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19th May 2014

Our Reference: UE.SU.01

Mr Chris Pattas
General Manager
Network Operations and Development
Australian Energy Regulator
Level 35, The Tower,
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BY EMAIL TO: Chris.Pattas@aer.gov.au

Dear Mr Pattas,

SUBMISSION TO THE AER'S ISSUES PAPER ON THE RETURN ON DEBT

Return on debt: Choice of third party data service provider, Issues Paper, (April 2014)

United Energy and Multinet Gas (UE and MG) are pleased to have the opportunity to respond to the AER's consultation paper on the return on debt. The AER did not respond to two previous submissions from UE and MG:

- Ronn, E.I. and R.S. Goldberg, *Research into the New Issue Premium, and the Applicability of that Research to the Australian Bond Market*, a submission prepared for United Energy and Multinet Gas in response to the draft rate of return guidelines of the Australian Energy Regulator, October 2013
- Diamond, N.T., Brooks, R. and Young, D. (2013). "The development of yield curves, zero coupon yields, and par value yields for corporate bonds," a report prepared for United Energy and Multinet Gas in response to the AER's draft rate of return guideline, by ESQUANT Statistical Consulting, 17th October 2013.

However, the analysis and argument contained in those submissions remains pertinent and reference will be made to that material where it is appropriate to do so.

The most important goal for the AER to consider when it sets the debt allowance is that it should deliver a result that is commensurate with the market cost of debt. There are circumstances in which the quoted figures from a third party provider may perform very strongly or very poorly when assessed against market determined rates, or yields to maturity. Indeed, the past history of regulatory switching between

CBA Spectrum and Bloomberg has shown that a particular provider's method can perform more or less strongly as the suitability and diversity of available data changes. The results from the third party source will also depend upon the responsiveness of the provider when methodological weaknesses are discovered or exposed.

Historically, a number of State-based regulatory agencies used the CBA Spectrum service to establish a debt allowance. The CBA Spectrum methodology was not transparent, and it was not until significant divergences emerged between CBA Spectrum and other data sources that it became apparent that a flaw existed in the method used. In the short term, the solution was to move to the Bloomberg series but, over time, that service also delivered results that were flawed. In the meantime, the CBA Spectrum service improved its methodology, with the result that the CBA Spectrum curve became more closely aligned with market rates. The process of regulatory scrutiny and switching was important to ensure that the allowances were as representative of market conditions as possible.

The more transparent is the method used by a third party provider, and the greater the willingness of the third party to adapt when flaws are discovered, then the more confident the AER can be that the third party's approach will deliver commensurate results. However, where the approach is not transparent, and cannot be scrutinised to avoid biases or divergences from the true value, then less emphasis should be placed on the results from the particular third party data source. Where methodologies are flawed or opaque, then it may be necessary to constantly review the available providers' performance, or else 'blend' the sources so as to attenuate the likelihood that a particular methodological flaw could lead to a significant divergence.

As a general proposition, UE and MG contend that the rules provide good guidance to the AER to consistently consider all of the available evidence and to select the best single or blended source for the debt allowance available at a particular time. Ordinarily, a dependence on broader sources of evidence will help to minimise the risk that any individual flaw can significantly influence the allowance determined, but if a single source is to be used, then it can only be used on the basis that there is a continuous re-appraisal both of whether the single source continues to perform well, and whether other sources of information remain inferior.

At present, the evidence indicates that the RBA series delivers a higher result for the cost of debt than the series from other third party data providers. However, there are a number of aspects of the series, and two, in particular, that could cause the RBA bond variable to trace out a much lower trajectory in future. One issue is that the method can give more prominence to a small number of bonds with a maturity close to 10 years because the technique intrinsically gives a higher weight to those bonds with a remaining term to maturity that is close to the target tenor. If the sample of such bonds becomes very small, then the quoted figures may become highly dependent on the idiosyncrasies of one or two bond issues, rather than on the market as a whole. The second issue is that the method of estimation delivers a systematic downward bias. On the current data this second issue may be of limited magnitude but as the data changes over time then the limitation may lead to a substantial divergence between the quoted figure and the fair market return.

In relation to the second issue, we propose to consult with the RBA on the available methodological improvements that can be made to the series with a view to addressing the deficiency before significant problems arise (or the use of the index becomes entrenched). However, if the RBA is not mindful to make adjustments to the series, and if there are greater divergences between the data series over time, then the AER may, in future, be called upon to assess whether the RBA series continues to be one that delivers results commensurate with market rates.

New issue premium and other margins associated with primary bond issuance

The AER estimates the cost of debt for a 10-year tenor benchmark corporate bond with reference to secondary market data on bond yields. The AER does not therefore provide compensation for the margin over secondary spreads that must be paid to execute a new benchmark transaction. The yields on debt in primary issue markets are generally higher than the yields on debt in secondary markets, with the gap between the two described by practitioners as the new issue concession, or new issue premium (NIP). Borrowers are obliged to pay a premium, in part because the volumes in primary market transactions are significantly larger than those in the secondary market.

In all of its determinations made to-date, the AER has disregarded the existence of the new issue premium. The AER has similarly not provided full compensation to regulated businesses for debt-raising costs. The Energy Networks Association, (ENA), submitted an expert report from Incenta on the direct and indirect costs associated with debt financing, however the AER does not appear to have considered the material[1].

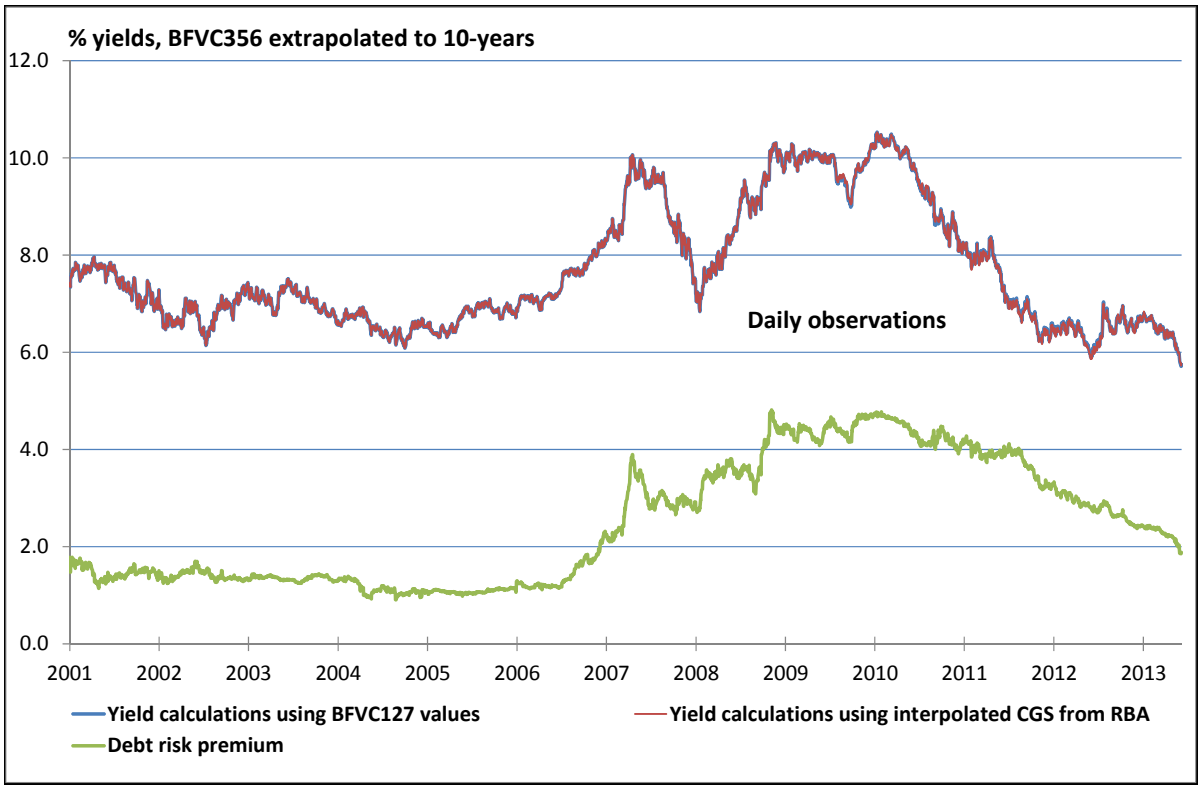
Consideration of market data

Figure 1 presents historical and up-to-date values for the Bloomberg BBB rated fair value curve (BFVC). In relation to the observations for recent years, the curve has been extrapolated to a ten-year term using contemporaneous methods that have been endorsed by the AER in particular regulatory decisions. Latterly, the Bloomberg BBB fair value curve has recorded levels which are below those reported at any stage in the curve's history, noting that the curve was first published by Bloomberg in December 2001. Bloomberg has also discontinued the curve, with the last values being produced at the end of April 2014.

Bloomberg has developed an alternative series of curves, including a BVAL curve for BBB rated corporate bonds. As with the BFVC, the BVAL curve is constructed from domestic, Australian dollar denominated bonds only. Both curves also only make use of fixed rate bonds, with floating rate notes excluded from the calculation. A major difference between the BFVC and the BVAL is that the former used option-adjusted spreads for callable and "puttable" bonds, whereas the latter does not incorporate any bonds with optionality features. Figure 2 presents a comparison of the BFVC and BVAL curves over the time interval for which data on the two series is available.

[1] Incenta (2013), Debt-financing costs, prepared for the Energy Networks Association by PWC, June 2013.

Figure 1: Bloomberg fair value curve for BBB rated bonds

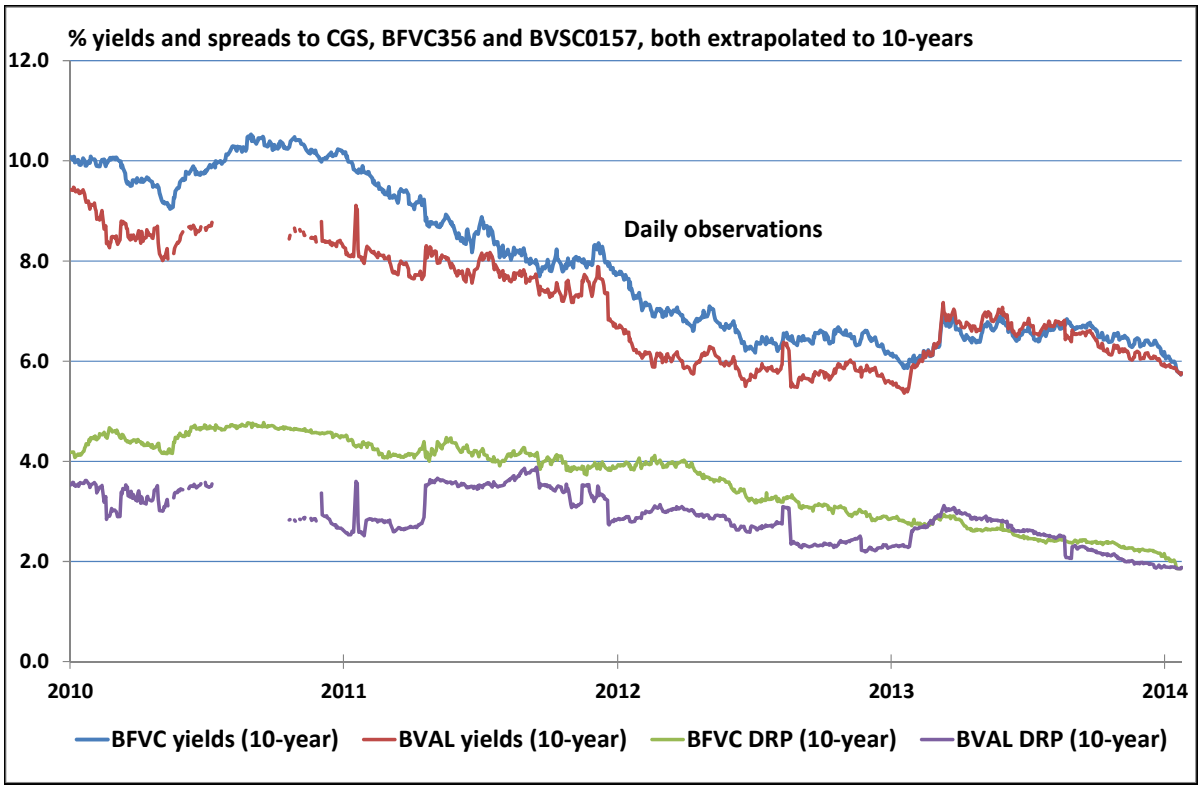


Source: Bloomberg; calculations by United Energy and Multinet Gas

As with the BFVC, the BVAL curve for BBB bonds is only published to a maximum tenor of seven years. Therefore, extrapolation methods have been applied to the BVAL curve, the same as those that have been used for the BFVC. Figure 2 shows that there are breaks in the series for the BVAL curve, corresponding to periods in the past for which Bloomberg has been unable to calculate or publish values. An important finding is that values of the BVAL curve have been fairly consistently below the recorded values for the BFVC. In its consultation paper for the return on debt[2], the AER has not published the historical data for the newly created BVAL series, and has thus not revealed the result about the differences between the outputs of the BVAL curve and the BFVC. During the phase-out period in early 2014, Bloomberg appears to have forced a form of convergence between the two curves.

[2] AER (2014), Return on debt: Choice of third party data service provider, Issues Paper, Australian Energy Regulator, April 2014.

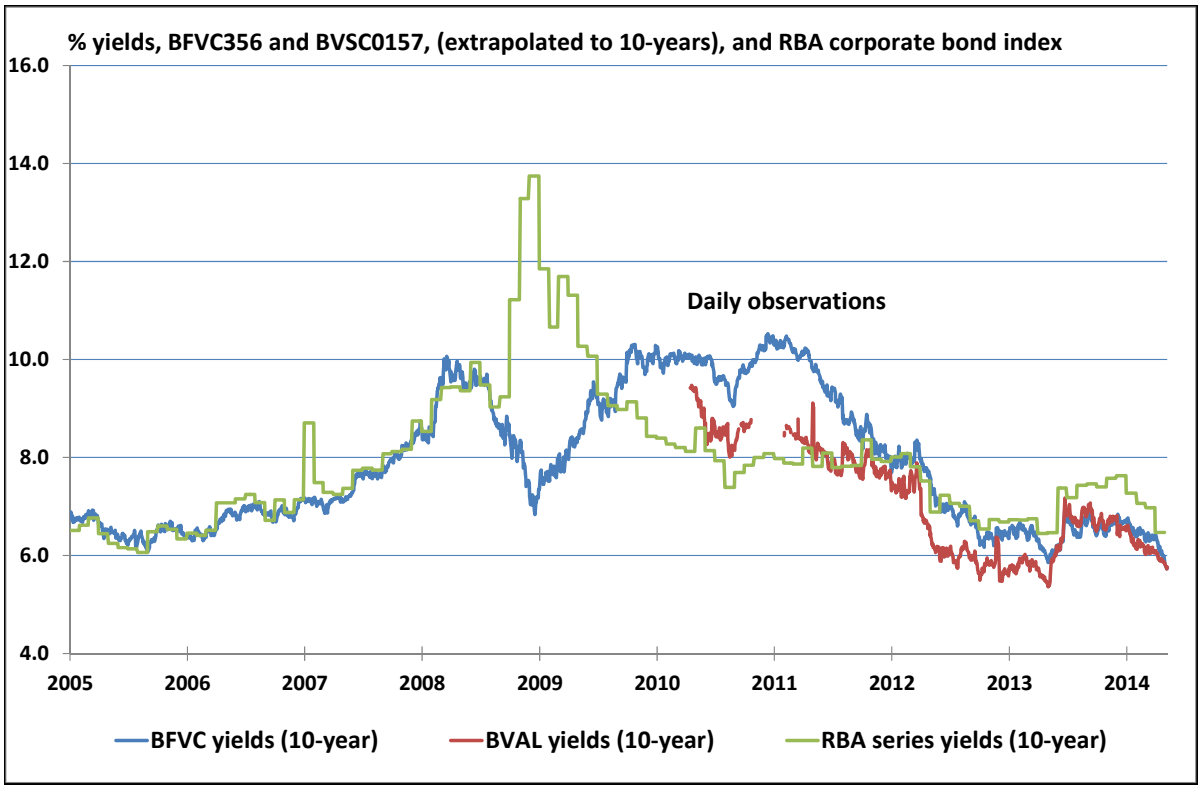
Figure 2: Bloomberg fair value curve and BVAL curve for BBB rated bonds



Source: Bloomberg; calculations by United Energy and Multinet Gas

Figure 3 compares the evolution of values for the RBA corporate bond indicator series (for BBB rated securities) with the results reported for the Bloomberg BFVC and BVAL curves. The RBA has generated monthly values of corporate bond spreads retrospectively back to January 2005. However, the RBA has not been able to access a large pool of bond data when recreating its historical values. The corporate bond indicator series has declined recently, although its value at the end of April was 6.469% (when converted into an annual equivalent rate).

Figure 3: Comparison of RBA corporate bond index with Bloomberg BBB curves



Source: Bloomberg; calculations by United Energy and Multinet Gas

Responses to specific questions posed by the AER in its Issues Paper

Third party data service providers

1. Are there any matters, other than the criteria set out in section 4, that we should consider when choosing between alternative data series to estimate the return on debt?

The AER should not overlook the primacy of the National Electricity Rules (NER), and the requirement in the Rules (clause 6.5.2 (b)) that the permitted rate of return should be determined such that it achieves the allowed rate of return objective (ARORO). A further related requirement (from clause 6.5.2 (b)) is that the rate of return on debt should contribute to an overall rate of return which is commensurate with the recorded market return for a firm of comparable risk.

In the abstract, the criteria established by the AER seem sensible, and are capable of serving a purpose, however there is always a danger that if the criteria are not implemented well, (or else are set aside when required), then there will be a divergence from the central tenet of the Rules – which is that the rate of return should be consistent with the efficient financing costs of a reference entity.

2. If we use a particular series in a final decision, should we use this series for the duration of the regulatory period (as discussed in section 4.4.5)?

There should be no obligation imposed upon a service provider to maintain the use of the same third party data series through time.

The requirement in the Rules that there should be automatic updating of the return on debt within the regulatory period does not infer that the same third party data source should be used, although the use of the same data stream would certainly facilitate automation. A service provider ought to be able to construct its own curves or indices, with the proviso that this is done objectively and systematically within the regulatory period, and in such a way that does not invite unnecessary debate. At the very least, the formulaic method for automatic updating should allow recourse to an alternative data source if a nominated third party ceases publication of the data series that had previously been selected. At the same time, there ought to also be recognition under the automatic updating mechanism that if a third party provider changes its approach substantially, then there won't be a compulsory setting aside of the data in favour of the use of information from another agent which hasn't revised its methodology.

3. Which third party data service providers, other than the RBA and Bloomberg, could we consider to estimate the return on debt?

There are a limited number of other corporate bond index series available in the market place. UE and MG have not investigated these in any detail but will do so in the lead-up to the price review for UE.

For instance, Bank of America Merrill Lynch produces a BBB corporate bond index for Australia, with historical data available back to December 2000. However, the index does not seem to have been calculated or standardised for a particular term to maturity, but appears instead to represent an amalgam of bonds of different tenors. The index has also been subject to marked, one-off movements at different times in the past.

The final decision on the data sources and data series to be used by UE will be made at the time of UE's regulatory proposal or revised regulatory proposal. UE is not, at this juncture, proposing to bind itself to any specific data series or provider.

a. If an alternative data service provider is proposed, what are the advantages of this provider relative to the RBA and Bloomberg series outlined in section 4?

At the time of the UE application, the relevant third party service provider will be the one with the method that most closely gives an allowance that is commensurate with the efficient financing costs of a benchmark efficient entity. At this stage, the RBA indicator series performs well but we have identified incremental improvements that we will recommend to the RBA so that a technique can be adopted which does not generate downwardly biased results. The RBA method can also, potentially, give rise to risks of divergence if there are only a small number of bonds with a tenor near the 10-year term to maturity during a nominated averaging period,

On the other hand, there should be no presumption that the use of a third party data service provider is superior to the practice of direct estimation of the cost of debt. The performance of the third party series is wholly dependent on whether the third party methodology is robust and fit for purpose at the relevant time. There is a particular risk inherent in using "off the shelf" third party indices that are not designed for regulatory purposes because the method of construction may not be structured with that use in mind (but may, instead, be guided by other objectives).

The reader is referred to section 6 of the ESQUANT report which considers the use of third party data sources[3].

4. Which series provided by the RBA or Bloomberg, other than those outlined in section 4, could we consider to estimate the return on debt?

Bloomberg publishes a large amount of data on corporate bonds which can be used to generate estimates of the cost of debt for a benchmark corporate bond, (with a 10-year tenor), using parametric methods such as yield curve estimation. Bloomberg also offers functionality, such as tools which can be adjusted and applied by the subscriber/terminal user. An example of such a tool is the curve-builder function which allows yield curves to be generated, including basic Nelson-Siegel yield curves. These yield curves are proprietary, while the results that they produce, and the data that they use, constitute "third party information".

The Bloomberg BVAL curve and the RBA corporate bond index are both performing well but UE and MG would like to see incremental improvements to the way in which the RBA estimates are derived. UE and MG are also wary of the risks inherent in the RBA methodology if there is comparatively little data at terms to maturity close to the 10-year tenor.

a. If an alternative data series is proposed, what are the advantages of this series relative to the RBA and Bloomberg series outlined in section 4?

UE and MG support the use of empirically estimated yield curves. Section 3.4 of the report prepared by ESQUANT discusses the theory and application of the Nelson-Siegel yield curve approach. ESQUANT estimated yield curves using a dataset which was assembled by the Competition Economists Group, (CEG), for the purpose of applying kernel smoothing methods. There is a considerable literature on Nelson-Siegel yield curve estimation, and the report by ESQUANT assesses the advantages of the approach.

The empirical results from Nelson-Siegel yield curves can also assist with the task of extrapolating cost of debt estimates from a 7-year term to maturity to a 10-year term to maturity. The use of the slope from the yield curve as a tool for extrapolation has been demonstrated in reports prepared by CEG for the ENA[4]. The yield curve can provide a margin for the debt risk premium between maturities of 7 and 10 years.

The Bloomberg BBB BVAL curve is only published to a 7-year tenor. The results from this curve have to be extrapolated or extended so as to produce results which are consistent with a 10-year benchmark. The extrapolation of the former Bloomberg BBB fair value curve was well-established as a practice in regulatory proceedings.

[3] Diamond, N.T., and Brooks, R. (2014), A Review of Measures of Australian Corporate Credit Spreads published by the Reserve Bank of Australia, a report prepared for United Energy and Multinet Gas by ESQUANT Statistical Consulting, May 2014.

[4] Hird, T. (2013c). "Estimating the debt risk premium (Incorporating CEG notice of errata data 22 August 2013)," prepared by Competition Economists' Group for the Energy Networks Association, August 2013; page 24.

Furthermore, as has been noted by ESQUANT, the cost of debt estimates that have been reported by the RBA for a 10-year term to maturity also require adjustment or extrapolation[5]. This is because in the formulation used by the RBA, the target tenor is indeed ten years, but the effective tenor turns out to be significantly less than ten years (and is closer to 8.5 years). There are also other biases.

Employing the Bloomberg series

5. What are the advantages and disadvantages of the BVAL series for estimating the return on debt for our benchmark efficient entity?

The BVAL series has to be extrapolated from a 7-year tenor to a 10-year tenor. A mechanism for extrapolation which is robust and defensible will not necessarily fit within the characterisation of "automatic". Moreover, the method used for extrapolation cannot realistically be prescribed, and specified in detail, for time periods several years into the future.

Employing the RBA series

6. What are the advantages and disadvantages of the RBA series for estimating the return on debt for our benchmark efficient entity?

Advantages: The RBA corporate bond index has been developed using a comparatively transparent method (which means that replication is possible, although not straightforward). The technique of Gaussian kernel estimation is relatively well known (as documented in the report by ESQUANT). The RBA's bond selection criteria includes foreign currency bonds, with the yields swapped into Australian dollar equivalents, and callable and puttable bonds.

Disadvantages: The index is somewhat volatile, and is also downwardly biased by construction (as is explained in section 3.1.2 of the ESQUANT report)[6]. The RBA has also excluded bonds issued by financial corporations, as well as bonds with a remaining term to maturity of less than one year (these are required when applying parametric methods), and with a face value of less than or equal to $100 million. The RBA approach also gives disproportionate weight to bonds with a large issue size. A further shortcoming is that floating rate notes have not been incorporated into the calculation.

7. The RBA series currently only publishes data on a monthly frequency. If the RBA series is used to estimate the return on debt (and daily estimates remain unavailable), state and explain your view on whether we should: Interpolate daily estimates from the RBA's month-end data.

ESQUANT Statistical Consulting investigated the impact of interpolating monthly estimates so as to produce daily, or mid-period results, which could then be incorporated into an averaging period calculation[7]. ESQUANT applied a number of methods, including estimating an ARIMA model for the extrapolated, 10-year Bloomberg BBB fair value curve spreads. ARIMA models were also fitted to the

[5] Diamond, N.T., and Brooks, R. (2014), A Review of Measures of Australian Corporate Credit Spreads published by the Reserve Bank of Australia, a report prepared for United Energy and Multinet Gas by ESQUANT Statistical Consulting, May 2014; section 3.1.2.

[6] Diamond et al., ibid., section 3.1.2 and, for empirical results, section 3.3, and Figure 12.

[7] Diamond et al., ibid., section 5

10-year estimates of the cost of debt obtained using other parametric and non-parametric methods. The results from estimation suggested that integrated moving average processes, (a form of ARIMA model), were dominant.

The ARIMA models were calibrated using daily data, and simulations were then applied to examine a scenario whereby only one observation per month was available. ESQUANT found that values of the spread-to-swap from previous months are likely to be an unsatisfactory predictor of the spread-to-swap during the current month. If the cost of debt, evaluated as a margin over swap rates, is measured on a daily basis, then current values of the integrated moving average process have a 50% influence on current spread levels, while past values of the process also exert an influence which amounts to 50%. If, however, the Bloomberg fair value curve, (or, its successor, the Bloomberg BBB BVAL curve), were only released once a month, then current values of the integrated moving average process would have a 92% influence on current spread levels, while past values of the process would have a much lesser effect, amounting to 8%. Fair value spreads from, say, a period two months prior, would not serve as a useful guide as to current or recent values of the spread-over-swap.

The ARIMA models produced by ESQUANT suggest that the spreads-over-swap for, say, the month of March, cannot be inferred by taking an average of the results recorded at the end of January and at the end of February. Similarly, the spreads-over-swap in the middle of the month of March cannot be accurately estimated by taking an average of the spreads reported, respectively, at the end of February and at the end of March. There are substantial advantages in using daily data.

ESQUANT reported that there was no empirical support for the AER's proposal to create a daily series by interpolating between consecutive end-of-month observations of the RBA's corporate bond spreads.

UE and MG note separately that the rationale for having averaging periods measured across 20 or 30 days is to ameliorate the effects of possible day-to-day volatility in measures of the cost of debt. If businesses rely on a single observation at the end of the month, then there may be vulnerabilities and biases built into the measurement process.

Final comment

I urge you or your staff to make contact with me, by telephone on (03) 8846 9854, if you have any queries about the submission.

Yours sincerely,

Jeremy Rothfield
Network Regulation and Compliance Manager