requirements, the AER cannot disregard the Tabcorp issue simply because it is outside of the AMI measurement period.

Equally, the fact that the maturity period of the Tabcorp bond is only 5 years does not allow the AER to disregard it. That is particularly so given that the AER's proposed measure is clearly not a measure of 10 year bonds. The DNSPs have converted the Tabcorp yield into a 10 year

[42] CEG report, pages 44 to 45.

rate and it meets this AMI OIC requirement at least as well as the Bloomberg 8 year BBB fair yield curve.

The DNSPs do not justify their proposed debt risk premium solely on the basis of the Tabcorp bond issue. Instead, the DNSPs have chosen Tabcorp as the measure of the debt risk premium because it is a reliable measure of the debt risk premium and it is strongly supported by a consideration of the range of potential measures of the debt risk premium that are discussed in the next section of this submission.

The DNSPs could have instead proposed another of the measures that are set out in the next section. However, the DNSPs consider that having regard to all of the potential measures of the debt risk premium, the Tabcorp issue provides a debt risk premium that is significantly more reliable than the AER's approach in the draft determination but that is still a conservative estimate of the debt risk premium.

5 Alternative measures of the debt risk premium

This section discusses other measures of the debt risk premium that are a more reliable, or at least equally reliable, measure of the 10 year BBB+ corporate bond rate when compared to the AER's approach in the draft determination.

This section also demonstrates that the Bloomberg fair yield curves produce a debt risk premium that is markedly lower than any of these other measures. Indeed, as shown in section 5.1, the Bloomberg fair yield curves are lower than almost all observed bond yields during the AMI measurement period.

The information in this section shows that the Bloomberg curves are not a reliable measure of the debt risk premium for a 10 year BBB+ corporate bond and that, having regard to the range of possible measures, no reasonable regulator would choose to rely on Bloomberg as the measure of the debt risk premium. This information also shows that the Tabcorp bond issue is significantly more consistent with the range of potential measures of the debt risk premium.

5.1 CEG's analysis of bond yields during the AMI measurement period

The CEG report contains an analysis of data for over 600 Australian corporate bonds during the AMI measurement period. The data set is described in the CEG report as follows:[43]

> I have obtained yield estimates during the AMI averaging period for over 600 bonds issued in Australian dollars but not issued by Commonwealth or State Governments. The yield estimates are sourced from Bloomberg, AFMA, UBS rate sheets, CBASpectrum and Reuters. From Bloomberg I have individual yield estimates from Westpac, ANZ, NAB markets, ABN Amro. Not all of these yield sources provide a yield estimate for every bond. .The three most comprehensive sources in terms of bonds covered are UBS, AFMA and CBASpectrum. I have used the Standard and Poor's credit ratings assigned to each bond as reported by UBS where this is available and by AFMA where it is not. In some cases I have altered the credit rating assigned to these bonds by UBS/AFMA to reflect known discrepancies with actual ratings during the AMI period (eg, GPT is rated BBB while UBS has it rated at BBB+). The full set of data used is provided in separately in spreadsheet form.

CEG has then analysed this data to determine a measure of the BBB+ Australian corporate bond rate during the AMI measurement period.

5.1.1 CEG's analysis of BBB+ rated bonds

The results of CEG's analysis of BBB+ rated fixed bonds are shown in the following table, which is derived from tables 9 and 10 from the CEG report:[44]

	All BBB+ fixed bonds	**BBB+ fixed bonds with 4 to 16 years maturity**
Mean (% yield)	5.08	4.92
Median (% yield)	3.70	3.50

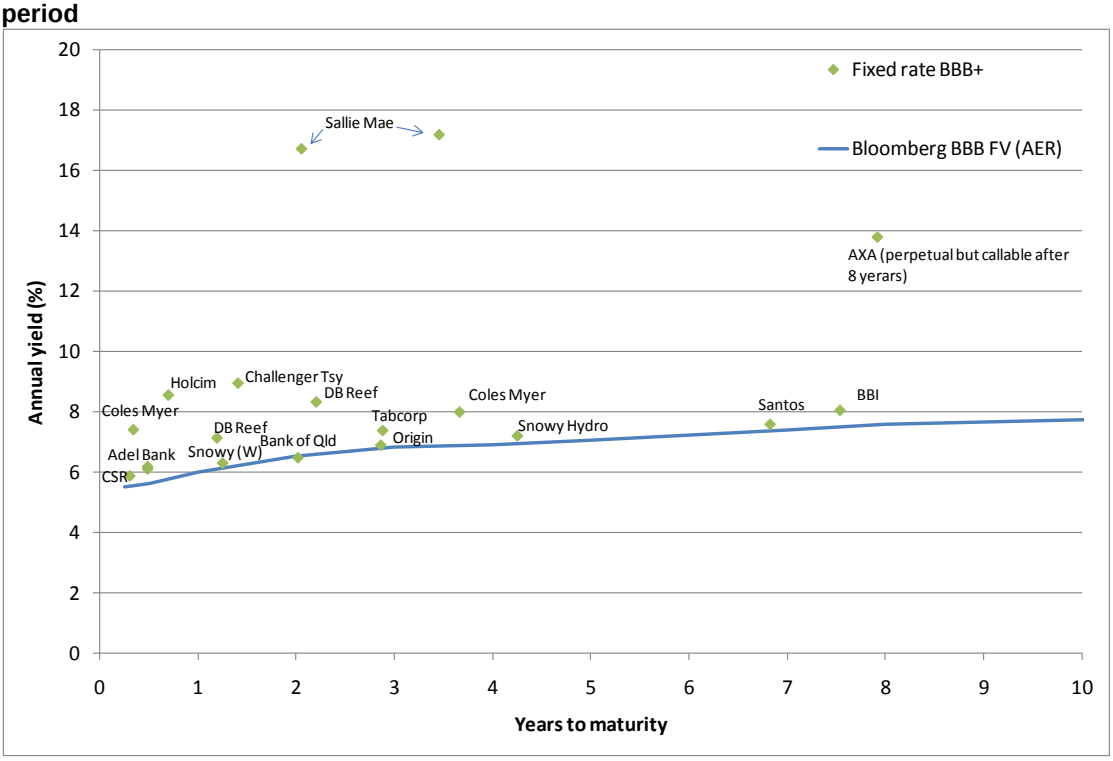
[43] CEG report, page 24.

[44] CEG report, pages 53 and 54.

	All BBB+ fixed bonds	BBB+ fixed bonds with 4 to 16 years maturity
Trimmed mean (% yield)	4.23	4.21
Number of observations	15	4

The following diagram from the CEG report compares the results of CEG's analysis of BBB+ rated bonds during the AMI measurement period with the Bloomberg fair yield curve used by the AER:[45]

Figure 3: Average yield estimates for BBB+ fixed coupon bonds during AMI averaging period



The CEG report then contains the following conclusion regarding the comparison of this data with the Bloomberg fair yield curve:[46]

> 74. As is clearly evident from the above graph the AER/Bloomberg fair value curve passes below the lower envelope of all of the BBB+ bonds for which there are yield estimates. It passes only marginally above only one observation (Bank of Queensland) and passes below all of the other 16 observations of unique issuers (mostly materially below these).
>
> 75. Purely based on this fact one would conclude that the AER/Bloomberg fair value underestimates the typical yield on BBB+ rated debt. [...]

[45] CEG report, page 25.

[46] CEG report, pages 25 to 26.

5.1.2 A- to AA- rated bonds

The CEG report goes on to consider whether the results of an analysis of higher rated bonds support CEG's analysis of BBB+ rated bonds, or whether those higher rated bonds can explain the divergence between CEG's data and the Bloomberg fair yield curve.

The results of CEG's analysis are shown in the following sections of tables 9 and 10 from the CEG report:[47]

Table 9: Average spread to CGS across all maturities

	BBB+	BBB to A-	BBB+ to AA-	BBB+ to AAA
Fixed bonds only				
Observations	15	39	68	130
Mean (%)	5.08	5.46	5.54	4.12
Median (%)	3.70	3.70	4.42	3.33
Trimmed mean(%)	4.23	4.54	4.57	3.34

Table 10: Average spread to CGS across maturities from 4 to 16 years

	BBB+	BBB to A-	BBB+ to AA-	BBB+ to AAA
Fixed bonds only				
Observations	4	11	21	51
Mean (%)	4.92	5.65	5.77	3.87
Median (%)	3.50	6.00	5.90	3.35
Trimmed mean(%)	4.21	5.09	5.34	3.67

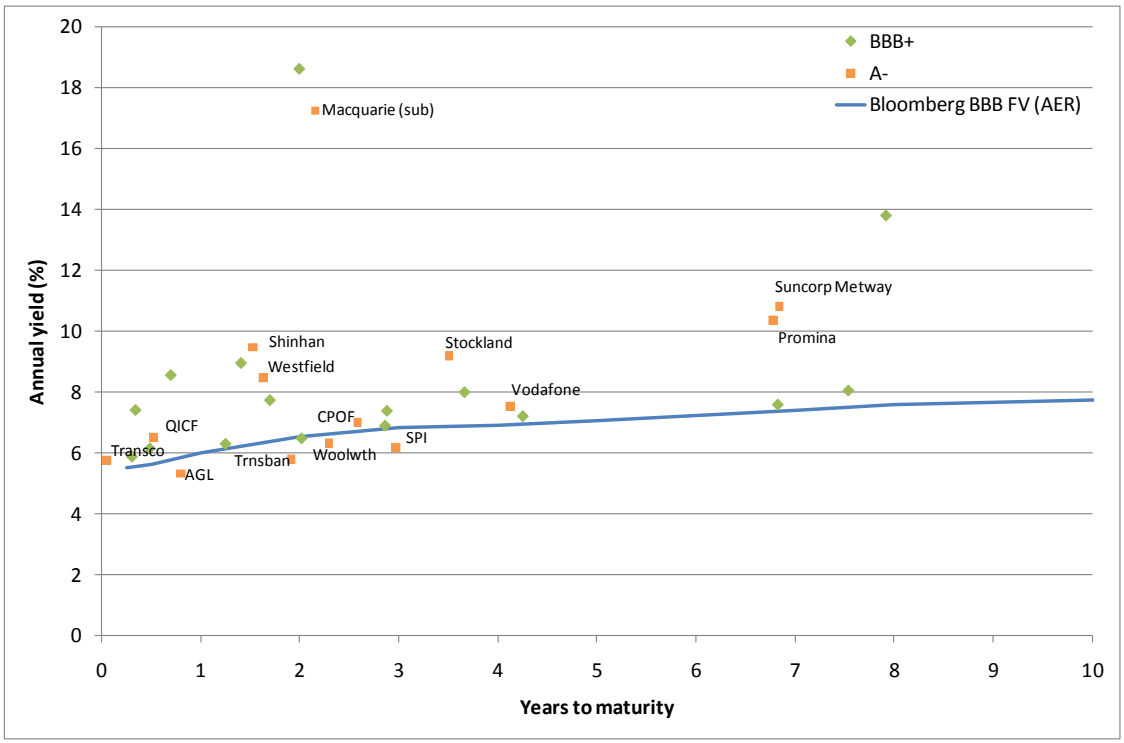
The CEG report also shows the effects of extending the analysis to include yields for A-, A and AA- bonds (respectively) in the following diagrams and commentary:[48]

> 76. I have also examined the yields on A- bonds but, rather than supporting the adoption of BBB+ fair value curve below the majority of BBB+ yields the opposite is true. Not only is the AER/Bloomberg fair value curve below the majority of BBB+ bond yield estimates it is also below the majority of A- bond yields. This is true at all maturities but is especially true at longer maturities (above 3.5 years) where the AER/Bloomberg fair value curve is below all nine of the available observations. The below graph only plots one data point for each issuer (ie, each data point is a unique issuer) and only labels the A- bonds (the BBB+ bonds being labelled in the previous figure).

[47] CEG report, pages 53 and 54. Only the parts of these tables that relate to fixed bonds have been reproduced here. The full tables are set out in section 5.1.3 below.

[48] CEG report, pages 26 to 29.

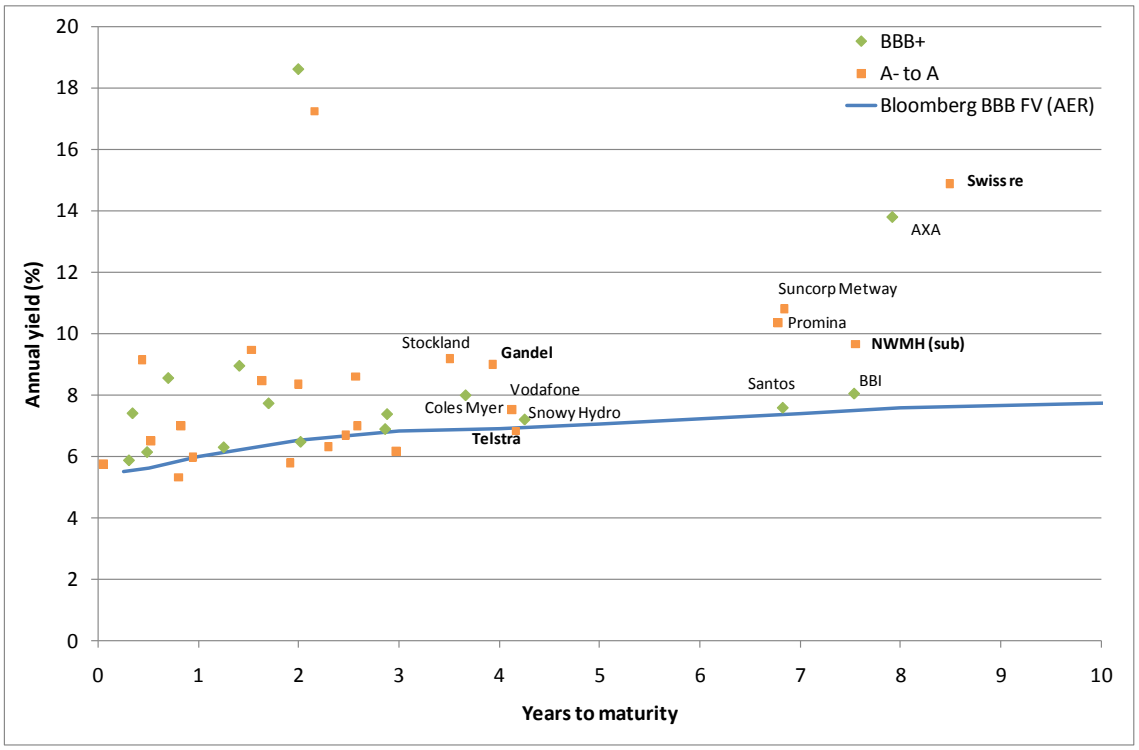
Figure 4: Average yield estimates for BBB+ and A- rated fixed coupon bonds during AMI averaging period



...

78. I have also extended the analysis to include A rated bonds but excluding BBB bonds – in order that every observation correspond to a BBB+ or higher credit rating. These are shown in the below figure where I have labelled all bonds with more than 3.5 years to maturity and the new A rated bonds are labelled in bold. As can be seen, the AER Bloomberg BBB+ fair value curve continues to underestimate all estimated yields for BBB+, A- and A rated fixed coupon bonds with more than four years to maturity.

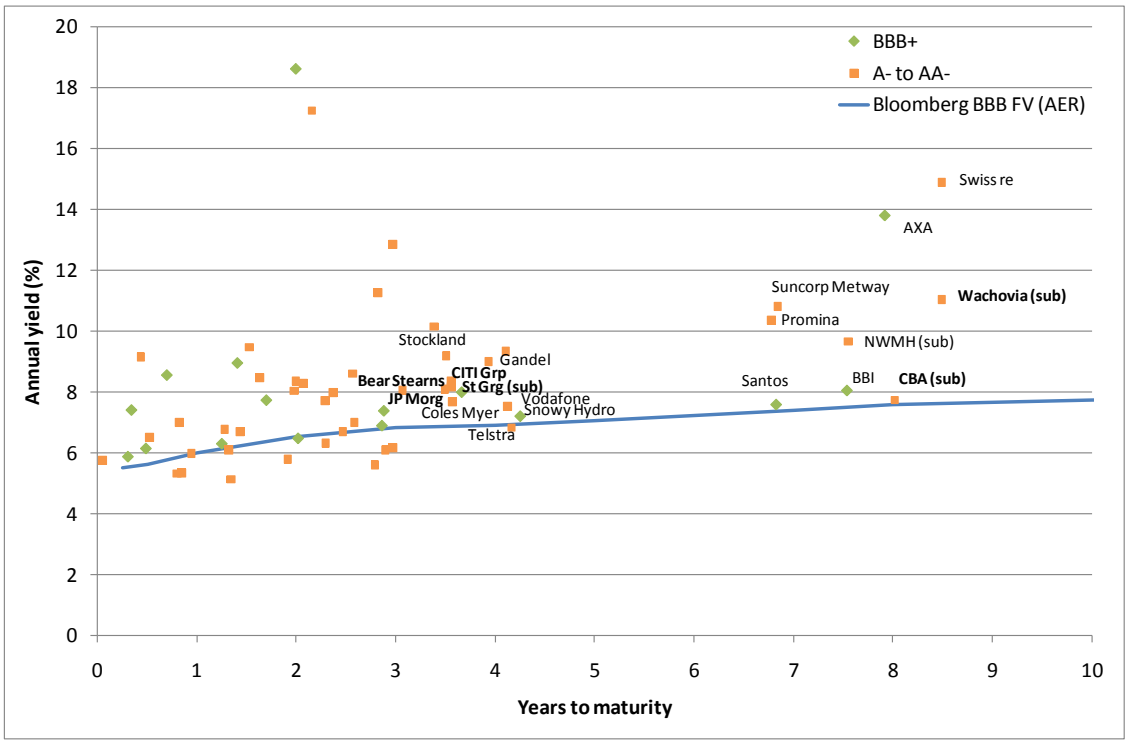
Figure 6: Average yield estimates for BBB+ to A rated fixed coupon bonds during AMI averaging period



79. As can be seen, above 3.5 years to maturity every observation (from BBB+ to A rated) is above the Bloomberg BBB+ fair value curve – with the single exception of Telstra.

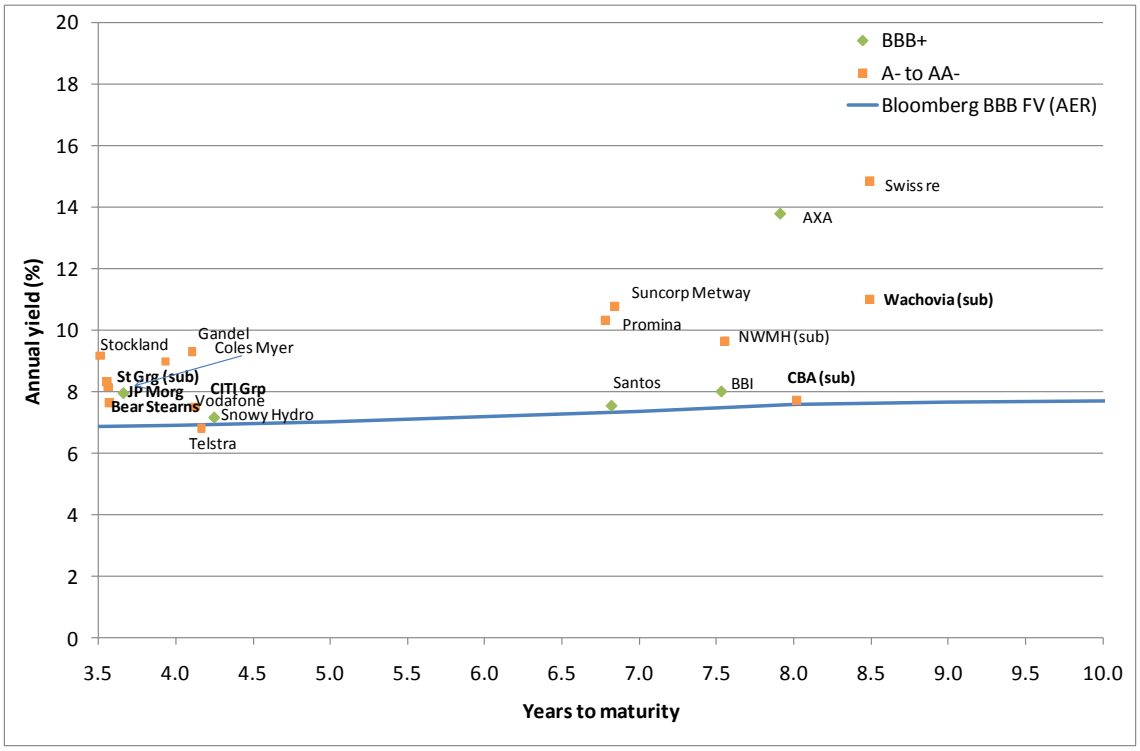
80. Even when the analysis is extended to include all fixed coupon corporate bonds with credit ratings between BBB+ and AA- the same conclusion is found. This can be seen in the below figure which demonstrates that the AER/Bloomberg fair value curve underestimates the yield on the vast majority of BBB+ to AA- bonds and underestimates all but one of the yields on bonds with more than 3.5 years to maturity.

Figure 7: Average yield estimates for BBB+ to AA- rated fixed coupon bonds during AMI averaging period



The CEG report also separately analyses longer term bonds, which is shown in the following diagram:[49]

Figure 8 Average yield estimates for BBB+ to AA- rated fixed coupon bonds during AMI averaging period – bonds with maturity between 3.5 and 10 years



This analysis of higher rated bonds is a relevant consideration when determining the BBB+ corporate bond rate in circumstances where there is no measure of the BBB+ corporate bond rate that complies with all of the AMI OIC requirements.

The rates for these higher rated bonds will be a conservative measure of the BBB+ rated bond, because in normal market conditions the yields for higher rated bonds would be expected to be lower.

5.1.3 Floating rate bonds

The CEG report also analyses data for floating rate bonds. As the CEG report notes:[50]

> 100. In addition to issuing fixed coupon bonds corporations also commonly issue bonds with variable interest rates – commonly terms floating rate notes or floating rate bonds. Floating rate notes pay a fixed coupon plus a variable coupon over the life of the bond. The variable coupon is almost always reset every three months based on the prevailing 3 month interest rate in the swap market (the 3 month bank bill swap rate). On any given trading day a floating rate note can be converted into a fixed coupon bond. This is done by the issuer of the bond entering into a swap contract where they promise to pay a fixed amount to a third party in exchange for the third party promising to pay them the floating payments on the bond over the remainder of the bonds life. This is discussed more in the following section.

[49] CEG report, page 30.

[50] CEG report, page 33.

101. The swap market is sufficiently liquid for us to observe what the equivalent fixed coupon yield is on a floating rate bond today. Indeed, this is precisely how floating rate bonds are priced and quoted in the market. That is, the yield on floating rate bonds is quoted as the bank bill swap rate to the end of the maturities life plus a "trading margin" where the sum of these two values is the equivalent fixed yield on a floating rate note.

The results of CEG's analysis are shown in the following tables from the CEG report:[51]

Table 9: Average spread to CGS across all maturities

	BBB+	BBB to A-	BBB+ to AA-	BBB+ to AAA
Fixed bonds only				
Observations	15	39	68	130
Mean (%)	5.08	5.46	5.54	4.12
Median (%)	3.70	3.70	4.42	3.33
Trimmed mean(%)	4.23	4.54	4.57	3.34
Fixed and floating bond				
Observations	20	54	93	177
Mean(%)	5.42	6.71	5.77	4.29
Median(%)	3.91	4.27	4.38	3.30
Trimmed mean(%)	4.35	4.83	4.43	3.50

*Source: Bloomberg, UBS, AFMA, CBASpectrum, Reuters, and CEG analysis.

Table 10: Average spread to CGS across maturities from 4 to 16 years

	BBB+	BBB to A-	BBB+ to AA-	BBB+ to AAA
Fixed bonds only				
Observations	4	11	21	51
Mean (%)	4.92	5.65	5.77	3.87
Median (%)	3.50	6.00	5.90	3.35
Trimmed mean(%)	4.21	5.09	5.34	3.67
Fixed and floating bond				
Observations	5	16	28	68
Mean (%)	4.80	5.17	5.67	4.00
Median (%)	3.50	5.00	5.63	3.50
Trimmed mean (%)	4.39	5.02	5.17	3.85

*Source: Bloomberg, UBS, AFMA, CBASpectrum, Reuters, and CEG analysis.

[51] CEG report, pages 53 and 54.

The CEG report goes on to conclude:[52]

> 177. In my view, these observations support an estimate of the benchmark BBB+ DRP of at least 5.0% and up to 6.0% (defined by the range of measures of central tendency reported in the samples for BBB to A- issuers and BBB+ to AA- issuers in Table 10). The midpoint of this range is 5.5%.

This information regarding floating rate bonds is a relevant consideration when determining the debt risk premium. There is nothing in the AMI OIC that limits the 'observed annualised benchmark corporate bond rate' for BBB+ 10 year corporate bonds to fixed rate bonds only. Floating rate bonds can be easily converted into a fixed rate to allow for a 'like for like' comparison with fixed rate bonds.

5.1.4 CEG's conclusions from comparing the results of this analysis with the Bloomberg fair yield curves

Having undertaken this analysis, the CEG report concludes as follows in relation to the reliability of the approach that the AER took in the draft determination:[53]

> 86. During the AMI averaging period, the AER/Bloomberg BBB+ fair value curve clearly does not accurately predict/reflect the yield estimates for corporate bonds of BBB+ rating or higher for which yield estimates are available from a large number of sources. This is true at all maturities but is especially true for longer maturities (eg, greater than 3.5 years).
>
> 87. If the AER/Bloomberg BBB+ fair value curve was accurate it would predict higher yields than actually attributed bonds rated higher than BBB+. However, the reality is that the vast majority of A- to AA- bonds have higher estimated yields than the AER/Bloomberg BBB+ fair value curve.
>
> 88. In the case of BBB+ to AA- corporate bonds with a time to maturity of more than 3.5 years, all but one of the 19 issuers of these bonds attract a higher yield than the AER/Bloomberg BBB+ fair value curve. The differences are not trivial, with the average mean difference being 2.1%.
>
> 89. The fact that the AER/Bloomberg BBB+ fair value curve is lower than all but one of the issuers with longer dated bonds means that the AER/Bloomberg fair value curve is a downward biased estimator of yield estimates not only on long dated BBB+ rated bonds but also of bonds rated A- to AA-.

5.2 The bond issue by AMP in March 2009

AMP Group Financial Services issued approximately $300 million of A- subordinated floating rate bonds guaranteed by AMP Group Holdings Limited in March 2009, with the fixed coupon on these bonds being set at 4.75% on 11 March 2009. The AMP bond has a potential maturity of 10 years, although in practice its term is likely to be 5 years.

The CEG report considers this bond issue and converts the bond's yield to an annualised fixed yield to maturity rate of 9.12%. The resulting debt risk premium is 4.49%.

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[52] CEG report, page 55.

[53] CEG report, page 31.

The DNSPs consider that this AMP bond issue is also a relevant consideration that the AER must take into account. As with the Tabcorp bond issue, it is clear evidence of the observed Australian corporate bond rate.

5.3 CBASpectrum

CBASpectrum publishes fair yield curves for the Australian debt market. Bloomberg and CBASpectrum are, to the DNSPs' knowledge, the only services that produce fair yield estimates of Australian corporate bonds with specific credit ratings and maturities.

As with Bloomberg, the purpose of the CBASpectrum curves is to provide an estimate of bond yields. The process used by CBASpectrum in preparing its fair yield curves and the differences between the processes used by CBASpectrum and Bloomberg are discussed in the CEG report.[54]

5.3.1 CBASpectrum BBB+ 10 year fair yield curve

CBA Spectrum publishes a 10 year BBB+ fair yield curve.

Averaged over the AMI measurement period, the CBASpectrum BBB+ 10 year fair yield curve produces a fair yield of 9.55%. The resulting debt risk premium is 4.92%.

This CBASpectrum fair yield curve satisfies more of the AMI OIC requirements than Bloomberg's fair yield curves because:

- the CBASpectrum curve is a BBB+ curve, as required by the AMI OIC, while Bloomberg is a BBB curve that includes BBB-, BBB and BBB+ rated bonds; and
- the CBASpectrum curve is a 10 year curve, as required by the AMI OIC, while Bloomberg's longest BBB curve is 8 years and is required to be modified by the AER to attempt to create a 10 year curve.

Unlike Bloomberg, CBASpectrum does not remove outliers when it is creating its fair yield curves. This fact makes CBASpectrum more representative of the observed benchmark corporate bond rate, as required by the AMI OIC. It also improves the reliability of CBASpectrum, especially during the AMI measurement period where there was already a very small number of observations to measure, and given that Bloomberg's approach to the exclusion of outliers is non-transparent and highly subjective with the result that the AER cannot be satisfied that using Bloomberg is reasonable and will produce a reliable estimate.

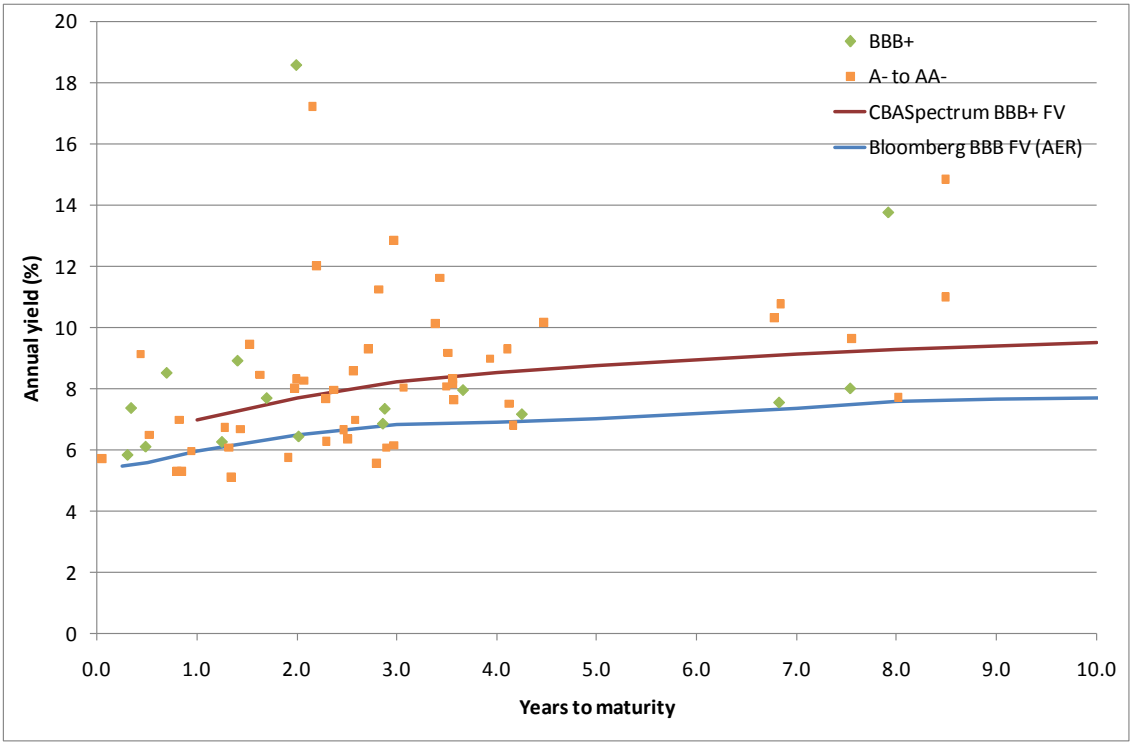
The CEG report analyses the differences between Bloomberg and CBASpectrum methodologies and the reasons for the differences in their results.[55] CEG states that in 'normal' market conditions, the differences between the results of Bloomberg and CBASpectrum are relatively small. However, since the start of the global financial crisis, the differences have become large.

[54] CEG report, section 7.

[55] CEG report, section 7.

The following diagram from the CEG report shows a comparison of the Bloomberg fair yield curve and the CBASpectrum fair yield curve, each plotted against the bonds analysed by CEG.[56] It demonstrates that CBASpectrum produces a result that is more reflective of the bonds that CEG analysed.

Figure 11: Average yield estimates for BBB+ to AA- rated fixed coupon bonds during AMI averaging period



The CEG report considers the reliability of the CBASpectrum fair yield curve and reaches the following conclusions:[57]

151. In contrast to the AER/Bloomberg fair value estimates, I find that the CBASpectrum estimates:

- behaved in the manner expected of a fair value estimate following the worsening of the global financial crisis. Specifically, rather than credit spreads staying relatively constant through September, October and November 2009 (as reported by Bloomberg), CBASpectrum estimated increasing credit spreads in the period leading up to the AMI averaging period – consistent with theory and published BBB yield estimates by the RBA;
- better fit the data for yield estimates during the AMI averaging period; and
- better described the yields observed on actual trades of BBB+ (and other rated) debt post the AMI averaging period.

152. For these reasons I find the CBASpectrum BBB+ fair value estimate to be a more reliable proxy for the benchmark BBB+ rate during the AMI averaging period. I step through the evidence underlining each of the dot points in the following subsections.

[56] CEG report, page 50.

[57] CEG report, page 47.

5.3.2 Average of CBA Spectrum and Bloomberg

Another potential measure of the debt risk premium would be to average the Bloomberg and CBASpectrum fair yield curves.

A simple average of CBASpectrum and Bloomberg would result in a debt risk premium of 4.01%.

Such an average has the benefit of increasing the data pool that is used compared with using Bloomberg alone, which is particularly relevant given the low amount of data that was available during the AMI measurement period.

5.4 RBA data

In the DNSPs' June 2009 paper, the DNSPs provided data reported by the RBA for corporate bond yields and spreads between Commonwealth Government bonds and corporate bonds. The following table was included as Attachment 4 of that paper:[58]

[58] Annexure 4 of the DNSPs' June 2009 paper. This table is an excerpt from the Statistical Tables of the April 2009 *RBA Bulletin*. The data is available from the RBA's web site at: http://www.rba.gov.au/Statistics/Bulletin/F03.pdf.

F.3 Capital Market Yields and Spreads — Non-government Instruments

	Corporate bonds with 1 to 5 years maturity											
	Yields per cent per annum			Spreads over bonds issued by the Australian Government basis points			Spreads over swap rates basis points			5-year credit default swap spreads basis points		
	AA	A	BBB	AA	A	BBB	AA	A	BBB	AA	A	BBB
2005 Jun	5.67	5.81	5.96	56	69	84	13	27	42	12	31	49
2006 Jun	6.32	6.44	6.55	53	66	75	14	25	38	9	24	44
2007 Jun	7.01	7.08	7.32	58	66	88	15	25	45	5	19	50
2007/08												
Mar	8.43	8.78	8.87	223	259	267	109	144	152	98	145	184
Apr	8.62	8.94	8.95	218	251	250	100	133	132	66	98	141
May	8.69	9.05	9.15	192	230	236	95	132	139	59	81	120
Jun	8.90	9.38	9.45	216	265	267	106	155	159	84	100	142
2008/09												
Jul	8.35	8.89	9.05	211	266	277	108	162	175	80	107	161
Aug	7.77	8.39	8.81	207	270	311	104	166	208	98	124	188
Sep	7.61	8.38	8.77	249	326	365	135	212	251	103	159	220
Oct	6.67	7.88	8.73	221	342	429	134	254	343	117	212	350
Nov	5.88	7.14	7.90	240	362	446	166	286	371	138	260	418
Dec	5.87	7.24	7.53	279	415	449	211	347	383	161	312	535
Jan	5.40	6.83	7.13	270	409	443	211	352	389	138	280	414
Feb	5.52	7.12	8.09	248	406	503	207	365	463	189	303	398
Mar	6.21	8.07	8.93	301	485	574	261	443	534	159	342	475
Daily												
2 Mar	5.60	7.21	8.10	257	417	507	213	373	464	..	..	..
3 Mar	5.67	7.32	8.36	259	422	527	213	377	484	..	..	..
4 Mar	5.54	7.19	8.36	252	415	534	211	374	494	..	..	..
5 Mar	5.52	7.29	8.19	250	425	517	212	387	479	196	339	478
6 Mar	5.43	7.24	8.25	252	430	534	212	391	495	..	..	..
9 Mar	5.34	7.18	8.16	253	434	535	212	393	495	..	..	..
10 Mar	5.43	7.28	8.25	255	438	536	213	396	495	..	..	..
11 Mar	5.46	7.29	8.26	254	436	534	215	397	496	..	..	..
12 Mar	5.41	7.23	8.20	256	437	535	214	395	494	213	366	500
13 Mar	5.91	7.32	8.24	298	439	533	254	396	491	..	..	..
16 Mar	5.96	7.38	8.34	299	440	537	256	398	496	..	..	..
17 Mar	6.01	7.40	8.39	297	436	535	256	396	496	..	..	..
18 Mar	6.00	7.39	8.55	297	436	550	257	397	509	..	..	..
19 Mar	5.92	7.29	8.42	304	442	554	258	397	507	174	361	474
20 Mar	6.03	7.48	8.54	308	454	559	262	409	513	..	..	..
23 Mar	6.16	7.63	8.68	307	456	560	262	412	515	..	..	..
24 Mar	6.23	7.70	8.87	307	456	572	264	414	529	..	..	..
25 Mar	6.28	7.75	8.92	305	454	570	264	414	529	..	..	..
26 Mar	6.37	7.86	9.04	303	455	571	262	414	530	159	342	475
27 Mar	6.33	7.85	9.06	298	453	573	258	414	532	..	..	..
30 Mar	6.25	7.76	8.97	298	452	572	259	414	532	..	..	..
31 Mar	6.21	8.07	8.93	301	485	574	261	443	534	..	..	..

Sources: AFMA; Bloomberg; RBA; UBS AG, Australia Branch

This table shows that in November and December 2008 the RBA was reporting spreads of 4.46% and 4.49% for BBB rated bonds. The RBA was also reporting spreads of 3.62% and 4.15% for A rated bonds.

These spreads were for bonds of a maturity of 1 to 5 years. It is reasonably safe to assume that yields and spreads for 10 year bonds would have been higher than these rates due to the increased risk associated with longer maturity corporate bonds. This RBA data can therefore be used to set a lower bound for an estimate of the observed BBB+ 10 year corporate bond rate and debt risk premium.

The CEG report discusses this RBA data and states:[59]

> The AER/Bloomberg fair value curve estimated spreads to CGS for 10 year BBB+ rated bonds of 3.09%. By contrast the RBA was reporting spreads to CGS for 3 years BBB debt of 4.46% in November and 4.49% in December (not annualised). This alternative source of yield estimates also suggests that the AER/Bloomberg fair value curve underestimates the actual yields estimated in debt markets.

5.5 Bonds issued by Australian corporates in the US market

In the DNSPs' June 2009 paper, the DNSPs provided information regarding 5, 7 and 10 year corporate bonds issued by Australian corporates into the United States bond market near the time of the AMI measurement period.[60]

The DNSPs have updated the calculations of the effective spread over the Australian corporate bond rate and have set out revised tables below. A 5 year BBB+ bond issue by Caltex has been added to the first table.[61]

5-year

Company	Spread over US Treasury at Issue	Effective Spread over Aust CGL	Launch/ Announcement Date	Issue Type	Issue Amount	Rating
QBE Insurance	770	802	30-Dec-08	144a reg S	US$210mn	A3/A-
Woodside	625	615	24-Feb-09	144a reg S	US$400mn	Baa1/A-
Brambles	550	556	15-Mar-09	144a reg S		NAIC-2
BHP Billiton	400	400	18-Mar-09	US Public - SEC registered	US$1.55bn	A1/A+
Rio Tinto	752	794	14-Apr-09	US Public - SEC registered	US$2bn	Baa1/BBB
Caltex Aust	615	649	14-Apr-09	USPP	US$50mn	BBB+
Westfield	549	564	27-May-09	144a reg S	US$700mn	A-/A2/A-

[59] CEG report, page 34.

[60] Annexure 1 of the DNSP' June 2009 paper.

[61] These tables show 5, 7 and 10-year US dollar bond issues by Australian non-bank companies in the US, with the effective swap back to A$ as a spread to the Commonwealth bond rate, had the issuers entered into a cross-currency swap to fixed rate A$ at the time of the issue. Notes regarding the calculations for these tables are set out in Appendix 5.

7-year

Company	Spread at Issue	Effective Spread over Aust CGL	Launch/ Announcement Date	Issue Type	Issue Amount	Rating
Brambles	550	586	15-Mar-09	USPP		NAIC-2
Caltex Australia	615	666	14-Apr-09	USPP	US$125mn	BBB+
APA Pipelines	575	620	14-May-09	USPP	US$65mn	

10-year

Company	Spread at Issue	Effective Spread over Aust CGL	Launch/ Announcement Date	Issue Type	Issue Amount	Rating
BHP Billiton	400	476	18-Mar-09	US Public - SEC registered	US$1.75bn	A1/A+
Woodside	613	663	24-Feb-09	144a reg S	US$600mn	A-
Brambles	550	629	15-Mar-09	144a reg S		NAIC-2
Rio Tinto	658	780	14-Apr-09	US Public - SEC registered	US$1.5bn	Baa1/BBB
APA Pipelines	575	728	14-May-09	144a reg S	US$75mn	

The average spread to the Commonwealth bond rate across all maturities is 6.35%. The average spread to the Commonwealth bond rate for the 10 year bonds is 6.55%

In the draft determination, the AER states that it 'does not consider it appropriate to compare the Bloomberg Australian fair yields against the yields of international bonds.'[62]

The DNSPs do not consider that the AER is entitled to disregard this US data. In the circumstances where there is no measure of the debt risk premium that meets all four of the AMI OIC requirements, this US data is a relevant consideration in relation to the calculation of the debt risk premium and the AER is required to have regard to it.

The DNSPs consider that there are good arguments that corporate bonds issued by Australian corporates in the US market are a measure of the 'observed annualised Australian benchmark corporate bond rate'. In any event, given that there is no other bond data that meets all of the AMI OIC requirements, the AER cannot disregard this data simply because the AER considers that it fails to meet this one of the four AMI OIC requirements.

[62] Draft determination, page 121.

The data relating to 10 year maturity bonds issued by Australian corporates in the US is particularly relevant to the assessment of the debt risk premium given that there is very little other data relating to bonds with a 10 year maturity and the AER's approach in the draft determination is not based on any data regarding 10 year bonds. This information is clearly relevant and the AER must have regard to it.

5.6 Secondary trades during the AMI measurement period of bonds issued by Australian corporates in the US market

In the DNSPs' June 2009 paper, the DNSPs provided information regarding secondary trades during the AMI measurement period for corporate bonds previously issued by Australian corporates into the US market.

The table below updates the table from page 13 of the DNSPs' June 2009 paper and shows the non-annualised effective spread to the US risk free rate (the US Treasury bond) and the calculated spread to the Australian risk free rate (the Australian Commonwealth Bond Rate) for bonds that were issued by Australian companies in the US prior to the AMI measurement period, based on trading levels for the bonds on 24/11/2008 (being a date in the AMI measurement period).[63]

Company	Maturity	Effective Spread over US Treasury	Effective Spread over Aust CGL	Launch/ Announcement Date	Issue Type	Issue Amount	Rating
Wesfarmers	10-Apr-13	511	496	03-Apr-08	Reg S	US$650mn	Baa1/BBB+
Qantas	20-Jun-13	579	597	17-Jun-03	Reg S	US$450mn	Baa2/BBB
Fosters	01-Oct-14	324	381	28-Sep-04	Reg S	US$300mn	Baa1/BBB+
BHP	15-Dec-15	543	597	05-Dec-05	SEC reg'd	US$700mn	A1/A+
Qantas	15-Apr-16	358	421	28-Mar-06	Reg S	US$514mn	Baa2/BBB
Westfield	15-Apr-18	311	332	09-Apr-08	Reg S	US$1.1bn	A2/A-

The average spread to the Commonwealth bond rate across all maturities and credit ratings is 4.61%.

As with the information in section 5.5, the DNSPs consider that this information is a relevant measure of the debt risk premium in circumstances where there is no measure that complies with all of the AMI OIC requirements.

[63] Notes regarding the calculations for this table are set out in Appendix 5.

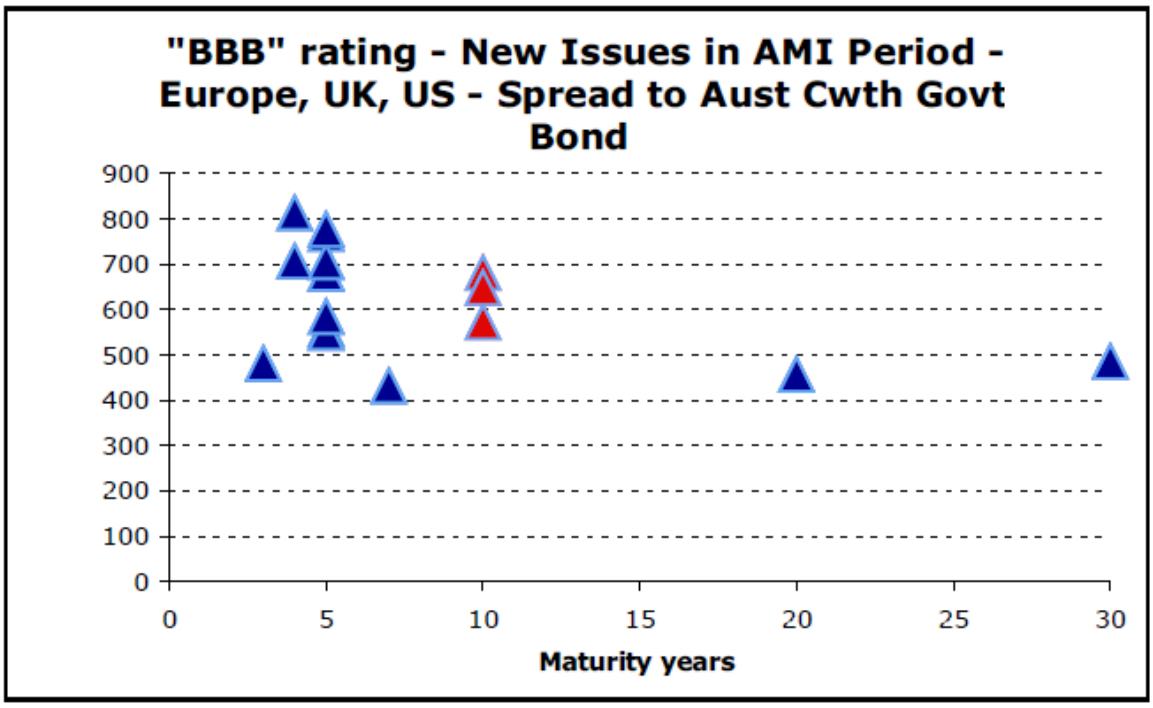
5.7 Other bonds issued in overseas markets during the AMI measurement period

The DNSPs have also analysed the spreads to the relevant Australian Commonwealth Government Bond (calculated after swap to Australian dollars) for new bond issues in Europe (Euros), the US (US$), and the UK (sterling) during the AMI measurement period. This analysis does not include bonds issued by Australian corporates in the US, which are considered separately in section 5.5 above.

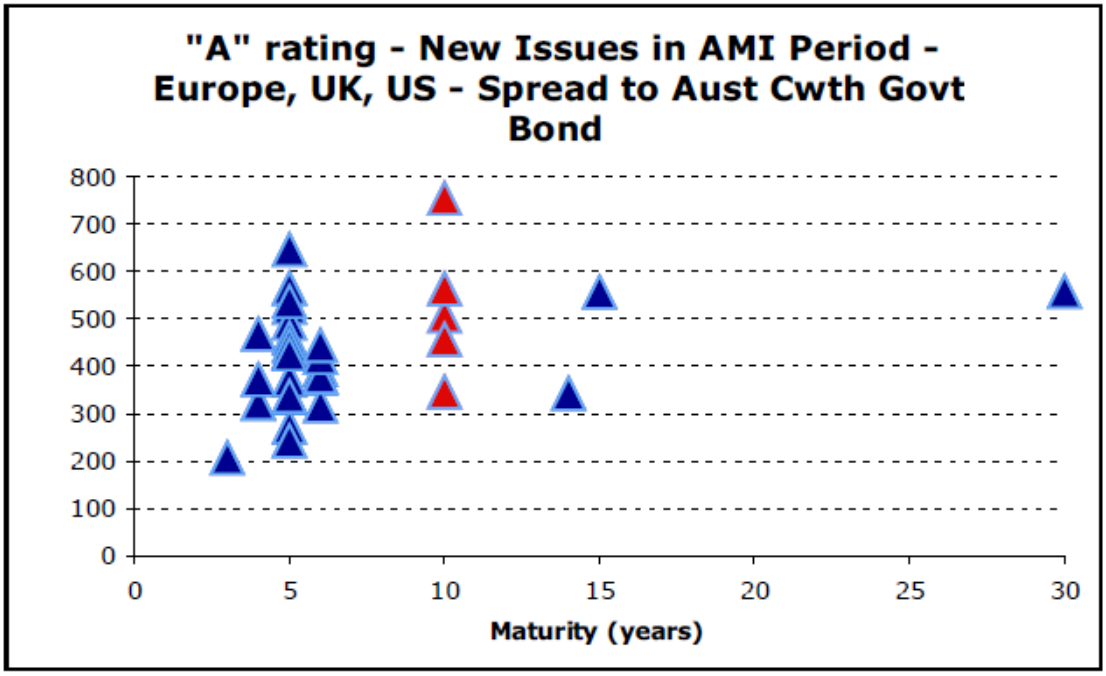
These rates are observed rates that are based on corporate bond issues that were bought and sold in the market during the AMI measurement period.

Although this data relates to corporate bonds outside of Australia, the DNSPs consider that it is relevant in the context where no measure of the debt risk premium meets all of the AMI OIC requirements.

The data regarding these overseas bond issues is summarised in the following graphs and table.[64]



[64] Note that the "BBB" rating category in the table and graphs includes BBB-, BBB and BBB+. The "A" rating category includes A-, A, A+, AA-, AA and AA+. Notes on the calculations used in preparing the graphs and table are set out in Appendix 5.



Average (annualised) spread: New issues in AMI measurement period - Europe, US and UK (in basis points)

Maturity	Range "BBB" rated	Average Spread "BBB" rated	Range "A" rated	Average Spread "A" rated	Range - Electricity & Gas Distribution Companies Only	Average Spread - Electric & Gas Distribution Companies Only
3 years	483	483	207	207		
4 years	709-815	762	323-469	389		
5 years	551-779	662	245-647	435	272-770	482
6 years			318-445	389	318-420	369
7 years	433	433				
8 years						
10 years	**574-684**	**636**	**347-756**	**527**	**347-756**	**574**
14 years			344	344	344	344
15 years			558	558		
20 years	459	459				
30 years	488	488	559	559		

As demonstrated in the above table, for BBB rated bonds the average spread to the Australian Commonwealth Government Bond rate (after swap to Australian dollars) for new issues in Europe, the US and the UK in the AMI measurement period with a 10 year maturity period was 6.36%, with a range of 5.74-6.84%.

For A rated bonds, the average spread to the Australian Commonwealth Government Bond rate (after swap to Australian dollars) for new issues in the AMI measurement period with a 10 year maturity period was 5.27%, with a range of 3.47-7.56%.

The average 10 year spread to the Australian Commonwealth Government Bond rate for the electricity and gas distribution companies only across all rating categories with a 10 year maturity period was 5.74 basis points, with a range of 3.47-7.56%.

5.8 Bond pricing envelope

The DNSPs have prepared a bond pricing envelope with the objectives of:

- developing a statistical estimate of the range within which the fair value of a BBB to BBB+ rated bond would likely have been during the AMI measurement period; and
- determining the mean estimate of a BBB to BBB+ rated bond over the AMI measurement period.

Data used

Price estimates have been sourced from the following:

1. Bonds rated BBB to BBB+, issued by Australian corporates and trading in the Australian Domestic Bond Market:
    a. Underlying prices contributed by various banks into data gathering systems of AMFA, Bloomberg, and daily rate sheets
    b. Reuters pricing estimates generated from:
        i. Reuters Pricing Service
        ii. Yieldbroker data services
        iii. Reuters Multi-contributor
    c. CBASpectrum Bond price database
2. Bonds rated BBB to BBB+, issued by Australian corporates and trading in the secondary global bond markets, swapped back to Australian dollars using standard swap pricing methodology
3. New Issues in the global bond market by all issuers rated BBB to BBB+ into the US, UK and European bond markets, during the AMI period

Methodology

The DNSPs have, in principle, followed the methodology used by AFMA in generating their daily AFMAdata Independent Bond Valuation (as outlined on their website) and have generated a price estimate for all price contributions that lie within "1" standard deviation from the raw mean.

All data has been weighted appropriately to ensure that each data point (ie each corporate bond) has the same level of contribution into pricing averages.

Step 1 – For the purpose of this analysis, the bond curve was segmented into three time periods:

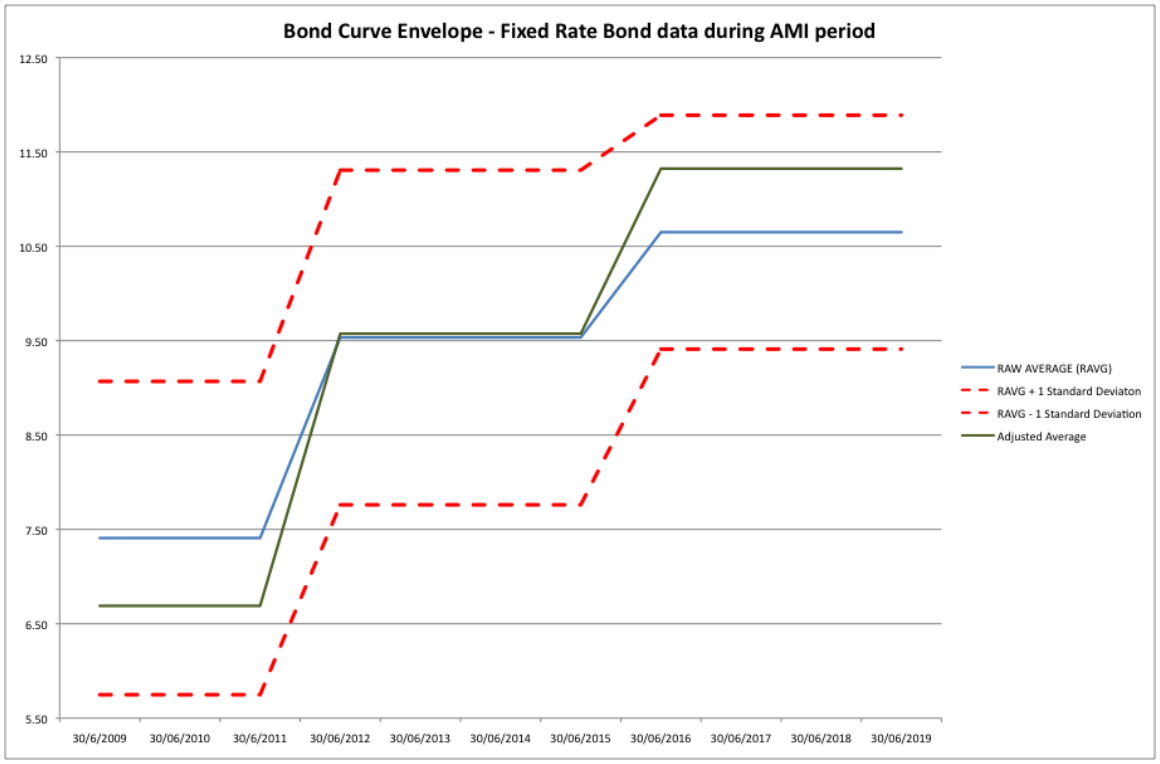
1. The "Short End" – from 1 to 3 years
2. The "Mid Curve" – from 4 years to 7 years
3. The "Long End" – from 8 years to 11 years

Step 2 – The data set of all price contributions for each segment was subjected to the following treatments:

1. Calculation of the Raw Average (RAVG) – This is the simple average of all data in the data segment.
2. Calculation of the Standard Deviation of all data in that segment
3. Calculation of the "1" Standard Deviation envelope of RAVG plus and minus "1" Standard Deviation.
4. Calculation of the Adjusted Average using data that was between the upper and lower bounds of the above envelope.

Results

	Short End (1 – 3 years)		**Mid Curve (4 – 7 years)**		**Long End (8 – 11 years)**	
	Yield	**Debt risk premium**	**Yield**	**Debt risk premium**	**Yield**	**Debt risk premium**
Raw Average (RAVG)	7.41 %	2.78%	9.53 %	4.90%	10.65 %	6.02%
RAVG + 1 SD	9.07%	4.44%	11.31 %	6.68%	11.89 %	7.26%
RAVG – 1 SD	5.75 %	1.12%	7.76 %	3.13%	9.41 %	4.78%
Adjusted Average	6.69 %	2.06%	9.57 %	4.94%	11.32 %	6.69%



Conclusions

This analysis corroborates the other results discussed in this section 5 and supports the view that the Tabcorp bond issue is a conservative estimate of the debt risk premium and the Bloomberg fair yield curves significantly underestimate the debt risk premium.

6 Conclusion

Where no single measure of the debt risk premium complies with all of the AMI OIC requirements, the AER must have regard to all relevant indicators of the debt risk premium and adopt a measure that is consistent with all of the evidence.

The following table summarises all of the relevant measures of the debt risk premium that are discussed in this submission.[65] The results are ordered from the lowest to the highest debt risk premium.

DRP measure	Yield	Debt risk premium
Draft determination, based on Bloomberg fair yield curves	**7.72%**	**3.09%**
RBA (average of November and December 2008 BBB spreads for 1-5 year maturity)	9.11%	4.48%
AMP March 2009 A- bond issue	9.12%	4.49%
Secondary trades during the AMI measurement period of bonds issued by Australian corporates in the US market	9.24%	4.61%
CEG report: BBB+ mean (4 to 16 year fixed and floating rate observations)	9.43%	4.80%
Tabcorp April 2009 BBB+ bond issue	**9.48%**	**4.84%**
CEG report: BBB+ mean (4 to 16 year fixed rate observations)	9.55%	4.92%
CBASpectrum BBB+ 10 year fair yield curve	9.55%	4.92%
CEG report: BBB+ mean (all fixed rate observations)	9.71%	5.08%
CEG report: BBB+ to A- mean (4 to 16 year fixed and floating rate observations)	9.80%	5.17%
Overseas issues during the AMI measurement period: mean of A rated 10 year bonds	9.90%	5.27%
CEG report: BBB+ mean (all fixed and floating rate observations)	10.05%	5.42%
CEG report: BBB+ to A- mean (all fixed rate observations)	10.09%	5.46%
CEG report: BBB+ to A- mean (4 to 16 year fixed rate observations)	10.28%	5.65%

[65] This table summarises results that are explained in the earlier sections of this submission. The nominal risk free rate for determining the debt risk premium is 4.63%, as set out in the draft determination.

DRP measure	Yield	Debt risk premium
DNSPs' bond pricing envelope: raw average (8 to 11 years)	10.65%	6.02%
Bonds issued by Australian corporates in the US market (mean of all bonds)	10.98%	6.35%
Bonds issued by Australian corporates in the US market (mean of 10 year bonds)	11.18%	6.55%
Overseas issues during the AMI measurement period: mean of BBB rated 10 year bonds	11.26%	6.63%
DNSPs' bond pricing envelope: adjusted average (8 to 11 years)	11.32%	6.69%
CEG report: BBB+ to A- mean (all fixed and floating rate observations)	11.34%	6.71%

This table shows that the approach taken in the draft determination produces the lowest possible debt risk premium. That debt risk premium is clearly out of line with all other estimates of a debt risk premium that complies with the AMI OIC requirements. Indeed, the next lowest result is 45% higher than the AER's debt risk premium, and several of the measures are more than double the AER's proposed debt risk premium.

The debt risk premium calculated based on the Tabcorp issue also results in a debt risk premium that is lower than almost three-quarters of the other estimates of the debt risk premium. However, the Tabcorp result is much closer to the majority of the other results. It is within 0.5% of nine other results, including CBASpectrum, the RBA average, AMP's March 2009 A- bond issue, the CEG report's calculation of the mean spread to CGS on BBB+ bonds and the mean yields on longer maturity BBB+ and BBB+ to A- bonds, and two measures of overseas bond rates.

As demonstrated by this table and the analysis in sections 3 and 5 of this submission, the Bloomberg fair yield curves are an unreliable estimate of the debt risk premium and significantly underestimate the observed corporate bond rate for BBB+ 10 year bonds. The use of the Bloomberg fair yield curves is inconsistent with all relevant supporting evidence, and they cannot reasonably be relied upon by the AER as the measure of the debt risk premium.

The DNSPs' proposed debt risk premium, which is based on the Tabcorp bond issue, is significantly more consistent with the weight of the supporting evidence.

The DNSP's approach is a conservative measure and there would be grounds for justifying a higher debt risk premium than the Tabcorp rate of 4.84%, but there is clearly no basis for adopting a debt risk premium of 3.09% based on the Bloomberg fair yield curves.

Appendix 1: CEG report

The CEG report is attached as a separate document.

Spreadsheets containing the data used in the CEG report will follow separately.

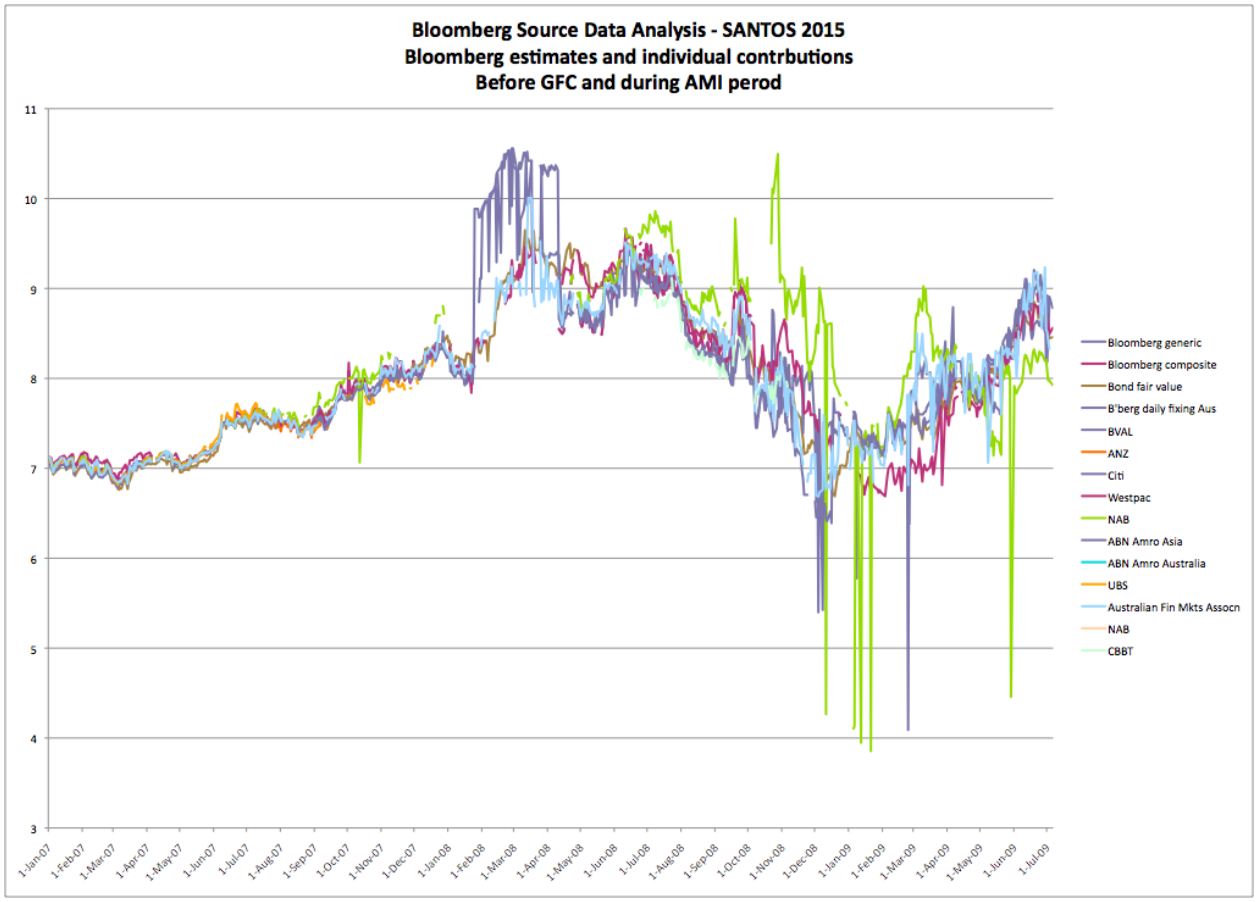
Appendix 2: Analysis of the source data estimates used by the AER

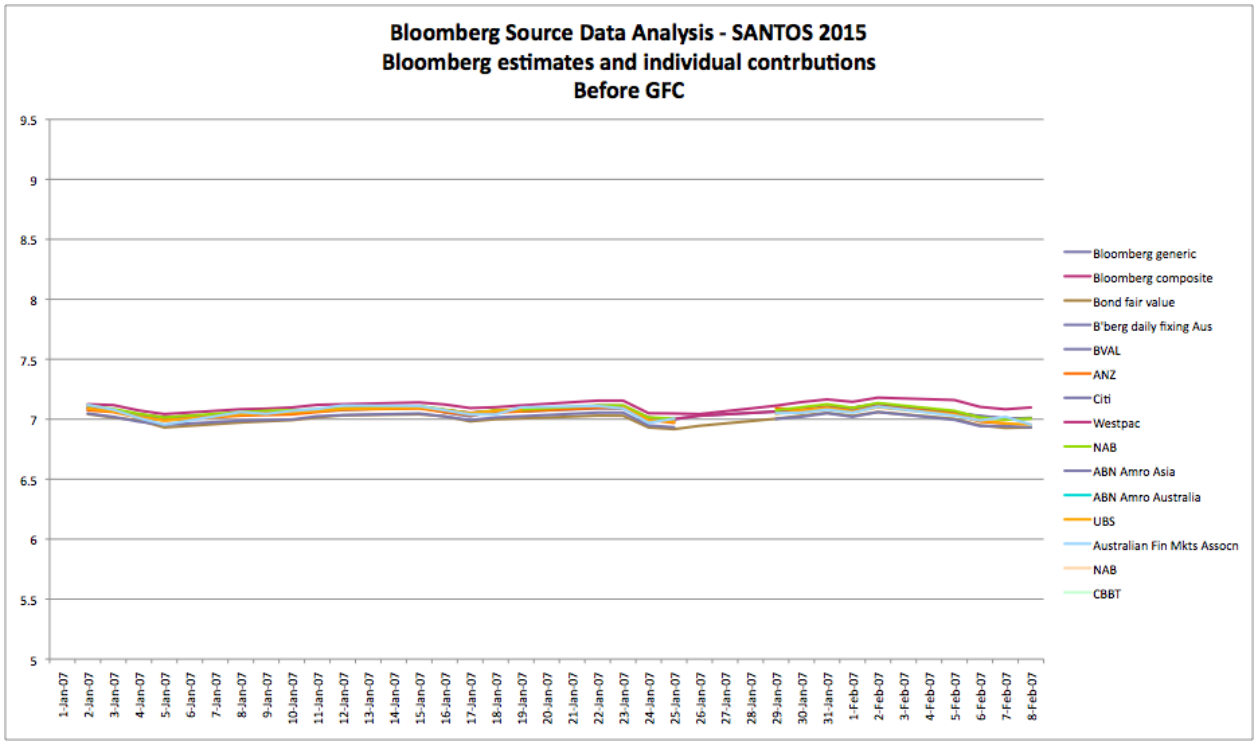
This analysis looks at the source data used by agencies such as Bloomberg and AFMAdata in the generation of their estimates of end of day pricing. We have restricted our analysis to the longest dated bond in the BBB category as it has the greatest influence on the AER's estimate.

Bloomberg

We did an analysis of the Bloomberg source data from various contributors to get an understanding of the internal consistency of this data. We reviewed a period from January 2007 so as to compare the data distribution before and after the Financial Crisis.

We show below the charts for SANTOS 2015 and a few other BBB bonds of similar maturity:




Bloomberg Source Data Analysis - SANTOS 2015
Bloomberg estimates and individual contrbutions
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B'berg daily fixing Aus
BVAL
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Citi
Westpac
NAB
ABN Amro Asia
ABN Amro Australia
UBS
Australian Fin Mkts Assocn
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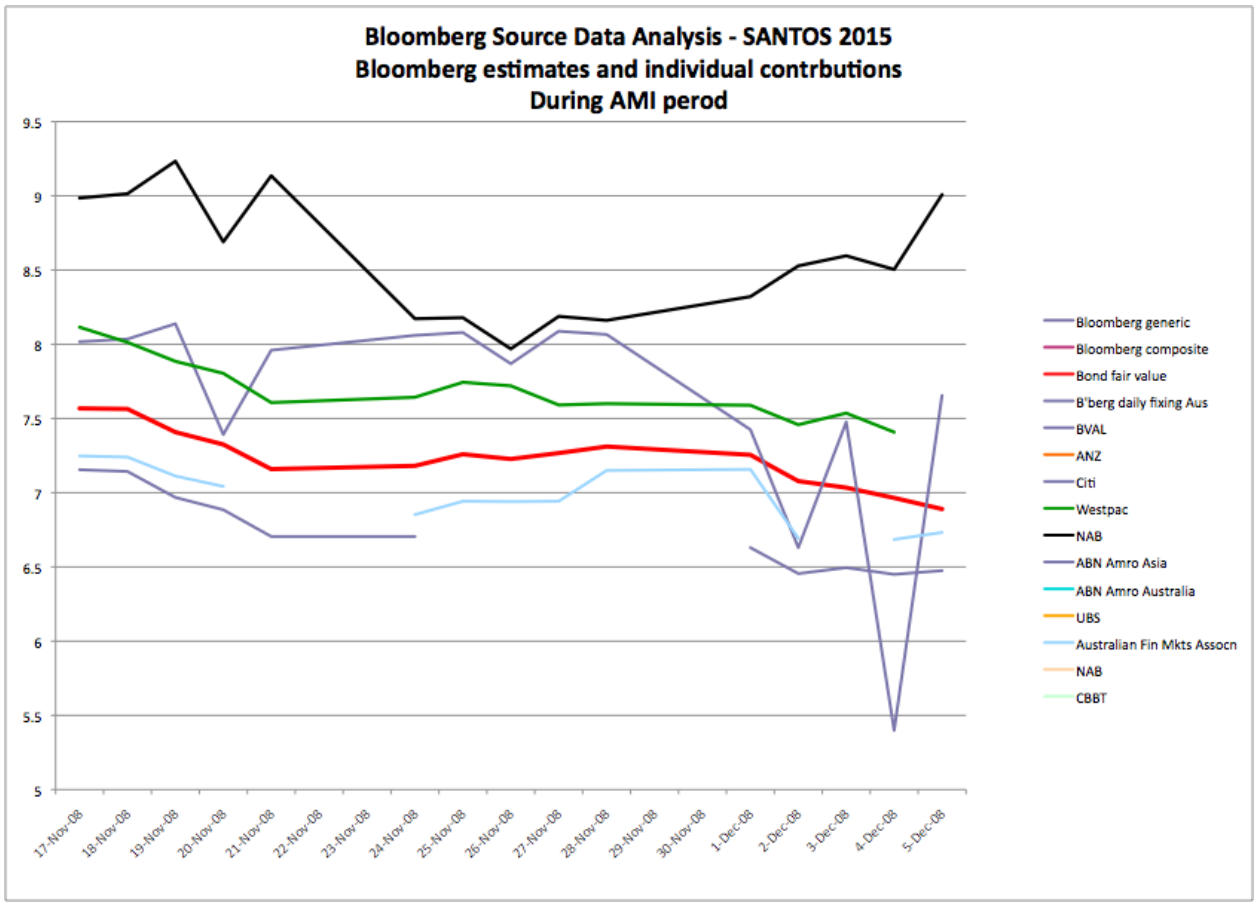
Bloomberg Source Data Analysis - SANTOS 2015
Bloomberg estimates and individual contrbutions
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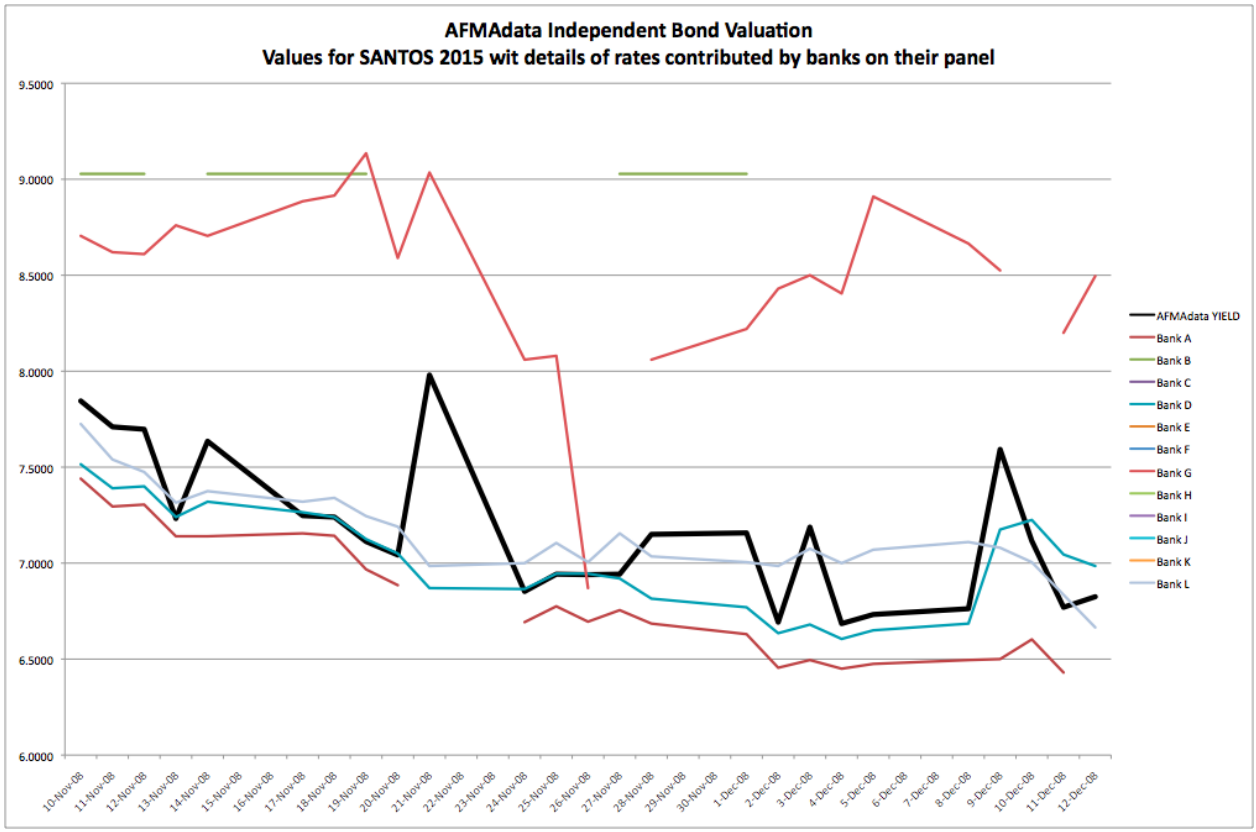
1-Dec-08
2-Dec-08
3-Dec-08
4-Dec-08
5-Dec-08
Bloomberg generic
Bloomberg composite
Bond fair value
B'berg daily fixing Aus
BVAL
ANZ
Citi
Westpac
NAB
ABN Amro Asia
ABN Amro Australia
UBS
Australian Fin Mkts Assocn
NAB
CBBT

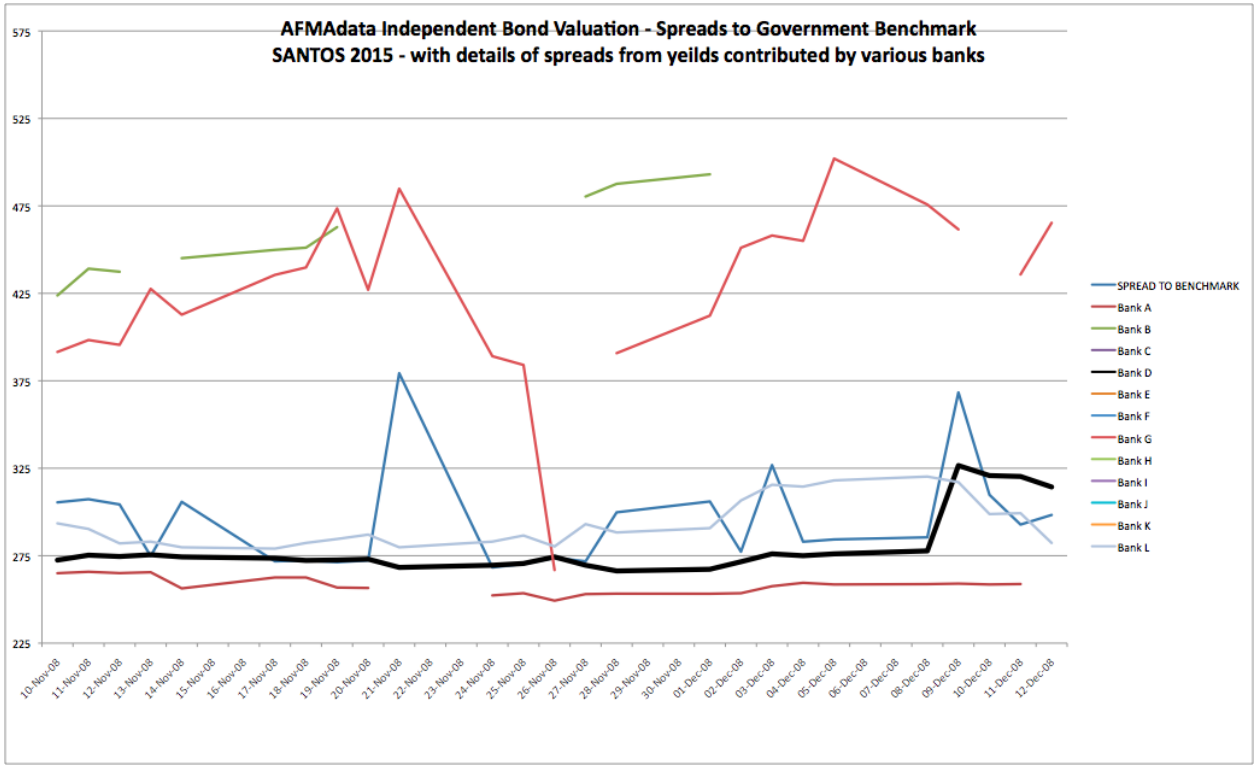
Key Observations:

1. The contributions from individual banks during the pre-GFC period were tightly grouped and there was greater consensus on pricing levels of the bond. During the AMI measurement period this consensus broke down and we saw a fundamental breakdown between those that believed Santos pricing was unaffected by the GFC and those that marked much higher.
2. A number banks stopped inputting prices into Bloomberg during the AMI measurement period and even those that did were inconsistent.

AFMAdata

Below is a graph that plots the pricing the SANTOS 2015 bond by AFMAdata from end of day prices taken from 12 banks on their panel.





A few observations on the above:

1. The Santos bond is a small issue of only A$100 million and just makes it into AFMAdata's minimum threshold criteria. This makes it very illiquid at the best of times and it is possible that the bond did not trade during the AMI measurement period. In a sense, the individual contributions by banks represent estimates of fair value and may not have been ratified by observed trades.
2. Of the 12 banks on the AFMA panel only 5 chose to provide end of day prices for this bond. Three were concentrated at the lower end of the scale while 2 were consistently pricing the bond at a higher yield. This shows that during the AMI period there were two very different opinions on where the bond was to be priced and it does not appear that it was resolved via an actual observed trade.
3. When we look at the spread over CGS, the AFMA valuation is almost flat over the AMI measurement period and jumps marginally immediately after
4. One of the contributors appears to have used a flat rate for the entire period irrespective of movements in pricing of CGS bonds.

Appendix 3: Assessment of Bloomberg fair yield curves as a reference rate setting mechanism

CRITERIA	LONDON INTERBANK OFFER RATE (LIBOR)[66]	AUSTRALIAN BBSW RATE[67]	BLOOMBERG FAIR CURVES
Who operates the reference rate?	British Bankers Association (BBA) – a non-profit making entity that is the main representative of the banks in the London market	Australian Financial Markets Association (AFMA)	Bloomberg – a profit-making entity
Is the reference rate built for the purpose?	Yes	Yes	Bloomberg fair curves are not specifically designed for the AER's purpose
Is the reference rate prepared with the intention that it be relied upon by the intended user for its intended purpose?	Yes	Yes	No, Bloomberg does not prepare the fair curves for the AER or with the AER in mind, and therefore Bloomberg has no 'duty of care' that what it produces meets the AER's purpose and can be relied upon
Where are the rates sourced from?	Depending on the currency, a panel of 8-16 banks. Contributor banks are selected for currency panels with the aim of reflecting the balance of the market for a given currency based upon three guiding principles: 1. scale of market activity 2. credit rating 3. perceived expertise in the currency concerned.	The BBSW panel comprises organisations which input rates for the calculation of the BBSW rate set. The number of panellists is determined by AFMA. There are currently 14 members.	Bank contributions – no designated panel. Expertise and market involvement/ participation of banks in the Australian fixed income bond market unknown and not verified.

[66] British Bankers Association at http://www.bbalibor.com/bba/jsp/polopoly.jsp?d=1627

[67] AFMA : Bank Bill Swap Reference Rate (BBSW) BBSW Procedures at http://www.afma.com.au/afmav6wr/_assets/main/lib90012/bank%20bill%20swap%20reference%20rate%20procedures.pdf

CRITERIA	LONDON INTERBANK OFFER RATE (LIBOR)[66]	AUSTRALIAN BBSW RATE[67]	BLOOMBERG FAIR CURVES
Who compiles the data sent in?	Reuters Thomson is the calculation agent – completely independent of the BBA. They audit data submitted by panel banks and create the rates using the definitions provided by the FX & MM Committee, and they do so under the supervision of BBA.	The BBSW rate setting calculation mechanism is determined by AFMA in consultation with AFMA's BBSW Committee.	Bloomberg
How is the data 'trimmed'' and the rate calculated?	Each contributor rate is ranked in descending order and then drop the top and bottom quartiles. The middle two quartiles reflecting 50% of the bank quotes are then averaged (simple average)	The calculation mechanism calculates the average mid rate for all input rates, rounding up to two decimal places if necessary. From these mid-rates an elimination process will eliminate the highest and lowest rates for each individual tenor until a maximum of eight mid-rates remain. These contributions will then be displayed on page BBSW. **Notes** (i) If between five and eight eligible input rates are available for any tenor, only those contributions will be displayed on BBSW for that tenor. (ii) If less than five eligible input rates are available for any tenor, no contributions will be displayed and no average rates will be displayed for that tenor. (iii) Rates displayed on page BBSW on a row by row basis across all tenors will not necessarily belong to the same contributor.	5 steps, as described in section 3.2 of the submission.
What is the process for reviewing the bank panel?	Every year the FX & MM Committee of the BBA undertakes an assessment of each	An election for the BBSW panel is held at AFMA's discretion. The BBSW Committees may	No review known/ specified

CRITERIA	LONDON INTERBANK OFFER RATE (LIBOR)[66]	AUSTRALIAN BBSW RATE[67]	BLOOMBERG FAIR CURVES
	panel, based upon a review by the BBA of the contributors. The review re-evaluates each bank by ranking them according to their total money market and swaps activity over the previous year and selecting the banks with the largest scale of activity with due concern given to the other 2 criteria. The review is not limited to contributors as any Banks can submit themselves to the evaluation process for any currency.	recommend to the AFMA Market Governance Committee that an election be conducted if and when circumstances warrant; eg. resignation of a panellist, non-contribution of reference rates, contribution of out-of-market reference rates, changed participant circumstances etc. Ballot Procedure - Nominations shall be called from organisations who are the foremost traders of short dated securities (or otherwise as recommended by the AFMA Negotiable/Transferable Instruments ('NTI') Committee) and the current BBSW panellists. All current AFMA eligible BBSW Reference Banks (AFMA Prime Banks) will automatically be appointed to the BBSW panel without being subject to any ballot procedures. All current AFMA eligible BBSW Reference Banks (AFMA Prime Banks) and other AFMA Financial Market Members who nominate themselves for the BBSW panel are eligible to vote on the nominations, however voting is not compulsory.	
What is the question put to the banks?	Every contributor bank is asked to base their Libor submissions on the following question; "At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable	Each bank is ask for its view of the mid rates (mid of bid/offer rates for each tenor) for BBSW reference bank bills of exchange (AFMA Prime Bank paper - as defined by AFMA) at 10.00 am.	No specific question. Banks don't contribute their offer or bid rates. No volume specified to the banks. Banks provide prices when they like on the Bloomberg platform. There is no specific

CRITERIA	LONDON INTERBANK OFFER RATE (LIBOR)[66]	AUSTRALIAN BBSW RATE[67]	BLOOMBERG FAIR CURVES
	market size just prior to 11 am?"		rate setting process that the banks follow.
Can bank contributors see other rates before publication of the rate?	Banks cannot see each others' rates as they submit, only after final publication. Banks' rates submissions are confidential	Banks cannot see each others' rates as they submit, only after final publication. Banks' rates submissions are confidential	There is some capacity for banks to see other banks' pricing online.
What is the default mechanism if the rate cannot be calculated	A bank panel chosen by AFMA for the contingency rate setting mechanism taking into consideration market conditions.	A bank panel chosen by AFMA for the contingency rate setting mechanism taking into consideration market conditions.	Unknown.
Is there a process for rate disputes?	Yes. There is a formal dispute and complaints process	Yes. There is a formal dispute and complaints process	Unknown where there is a perceived pricing error.

Appendix 4: Information from banks regarding actual trades in corporate bonds during the AMI measurement period

In order to assess the level of actual trades during the AMI measurement period, the DNSPs asked seven banks the following question:

> Confirm whether [Bank] executed any BBB, BBB+, A- or A rated corporate bond trades in the period between 17 November 2008 and 5 December 2008. If [Bank] did trade such corporate bonds could you please indicate if they were bonds that were shorter than 3 years to maturity. Please note that we are not after detail of the corporate issuer or the counterparties and we are really only after confirmation of whether any corporate bond deals were traded.

Five banks provided answers to this question, one bank responded that it was not willing to provide this information, and one bank did not reply.

The answers of the five banks that provided information showed that:

- there appear to have been less than 30 trades during the entire AMI measurement period in total across all five banks;
- almost all of those trades related to bonds with less than three years to maturity;
- the remaining small number of trades related to bonds with three to five years to maturity, except for three trades in an A rated 6.5 year bond;
- there were no trades in BBB bonds with more than five years to maturity during the AMI measurement period;
- the GPT bond that the AER excludes as an outlier in the draft determination was traded at least twice during the AMI measurement period; and
- in contrast, none of the responses provided evidence of trades in Santos or Snowy Hydro during the AMI measurement period.

The DNSPs do not have permission to provide the actual responses from the banks as part of this submission. The DNSPs could endeavour to seek permission to provide this information on a confidential basis if required by the AER.

Appendix 5: Notes on the calculations used in sections 5.5 to 5.8[68]

Section 5.5: Bonds issued by Australian corporates in the US market

The method used to generate the spread to the Commonwealth Government Bond rate is as follows, in broad summary:

- the rate at which the company issued the bond is taken swapped to a spread over the floating rate in the currency (e.g. US Libor) using the foreign currency interest rate swap rate at the time of the bond issue ("issue date");
- this spread is then swapped to a spread over the Australian BBSW rate – this involves a 'cross currency basis swap'. Due to the difficulty of accessing basis swap quotes in the AMI measurement period, we have conservatively assumed a zero basis point spread on the basis swap. We have also allowed for appropriate basis point conversions (e.g. 1 US basis point does not equate to 1 Australian basis point);
- the spread over BBSW is then converted to an absolute fixed Australian rate using the Australian interest rate swap rate at the time;
- the absolute Australian rate is then deducted from the Commonwealth Bond rate at the time (the last two steps are similar to the way we converted the Tabcorp floating rate spread to a spread over the Commonwealth Bond rate);
- the results have not been annualised; and
- the various interest rate and basis swap rates used in the calculations were taken from Bloomberg.

The above method is a commonly applied cross currency swaps methodology although banks have proprietary models to perform the calculations so there will undoubtedly be some variance with our calculations. (It is simply not possible to 'tie up' the rates between various swaps providers/banks so the calculations are therefore only estimates).

Section 5.6: Secondary trades during the AMI measurement period of bonds issued by Australian corporates in the US market

1. The table in section 5.6 shows the non-annualised effective spread to the US risk free rate (the US Treasury bond) and the calculated spread to the Australian risk free rate (the Australian Commonwealth Bond Rate) for bonds that were issued by Australian

[68] The tables, data and charts used in sections 5.5 to 5.8 have been complied by consultants to the DNSPs on a best efforts and best endeavours basis using information available on Bloomberg and other data provider systems and services. The information does not purport to contain all relevant data and may be incomplete. The data and calculations have not been independently verified, audited or corroborated. The data and calculations used in the tables, data and charts are estimates only. The DNSPs' consultants do not warrant or make any claim to the accuracy, completeness, reliability or suitability of the information. The DNSPs' consultants are not liable for any loss or damaged that may be suffered or that may result or occur because of any errors or omissions in the data or calculations whether through negligence, misrepresentation, misstatement or otherwise.

companies in the US prior to the AMI measurement period based on trading levels for the bonds on 24/11/2008 being a date in the AMI measurement period.

2. The average spread to the Commonwealth bond rate is 461 basis points although this cuts across several maturities.

3. The Effective Spread over the US Treasury is calculated, in broad summary, by taking the yield at which the bond was trading (as appearing in Bloomberg) on 24/11/2008 and subtracting the Treasury rate (interpolated as necessary depending on the time to maturity) on 24/11/2008.

4. The Effective Spread to the Commonwealth Bond Rate is calculated as follows, in broad summary:

    a. swapping the yield at which the bond was trading (as appearing in Bloomberg) on 24/11/2008, to a spread over US$ Libor using the US interest rate swap rate on 24/11/2008;

    b. this spread is then swapped to a spread over the Australian BBSW rate – this involves a 'cross currency basis swap'. Due to the difficulty of accessing basis swap quotes in the AMI measurement period, we have conservatively assumed a zero basis point spread on the basis swap. We have also allowed for appropriate basis point conversions (e.g. 1 US basis point does not equate to 1 Australian basis point);

    c. the spread over BBSW is then converted to an absolute fixed Australian rate using the Australian interest rate swap rate on 24/11/2008;

    d. the absolute Australian rate is then deducted from the interpolated Commonwealth Bond rate on 24/11/2008 (the last two steps are similar to the way we converted the Tabcorp floating rate spread to a spread over the Commonwealth Bond rate);

    e. the results have not been annualised; and

    f. the various swap rates used in the calculations were taken from Bloomberg;

    The above method is a commonly applied cross currency swaps methodology although banks have proprietary models to perform the calculations so there will undoubtedly be some variance with our calculations. (It is simply not possible to 'tie up' the rates between various swaps providers/banks so the calculations are therefore only estimates).

Section 5.7: Other bonds issued in overseas markets during the AMI measurement period

The method used in section 5.7 is the same as set out above for section 5.5.