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Dear Jeremy

**SUBMISSION ON THE REVISED DRAFT DECISION RELATING TO THE 2014 REVIEW
OF THE METHOD FOR ESTIMATING THE WEIGHTED AVERAGE COST OF CAPITAL
FOR THE REGULATED RAILWAY NETWORKS**

In response to the Authority's call for submissions on the recent revised draft decision on the WACC estimation method, Brookfield Rail (BR) has engaged Synergies Economic Consulting (**Synergies**) to prepare a paper addressing a number of the points raised in the draft determination and revised draft decision, specifically relating to:

- Return on equity
- Return on debt
- Gamma

Please find the Synergies report attached at the end of this letter.

As per your advice on 28 November 2014, BR provides this submission before the extended submission deadline of 4pm (WST) on Friday 20 February 2015.

Thank you for the opportunity to comment.

Yours sincerely



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Review of the Method for Estimating the WACC for the Freight and Urban Railway Networks

Response to the Economic Regulation Authority's Revised Draft Determination

February 2015

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1 Introduction

Brookfield Rail has requested Synergies Economic Consulting to review and respond on its behalf to the Economic Regulation Authority's (the Authority's) Revised Draft Decision on the WACC to apply to rail networks regulated under the *Railways (Access) Code 2000* (the Draft WACC Methodology).

A response was previously lodged in response to the Authority's original Draft Decision published in June 2014 (the June Draft Decision). While it is understood that the Authority intends to still take those original submissions into account, our previous submission has been restated here for completeness and amended as relevant to reflect the Revised Draft Decision.

This response considers:

- the return on equity
- the return on debt
- gamma.

2 Return on equity

Model selection and the role of other information

The Authority has determined that it will continue to only rely on the Sharpe Lintner CAPM for the purpose of estimating the return on equity. This was based on analysis it conducted as part of its review of the rate of return guidelines to apply to gas networks, which was concluded in 2013. From a process perspective, it is not clear that the choice of model remains a matter that is open for review here.

Related to this question is the role of alternative models, sampling error versus estimation error, estimation methods and market evidence in assessing the reasonableness of the return on equity derived using the Sharpe Lintner CAPM (SL CAPM) and importantly, what happens if this other information points to a different estimate. Step 4 of the Authority's proposed approach to estimating the return on equity addresses the conduct of cross-checks however how this could work in different circumstances remains uncertain.

The only other model that would appear to have any role in the estimation of the return on equity under the Draft WACC Methodology is the Dividend Discount Model, which will be used to inform the estimate of the Market Risk Premium (MRP). However, it is not evident that specific regard has been given to the known deficiencies of the SL CAPM, such as its tendency to underestimate the return on equity for stocks that are less risky than the market as a whole and vice versa. The Australian Energy Regulator (AER) has given some recognition to this issue by referring to the Black CAPM in determining where it will select its point estimate for beta from within the range (resulting in it selecting its point estimate from the upper bound).¹

In any case, the checks proposed by the Authority in its Draft WACC Methodology in its Step 4 appear very limiting, with the two main checks cited being:²

1. comparison of the risk free rate with the historic return on debt
2. comparison of the implied return on equity with the historic return on equity.

It is not clear as to:

- how either check could be used to assess the reasonableness of the proposed return on equity; or

¹ Australian Energy Regulator (2013). Better Regulation, Rate of Return Guideline, December.

² Economic Regulation Authority (2014a). Review of the Method for Estimating the Weighted Average Cost of Capital for the Freight and Urban Railway Networks, 6 June, p.78.

- what adjustments, if any, could be made as a consequence.

It is submitted that if sole reliance is to be placed on the SL CAPM as the preferred foundation model, greater consideration needs to be given to other models, estimation methods and evidence, including the Black CAPM, the Fama French model, the Dividend Discount Model, the Wright approach and relevant independent expert reports.

This then leads to the question of how these different models and evidence would be taken into account. If the estimates are widely dispersed (above and below the CAPM) we may be no better off. However, if the other estimates cluster within a smaller range and/or are consistently above or below the CAPM estimate, this should prompt a review of the CAPM estimate.

Risk free rate

We concur with the use of the ten year Commonwealth Government bond yield as a proxy for the risk free rate over a forty day averaging period.

Market risk premium

We note that the Authority proposes a fundamental change in the methodology it will use to estimate the market risk premium (MRP). While it had previously proposed to estimate the MRP based on historical averages and Dividend Discount Model (DDM) estimates, it now proposes to solely rely on the Wright approach.

We endorse the Authority's approach in taking a long-term forward looking view to estimate the required return on equity. Not only is this consistent with the requirements of the *Railways Access (Code) 2000* (the Code) but more importantly, it is compatible with the horizon of investors in rail network infrastructure, which has long economic lives.

We also endorse reference to the Wright approach as a relevant method in informing the MRP. We note that the Australian Energy Regulator (AER) refers to the Wright approach but only as a cross-check on its overall return on equity estimate (the practical consequence of which is that it could end up having little if any practical weight on the final outcome). We concur that it should have a more prominent role in informing the estimation of the MRP, although we consider there can still be benefits in also referencing other approaches, in particular, long-term historical averages and the forward-looking DDM approach.

Estimation of the return on the market

In relation to the estimation of the return on the market, we would make the following points:

1. We consider that the estimate should be based on the longest time series available, which would be the period from 1883 to the present. We note that the estimates the Brailsford, Handley and Maheswaran estimates relied upon are only for the period to 2010 and the NERA estimates are up to 2011.
2. We consider that more weight should be placed on the evidence presented by NERA³, referenced by the Authority, that the Brailsford, Handley and Maheswaran estimates overstated the Lamberton adjustment, resulting in a downward bias. While it might be reasonable to form ranges based on different estimates this should not be influenced by estimates that contain a downward (or upward) bias.

Use of market information to arrive at point estimates

We had concerns with the approach the Authority was proposing to apply in the June Draft Decision, in particular, the way it selects its point estimate from a MRP range. To the extent that at any point in the future the Authority reverted to the specification of a range for the MRP, requiring the selection of a point estimate, we reiterate our concerns regarding the approach it has previously proposed to rely upon for gas networks. We have restated these concerns in Appendix A for completeness.

Cross checks

We note the reference made by the Authority to decisions made by other regulators. In particular, it has made reference to estimates of the return on equity adopted by overseas regulators.

We do not consider that decisions by overseas regulators on market-based parameters (in this case, comprising the risk free rate and MRP) should be referred to at all. Rates of return cannot be directly compared across different markets, even if they are specified in real terms. Recognising the integration of global capital markets that has occurred, all of the inputs in the CAPM will still be heavily influenced by domestic market conditions, being:

- the risk free rate, which is estimated based on the prevailing sovereign government bond rate;

- the market risk premium, or the average premium that investors in that market expect for bearing risk; and
- beta, which is a measure of the riskiness of the firm's returns relative to the domestic sharemarket index.

The risk free rate will be influenced by a number of factors, including government monetary policy, the size and liquidity of the government bond market, the outlook for the domestic economy, market volatility (and the 'flight to quality' in times of increased risk aversion) and the outlook for inflation. While the risk-free rate has been at historical lows in Australia, it has been close to zero in jurisdictions such as the US or UK.

Market risk premiums also vary between countries. This is a function of a number of factors. The factors that are more likely to vary between countries are:⁴

- economic risk, including the outlook for interest rates, inflation and economic growth;
- information, with different markets varying in terms of transparency and disclosure requirements;
- liquidity, which can vary depending on the size and composition of the market, as well as the state of the economy; and
- government policy (including in relation to matters such as financial system regulation).

For example, a recent global survey⁵ of risk premiums in various jurisdictions confirmed that the MRP in Australia remains above the MRP in the US, UK and Canada.

This does not of course imply that the required return on equity needs to be estimated assuming a fully segmented domestic market. We concur with the Authority's approach to estimating market parameters using Australian market data that recognises the practical influence that overseas investors have as participants in this market. We also endorse the use of international comparators to estimate beta, which is by necessity given the dearth of relevant and reliable Australian market data. These

⁴ A. Damadoran (2013). Equity Risk Premiums (ERP): Determinants, Estimates and Implications – the 2013 Edition, <file:///C:/Users/j.blades/Downloads/SSRN-id2238064.pdf>. Accessed 4 September 2014.

⁵ P. Fernandez, P. Linares and I. Fernandez Acin (2014). Market Risk Premium used in 88 Countries in 2014: A Survey with 8,288 Answers, <http://ssrn.com/abstract=2450452>, pp.3-4.

overseas estimates still inform a view of the riskiness of the industry relative to the market as a whole, as measured by the relevant sharemarket index in that jurisdiction.

Beta

The Authority has proposed an asset beta of 0.7 for Brookfield Rail. Overall, we agree with the process it has used to arrive at this estimate.

The only observations we would make are in relation to some of the comparators included in the Authority's sample. In particular, we question the relevance of:

- Auckland International Airport: while airports do accommodate freight transport (but only cargos suitable for carriage by air), they are primarily involved in the provision of international and domestic passenger services. We consider that airports operate in a completely different category of transport services and will have different systematic risk drivers to a freight railway.
- Infratil: while Infratil invests in infrastructure and utilities, its focus is on energy, airports and public transport. It also has exposure to commercial property, aged care and social infrastructure (schools and hospitals). This will also therefore have different systematic risk drivers to Brookfield Rail.

The Authority acknowledges that "non-rail operators are a less valid proxy company compared to rail operators"⁶ however has retained them because they have been included in previous WACC determinations. We consider that comparators that are not relevant to informing an assessment of Brookfield Rail's systematic risk should not be relied upon as this could lead to error.

We agree with the Authority that Aurizon is a relevant comparator for Brookfield Rail. However, the former QR National was only floated in 2010, with the Queensland Government only selling down more of its shareholding to less than 5% as at the end of 2013 (originally 34%). The Authority stated that it "has used a data set from each firm encompassing a five year period from 1 March 2009 to 28 February 2014."⁷ The Aurizon stock would be unable to satisfy this requirement at this time.

The Authority appears to have put some weight on Aurizon, concluding that the proposed asset beta of 0.7:⁸

⁶ Economic Regulation Authority (2014a). p.101.

⁷ Economic Regulation Authority (2014a). p.96.

⁸ Economic Regulation Authority (2014a). p.101.

...is consistent with the Authority's prior reasoning, being consistent with the observed asset betas of Aurizon, and being at the lower end of the observed confidence intervals of asset betas for overseas rail companies.

We concur with the Authority's requirement of five years' of share price history as having a sufficient number of observations is an important pre-requisite in reducing the risk of estimation error. We are therefore of the view that Aurizon should be excluded from the Authority's sample for this review, for consideration in the next five yearly review.

3 Return on debt

The Authority has re-affirmed its preference to continue to use its Bond Yield Methodology to estimate the return on debt, which has been updated in the Revised Draft Decision. While we recognise that this methodology has been developed outside of this process, we remain of the view that it is not the most appropriate approach to apply.

Issues with the Authority's approach

The Authority constructs its own sample of bonds of varying terms to maturity and estimates the debt risk premium based on the yields on the bonds in this sample. These bonds must meet certain criteria. The Authority has revised the criteria to broaden the sample from bonds issued in Australia by Australian entities to encompass bonds issued by Australian issuers in overseas markets (or more specifically, bonds where the 'country of risk' is Australia). This includes bonds denominated in Australian dollars, US dollars, Euros and British Pounds.

Our overarching concern with the Authority's approach is that it remains very complex and difficult to replicate for unknown additional benefit, particularly when there are robust independent alternatives available.

While the Authority has published its current sample of bonds, the actual sample that it uses each time can only be known ex post given not all of the bonds in the potential universe of current issues will meet the Authority's criteria all of the time (especially in the less liquid market for longer maturities). The methodology is very data intensive, now requiring identification of bond issues in a number of different markets. For those issues denominated in a foreign currency, it requires swapping the spreads into Australian dollars. Further, while we endorse the Authority's move from estimating a joint-weighted average to applying a curve fitting approach, it proposes to apply three different curve fitting techniques and then calculate a simple average.

This complexity remains an issue for stakeholders (infrastructure owners and customers) who might be trying to estimate what the debt risk premium might be at a point in time – either during or outside a regulatory review process. It is also difficult for an infrastructure owner to replicate as part of their initial regulatory proposal.

The key difference with relying on indicative estimates from a third party provider such as Bloomberg or the RBA is that the estimates themselves are published. The RBA's BBB bond yields (for one to ten year maturities) are directly observable. This is similarly the case with Bloomberg although access is limited to subscription holders. In other words, provided we can have sufficient confidence that the methodology is

robust and the estimates are not biased, the ability to replicate that published estimate is considered unnecessary.

Related to this issue is the question of whether the estimates from the bonds in the Authority's sample are reliable. In other words, in order to be able to inform a current estimate of the expected return on debt, the estimate needs to reflect current information (or be an 'efficient' estimate). Even if estimates are published (noting that the Authority requires a minimum of twenty daily observations in its forty day averaging period), that estimate could be stale if the bond is being infrequently traded. It is possible that the estimate has been posted by a price maker (which is common), which could be different from the price that a trade is actually executed at.

There appears to be no allowance in the Authority's sample selection process to evaluate the reliability of the data itself. Indeed, it has acknowledged "the trade-off between the relevance of the market data and the number of observations in the benchmark sample"⁹ and that Bloomberg's "high valuation scores" result in smaller sample sizes.

This contrasts with Bloomberg's BVAL series, also referenced by the RBA, which applies specific rules in order to come up with the best estimate given the available data. Importantly, it also assigns a BVAL score, which is a transparent indicator of the quality of the estimate and hence the degree of confidence that can be placed in that estimate. We consider that this is a much more robust approach. We do not agree with the Authority that the trade-off between sample size and relevance should be resolved in favour of the former, as irrelevant data has no valid role to play in informing an estimate from that sample and indeed the estimated value will only be reasonable by chance.

We note the Authority's concern that the average tenor of the RBA's 'ten year' estimate is currently less than ten years. This is similarly an issue for Bloomberg, which has only been publishing a BBB estimate out to seven years. Further, neither Bloomberg nor the RBA delineate between the sub-categories in each credit rating band (that is, they do not distinguish between BBB, BBB- and BBB+, for example).

These are valid questions to raise. However, the question that has not been asked is, particularly in the case of Bloomberg, which has a long history in publishing this type of data, why would it not publish say, a ten year BBB estimate if it was able to do so. It has done so before when data was available – a ten year BBB estimate was published

⁹ Economic Regulation Authority (2014a). p.68.

until October 2007 until liquidity constraints became more pronounced. This has similarly occurred in other credit rating bands.

We expect that the answer to this question is because it does not consider that there is sufficient data available – of adequate quality – to inform construction of a yield curve out to these longer maturities. While it may be possible to produce *an* estimate out to ten years, the question is whether it is a reasonable estimate based on the criteria it employs as a professional data provider.

In any case, it may be possible to overcome these issues and still utilise these data sources, for example, extrapolating shorter term estimates to ten years. While this is only an approximation, there is no evidence to suggest that this would result in an inferior estimate to the Authority's approach – indeed it could be superior if that estimate has been extrapolated from a more robust starting point.

We also expect that these data constraints is the reason why these data providers do not distinguish between the different credit rating notches in each category. With the exception of the Queensland Competition Authority (QCA), which has recently moved to employing its own methodology, it is not standard Australian regulatory practice to estimate a different return on debt estimate within each credit rating band. For example, the AER acknowledges that it estimates the return on debt for a BBB+ entity by referencing the broader BBB credit rating band¹⁰, noting that the Bloomberg and RBA credit rating bands encompass bonds rated BBB, BBB+ and BBB-.

The Authority states that it:¹¹

...considers it should not be constrained in its credit rating evaluation by a limited set of estimates of the related debt risk premia...

However, this cannot be at the expense of reliability. The Authority acknowledges that there may be data limitations and indeed suggests that it may need to relax its selection criteria if necessary:¹²

The Authority notes that there is a tendency for fewer bonds to be available on the long end of the yield curve. If circumstances arise where the criteria results in a paucity of bonds such that curve fitting is impractical the Authority may exercise judgement to determine whether exclusion of bonds based on this criteria is

¹⁰ Refer: Australian Energy Regulator (2013). Explanatory Statement, Rate of Return Guideline, December, section 8.3.1

¹¹ Economic Regulation Authority (2014b). Review of the Method for Estimating the Weighted Average Cost of Capital for the Regulated Railway Networks, Revised Draft Decision, 28 November, p.69.

¹² Economic Regulation Authority (2014b). p.74.

appropriate. For the purposes of producing an indicative figure for this draft determination this criteria was not applied due to only 18 days of observations being available – the criteria for at least 50 per cent of 40 days of observations could not be met in this circumstance.

While it may be possible to produce a ten year estimate and/or or estimate for each credit rating sub-category based on the data that is available, the question is whether it is actually a reliable estimate of the return on debt for that tenor and/or sub-category. As noted above, we expect that this data would be provided by independent third party providers (or at least Bloomberg) if considered feasible to do so.

The RBA's data series

The Authority has undertaken an evaluation of the RBA's data series in its Revised Draft Decision and has rejected it for a number of reasons. We consider that all of these issues can be addressed.

Its first concern is that the average tenor of the RBA's ten year estimate tends to be less than ten years. As noted above, this issue can be addressed by extrapolation. For example, in its recent draft determinations for the NSW and ACT network businesses¹³, the AER relied on both the RBA and Bloomberg data series, producing a simple average of the two. The RBA series was extrapolated to produce a ten year estimate (as was Bloomberg). For example, this can be done by calculating the slope of the yield curve based on the other data points that are published. It extrapolated Bloomberg's seven year estimate based on the difference between the RBA's seven and (extrapolated) ten year estimates.

The Authority's second concern is that the RBA estimates are only available for the BBB and A bands, whereas it applies notional credit ratings of A-, BBB+ and BBB- to the rail network businesses. This issue was addressed above. While ideally separate estimates should be produced, our conclusion is that the Authority's preferred approach risks trading off reliability, increasing the risk of error. In any case, if the Authority wanted to do this it could interpolate between the A and BBB estimates if required.

The third issue it raises is that the RBA currently only publishes month-end estimates. This issue can be addressed by interpolating daily estimates between the month end estimates, which is the approach that was applied by the AER in the recent draft

¹³ For example, refer: Australian Energy Regulator (2014). Draft Decision, Endeavour Energy Distribution Determination 2015-16 to 2018-19, Attachment 3, Rate of Return.

determinations cited above. We also note that the RBA has expressed an intention to publish daily estimates at some point in the future.

Conclusion

Particularly given the complexity of the Authority's process, it is considered important for it to be able to demonstrate that the additional costs (including for stakeholders) is outweighed by the benefits of its approach compared to these other alternatives. The Authority has not demonstrated that its methodology will produce estimates that perform better than these independent data sources. It has only proposed an alternative approach – the important question is whether it is a better one.

We remain of the view that the estimation of corporate bond yields should be the domain of specialist financial organisations such as Bloomberg, the RBA or a financial institution (provided the data is accessible). It is not within the area of expertise of a regulator. This is not a criticism of the Authority or regulators more generally – it simply reflects the scope of a regulator's responsibilities and the inherent difficulties in coming up with ten year BBB estimates where there is a paucity of market data. This requires specialist skills, systems and expertise. With the exception of the Queensland Competition Authority, all other Australian regulators rely either on Bloomberg, the RBA, or both.

In summary, we do not consider that the Authority's Bond Yield Methodology should be used to estimate the debt risk premium. We advocate investigation of the RBA's data series, or use of the Bloomberg's BVAL series, recognising that adjustments need to be made to produce daily (in the case of the RBA) ten year estimates.

4 Gamma

The Authority is now proposing a gamma of 0.5, which is based on:

- a distribution rate of 0.7
- a theta of 0.7.

This reflects a fundamental change in approach that directly aligns with the methodology and reasoning applied by the AER in developing its most recent Rate of Return Guideline to apply to energy network businesses. We note that nearly all of the businesses submitting regulatory proposals under that Guideline have proposed a departure in favour of the 0.25 value previously arrived at by the Australian Competition Tribunal (the Tribunal), which is close to the value previously proposed by the Authority in the June Draft Decision. It is expected that this issue will be back with the Tribunal in the near future via an appeal of the AER's approach, although this will not be within the timeframe for the Authority's current review.

In essence, the key issue with both the AER's and the Authority's approach hinges on the interpretation of gamma and in particular, the conceptual definition of theta. This in turn drives the methods and evidence relied upon to estimate theta.

It is argued that:¹⁴

Within the context of the Officer model, the 'value' of gamma is not a market value, but instead a 'numerical value' arising out of the degree to which imputation credits are utilised.

In other words, based on this interpretation the value of theta is simply a measure of whether the credits are utilised by investors, regardless of whether those credits are actually valued by those investors or not. As noted by SFG, there are a number of reasons why franking credits are likely to be valued at less than their face value, including:¹⁵

- a) Credits that are not redeemed (because they are distributed to non-residents, or they are excluded by the 45-day rule, or any other reason) are clearly of no value;
- b) The redemption of credits requires certain administrative costs;

¹⁴ Economic Regulation Authority (2014b).

¹⁵ SFG (2014). An Appropriate Regulatory Estimate of Gamma, Report for Jemena Gas Networks, ActewAGL, APA, Networks NSW (Ausgrid, Endeavour Energy and Essential Energy), ENERGEX, Ergon, Transend, TransGrid and SA Power Networks p.3.

- c) The redemption of credits involves a material time delay before payment is made;
- d) Like dividends, imputation credits are taxed at the shareholder's marginal rate; and
- e) The acquisition of imputation credits comes at the cost of foregone diversification opportunities.

Consistent with other Australian regulatory regimes, the Authority interprets the rate of return objective as being commensurate with the efficient financing costs of the efficient benchmark entity, in order to ensure the efficient utilisation of, and investment in, the network infrastructure. In order for this to be achieved, the required rate of return has to be established from the perspective of investors who provide capital to the business. This is not controversial.

Accordingly, in what has become an increasingly technical but largely academic debate surrounding the valuation of gamma, the fundamental question that remains is the extent to which investors ascribe a value to franking credits in forming their return expectations, where those returns are otherwise derived through dividends and capital gains. If the value of gamma is overstated, the required return will be understated and the business will be unable to raise capital to fund investments. Conversely, if the value of gamma is understated, the required return will be overstated and the firm will be overcompensated.

This value has to be reflected in market prices, which is the basis on which all other rate of return parameters are estimated. The 'conceptual definition' of theta provides no guidance as to the value investors place on it – indeed it can only assume that distributed credits that are utilised are fully valued by investors (hence, the reliance by both the Authority and the AER on the equity ownership approach). However, this is not approaching the estimation task from the perspective of the investor, which is the relevant purpose here.

We therefore fundamentally disagree with the Authority's interpretation of gamma and the approach that it therefore relies upon to estimate it. Instead, we consider that it should revert to its previous approach, which sought to value gamma from the perspective of investors based on market data, even though we question the weight placed on the study by Vo et al relative to the SFG study.

In our view, the SFG study remains the most relevant recent study on the value of gamma, having been subject to intense scrutiny as part of the Tribunal's process. All of its underlying data was provided to the AER and all of the issues that were raised by the AER were addressed by SFG. In drawing its conclusions on SFG's 2011 study

(which we understand has been subsequently updated, producing consistent results), the Tribunal stated:¹⁶

The Tribunal is satisfied that SFG's March 2011 report is the best dividend drop-off study currently available for the purpose of estimating gamma in terms of the Rules. Its estimate of a value of 0.35 for theta should be accepted as the best estimate using this approach.

Further:¹⁷

The Tribunal finds itself in a position where it has one estimate of theta before it (the SFG's March 2011 report value of 0.35) in which it has confidence, given the dividend drop-off methodology. No other dividend drop-off study estimate has any claims to be given weight vis-à-vis the SFG report value.

In our view, full weight should be given to the SFG studies, which produces a range for theta of 0 to 0.35.

¹⁶ Australian Competition Tribunal (2011). Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9, para.29.

¹⁷ Australian Competition Tribunal (2011). para.38.

A Use of market evidence in selecting point estimates for the MRP

In the development of its gas Rate of Return Guideline it would appear that the Authority's approach to arriving at a point estimate is primarily informed by data presented in Figure 64 in Appendix 30 to its Explanatory Statement, which includes:

- the five year interest rate swap spread
- 'detrended' dividend yields
- the ASX 200 Volatility Index (VIX).

While we endorse the use of market information to inform parameters such as the MRP, significant caution needs to be exercised in the ultimate weight that is placed on this data, having regard to their use as predictors of the expected trend in, or direction of, the MRP over the next ten years.

The Authority has 'normalised' the data, which adjusts the current observation based on the extremes of the range. We note that in the analysis conducted by the Authority in Appendix 29 to its Explanatory Statement on its gas Rate of Return Guideline, data has been normalised as at the starting date of the VIX series (January 2008), recognising that dividend yield and interest rate swap spread data is available for a much longer historical period.

Accordingly, much of this period encompasses the GFC, which in turn drives the upper and lower bounds of the range that influence the Authority's 'normalised' estimates. To the extent that this is used to inform the expected MRP, a view needs to be formed as to whether this is representative of the future. In particular, noting that market conditions have improved since the GFC, can we conclude that the risk premium required by investors is below average, or in the 'lower quartile' (as concluded by the Authority), or does it reflect a view that market conditions are returning to what was observed prior to the GFC.

As noted by the Authority, interest rate swap spreads will be affected by a range of factors that influence swap spreads, including credit risk and market liquidity. They will also be influenced by factors affecting the demand and supply of the relevant instruments.

For example, in December 2013 interest rate swaps spreads in the US reached their narrowest level on record based on speculation that the Federal Reserve would be

looking to keep money market rates at low levels.¹⁸ This similarly occurred previously in the US with the onset of the global financial crisis, as swap rates fell in anticipation of interest rates staying low. This in turn reflected a preference by entities with fixed rate payment obligations wanting to receive the fixed rate and pay the floating rate. These examples do not support the hypothesis that a contraction in swap spreads means that investor's perceptions of future market risk have lowered.

Empirical analysis has shown that the factors driving swap spreads include the slope of the yield curve, interest rate volatility, short and long term credit spreads and market liquidity. Conflicting conclusions have been reached about the nature of the relationship with the slope of the yield curve, with some studies finding a negative relationship¹⁹ and others a positive one²⁰.

Overall, this highlights the care that needs to be taken in interpreting interest rate swap spreads and drawing firm conclusions about what this might mean about future expectations for interest rates and market conditions more generally, noting that the relevant task here is to determine the expected value of the MRP.

We also question the reliance that can be placed on the VIX data. The VIX is used to measure investor's expectations of market volatility over the next thirty days.²¹ The ASX also observes that:²²

Volatility indicators such as the S&P/ASX 200 VIX are often perceived to exhibit characteristics of mean reversion by oscillating around a long term average (or mean). In other words, a move away from the long term average towards high or low extremes is usually followed by a move back towards the long term average. The implication of mean reversion is that high levels of volatility are followed by a return to more normal levels of volatility and very low levels of volatility are often pre-cursors to an increase in volatility.

Our fundamental concern with the reliance that is placed on the VIX data is that it only provides expectations over the next thirty days, when the horizon of investors' MRP

¹⁸ L.McCormick (2008). Swaps Spreads Collapse as Concerns of Global Recession Deepens, Bloomberg, 20 November, <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aPICcBfCLqrw>. [Accessed: 2 July 2014.]

¹⁹ Sorensen, E. and Bollier, T. (1994). Pricing Swap Default Risk. Financial Analysts Journal, 50(3).

²⁰ Brown, K., Harlow, W. and Smith, D. (1994). An Empirical Analysis of Interest Rate Swap Spreads. Journal of Fixed Income, 3.

²¹ <http://www.asx.com.au/products/sp-asx200-vix-index.htm>. Accessed: 2 July 2014.

²² <http://www.asx.com.au/products/sp-asx200-vix-index.htm>. Accessed: 2 July 2014.

expectation is ten years. This does not appear consistent with the Authority's requirement that:²³

The Authority considers that any estimated MRP must be a forward looking MRP, commensurate with the prevailing conditions expected over the future term of the WACC.

As noted by the ASX above, "very low levels of volatility are often pre-cursors to an increase in volatility." In other words, low levels of volatility now could soon be followed by a subsequent increase.

The Authority does acknowledge that "the global economy continues to face considerable challenges".²⁴ While conditions have clearly improved, the outlook still remains uncertain. For example, the Chair of the US Federal Reserve has noted that while economic activity is expected to grow at a faster pace:²⁵

As always, considerable uncertainty surrounds this baseline economic outlook. At present, one prominent risk is that adverse developments abroad, such as heightened geopolitical tensions or an intensification of financial stresses in emerging market economies, could undermine confidence in the global economic recovery.

The Reserve Bank has also observed that while growth in Australia has been strengthening, there are a number of key challenges, including:²⁶

- the decline in mining investment, which is still seen as having "some way to run";
- a subdued outlook for non-mining investment;
- more recent appreciation of the exchange rate, affecting our terms of trade; and
- fiscal restraint by both Federal and State governments, which will impact growth in public demand.

²³ Economic Regulation Authority (2014a). p.82.

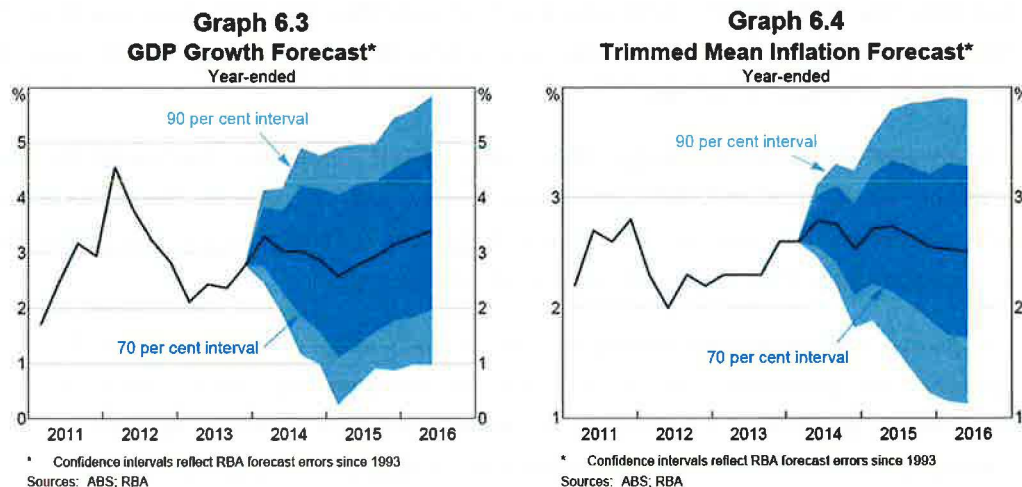
²⁴ Economic Regulation Authority (2013). Appendices to the Explanatory Statement for the Rate of Return Guidelines, Meeting the Requirements of the National Gas Rules, p.217.

²⁵ Yellen, J. (2014). Testimony by Ms Janet L. Yellen, Chair of the Board of Governors of the Federal Reserve System, before the Joint Economic Committee. Available from: <http://www.bis.org/review/r140508a.htm> [Accessed 1 July 2014].

²⁶ Reserve Bank of Australia. (2014). Statement on Monetary Policy: Economic Outlook. Available from: <http://www.rba.gov.au/publications/smp/2014/may/pdf/eco-outlook.pdf> [Accessed 1 July 2014].

This in turn means significant uncertainty about future GDP growth and inflation. This is demonstrated in the following RBA forecasts, which are presented as confidence intervals based on historical forecast errors.

Figure 1 GDP growth and inflation forecasts: confidence intervals reflecting RBA forecast errors since 1993



Data source: Reserve Bank of Australia. (2014). Statement on Monetary Policy: Economic Outlook. Available from: <http://www.rba.gov.au/publications/smp/2014/may/pdf/eco-outlook.pdf> [Accessed 1 July 2014], p.67.

The Authority states given the continued uncertainty it is considered appropriate to “lift the estimate of the MRP back towards the mid-point of the range.” It is not clear where the starting point was based on the volatility data discussed above, however this would imply that it was at the lower end of the Authority’s 5% to 7.5% range.