14 August 2017

2018 to 2022 Revised Access Arrangement Information

Attachment 1 - Multinet Responses on Rate of Return, Inflation and Gamma

An appropriate citation for this paper is:

2018 to 2022 Revised Access Arrangement Information

Contact Person

Andrew Schille

Multinet Gas

Multinet Gas Distribution Partnership
ABN 53 634 214 009
43-45 Centreway
Mt Waverley VIC 3149
T (03) 8846 9900
F (03) 8846 9999
www.multinetgas.com.au

Postal Address

PO Box 449
Mount Waverley VIC 3149

Table of Contents

Executive Summary

In this revised proposal we accept the AER's draft decision in relation to rate of return, inflation and gamma. We consider that it is appropriate for the issues raised in our Initial AA Proposal to be debated through the industry wide Guideline and expected inflation reviews, rather than through this AA review process.

Our Initial AA Proposal proposed values different from the AER recent estimates of the rate of return, expected inflation and gamma. The AER's draft decision raised a number of issues with respect to our proposal on these parameters. Notwithstanding that we have determined to accept the AER's draft decision for the purposes of this review, we consider the matters raised in our initial proposal warrant further discussion.

This attachment summarises our high level response to the AER's Draft Decision. We will provide further submissions and evidence on the proposed approach to these parameters as part of the various review processes.

1. Overview of Multinet's approach

Our substantive differences from the AER's Guideline parameter estimates and recent decisions were on:

- Market Risk Premium (MRP),and the proposed inclusion of an alpha adjustment to the return on equity;
- in respect of return on debt, we proposed to add an additional third party data source, Thomson Reuters;
- in relation to expected inflation, our proposal differed from the AER's recent decisions in that it proposed the breakeven (Fisher equation) approach; and
- in relation to gamma- we proposed an estimate of 0.25 based on a market value approach.

Our proposal in relation to MRP was to seek to apply the AER's approach in the current rate of return Guidelines, using updated numbers. This gave a higher MRP at the time of our submission (7.5%). However, our proposed approach now gives approximately the same answer as the AER's estimate of 6.5% and we accept this estimate in this revised AAI.

We also sought to update the equity beta estimates. Both our own modelling and that of another regulator (the Economic Regulatory Authority - ERA) indicated that beta estimates had increased since the AER's rate of return Guidelines, such that the top of the range was not 0.7, but rather this number represented the mean, or "middle of the range" estimate.

However, rather than seeking to adjust the equity beta estimate, our proposal was to add an "alpha" to the estimation of a CAPM estimate, based on views expressed by experts (Partington and Satchell) that if an adjustment was to be made, this was the appropriate approach.[1] The alpha adjustment we made was the smallest adjustment that could remove the systematic difference between forecasts made by the SL-CAPM and subsequent realised returns.

[1] We acknowledge that Partington and Satchell do not believe that one should move away from the mean estimate of beta, particularly in response to the evidence we considered, but the point here is that, if one were to adjust, alpha is the way to do it.

2. The Alpha Adjustment

The AER summarised its rejection of our proposed alpha adjustment as follows:[2]

- Our analysis of the current service providers' material on equity beta does not provide satisfactory evidence to increase our range (0.4–0.7) and point estimate (0.7). We consider the material still show support for Henry's study.
- Multinet has mischaracterised the Guideline. We did not, and do not, adjust the equity beta.
- Multinet's proposal appears to stem from its consideration of the Black CAPM which we have assessed and determined to be unsuitable for directly estimating the return on equity.
- We disagree with the proposed alpha (and by extension beta) adjustments because there are a range of issues.
- Multinet's proposed use of realised returns is problematic because realised returns can differ from expected returns over a persistent period of time and capture myriad factors that can contribute to realised returns being higher than Sharpe-Lintner estimates.
- We do not adopt an expected equilibrium return framework.

In this section, we set out our high level response to these points. We will present further responses to these issues as part of the Guideline review process.

2.1 The updated equity beta estimates

The AER's arguments against the evidence from CEG that equity beta estimates have increased are:[3]

- CEG's extension of firm level estimates does not indicate a significant change in empirical estimates of the equity beta. For example, the average re-levered firm-level estimate (using weekly data and Henry's longest sampling period extended until October 2016) increased slightly (by 0.05) from 0.554 to 0.6.307 If this is restricted to firms with additional data, then the average re-levered firm-level estimate is 0.488 which is a decrease compared to CEG's and Henry's estimates for 2013.
- The average re-levered portfolio estimates for both equally-weighted and value-weighted portfolios increased by a similar magnitude.
- CEG did not report the standard error of its regressions. If we use Henry's standard errors as a proxy, CEG's extension of firm-level estimates (longest time period) falls within 2 standard deviations of Henry's results.
- CEG's observed increase is driven by short term estimates. We consider that this is unlikely to provide a robust equity beta estimate and is of the view that estimate of equity beta using the longest possible data set would be better suited.
- Short term estimates (such as CEG's one year, two year and five year estimates) are not sufficiently robust to provide enough evidence of a change in beta or for the purpose of testing structural breaks. This is because the imprecise nature of short term estimates (due to one-off events, fluctuations and volatilities) may obscure the 'true' equity beta for a benchmark efficient entity.
- Partington and Satchell have advised that they continue to see 'little evidence of change' in the November CEG report.

[2] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, p58

[3] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, pp77-78

- CEG's observed increases for the longest data period are driven by gearing. However, the underlying risk of supplying the regulated services appears relatively unchanged as there continues to be 'relatively little difference in the raw beta estimates'.
- Re-levered equity beta can be sensitive to the gearing and leveraging assumptions. For example, five year estimates for APA are 0.71 (Frontier) and 0.81 (CEG) despite similar data period and use of Henry's methodology. Therefore, it may be that it is the choice of gearing assumptions that is driving the observed increases

The AER also notes that it is not convinced by the results of CEG's tests for a structural break in 2014.

We have a number of responses to these points which we will develop as part of the Guideline review process. Our response includes (at a high level):

- The question of whether to use longer or shorter time series (or both) turns on the issue of structural breaks, whether to use them and what the evidence shows.
- The AER suggests that CEG's evidence of a structural break in 2014 is an artefact of the data, but it notes that the evidence for a structural break in 2009 is credible, given its proximity to the global financial crisis[4]
- The AER does not appear to have assessed CEG's evidence that the F-statistics are elevated from 2012 onwards (peaking in 2014), and we note that the start of that period coincides with the Euro-crisis. This is additional evidence favouring a shorter time period, which complements the AER's own finding of a structural break in 2009.
- There is a strong argument for putting all, or most weight on shorter time periods, which leads to five-year estimates.
- The AER states in its Draft Decision, that the evidence from its five-year beta estimates suggests no need to move from its favoured range of 0.4 to 0.7, noting:[5]

  We have estimated five-year estimates as Henry has done (at the firm-level and portfolio-level) using data to 28 April 2017. The results (portfolio estimates: 0.54–0.57, firm estimates: 0.31–0.72) support Henry's range of 0.3–0.8 (and as a result our range of 0.4–0.7) and do not suggest an increase in equity beta.

- However, having reviewed the AER's five year estimates, the April 2017 estimates to which the AER refers appear to be estimates of beta that have not been de-levered or re-levered. If the AER estimates are de-levered and re-levered in the same way (we presume) that Henry had de-levered and re-levered his estimates in producing his range, the mean betas in the AER's own analysis appear to sit outside the range of 0.4 to 0.7.

2.2 The use of the Black CAPM

In our *Rate of Return Overview* in the Initial AA Proposal, we quote from Partington and Satchell who note that if you were to invoke the theory of the Black CAPM, it would make more sense to adjust alpha than the beta. However, it does not follow from this that, in making an alpha adjustment, the Black CAPM is being used.

Our proposal did not use the Black CAPM nor any particular estimate of the zero beta premium. The only place in which the Black CAPM was used was as one of a series of illustrative checks we undertook.

[4] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, p273

[5] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, p270

2.3 Realised returns and the expected equilibrium return framework

In broad terms, the nature of the problem is that the SL-CAPM, whatever its theoretical merits, might not represent how expectations about returns form in an actual marketplace, because its assumptions might not necessarily hold.

The AER does not appear to be in any doubt that the CAPM performs poorly when tested against realised returns. It notes, for example:[6]

> *We acknowledge that the Sharpe-Lintner CAPM tests poorly using ex post returns data, and appears to underestimate the ex post returns for businesses with an equity beta less than one.*

The issue comes when considering what to do about this. The AER is of the opinion that realised returns cannot be used to assess whether the CAPM is right or wrong.

However, since the realised return to an asset is the sum of the expected return to the asset and an unexpected return, and given it is not possible to forecast an unexpected return, evidence that the CAPM delivers forecasts of the returns to low-beta assets that are downwardly biased is evidence that the model underestimates the expected returns to low-beta assets.

Partington and Satchell have advised the AER, however, that the returns that investors require may not match the expectations of those returns because markets may be out of equilibrium for prolonged periods of time and it is the returns that investors require that determine the cost of equity rather than the returns that the firm will be expected to deliver. However:

- Disequilibrium can come about when agents are not doing as well as they can for themselves. The position taken by Partington and Satchell (expected equilibrium) means that for the 40 years of HoustonKemp's sample investors required low returns on low-beta assets but the market continually delivered high returns.
- The AER says that it does not in fact adopt an expected equilibrium framework and so Partington and Satchell's arguments about the "expected equilibrium framework" appear to fall away as a basis to reject the use of empirical tests (or alpha adjustments).
- If the AER is not adopting an expected equilibrium framework, this undermines the use of the CAPM as the foundation model. We will consider this issue further as part of the Guideline review process.

Partington and Satchell also discuss a number of statistical problems that they argue might exist in the work by HoustonKemp, and also criticise the empirical work in general. It is clear that differences exist between Partington and Satchell on the one hand, and Wheatley on the other. We consider it would be useful for these experts (and others) to focus on points of commonality and support the "hot-tub" approach proposed for the rate of return Guideline review as a way of advancing these issues.

[6] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, p183

3. Cost of debt

In respect of the estimation of the cost of debt, we agreed with the AER's approach in its entirety, with the exception that we proposed the addition of a third index, from Thomson Reuters (TR), in addition to the RBA and Bloomberg indices the AER already uses. In response to our suggestion, the AER noted:[7]

> *We have not yet formed a definitive view on the suitability of the Reuters curve, and are open to further consideration of this curve in the future. However, there is currently insufficient evidence before us that the use of Reuters curve would contribute to an estimate that will achieve the ARORO.*

The AER noted that the issues it saw were not irresolvable, but rather required further analysis. We agree with the AER that, at present, the TR curve is not very different from the Bloomberg curve and that the two curves use broadly similar bond selection processes. Indeed, our reason for including the curve was focussed not on how different the two curves might be in general, but rather as a kind of insurance for the instances when the two curves are not aligned, and it is difficult to tell which one is "best".[8]

We suggest that these issues be further considered as part of the Guideline review.

[7] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Rate of return, July 2017, p142

[8] Multinet, Rate of Return Overview, December 2016, p42

4. Expected Inflation

In our AA Proposal, Multinet proposed the breakeven approach to estimating inflation, giving rise to a forecast of inflation of 1.68 percent. Updating this forecast to reflect current data (that is, to mid-July 2017), this gives a result of 1.88.[9] The AER rejected our approach, and continued to favour its own approach based upon the geometric mean of short-term RBA projections and the mid-point of the RBA target range. In the Draft Decision, this gives rise to a forecast of 2.45 percent. Whether our approach or that of the AER were to be followed, the inflation allowance would change in the Final Decision due to changing market data.

We retain our view that the breakeven approach best meets the requirement of the NGR. However, we are also participating in the current review on the appropriate approach to the estimation of inflation being undertaken by the AER. We understand the AER intends to reflect the findings of this review in its Final Decision. We endorse this approach.

[9] This is based on an averaging period of ten days

5. Gamma

We have noted the recent findings of the Full Federal Court which found no error in the AER's approach to estimating gamma, relying primarily on equity ownership estimates. We accept that our original proposed gamma of 0.25 (based on market evidence from dividend drop-off studies) has not been supported by the Full Federal Court. For the purposes of this response to the Draft Decision, therefore, we accept a gamma of 0.4.

However, we continue to remain concerned about two issues; tax statistics and Lally's distribution rate of 0.83. As with the rate of return parameters, we will raise these concerns in more detail in the forthcoming Guideline review process. We also note that there remain pending legal decisions in respect of gamma, including the SA Power Networks application for judicial review of the Australian Competition Tribunal's decision made on 28 October 2016.

We note that the Full Federal Court in *PIAC and Ausgrid* accepted the AER's submission that the context is the determination of a regulated return using a post-tax revenue model based on a nominal vanilla WACC. It accepted the AER's submission that the Rules require consistency in the way the relevant building blocks interact, that is, a post-company tax and pre-personal tax and personal costs basis. The Full Federal Court observed that, as the nature of gamma is an estimate to be used in a model, the context relates to a statutory model rather than the value of something that exists, and that the Tribunal was distracted, by the apparent simplicity of the concept of market studies and data, into mistaking what was to be estimated as real in a market rather than as estimates within a model.

Lally has suggested that this obviates tax statistics as an upper bound, because the Full Federal Court found that the primary consideration of the Ausgrid Tribunal, that market studies should form the primary evidence, was in error; noting:[10]

> *Further, Lally notes that the Ausgrid Tribunal considered tax statistics produce an upper bound estimate on utilisation value, due to time delays, administrative costs in distributing the credits, portfolio effects, and the effect of the 45 day rule. Lally considers the Ausgrid Tribunal based this on the belief that the utilisation value is a market value and the fact that these phenomena would depress the market value of the credits. However, Lally considers that the utilisation value is not a market value, rather it is a weighted-average of investors' utilisation rates for imputation credits, and this alone undermines the Ausgrid Tribunal's reasoning.*

The Full Federal Court considers tax statistics and notes:[11]

> *In relation to tax statistics, the Tribunal concluded that as a matter of principle tax statistics can only provide an upper bound on the estimate of theta. It stated at [1095] that the AER's tax statistics approach made no attempt to assess the value of imputation credits to shareholders and ignored the likely existence of factors which reduced the value of imputation credits across all eligible shareholders below the "face" value assumed by the AER. The Tribunal considered that approach to be inconsistent with a proper interpretation of the Officer Framework underlying r 6.5.3 of the NEL. The Tribunal said, in the same paragraph, it was the reason that the theta estimates produced by the tax statistics could be no better than upper bounds on the market value of imputation credits.*
>
> *We see no separate legal error on the part of the Tribunal in so concluding. In our opinion, it stands or falls with the construction issue raised by ground 17. The Tribunal was not required, in light of that approach, to give further consideration to the AER's reasons for using the tax statistics as it did. The Tribunal anchored its conclusion in an available ground of limited merits review within s 71C.*

[10] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 4 – Value of imputation credits, July 2017, p174.

[11] Federal Court of Australia, Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79, May 2017, [763]-[764].

The finding by the Full Court of no separate legal error in respect of a finding that tax statistics form an upper bound for gamma must be read in light of the Full Court's conclusion in respect of Ground 17.[12] The Full Federal Court's conclusion in respect of Ground 17 is essentially that the AER was not in error in rejecting the market value formulation of gamma advanced by the NSW/ACT businesses. If the Tribunal in *PIAC and Ausgrid* had found that tax statistics form an upper bound for an estimate of gamma *solely* because gamma must be determined as a market value, then Lally's argument may be correct.

However, the Tribunal specifically noted that, even following the logic put forward by the AER, whereby a dollar of imputation credits is worth its face value to those who can and do redeem them (rather than a market value interpretation for gamma), taxation statistics would form an upper bound for gamma.[13] The Tribunal explained that:[14]

> *The AER's equity ownership and tax statistics approaches consequently make no attempt to assess the value of imputation credits to shareholders and ignores the likely existence of factors, such as the 45 day rule, which, across all eligible shareholders, reduce the value of imputation credits to those shareholders below the "face" value assumed by the AER…*

Tax statistics record who has actually redeemed a credit and thus who has been able to realise its face value. Tax statistics therefore represent a record of the aggregate value which has been realised, where each redeemer values the credit at its face value. In this context, tax statistics must be an upper bound. If they were not an upper bound, some of those redeeming credits may have valued them at more than their face value

The primary concern for the AER appears to be the quality of the tax statistics data. The AER appears to accept that tax statistics ought, at least in principle,[15] to be considered a ceiling for gamma, but, because of data quality issues, it does not accept that the numbers it has calculated using the tax statistics data cannot be considered to be an upper bound and must be considered a point estimate.[16]

We suggest that as part of the Guidelines process, a conference of experts could examine the primary data sources themselves to ascertain whether the degree of error of the most reliable data (the FAB data) are sufficiently free of error that they can be put to the task of determining a ceiling for gamma.

The second issue we wish to raise relates to Lally's 20-firm distribution rate estimate. Our concern lies with the sample set Lally has used.[17] The firms in Lally's sample set are shown in Table 8.

Table 5.1: Lally's set of 20 firms

First Half	Second Half
CBA (Parent)	Rio Tinto (Group)
BHP (Group)	Westfield (Group)
Westpac (Parent)	MacQuarie (Group)

[12] Federal Court of Australia, Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79, May 2017, [755]-[756]

[13] Australian Competition Tribunal, Application by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1, 26 February 2016, [1090]-[1095].

[14] Australian Competition Tribunal, Application by Public Interest Advocacy Centre Ltd and Ausgrid [2016] ACompT 1, 26 February 2016, [1095].

[15] See, in particular, 2016 ACompT 3, Transcript 23/11/2016, p655. The AER also appears to adopt a similar notion in the current draft decision, suggesting that "In theory, these statistics can be used to derive a measure of the total amount of imputation credits utilised by eligible investors to offset tax or to be refunded" (AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 4 – Value of imputation credits, July 2017, p38). Certainly, the AER does not appear to be suggesting that there could be a theoretical or principled reason why gamma could be higher than suggested by tax statistics, absent of concerns about data.

[16] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 4 – Value of imputation credits, July 2017, p12.

[17] We have not sought a detailed assessment of the actual methodology used by Lally; although at face value it does not appear to us to have major problems. We think another task for the relevant expert hot-tub could be to conduct such an assessment so that all parties could have confidence in the work

First Half	Second Half
ANZ (Group)	Origin Energy (Group)
NAB (Group)	Suncorp (Group)
Telstra (Group)	QBE Ins (Group)
Woolworths (Group)	Brambles (Group)
Wesfarmers (Group)	Santos (Group)
CSL (Group)	AMP (Group)
Woodside (Group)	Amcor (Group)

Source: Lally, M, Review of Submissions to the QCA on the MRP, Risk-Free Rate and Gamma, March 2014, p40

Of the firms Lally has used, six are banks, several are international mining and energy conglomerates, and the remainder includes retailers, property companies and insurance firms. Very few of these could be considered to fit the AER's definition of the benchmark efficient entity.[18] Again, we suggest this issue be further considered as part of the Guideline review.

[18] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 4 – Value of imputation credits, July 2017, pp21-22

6. Response on debt and equity raising costs

We used the AER's proposed approach for the estimation of both debt and equity costs in our AA Proposal, and this was accepted by the AER.[19] This included the relevant rates. However, both costs are recorded as opex line items, and the dollar values change as the value of the asset base and capital expenditure changes. We therefore need to apply the same rates we used in our AA Proposal to the new asset base and capital expenditure associated with this response in order to provide new dollar amounts.

This gives rise to an equity raising cost of $3.12 million, and debt raising costs (8.4 bps applied to 60 percent of the closing RAB each year) as shown in Table 5 below.

Table 6.1: Debt raising costs per annum ($M, Real 2017)

	2018	2019	2020	2021	2022
Allowance	0.60	0.62	0.62	0.64	0.64

Source: Multinet calculations

[19] AER, Draft Decision Multinet Gas Access arrangement 2018–2022: Attachment 3 – Return on equity, July 2017, p441