Review of the rate of return guideline

Response to the AER Draft Guideline

September 2018

ENERGY CONSUMERS AUSTRALIA

Contents

The Draft Guideline is capable of acceptance. If the AER decides to deviate from the draft greater emphasis should be provided to the evidence that supports lower values for the MRP and equity beta.

Introduction

Energy Consumers Australia (ECA) is the national voice for residential and small business energy consumers. Established by the Council of Australian Governments (COAG) in 2015, our objective is to promote the long-term interests of consumers with respect to price, quality, reliability, safety and security of supply.

We welcome the opportunity to further participate in the Australian Energy Regulator's (AER) Review (the Review) of the Rate of Return Guideline (the Guideline) and to comment on the *Draft Rate of Return Guidelines: July 2018* (the Draft Guideline or Draft) (AER, 2018a)and the accompanying *Explanatory Statement* (the Statement). (AER, 2018b)

Our overall response to the Draft Guideline is that the evidence available to the AER justifies a rate of return lower than that which will apply as a consequence of the Draft. We acknowledge the AER's concern that movement in the rate of return should not be too extreme in any individual review so that investor confidence is not unnecessarily disrupted, and that this is a valid consideration in exercising judgement in the choice of the allowed rate of return.

The direction of the AER's decisions in relation to three key parameters – beta, Market Risk Premium (MRP) and gamma – are all supported by the evidence. However, we argue that (possibly motivated by a reasonable desire to deliver a Draft that was capable of acceptance by networks) the AER has chosen values for these three parameters that result in a rate of return which is in excess of the efficient finance costs of an efficient service provider.

In this submission we will first outline some observations about the overall approach of the AER to this review including the incremental approach, the Concurrent Expert Evidence Sessions, observations on the limitations of the Capital Asset Pricing Model (CAPM) and the way those limitations need to inform the use of the model in determining the allowed rate of return and a consideration of what the time period is over which returns are assessed.

We then consider in detail the AER's approach to determining beta, the MRP and gamma. We conclude by summarizing how the final Guideline should change from the Draft. In saying that we repeat that had the networks acknowledged the concessions offered to networks in the Draft we would have supported there being no change from the Draft to the final Guideline.

Principles underpinning the review

The 'incremental approach'

In its *Review of the Rate of Return Guidelines Issues Paper: October 2017* (AER, 2017a, p. 7) the AER outlined its approach to the review in what has become known as the 'incremental approach'.

> *This issues paper aims to assist stakeholders in providing input to assist us in reviewing the Guideline. The paper provides background on the Guideline review process, outlines our current approach to setting the allowed rate of return, and describes the elements of our approach we are proposing to review in the following order:*
>
> - *Overall rate of return*
> - *Return on debt*
> - *Return on equity*
> - *Value of imputation tax credits*
> - *Other components*
>
> *Throughout the remainder of this paper we set out the issues that we have initially identified as a priority for the Guideline review. We have taken the approach of identifying key issues for the review, rather than a 'blank slate' approach of reviewing every aspect of the rate of return. We consider that a targeted approach to the review will allow for a more efficient review process, including more effective consultation and stakeholder engagement on significant matters. A targeted approach to the review can acknowledge the significant analysis that was the basis of our current approach to the rate of return, while more effectively addressing matters that require further consideration.*
>
> *Industry and consumer advocates broadly supported this incremental approach at the public forum we held on 18 September 2017.*

There are two aspects to this description of the incremental approach that are important for understanding the AER's Draft and Statement. The first is that while the AER wasn't taking a 'blank slate' approach, it wasn't also confining itself to a narrow re-evaluation of the parameters in the model but was also mindful of **the overall rate of return.**

The second is that the incremental approach wasn't limited to reviewing only the data that informed various estimates, but more generally '*a targeted approach to…more effectively [address] matters that require further attention*.' In our submission in response to the issues paper we made extensive reference to the importance of the AER's consideration of the overall rate of return and **how that consideration then needed to inform the AER's judgement** in the choice of individual parameters.

In the Explanatory Statement to the Draft Guideline the AER is quite explicit on how the overall rate of return has informed its judgement, writing:

> *In section 3.3 we considered the information we received relating to profitability analysis, financeability analysis and RAB multiples as potential relevant material for estimating the rate of return. Our conclusion is that this material should not be given a role in estimating the expected return on equity. However, we agree that RAB multiples and historical profitability may provide useful contextual information and cause for further examination of the material we rely on when estimating rate of return parameters.* (AER, 2018b, p. 181)

This statement is entirely consistent with our view of the approach the AER has taken. It has used information about the overall impact of its previous decision to inform its estimation of the parameters. That is, the relevant 'new' information for making the decision isn't constrained to new data from market estimates but also new information on how the AER should interpret the ranges of those estimates.

In our view the AER has been consistent in its application of the incremental approach as described in the issues paper. We see no basis for the suggestions made by Energy Networks Australia that the AER has gone beyond the boundaries of an incremental approach.

The Concurrent Expert Evidence Sessions

The Review process included the convening of Concurrent Expert Evidence Sessions. This is a new process for the AER and one that in Energy Consumers Australia's view was highly valuable, though there is scope for significant improvement.

The AER published a consultation paper and a position paper on the process for the review. (AER, 2017) (AER , 2017b). The latter conveyed the AER's expectation that it would be necessary to select only a few experts from a number of experts who had provided evidence for respondents' submissions.

It transpired that no one submitting to the issues paper included an expert report. In the end there were experts sponsored by Energy Networks Australia, Australian Pipeline Industry Association, the Investor Reference Group, and two funded by Energy Consumers Australia to provide perspectives from residential and business consumers as well as the AER's experts.

In the process position paper, the AER identified that after submissions closed on the issues paper, it would engage with stakeholders on which issues it should hold sessions on and which experts should be involved in those sessions. Energy Consumers Australia was consulted (through the Consumer Reference Group) and through the CRGs engagement with Energy Networks Australia we were able to provide a combined view of the priority issues.

A particular issue in relation to experts is funding. The process position paper notes:

> *If the experts require funding to appear, this must be provided by whoever initially engaged the expert. Experts are able to decline the invitation to appear if they are not funded to do so.*

It also notes a recommendation from CCP10 that the AER "should consider funding experts that are appointed by consumer interests." Energy Consumers Australia funded an expert to appear at both sessions. The AER then approached the Major Energy Users to see if they could fund an expert, and Energy Consumers Australia funded a second expert to be engaged on behalf of business consumers. That expert met with business advocates prior to the second session.

The AER developed six comprehensive reports of issues that could be considered by the expert sessions.

In the discussion of the work to occur before the sessions there is one paragraph that refers to the 'independent facilitator' three times, yet this is the only time the facilitator is mentioned. In these references the facilitator is required to prepare a statement of agreed positions between the experts.

It transpired that the facilitator generated reports one day before each session that were titled *Initial views and agenda for first evidence session* and *Session 2 issues paper.* (CEPA, 2018) (CEPA, 2018)*.* These documents had benefitted from consultation with experts but largely constituted a list of issues for discussion rather than a statement of agreement.

The process position paper stated that an AER Board member would chair the sessions, assisted by an AER staff member. The paper stated, '*the Board members will have primary responsibility for facilitating and directing the discussion to help resolve questions to assist the Board's decision making*.' In practice, while Board members asked a number of direct questions, the 'independent facilitator' undertook primary responsibility for facilitating and directing the discussion.

The process position paper indicated that after the sessions the AER would 'publish the initial statement of agreed positions on our website' and 'will request experts review this statement after the concurrent evidence sessions and develop an updated statement of agreed positions if necessary, and we will also make this updated statement available on our website. **We would only expect to make significant updates if, through the course of the discussion, an expert signalled a change of view on an issue such that the initial statement of agreed positions was no longer representative of their views**.' (emphasis added).

When Energy Consumers Australia engaged its experts, the engagement was explicitly for participation in the Concurrent Expert Evidence sessions. With one expert, unexpected approaches after the concurrent sessions requiring significant input to detail dissenting views were unable to be fulfilled as the expert had no time available due to prior commitments.

This summary of the differences between the conduct of the Concurrent Expert Evidence Sessions and the process position paper is not provided as a criticism of the sessions themselves. At the sessions the experts were able to express their views and for Board members to seek clarification.

We do, however, think that caution should be exercised when considering the *Expert Joint Report* and unless expressly stated in that report no expert should be assumed to have changed their view from anything stated in the sessions themselves. (CEPA, 2018)[1]

We do suggest that the AER should review the experience from these first Concurrent Expert Evidence Sessions and develop additional guidance prior to the next review. We also submit that the AER should consider the prospect that all experts are funded by the AER to ensure a consistency in support to experts.

The role of the CAPM

Under the current Rules the AER is required to estimate a benchmark gearing ratio, and a rate of return on each of debt and equity.

The Capital Asset Pricing Model (CAPM) is used by the AER to determine the allowed rate of return on equity by estimations based on historic returns. While there is a lot of focus in the exercise on share prices, the underlying return data is the sum of the dividend payout and the appreciation in the share price.

The Foundation Model the AER adopted in the 2013 Guideline is to use the Sharpe Lintner CAPM which derives from the mean-variance approach to asset valuation. This is based on the observation that the return over a defined time period an investor will require from an asset is based on both the expected return from the asset in the future and the distribution of possible returns around that expected return as measured by the variance. It has as an assumption that the distribution of the returns can be fully specified by just the mean and variance, a condition which applies if returns are normally distributed.

The SL-CAPM derives a rate of return from three parameters; the risk-free rate, the Market Risk Premium and the equity beta. The product of the MRP and beta is the Equity Risk Premium (ERP) which is added to the risk-free rate to provide the return on equity.

The Market Risk Premium is determined by looking at historical annual market outcomes. The equity beta is a measure of the extent to which the specific equity is either insulated from or exposed to the economy wide variations that provide the 'business cycle' as measured by equity returns. Mathematically it is derived as the covariance of the equity returns to the market returns divided by the variance of the market returns. It is sometimes described as volatility, but it is more accurately relative volatility.

The AER in its Foundation Model adopted the SL-CAPM with the addition that the estimate of beta would be informed by the Black CAPM and the

[1] The Expert Joint Report makes reference to the views of this expert under 'Alternative perspective' on page six noting 'One expert had a perspective on RoR issues that was distinctive from the others' and 'During the period of the CEES process, it was not possible to develop these ideas fully to explore how they might be incorporated in the ROR process.'

estimate of MRP by the Dividend Growth Model (DGM). The extent to which these should be considered is discussed in more detail below.

The goal of setting the allowed rate of return for the purposes of regulation is to establish the rate that is just high enough to induce investors to fund the amount of infrastructure required. While no network business is raising new equity, they are continually reinvesting shareholder funds in replacement and augmentation capital expenditure. The alternative to making these investments is to return capital to shareholders.

The CAPM doesn't measure this 'reservation price' of capital, it measures how the market is valuing the actual stocks that are listed. The efficient market hypothesis doesn't tell us that the market efficiently prices equities, it only claims that the market will have fully factored in any available information. One part of the information is the allowed revenue arising from previous revenue determinations.

It is highly unlikely that investors would invest in network shares if the actual returns were lower than their reservation price. This is a standard feature of markets; price only equals cost or utility for the marginal customer.

The CAPM is therefore only an input that should be considered in determining the allowed rate of return for equity.

There is also a quite distracting conversation about risk and how investors are compensated for taking risk which includes which includes whether investors need compensation for anything other than systematic risk. This entire conversation conflates the ordinary English meaning of risk (a circumstance in which outcomes are uncertain) with the financial measure of risk which is when the outcome is uncertain, but the distribution of possible specific outcomes is known. It is further confused by the fact that systematic risk is what is compensated for in the Market Risk Premium, while the equity beta measures how sensitivity the stock is to that risk.

Most importantly the SL-CAPM is not a direct measure of risk, it is a measure of how the market for equities assesses the risk of that business. This makes some comments by the experts look strange. For example, in the *Expert Joint Report* (CEPA, 2018) two experts are attributed to have said;

> *SG considered that RORG should explicitly state the extent to which the allowed return includes compensation for the risk of an exogenous write down of the RAB. and whether there has been any change in approach since past reviews.*
>
> *GH noted that it is not correct simply to ignore this risk and assert unquestioningly that RAB will be honoured.*

The CAPM relies upon the market to value these risks, not the regulator.

Such a consideration may be appropriate were the AER to adopt the approach suggested by one expert of estimating beta directly from the cash flows of the businesses – that is to assess return as the actual cash generated not the share price plus dividend. In that context it might be appropriate to consider the long run prospect of an uncompensated asset write down.

But the same experts who make the claim that this aspect of risk should be directly identified in the RORG argue that there is inadequate data to estimate beta from cash flows.

In summary, the CAPM is measuring how the market has historically valued these assets. The value of beta represents the market's assessment of the risks the businesses face. An interesting discussion occurred on this topic in the first CEES (page 50 of the un-proofed transcript) where when asked by an AER Board member whether the market has priced in technology risk, the expert appointed by investors replied:

> *My view would be that the listed investors…haven't factored in anything for any technology because quite simply there are many more experienced people in the profession, regulation and engineering who don't know what the facts are going to be, so a listed market is even less qualified to form a view.*

This seems to be quite a novel assessment of how investors would deal with uncertainty – to paraphrase '*because experts can't tell me how much the future will change by, only that it will change, I am going to assume there will be no change*'.

Elsewhere in the same session (P. 22) Professor Gray when considering the implementation of a Binding Instrument observed:

> *We could go through it now. I could get you a list. I think the risk-free rate, that has to be a market rate, a variable; that's objectively determined. I don't think there's any problem with that. The equity beta is something that's going to change very slowly. The true systematic risk will change very slowly over time, so that's something that can be fixed for the guideline. The gearing would be something that will be fixed for the duration of the guideline, for the same reason. That's unlikely to change materially over time very quickly.*

When consumers talk about the transfer of risk from the network businesses to consumers it is an expression that the returns to the networks are becoming more certain while the prices consumers are required to pay have become less certain. This transfer of risk is having an impact on consumer decision making, encouraging further use of self-generation and storage requiring higher prices from networks to obtain their allowed revenue. This is resulting in a vicious cycle that is the subject of other concerns in the regulatory environment.

The question of time

In any consideration of future returns – as is inherent in the operation of the CAPM - an important question is over what time period those future returns are being assessed.

Here the position of some of the experts at the Concurrent Expert Evidence Sessions was inconsistent. For example, in discussion of the relevance of RAB multiples when businesses are traded Professor Gray said:

> *I think, like, a good setting to consider that is the TransGrid sale. So, TransGrid changed hands at a time when the allowed return on equity was 7.1% and there was a multiple, depending on how you compute it, maybe 1.6, so the question is, what does that 1.6 tell you about the 7.1% return - allowed return on equity at the time? That 7.1% was going to apply for four out of 99 years, so it's not clear that that first four years is going to be a material part of present value that the bidder has computed. Most of the value is going to relate to what the bidder thinks allowed returns might be in the remaining 95 years, so I'm not sure, it's a huge extrapolation to say, because I observed that multiple I know that the allowed return for the first four of 99 years must be too high. (unproofed transcript P. 103)*

Elsewhere Houston observed:

> *I hear that, but one of the difficulties of 2 those fundamental considerations is that they themselves can involve a lot of judgment, and I'm not quite exactly sure what you mean by "fundamental considerations", but beta in particular is a market variable - it's something you need to estimate using market data, and in my experience it's very, very difficult to estimate that by reference to fundamental cash flow, and out of season - you can think of things that might contribute in a positive way to beta, or things that might be in a negative way to beta, but in Australia you can get to the point that you can identify that, and that's a good way to think. (P. 34)*

The question then is whether in the application of the CAPM the period over which we are trying to estimate the required return is the life of the asset, the length of the regulatory period, or the daily share price.

This becomes significant when we consider various estimates. The risk-free rate and the rate of return on debt are both assessed using a ten-year bond. In the review of inflation, the AER continued to use a ten-year geometric average of inflation to be consistent with the tenor used in the WACC. Yet when consideration turns to the MRP the methodology implicitly uses an annual return, and the calculation of beta uses weekly returns.

It seems to us that there should be greater consistency in the consideration of time

Independent Panel Report

The use of the Independent Panel (the Panel) to review the AER's Draft Guideline is a new and welcome addition to this process. The Panel has been asked to answer the question:

> *In the Panel's view, is the draft guideline supported by sound reasoning based on the available information such that it is capable of promoting achievement of the national gas and electricity objectives?* (Southern, Duigan, Frankish, Hempling, & Myers, 2018, p. i)

The Panel continues:

> *The Panel has concluded that the Explanatory Statement should be largely self-contained. A diligent reader should be able understand the Explanatory Statement without prior knowledge of the 2013 Guidelines or submissions by stakeholders in the past five years. The Explanatory Statement should clearly set out all relevant reasoning, evidence and calculations with clear and specific references to other relevant documents that are publicly available…*
>
> *The AER has undertaken an extensive consultation and engagement process. For the most part, the Explanatory Statement has set out in significant detail the evidence, analysis and conclusions that the AER has reached in determining each of the rate of return parameters, and the value of imputation credits, to form an overall estimate of the rate of return.*
>
> *However, we have identified a number of areas where the AER's explanations and reasoning supporting its approach to various issues needs to be clarified. We have stated our recommendations in the relevant chapters of this report and we list them at the end of this Executive Summary. If the AER follows these recommendations, then in the Panel's view the resulting Guidelines will be supported by sound reasoning, based on the available information, such that it is capable of promoting achievement of the national gas and electricity objectives.*

Energy Consumers Australia strongly endorses the first paragraph of this excerpt. We should not expect individual consumers to delve into the depths of the regulatory process, but if they do they should encounter accessible explanations of the important decisions that impact on how much they are required to pay.

In our view the bulk of the recommendations from the Panel are motivated by this readability; the Panel isn't suggesting that the lack of clear explanation suggests AER couldn't reach the conclusion it did, just that the reader will struggle to follow the argument.

Nowhere is this more apparent than the final recommendation which reads:

> *Explain more clearly how the Final Guidelines promote achievement of the national objectives, including why it is confident that the rate of return methodology it has determined results in an outcome that is neither too high nor too low having regard to the risk-cost tradeoff involved.*

We interpret that to support our contention that the AER has to not only be satisfied about the estimation of the individual parameters but that it also has to be satisfied that in combination they result in an allowed rate of return that meets the legislative objective.

We have interpolated that the AER has done this analysis and recalibrated its assessment of the meaning of 'too high or too low' given the evidence from consumers about the risk-cost trade-off. The difficulty is that we have to interpolate it rather than find a very clear statement in the Explanatory Statement.

There is one place where this becomes particularly important; the role of the Black CAPM in determining the equity beta. The Panel seems to accept the AER's view that there is no role for the Black CAPM but has difficulty reconciling that with the AER's concern with not reducing the equity beta too rapidly for concern over investor confidence. It is our interpretation that both parts of that consideration have been informed by the AER's consideration of the overall rate of return.

If that is the case the AER's response to this final recommendation could also assist the AER in its approach to other Panel recommendations.

Summary

The AER has in the Draft Guideline reached a decision that is entirely consistent with the 'incremental approach outlined at the start of the review. In considering the evidence before it we encourage the AER to place greater weight on the transcripts of the Concurrent Expert Evidence Sessions than on the statements in the *Expert Joint Report.*

That said there remain a number of fundamental issues to be considered. The first is that the application of the CAPM only tells us how much the market has valued the risks faced by the network businesses. The actual systemic risk would be measured by comparing actual annual returns (from cash flow before interest) to the annual movement in market returns. The second is that there is an inconsistent consideration of the time frame over which returns are evaluated, and greater consistency would be desirable.

Consideration of key parameters

Overview

As noted above, Energy Consumers Australia is encouraged by the AER's recognition that in setting the allowable rate of return it is required to consider the consequence as a whole and not just be guided by the consideration of individual parameters. That consideration applies to the exercise of the AER's judgement; the consideration of the possible values to be chosen from in exercising that judgement still requires the objective consideration of the evidence.

There is little dispute about the choice estimators for risk-free rate and the cost of debt or the application of the trailing average methodology. A ten-year debt tenor has been chosen for the estimation of the return on debt even though networks mostly have shorter term debt. The move to a combination of BBB and A series is also an appropriate move to reflect the (unchanged) benchmark credit rating of BBB+.

The data provided by the network businesses demonstrate that networks vary the term of their debt to maintain a consistent mark-up of the cost of debt to the risk-free rate. This provides a compelling case, however, for considering an alternative approach to the cost of debt as a mark-up over the risk-free rate. This is not a matter that Energy Consumers Australia proposes to advance now, though it is a matter worthy of consideration in the review that we and the CRG have proposed commence once the Guideline is finalised.

We have a residual concern about the choice of gearing ratio of 60% on the basis that were the businesses that provide regulated and unregulated services to do so through financially separate entities our expectation is the gearing of the regulated services business would be higher than the unregulated services business. However, we don't have a data source to prove the case.

The three key parameters over which there is space for debate are the MRP, beta and gamma. In our opinion, the AER's decision in relation to each of these chooses a value on the high side of the viable range and that this reflects the AER's concern with investor confidence. Energy Consumers Australia's views on each follows.

Market Risk Premium (MRP)

In the SL-CAPM, the Market Risk Premium represents the mark-up on the Risk Free Rate that an investor with a balanced portfolio would require to hold that balanced portfolio. The estimation of the MRP is usually derived from observations of the annual returns from listed stocks weighted by market capitalisation. This approach assumes that the market prices these stocks to achieve balance.

There is a concern that the balanced portfolio theory includes all asset classes and that the stock exchange is only part of those assets. However, this concern does not invalidate the use of the SL CAPM so long as the equity beta is calculated by reference to the same subset of assets. The

AER derives both beta and the MRP exclusively by consideration of domestic equities, thus meeting the requirement that MRP and beta are derived from the same subset of assets.

The AER notes that it is less persuaded about the role of the Dividend Growth Model (DGM) which it concedes resulted in the choice of a value for MRP at the higher end of the range of estimates from Historic Excess Returns (HER). We interpret the AER's consideration of the overall outcome from the 2013 Guideline as one of the factors informing this reassessment of the role of the DGM.

We agree that HER should be the primary basis for determining the MRP. We do, however, have ongoing concerns about the AER's consideration of arithmetic and geometric averages of returns. It is sometimes observed that geometric averages result in a reduction of the impact of volatility in underlying data. This is true but is not a reason for using geometric averages. Geometric averages are appropriate when what is of concern is the cumulative impact of the underlying data. That is why the AER uses only the geometric average in its estimate of anticipated inflation.

Investors care only about cumulative returns. As the expert sponsored by investors noted at the Concurrent Expert Evidence sessions, investors see equity in utilities as a kind of bond. We consider it important that the time dimension for estimating MRP should be consistent with the time dimension used for the risk-free rate and the return on debt. In both cases that is a ten-year tenor.

In the Explanatory Statement the AER notes that Satchell and Partington recommended the use of a multi-year approach to MRP. It also notes concerns with the use of a multi-year estimate since the PTRM is not a compounding model. This is an erroneous concern. The PTRM is calculating the allowed revenue on the asset base. How the regulated entity deals with earnings is a matter for the entity. If earnings are retained and fully re-invested in replacement or augmentation capex then it is a compounding model. If the earnings are retained and invested in other business lines, they are part of the unregulated (but compounding) returns. If the earnings are distributed to shareholders then they are available to shareholders to reinvest.

As we state in our introduction it is appropriate that the AER adopt a consistent tenor for the data estimates used in the CAPM. This is one reason for the common use of ten-year tenor in the risk free rate and return on debt estimates. Consistency requires that the MRP be based on an arithmetic average of ten-year term geometric averages. On this basis 6% is too high, and a more appropriate MRP is 5%.

We note, however, that the approach to determining the equity beta uses annual excess return estimated weekly and measures its covariance with respect to the market excess returns. This approach is somewhat confusing because it seems to give excess weight to what may be little more than noise. (Brogaard, Nguyen, Putniņš, & Wu, 2018)

However it does appear to us that using any approach other than HER to estimate MRP would invalidate any use of market data to estimate beta.

Equity Beta

It is unfortunate that there are so few listed network providers on which to base an estimation of beta. There are three consequences of this shortage of data.

The first is the conclusion one can reach about the relative rate of return required for equity for these assets on the ASX compared to the rate of return required for equity from other sources. The conclusion is that the unlisted firms face significantly lower required return on equity than the listed firms. It is our expectation that the parent companies of unlisted firms probably finance the equity through their own debt and there is little equity exposure of any kind.

The second is the assumption we can make regarding the options proposed by networks as alternatives to using market data. They do not include in the options they propose the one that would be the simplest — to use monthly cash flow returns to be compared to equity market returns to establish beta. However, networks consistently reject the use of cash flow data and the regulator doesn't have the monthly data.

There is a simple regulatory principle that if a party has information that could help resolve an issue but the party won't provide the information, then it is reasonable to infer that the information does not assist their argument. The very stable returns afforded by regulation would be expected to provide a beta of close to zero.

The third is that it is appropriate to use all the data from listed firms that is available, including of firms that are no longer listed.

In estimating beta the AER has availed itself of the third conclusion.

The AER has also concluded that it should place less reliance on the Black CAPM. In its 2013 Guideline the AER used the Black CAPM to inform its choice of beta from the top of the range. The AER has concluded that using a value of beta from the top of the range has contributed to its setting an overall rate of return that is higher than required to meet consumers preference of reliability risk.

There are, however, more substantial methodological reasons for rejecting the Black CAPM that revolve around there being no consistent theoretical basis for the Black CAPM. The claimed observed empirical outcomes[2] would be consistent with a behavioural theory (that they reflect investor uncertainty about the distribution of future outcomes) or with the fact that the reference case is not all assets as used in the CAPM.

However, the explanation that would be most consistent with the initial Black data is that the assumption that investors can access an unlimited amount of risk free assets is wrong. This results in the conclusion that the 'risk free' rate needs to be higher. The correct response to this, were it to be true, would be to substitute an alternative for the risk free rate, to use that alternative to derive the market risk premium and to assess beta against that

[2] The observed outcomes are not as unequivocally consistent as network submissions claim.

data. The practical difficulty is that no one has developed a way to estimate the 'zero beta rate' to substitute for the risk free rate.

In summary the AER is acknowledging that it should have placed more emphasis on the report prepared for it by Kevin Davis in 2011. In his consideration of the Black CAPM Davis concluded:

> *It is my opinion that (i) the Black CAPM does not resolve the problems of the Sharpe CAPM; (ii) is not better supported than the Sharpe CAPM by available empirical evidence; (iii) its implementation is problematic because of problems in reliably estimating the zero beta return*. (Davis, 2011, p. 21).

In selecting the equity beta from observed values the AER is then confronted by the challenge presented by their being a relatively small data sample and the fact that the listed entities all receive returns from either unregulated businesses or from incentives that are in addition to the return on capital.

We support the use of all the available data including from de-listed firms as a reasonable response to the problem of a small data set. There is a presumption in the entire approach to developing a rate of return from estimating a number of parameters from empirical data that the value of the parameters in the future looks like their values in the past. If the data from the delisted firms can't be used then we shouldn't be using any empirical estimates of equity beta from market data.

More specifically, the question of whether beta changes over time depends upon the nature of the business being evaluated. If beta is a reasonable estimate of the mean-variance assessment of investors (i.e. it is measuring systematic risk) rather than it is merely measuring the outcomes of previous regulatory decisions then it would be very stable for regulated firms protected from hold-up by the Revenue and Pricing Principles.

There has been some discussion by network businesses that policy decisions such as the abolition of Limited Merits Review have increased regulatory risk and this needs to be reflected in a higher beta. This is an argument that is flawed in a number of dimensions.

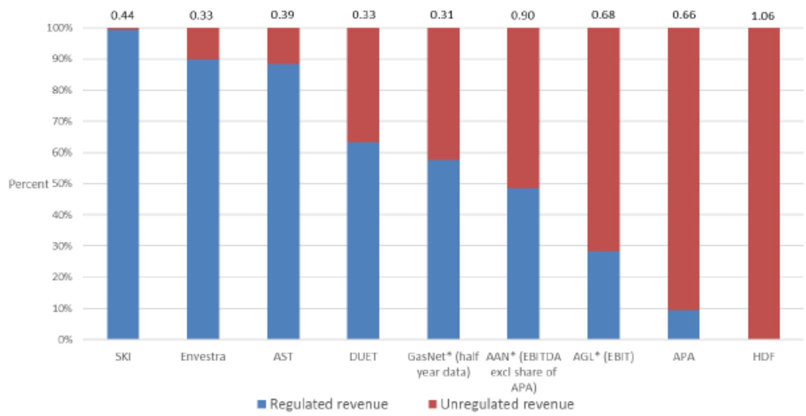
The first is that the market hasn't yet had time to factor in any change in risk, so the more recent equity beta estimates are not reflecting this change. The second is that the policy risk hasn't changed; what the government elected to do was always available to them. The crystalisation of a risk doesn't change the likelihood of that outcome; just because I threw a coin and it landed heads doesn't mean the chance of a coin toss resulting in a head is different from 50%.

Finally, and most critically, the decision on LMR flowed directly from the government's perception that the process was being abused. All the recent reviews (except the NSW reviews) resulted in decisions to uphold the AER's approach on rate of return, and even the matters in NSW were of no consequence because the AER's approach was upheld in subsequent proceedings. It is untenable to suggest that consumers should have to pay more for their electricity services to compensate network investors for a policy outcome that was generated by the behaviour of the network businesses.

An issue which is not sufficiently addressed by the AER is the extent to which market estimates of equity beta is estimating the beta of the enterprise rather than the beta of the returns from the regulated assets.

Figure 1 in the Statement (at page 36) is reproduced below. It demonstrates that the more the enterprises returns depend only on the regulated returns then the lower the equity beta of the enterprise. We don't think the data is robust enough to use this data to attempt a decomposition of enterprise beta into regulated and unregulated components. We do, however, believe it provides compelling evidence to favour a value of beta to the lower end of the estimated range.

Figure 1 Regulated revenue and beta estimates



The AER in its Statement notes that it gives 'most weight to the longest estimation period' and that this supports an equity beta of 0.51. It also notes that an equity beta of 0.57 results from an Ordinary Least Squares estimate for all estimation periods. (AER, 2018b, p. 298)

The AER decision to choose an equity beta of 0.6 is hard to reconcile with the evidence. It is almost 0.1 higher than the estimate to which the AER says it is giving most weight. As there is (appropriate) little regard being had to the Black CAPM, and as the evidence that enterprise beta's are higher than the beta for regulated returns, we believe the AER would be justified in choosing an equity beta of 0.5.

Conclusion

The approach to setting the allowed rate of return through decomposition into separate rates of return for debt and equity and a benchmark gearing rate and then the use of the AER's Foundational Model to estimate the equity risk premium is based upon multiple layers of finance theory. The totality of the approach is often referred to as using CAPM though technically that only applies to the equity component.

Referring to the totality as the CAPM is justified because the approach as a whole is grounded in the conceit, founded in the CAPM, that there is an objective approach to estimate the appropriate return on equity.

The role of the CAPM then brings to mind Winston Churchill's description of democracy:

> *Many forms of Government have been tried and will be tried in this world of sin and woe. No one pretends that democracy is perfect or all-wise. Indeed, it has been said that democracy is the worst form of government except all those other forms that have been tried from time to time.*[3]

Energy Consumers Australia accepts that the AER in this Guideline review has committed to an incremental review of the 2013 Guideline. We supported that approach as we were keen to bank the gains made through the processes of review that Guideline had been subjected to.

The incremental approach does, however, allow the AER to be informed by all the evidence and in particular the consideration of the overall rate of return. We continue to be surprised that networks have not considered the Draft to be 'capable of acceptance' because we think the AER was justified in setting an overall rate of return lower than that in the Draft.

If the AER does vary the Guideline from the Draft, then we submit that the MRP should be set at 5% and the equity beta at 0.5.

Finally, we repeat our request that the AER review the whole approach to the return on capital. The data available to us suggests that it is feasible to set a return on capital that is simply specified as a number of basis points (probably 250) above the risk-free rate and the businesses should make their businesses decisions to match the rate rather than presuming that the rate should be varied to match their decisions. We note this approach has been used for other regulatory processes where there is no ability to estimate parameters from market data; most specifically the case of the National Broadband Network. (Officer & Bishop, 2011) (Officer & Bishop, 2012) (ACCC, 2013)

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[3] Speech in the House of Commons (11 November 1947), published in 206–07 The Official Report, House of Commons (5th Series), 11 November 1947, vol. 444, cc.

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