Consumer
Challenge
Panel

Submission to the Australian Energy Regulator (AER)

Consumer Challenge Panel

Submission to the AER on its Rate of Return Guideline Review Concurrent Evidence Sessions

Sub-Panel CCP16

David Prins (chair)

Louise Benjamin

Eric Groom

Bev Hughson

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Context

The manner in which the AER can exercise any statutory discretion must be ascertained from the text of the legislation, in light of the purpose of the legislation.

We believe that the main purpose of this review should be to consider whether in the past five to ten years the AER has been granting networks a rate of return allowance that is either intentionally or inadvertently too high.

It is not open to the AER to limit the exercise of its statutory obligations in creating the binding instrument by some pre-determined boundary on relevant information, in order to satisfy a self-imposed 'incremental' approach. Instead we strongly urge the AER to consider all data available to it, in order to satisfy its statutory obligations in this review, even if it is information such as financial information that the AER has not used before.

Legislation for a binding Rate of Return Instrument

CCP16 strongly encourages the AER to make the new binding instrument as proscriptive as possible.

Re-opening of the instrument within a four-year period

The view of CCP16 is that the instrument should not be re-opened or remade within any four-year period. Rather, the instrument should include appropriate formulae to vary the actual rate of return as necessary. This can all be achieved within the instrument. It does not require remaking of the instrument.

Removal of reference to the Allowed Rate of Return Objective (ARORO)

CCP16 supports removal of reference to the ARORO. Removal of the ARORO is a positive move that reduces potential uncertainty and conflicting interpretations but is not a fundamental change. CCP16 supports unambiguous focus on the NEO, the NGO and the RPP.

Changing regulatory and investment climates

In the past, governments and regulators in Australia have emphasised regulatory outcomes that were designed to ensure sufficient investment. However, in the last five years, market circumstances have changed significantly and many networks now have excess capacity, flat demand, and the ability to manage constraints through demand side rebates to influence behaviour.

The AER must take account of the changing environment in which its decisions are made, including the consumer welfare/economic impact of energy prices. This requires the AER to consider carefully the outcomes from its previous decisions as part of this review. In our view, the evidence taken as a whole strongly suggests that historical rate of return allowances have been higher than necessary to encourage efficient investment, particularly given the shift away from incentivising investment to consolidating investment decisions of the past.

Should the regulator aim high? What are the consequences of setting the rate of return too high?

To date, the AER appears to have deliberately taken an approach of choosing parameters at the upper end of estimated ranges, to avoid the risk of too low a rate of return and the risk of under-investment. CCP16 believes that there is no evidence that the rate of return to date has been set too low. The fundamental issue facing the AER in the development of the binding instrument is

to use its judgement to assess if the current rate of return allowance taken as a whole is about right or is too high. We believe there is persuasive evidence that rate of return allowances approved by the AER have been too high.

It is time for the AER to reconsider the risk allocation to a more balanced perspective, while maintaining regulatory stability for investors.

The role for cross-checks

The AER must be focused on Rate of Return assessment as a whole, rather than be locked into outcomes of individual parameter assessments.

CCP16 considers that:

1. There is an essential role for cross-checks in the exercise of judgement and discretion in the four-yearly reviews of the binding instrument that sets the Rate of Return.
2. The AER's current foundation model approach provides a sound framework that already provides for transparent and reasoned consideration of cross-checks in the exercise of discretion to determine the overall Rate of Return and parameter values.
3. Inclusion of additional cross-checks, such as RAB multiples or profitability measures, is an incremental change within the existing model that would improve the determination of the overall rate of return and reduce biases at the individual parameter level.

Purpose of the concurrent evidence sessions

As these were the first sessions of this style run by the AER board, it is useful to undertake a post-analysis of the process, so that improvements can be incorporated for next time.

Due to time constraints in appointing the experts, it was not possible for the experts to clarify the points of agreement and disagreement fully before the sessions. If there had been greater time, the experts could have made their positions available earlier, which would have honed the focus to the areas of disagreement.

The only expert representing consumers was paid for by the ECA. In future, CCP recommends that the AER considers how consumers can be better represented at the sessions through one or more experts, given the NEO's focus on their long-term interests.

We found it very helpful to hear the views of the investor expert who stressed that investors take a very long-term view of the assets and the capital structure of the markets and highly value regulatory certainty.

Outcomes of the current approach

Market evidence on the attractiveness of the sector for investors suggests that the current approach as implemented by the AER has more than met the requirements under the NEO and ARORO to provide the utility with the opportunity to earn a fair return. Indeed most measures support the view that the allowed ROR and tax expenses have exceeded the required returns and expected tax payments. In particular:

- Acquisition values (Market Value to RAB multiples) indicate that the allowed returns have most likely exceeded the returns required by investors.

- Existing investors do not appear to be seeking, on balance, to reduce their exposure to the sector. The NSPs have pursued a rapid program of RAB expansion (with mostly constant or declining asset ages and declining utilisation) while reducing gearing. This has resulted in an increased net equity exposure to the sector. This would be expected if the allowed returns exceeded the required returns, but would be counter intuitive if they did not.
- Commentaries from brokers and rating agencies provide a positive assessment of the regulatory regime for investment.

Taken together, these provide strong evidence that the allowed ROR has exceeded investor expectations. Ideally this would be supported analysis of historic profitability measures compared to allowed returns and returns in other sectors. The AER has advised that consistent and comparable measures are not presently available, but it is currently working on developing a robust set of profitability measures that can support such comparisons.

Use of judgement and compensation for risk

Setting of the ROR at the four-yearly review requires a significant element of judgement that cannot be reduced to the mechanical application of rules and formulae. The question is how judgement and formulae can both be used to determine the ROR within a consistent framework over time, and to explain clearly and transparently how the decision was reached. The outcomes may not be predictable in a formulaic sense, but they should not be surprising.

The current framework, which starts with the foundation model and provides a structured approach to considering other models and information, is a sound approach to setting the ROR. It recognises the high degree of uncertainty in the ROR and the underlying parameters and provides a transparent and consistent framework for setting the ROR that can withstand changing economic conditions.

However, as discussed in Section 8 below, we consider that the AER should consider RAB multiples and comparisons of historical profitability measures in assessing the determining the ROR and assessing whether outcomes under past determinations of the ROR have been consistent with the NEO/NGO.

In regard to the specific issues raised in the discussion paper:

- Only systematic risk should be compensated through the ROR.
- No new information has been presented that would suggest the betas for electricity and gas or transmission and distribution can be distinguished from each other.
- The argument that technology and policy risks are systematic is tenuous and unproven. Indeed under the current rules, the consumer, not the utility, bears the policy risks.

Gearing

This chapter assesses the gearing assumption **for the purpose of setting the ROR, and does not pre-empt any views on gearing for the purpose of estimating tax expense.** As the AER's discussion paper notes, whether the gearing estimate used to calculate tax expenses could or should differ from the gearing estimate used to calculate the ROR is outside the scope of this review.

The gearing assumption has a relatively small effect on the ROR, and we do not consider that persuasive evidence has been presented to support a shift from the current benchmark of 60/40 and

the approach to the estimation of this. The current approach is reasonable and consistent with commercial and regulatory practice in estimating the ROR.

Given the small number of NSPs for which data is available, the AER could consider:

- The gearing benchmarks used by other regulators to define a plausible range for the benchmark gearing; and
- Market value estimates for government-owned and non-listed entities could be used as cross-check, taking into account the limitations of the data.

However, primary weight should be placed on gearing for listed companies. The current approach to parent company debt and overseas ownership is appropriate, given the information limitations.

Financial performance measures

General financial performance measures can inform the overall judgement on the ROR, which will in turn be reflected in the values for the underlying parameters such as the MRP and beta, around which there is considerable uncertainty. While general performance measures do not provide direct evidence at the parameter level, they can inform the AER's exercise of judgement at both the aggregate and parameter level. CCP16 recommends that the AER should give greater consideration within its current framework to general financial performance measures. Current financial performance measures indicate that the allowed ROR has increasingly exceeded investors' required ROR, given the low level of risk for the sector.

RAB multiples provide information on expected returns that is directly relevant to the AER's task of determining a fair rate of return. While other factors affect RAB multiples, CCP16 considers that there are sound regulatory and commercial precedents for disaggregating the impacts of these factors. The implied ROE can then be used in a directional manner in setting the ROE and ROR. Lack of consideration of these measures increases the risk of setting a ROR that does not meet the requirements of the NEO / NGO.

Estimating equity beta

CCP16 continues to support the AER's overall approach to estimating equity beta (beta) by establishing a range for beta based on an empirical analysis, then selecting a point estimate from within that range, taking account of other information. We also support the principle that there must be a high bar for changing the existing value of beta.

However, CCP16 has previously argued that the beta point estimate of 0.7 in the 2013 Guideline is overly conservative. Having reviewed the new information in the AER's Discussion Paper and the concurrent evidence sessions (CES), CCP16 remains of that view. Moreover, we consider that many of the AER's reasons for adopting a conservative estimate are no longer relevant. Therefore, the AER should reconsider its decision and adopt a value for beta below the existing estimate of 0.7 and closer to the empirical evidence on long-term equity beta. The reasons for CCP's conclusions include:

- The majority of the empirical estimates of the beta for both the individual and portfolio network firms sit around a median value of 0.5 to 0.6 (using the AER's 2017 analysis), and the Bloomberg *Utility* index also sits around a median value of 0.5 to 0.6.
- The analyses provided by Frontier and others that purport to establish a trend in the empirical equity beta are taken over too short a period to establish such a trend, particularly given:

    - The AER's regulatory WACC framework focuses on long-term average returns commensurate with the long life of the underlying assets.
    - The small number of firms in the group and the shorter time period mean it is difficult to identify statistically significant and long-lasting trends.
    - There is evidence of large swings in beta estimates on a year-to year basis.
    - The analysis by the AER (updated to April 2017) does not support this claim of an overall trend, there are significant individual differences.
    - There is evidence that individual firms (e.g. APA) have significantly changed their revenue sources and business plans towards higher risk energy investments.
- Neither the international data nor the data on Australian 'infrastructure stocks' make suitable comparator data for informing the point estimate of the differences between these stocks and the characteristics of the BEE.
- There is too much uncertainty around the empirical analysis of the Black CAPM theory for it to play a substantive role in the AER's decision, and is not generally applied by market practitioners or regulators
- "Disruptive technology" should not be a consideration in the assessment of systematic risk for the BEE; technology risk is an ongoing market wide issue and is incorporated in the observed MRP. Moreover, technology also offers benefits and opportunities (e.g. lower costs).
- While de-levering and re-levering individual company gearing ratios to the gearing assumptions for the BEE (60%) may be appropriate in principle, CCP16 questions whether the benefits outweigh the risks in practice, given that:
    - The actual gearing is relatively close to the BEE target of 60%; and
    - The actual leverage does not appear to affect the network' credit ratings (within a reasonable range of 60% to 75% leverage).
- There is no evidence in the financial data of the firms such as EBIT, CARG, gearing, credit ratings and RAB growth that would support an increase in equity beta.

Assessment of the Market Risk Premium (MRP)

CCP16 recommends that the AER adopt a value for the MRP that is no higher than 6%. Our recommendation is based on the following:

CCP16 supports the overall approach that the AER has adopted to estimating the MRP, including the use of the historic excess returns (HER) as an 'anchor' to its assessment. However, we have some concerns regarding the role of the DGM as currently represented.

Historically the AER has adopted a value of 6%, and only adjusted this to 6.5% in the 2013 Guideline in response to concerns expressed by the networks regarding the impact of the GFC.

While historic excess returns (HER) serve as an anchor to the AER's decision on the MRP, the AER has paid insufficient heed to the analysis of HER based on geometric averages despite its view that the MRP should sit between the arithmetic and geometric averages:

- It is relevant that the geometric average represents cumulative returns as this is closer to the expectations of investors as indicated by the investor expert at CES2.
- Arithmetic means are particularly susceptible to volatility in the annual returns and both DImson et al and Damodaran have clearly demonstrated that annual returns are highly volatile.

The evidence provided by the networks' advisors that the MRP is increasing, depends on a particular interpretation of the DGM and its inputs and should not be relied on by the AER:

- Other DGM analyses (e.g. Damodaran and Fenebris) provide different outcomes, and do not show such an increase.
- The evidence from the HER is if anything indicating a slow decline in the MRP.
- The stated increase in the MRP is inconsistent with information provided by surveys, the contingent variables and financial data including the financial stability reports of the RBA.

CCP16 does not entirely dismiss the possibility that the DGM may provide some useful information. This is subject to the AER assessing the outputs of the DGM against pre-specified criteria such as stability over time and consistency with other independent measures such as the contingency variables.

- The recent work by Damodaran et al and Fenebris that is cited in the AER's discussion paper point to a somewhat different approach to the DGM using 10-year bonds and a variable growth rate.
- This approach appears to satisfy better the criteria set out by CCP16 and others, and we encourage the AER to further investigate this alternative approach.

Overall, the HER indicate a point estimate for the MRP in the range of 5 to 5.5%. While the various DGMs point to a higher value than this, the results should be treated with caution, particularly as currently presented. CCP16 considers that the AER's point estimate should not exceed 6%.

Value of imputation credits (gamma)

While CCP16 generally supports the AER's approach, CCP16's view is that the AER should determine a value for gamma of at least 0.5. Specifically, CCP16 recommends the AER adopt:

1. Distribution ratio between 0.75 (all equities using recent ABS equity ownership data) and Lally's estimate of the distribution ratio of 0.83 based on the top 20 listed companies;
2. Utilisation rate of 0.65 based on the most recent estimates of 'all equity' ownership statistics and Lally's recommendations; and
3. An overall gamma in the range of 0.5 to 0.55, which given a corporate tax rate allowance of 30%, will result in an effective total 'taxation' allowance of around 15%.

In coming to this recommendation, CCP16 finds the analysis by Lally the most consistent with the conceptual framework of the Officer CAPM and agree with Lally's view that the distribution ratio is a firm or at least industry specific measure, while the utilisation rate is a market-wide parameter. Lally's view is that the Officer CAPM is a fully segmented market model, while the reality of the Australian equity market is one of partial segmentation.

CCP16 sees limited value in the tax statistics that have published by the ATO although some experts have suggested various ways in which these statistics might be used. However, all the suggested methodologies face the same underlying issues.

First, the reports provide inconsistent estimates of the key parameters and there appear to be considerable issues with the interpretation of the existing reports from the ATO (noting that the different reports were not designed for the purposes to which they are being applied). Nor does the ATO appear to support the use of this data for the regulatory objective. Second, the ATO reports

provide estimates from the total equity market, where Lally confirms that in the Officer CAPM, the distribution ratio is a firm / industry specific measure. Attempts to 'square the circle' on this appear convoluted and subject to multiplication of estimation errors.

2. Background

The AER established the Consumer Challenge Panel (CCP) in July 2013 as part of its Better Regulation reforms. These reforms aimed to deliver an improved regulatory framework focused on the long-term interests of consumers.

The CCP assists the AER to make better regulatory determinations by providing input on issues of importance to consumers. The expert members of the CCP bring consumer perspectives to the AER to better balance the range of views considered as part of the AER's decisions.[1]

The author of this submission is CCP16, a sub-panel of the AER's Consumer Challenge Panel that the AER has established to focus specifically on this review. The views expressed in this paper are the views of the members of CCP16: David Prins (chair), Louise Benjamin, Eric Groom, and Bev Hughson.

On 31 July 2017, the AER announced[2] that it was initiating a review of the Rate of Return Guideline to apply to electricity and gas distribution and transmission businesses.[3]

CCP16 responded to a Consultation Paper on a process for the review. CCP16 attended and participated in a public forum in Sydney on 18 September 2017.

On 31 October 2017, the AER published an Issues Paper, requesting submissions from interested parties, to which CCP16 also responded. The CCP16 submission focused on the fundamental issues of concern to CCP16 in the review, as well as addressing each individual question asked in the AER's Issues Paper.

Meanwhile, the COAG Energy Council agreed to make changes to the National Electricity Law (NEL) and the National Gas Law (NGL) relating to the calculation of the rate of return on capital and the value of imputation credits used in economic regulatory decisions. The Senior Committee of Officials sought feedback on the draft legislation, particularly regarding implementation issues for a new binding Rate of Return Instrument. Stakeholders were invited to provide written submissions on the draft legislation and the drafting instructions for the consequential rule change.[4]

On 5 April 2018, CCP16 provided advice to the AER regarding the COAG Energy Council draft legislation and rule changes for a binding Rate of Return Instrument, which the AER attached to its submission to the COAG Energy Council.[5]

The AER held concurrent evidence sessions on 15 March 2018 (referenced in this submission as CES1) and 5 April 2018 (referenced in this submission as CES2). These were closed sessions to allow

[1] Detailed information on the CCP is available on the AER website at https://www.aer.gov.au/about-us/consumer-challenge-panel

[2] The announcement of the initiation of the review is available on the AER website at https://www.aer.gov.au/communication/aer-kicks-off-its-review-of-rate-of-return-guideline

[3] Documentation on the current project to undertake the review is being made available to stakeholders on the AER website at https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/review-of-rate-of-return-guideline

[4] http://www.coagenergycouncil.gov.au/publications/national-electricity-law-and-national-gas-law-amendment-package-%E2%80%93-creating-binding-rate

[5] The AER's submission with the attached CCP advice is available on the COAG Energy Council website at http://www.coagenergycouncil.gov.au/publications/national-electricity-law-and-national-gas-law-amendment-package-%E2%80%93-creating-binding-rate

detailed and natural discussion between the AER Board and participating experts. The purpose of the concurrent expert evidence sessions was to assist the AER Board in making a decision which will best achieve the national gas and electricity objectives. The AER published agendas and discussion papers prior to each of the concurrent evidence sessions, and transcripts after each session.[6] On 21 April 2018, the AER published a joint expert report covering the outcomes of both concurrent evidence sessions.

The AER has invited written submissions on the evidence sessions, discussion papers and transcripts. This is CCP16's submission to the AER on the evidence session and the published materials. It focuses on the fundamental issues of concern to CCP16 in the review. It builds on CCP16's response to the Issues Paper, the materials regarding changes to legislation and Rules published by the COAG Energy Council, and the materials from the evidence sessions.

[6] An un-proofed transcript was published shortly after each session. A proofed transcript was later published for session 1. As at the finalisation of this submission, a proofed transcript had not yet been published for session 2. This submission therefore quotes from the proofed transcript from session 1, and the un-proofed transcript from session 2.

3. Fundamental issues

Later sections of this report provide responses to each of the issues that were on the agenda for the concurrent evidence sessions. This section discusses some fundamental points that concern the context of the Rate of Return Guideline review.

3.1. Context

> The manner in which the AER can exercise any statutory discretion must be ascertained from the text of the legislation, in light of the purpose of the legislation.
>
> We believe that the main purpose of this review should be to consider whether in the past five to ten years the AER has been granting networks a rate of return allowance that is either intentionally or inadvertently too high.
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> It is not open to the AER to limit the exercise of its statutory obligations in creating the binding instrument by some pre-determined boundary on relevant information, in order to satisfy a self-imposed 'incremental' approach. Instead we strongly urge the AER to consider all data available to it, in order to satisfy its statutory obligations in this review, even if it is information such as financial information that the AER has not used before.

When the AER sets a rate of return allowance for investment in regulated energy businesses, it is seeking to reconcile the interests of the investors who fund the investment and expect a fair return on that investment and consumers who must pay for the return on and of the investment through the network's charges. A lot has been said and written recently about the level at which the rate of return allowance should be set, including commentary on whether the rate of return allowances given by the AER in the past five to ten years have appropriately balanced the interests of investors and consumers.

When the AER makes a rate of return allowance decision, it is governed by statute. This means that the manner in which the AER can exercise any discretion must be ascertained from the text of the legislation, in light of the purpose of the legislation. The current regulatory framework manages these differing interests by striving for the result that might be achieved in a competitive market. Some of the legislative tools to achieve this are the NEO, the RPPs, the ARORO (until the passage of the Statutes Amendment (National Energy Laws) (Binding Rate of Return Instrument) Bill 2018) (2018 Bill), and various incentive schemes.

The overarching NEO focuses on efficient investment in and operation and use of the services, in the long-term interests of consumers, with respect to price, quality, safety, reliability and security of supply. Consumers' interests are served by the achievement of each of these attributes.

The RPP by contrast focus on investors and protect investors by allowing them to recover efficient costs at the time of investment, even though those costs may subsequently become inefficient or the assets purchased by those costs become stranded. Investors are also protected through the recovery of costs associated with regulatory obligations such as reliability standards, whether consumers would be willing to pay for such a standard or not.

The RPPs also require the AER to administer incentive schemes to further promote economic efficiency. Investors implicitly trade off the economic value to them of recovering a return on expenditure for the life of those assets through the RAB x Rate of Return formula, or keeping 30% of the savings when they choose not to make the expenditure. If the Rate of Return available to the investor is high, this could incentivise the investor to make capital investments in its network, even those that were of borderline efficiency, instead of sharing that underspent expenditure with consumers.[7]

CCP16 submits that this review of the 2013 Rate of Return Guideline is timely. We believe that the main purpose of this review should be to consider whether in the past five to ten years the AER has been granting networks a rate of return allowance that is either intentionally or inadvertently too high. As well as reviewing the rate of return allowance, CCP16 recommends that the AER should initiate a review of its incentive schemes, to ensure that each network operator is sufficiently incentivised only to invest the costs that are essential for the efficient operation of its network.[8]

While the context of the current review is the legislatively mandated five-year review of the 2013 Rate of Return Guideline, it is also overlaid by the requirement in the 2018 Bill for the replacement to be a Rate of Return Instrument which will be binding for four years.

The AER has described this as an incremental review.[9] Therefore, incremental change means continuing to work within the CAPM and foundation model framework. CCP16 supports such an incremental approach. Within that context, CCP16 submits:

- The emphasis should be on long term stability of parameters and approach in the interests of investors and consumers.
- Given the acknowledged shortcomings of CAPM and the difficulty of estimating the parameters, caution should be exercised in changing parameter values – especially those that are more difficult to estimate – based on short to medium term fluctuations.
- Given the problem of discerning the 'signal from the noise' (i.e. whether the estimates indicate changes in underlying values or statistical variability), the question needs to be posed: 'Do the data changes make sense in relation to investment fundamentals?'

[7] "*If the incentive mechanisms work better, I can actually show to you mathematically why I prefer to use the incentive mechanism, than mathematically keep growing the RAB for the sake of it. That might have been the historic wisdom by a lot of networks...but with more institutional investment in the sector, there's a much more rigorous examination of what's the right thing to do from an investment point of view, and it isn't to overspend on the network.....So particularly in the low interest rate environment, the incentive to overspend on capex is quite small. You would rather work with the incentive rather than just build*." Ilan Sadeh at p 68 proofed transcript Concurrent evidence session 1 held on 15 March 2018

[8] This is important given Ilan Sadeh's comments (see previous footnote) about the positive impact of the current low interest rate environment on the attractiveness of incentives compared to capital investment

[9] "*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."* At p 7, AER Issues paper Review of the rate of return guidelines, October 2017

- This is especially important for the regulated businesses where investors are typically long-term investors with a long-term focus.[10]

However, we submit that it is not open to the AER to limit the exercise of its statutory obligations in creating the binding instrument by some pre-determined boundary on relevant information, in order to satisfy a self-imposed 'incremental' approach. Such an interpretation of an incremental review would not be within the legislation, or within the purpose of the legislation, which requires the AER to make the decision which best satisfies the NEO and NGO. For example, CCP16 cautions the AER against the minimalist approach being advocated by the ENA of using the review to 'update' data.[11] Instead we strongly urge the AER to consider all data available to it, in order to satisfy its statutory obligations in this review, even if it is information such as financial information discussed below that the AER has not used before.

3.2. Legislation for a binding Rate of Return Instrument

CCP16 strongly encourages the AER to make the new binding instrument as proscriptive as possible.

The outcome of this process will be the creation of the first binding rate of return instrument in Australian energy regulation. Due to the transitional provisions in the 2018 Bill, the binding instrument will also apply to the first regulatory reset determinations after the abolition of limited merits review.[12] As referred to above, when considering the exercise of the AER's discretion for calculating the Rate of Return allowance, the purpose of the legislation is relevant. The COAG SCO described the purpose of changing to a binding instrument as being:

- Improving the transparency and certainty of the AER's decisions;
- Reducing the regulatory burden for all stakeholders; and
- Providing a more robust process for the development of the rate of return.[13]

As discussed below, Rate of Return calculations are not mechanistic, and involve the exercise of discretion and regulatory judgement. Consumers have not been well served by the relentless merits review appeals by networks on numerous individual applications of the AER's 2013 rate of return guideline. Even though it may seem challenging to prescribe the exercise of discretion in a binding manner for four years, the legislators perceive the trade-off for this to be enhanced certainty for investors and for consumers. CCP16 strongly encourages the AER to make the new binding instrument as proscriptive as possible.

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[10] *"I just add from an investing mindset.....capital decisions are long term."* At p 12. *"Investment decisions are very long term. Capital structures should largely be long term" at p 22 proofed transcript session 1 on 15 March 2018*

[11] See for example the ENA Response to the AER Issues Paper dated 12 December 2017: "*The focus of the review should be on updating data where possible and focusing on selected high priority issues identified in earlier AER consultations with stakeholders."* at p 4

[12] CCP16 supports the transitional provisions including the application of the new instrument to the NSW and ACT regulatory determinations for 2019 to 2024.

[13] Council of Australian Governments Senior Committee of Officials *Bulletin: Binding Rate of Return Guideline*, 4 October 2017

CCP16 gave advice to the AER about its views on the draft legislation.[14] The advice included consideration of:

- Re-opening of the instrument within a four-year period; and
- Removal of reference to the Allowed Rate of Return Objective (ARORO).

3.2.1. Re-opening of the instrument within a four-year period

> The view of CCP16 is that the instrument should not be re-opened or remade within any four-year period. Rather, the instrument should include appropriate formulae to vary the actual rate of return as necessary. This can all be achieved within the instrument. It does not require remaking of the instrument.

The drafting that was provided by the COAG Energy Council for stakeholder review stated in section 18U:

> *"(2) The AER must replace the reviewed instrument by publishing the new instrument on its website on the day that is the fourth anniversary of the day the reviewed instrument was published.*
>
> *(3) Despite subsection (2), the AER may replace the reviewed instrument before the day mentioned in that subsection if satisfied it should be replaced earlier to ensure the rate of return instrument will, or is likely to, contribute to the achievement of the national electricity objective to the greatest degree."*

CCP16 expressed concern that interested industry parties may use section 18U(3) to lobby the AER continually for the instrument to be re-opened.[15] Furthermore, it may result in an outcome that could be perceived as perverse: it provides for a broad exercise of discretion and hence uncertainty in an instrument that was designed to reduce / eliminate discretion within the four-year period, and increase certainty for consumers and for investors, who invariably take a long-term view of returns from utilities. We believe that is not in the interests of the long-term interests of consumers as set out in the NEO or NGO. It is also not conducive to investor confidence.[16]

The view of CCP16 is that the instrument should not be re-opened or remade within any four-year period. Rather, in the making now of the instrument, and every four years thereafter, the AER should be concentrating on ensuring that the instrument is robust to changes that may occur during the instrument's four year life. The instrument should include appropriate formulae to vary the actual rate of return as necessary.

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[14] The AER's submission with the attached CCP advice is available on the COAG Energy Council website at http://www.coagenergycouncil.gov.au/publications/national-electricity-law-and-national-gas-law-amendment-package-%E2%80%93-creating-binding-rate

[15] The experts for the networks indicated this preference in CES1. See also sections 2.06-2.09 of the Expert Joint Report dated 21 April 2018.

[16] *"Ilan Sadeh is concerned about the creation of routes for the use of discretion and considered that the bar to re-open or vary the guideline needs to be very high. The need for transparency and stability of the process may outweigh the risks from fixing parameters."* At p 15 of the Expert Joint Report, 21 April 2018

CCP16 supports an approach where criteria are established when the instrument is first formulated, and then in replacement instruments, which set out unambiguously in what circumstances the rate of return is varied, and precisely what the rate of return change will be. This can all be achieved within the instrument. It does not require remaking of the instrument.

Our approach removes issues regarding the process that might be used by the AER in remaking the instrument within a four-year period. On the one hand, a less rigorous process may be justified if a "quick change" is required to a specific element of the instrument. On the other hand, the remade instrument will itself then last for four years, so its formulation should have the rigour of a full review. In practice, if a full review were required after the case had been made to re-open the instrument, it would not be practical to re-open it in the last two years of its four-year duration.

As an alternative, if the legislation is to allow for reopening of the instrument during its four-year term, then we suggest that it would be preferable for the decision on reopening to be made by a third party, rather than the AER. This avoids the potential problem noted above of lobbying on the AER to re-open the instrument that may be perceived as opportunistic and increasing uncertainty.[17] It may also reduce the concern that the decision to re-open may be seen to pre-empt the outcome of the review of the instrument. However, it does not address the timing concerns noted above. Removal of the re-opening provision would provide a better outcome for all stakeholders if it results in an approach that provides certainty while being more robust to changing economic conditions.

3.2.2. Removal of reference to the Allowed Rate of Return Objective (ARORO)

CCP16 supports removal of reference to the ARORO. Removal of the ARORO is a positive move that reduces potential uncertainty and conflicting interpretations but is not a fundamental change. CCP16 supports unambiguous focus on the NEO, the NGO and the RPP.

CCP16 supports removal of reference to the ARORO. Removal of the ARORO is a positive move that reduces potential uncertainty and conflicting interpretations but is not a fundamental change. CCP16 supports unambiguous focus on the NEO, the NGO and the RPP.

While a sound case can be made that the ARORO and NEO/NGO are consistent with each other, the experience with the debate on benchmarks for the cost of debt suggests that the concepts give rise to different considerations in practice. In its recent decisions, the AER has emphasised that the on-the-day rate is the efficient cost of debt in economic terms, and that the trailing average with transition achieves an NPV equivalent result. The arguments made in support of the trailing average without transition were grounded in observations of financing practice that may reflect differing risk appetites, and emphasised the recovery of debt costs that were sunk. It also led to a complex and unproductive debate on the benchmark efficient entity (the BEE), which is imported through the ARORO. Removal of the ARORO removes any potential or perceived conflict between that and the NEO / NGO.

[17] This approach was also supported by two of the non-network experts Graham Partington and Ilan Sadeh. See section 2.011 of the Expert Joint Report 21 April 2018

During CES1, several of the experts suggested that the AER could bring the concept of the BEE back into the binding Instrument. For the reasons expressed above, CCP16 would not support this approach. First it is unnecessary given the all-encompassing nature of the RPP, NEO and NGO. Second, CCP16 supports the proposed legislative approach (which removes the ARORO), as it has the greatest potential to meet the certainty objective of the 2018 Bill.

3.3. Changing regulatory and investment climates

In the past, governments and regulators in Australia have emphasised regulatory outcomes that were designed to ensure sufficient investment. However, in the last five years, market circumstances have changed significantly and many networks now have excess capacity, flat demand, and the ability to manage constraints through demand side rebates to influence behaviour.

The AER must take account of the changing environment in which its decisions are made, including the consumer welfare/economic impact of energy prices. This requires the AER to consider carefully the outcomes from its previous decisions as part of this review. In our view, the evidence taken as a whole strongly suggests that historical rate of return allowances have been higher than necessary to encourage efficient investment, particularly given the shift away from incentivising investment to consolidating investment decisions of the past.

In addition to the legislative context outlined above, this review is also occurring in a different investment, economic and political climate than the previous extensive review conducted by the AER in 2012-13. Many of the relevant contextual issues have been summarised by the ACCC in its Retail Electricity pricing Inquiry: Preliminary Report 2017 including:

- Capacity utilisation demand declining from 56% in 2006 to 45% in 2015;[18]
- Between 2007 and 2017, electricity prices had a compound annual growth rate of 8 per cent, which was more than twice that for wages (3.1 per cent) and CPI (2.4 per cent);[19] and
- Investment responding to mandated reliability standards in NSW and QLD.[20]

There is also widespread acknowledgement by governments that energy affordability has become the number one issue for energy consumers in Australia. There is increasing acknowledgement by some networks that prices are too high:

> "*Network businesses understand that energy prices are a concern to consumers*....."[21]

In the past, governments and regulators in Australia have emphasised regulatory outcomes that were designed to ensure sufficient investment. In recent decades Australia's energy regulation has matured through corporatisation by Governments with initial RAB valuations, partial and full

[18] ACCC Interim retail pricing report at p 111
[19] Ibid at p 12
[20] "*The ACCC agrees that unnecessarily high reliability standards have led to consumers paying too much for electricity. However, much like the overinvestment in infrastructure that occurred between 2006 and 2013, the assets built to meet the higher earlier standards remain and* customers *continue to pay for these assets."* Ibid at p 109
[21] ENA Response to AER Issues paper dated 12 December 2017 at page 3

privatisation with mandated reliability standards and protected employment conditions, opex efficiency and capex benchmarking. The industry is now moving to further improve efficiency through labour reforms, optimising capex investment through digitising the network and in the medium term in capability for consumers to control their energy use. These structural changes and government intervention came at a huge cost for consumers in increased network charges which they must pay for the life of the assets including through accelerated depreciation when those assets become stranded.

At the same time as consumers were investing in network reliability, government policy initiatives affected other aspects of the energy supply chain, resulting in further costs for consumers in their retail bills. Some examples include renewable energy generation subsidies (which in part led to retirement of existing base load generation capacity), and other decisions outlined in Chapter 3 of the ACCC retail interim report. The rapid increase in retail prices, without accompanying cost reflective pricing signals, has also resulted in consumers choosing alternatives such as investment in solar panels and batteries that are inefficient from total economic perspective given sunk costs.

It has also become clear that networks were either required by Governments or were otherwise incentivised to invest in reliability. At the time that the investment was made, it was underpinned by increasing growth and demand forecasts. This led the AER to conclude that the costs were either mandated or otherwise efficient, and they were therefore included in revenue allowances and in the RAB. However, in the last five years, market circumstances have changed, as consumers have responded to the increased prices either by reducing their consumption, lowering their usage through more efficient appliances, or investing in their own generation equipment. As a result, many networks now have excess capacity, flat demand, and the ability to manage constraints through demand side rebates to influence behaviour. As the ACCC notes in its interim report:

> *"....overall demand for electricity increased steadily until around 2009, then decreased by around 8 per cent between 2009-10 and 2013-14. While demand then rose marginally until 2016-17, it is expected to remain stable for the next 20 years despite projected population growth."*[22]

It is no longer the case that consumers fear under-investment in networks – they now fear over-investment, as they realise they must pay for it for decades.

CCP16 submits that the AER must take account of the changing environment in which its decisions are made, including the consumer welfare/economic impact of energy prices. This requires the AER to consider carefully the outcomes from its previous decisions as part of this review. In our view, the evidence taken as a whole strongly suggests that historical rate of return allowances have been higher than necessary to encourage efficient investment, particularly given the shift away from incentivising investment to consolidating investment decisions of the past. It is also important that the AER recognise the changing environment and risk allocation (above) along with consumer concerns with affordability since 2013.

[22] Ibid at p 10

3.4. What are the consequences of setting the rate of return too high?

To date, the AER appears to have deliberately taken an approach of choosing parameters at the upper end of estimated ranges, to avoid the risk of too low a rate of return and the risk of under-investment. CCP16 believes that there is no evidence that the rate of return to date has been set too low. The fundamental issue facing the AER in the development of the binding instrument is to use its judgment to assess if the current rate of return allowance taken as a whole is about right or is too high. We believe there is persuasive evidence that rate of return allowances approved by the AER have been too high.

It is time for the AER to reconsider the risk allocation to a more balanced perspective, while maintaining regulatory stability for investors.

To date the AER appears to have deliberately taken an approach of choosing parameters at the upper end of estimated ranges, to avoid the risk of too low a rate of return and the risk of under-investment.[23] For the reasons discussed below, CCP16 believes that there is no evidence that the rate of return to date has been set too low. The fundamental issue facing the AER in the development of the binding instrument is to use its judgement to assess if the current rate of return allowance taken as a whole is about right or is too high. In this submission, CCP16 considers whether there is any evidence for the proposition that rate of return allowances approved by the AER are too high, and concludes that there is persuasive evidence to that effect. When doing this analysis and reaching our conclusion that the current rate of return allowances are too high, CCP16 has been guided by the following:

- The purpose of Rate of Return assessment is to promote the NEO and NGO and therefore the long-term interest of consumers.
- Rate of Return assessment must be considered as a whole, rather than be locked into outcomes of individual parameter assessments.
- Given the acknowledged shortcomings of CAPM and the difficulty of estimating the parameters, caution should be exercised in changing parameter values – especially those that are more difficult to estimate – based on short to medium term fluctuations.
- Stable and predictable regulatory outcomes provide investors with confidence to invest in the long lived assets.
- There is no evidence that in the next five years emerging technology will result in sufficient consumers electing to disconnect from energy distribution networks, resulting in utilities being unable to fully recover their historical investment.
- Investor perception is that there should be regulatory stability to encourage the next wave of investment needed to drive innovation to support emerging technology.

[23] Examples of this are the adoption of a beta at the top of the estimated range and the adoption of an MRP above the long term average.

Some of these points were reinforced by Ilan Sadeh in CES1 in the following terms:

> *"But one area that I always think about is the future of energy markets are going to evolve, in some ways we have identified and others that we don't know. The best interest of consumers involves innovation where possible and having a vibrant stable foundation for the rate of return is critical to that.*
>
> *An environment of confidence should mean both transparency and predictability, both in process and in outcome. From my perspective accurate and effective decisions are what we all should be striving for but we don't want to fall into a trap of looking for false precision. We shouldn't be looking for the intellectual theory of the day, therefore there should be significant benefit in making any changes because there is a real cost of continuing to change things."*[24]

Even though the AER is required to estimate a Rate of Return allowance using a mathematical Rate of Return formula, its decisions involve imprecise and complex calculations of parameter values. The submissions to this review as well as the debate in the concurrent evidence sessions underpin the differing views about the parameters and the important role of the AER's discretion. Notwithstanding the degree of estimation required, the AER must exercise its discretion to achieve a rate of return that is not too high – as this would incentivise the firm to over capitalise the network, and not too low – resulting in the investor under-investing, leading to reliability or safety concerns.

All regulators of monopoly energy distribution assets face the estimation error tightrope walk. Many regulators approach this task like the AER, by relying on a perceived greater risk asymmetry between setting prices too low over the long-term compared with setting them too high. For example, this has led the New Zealand Commerce Commission to choose the 67Th percentile of its Rate of Return parameter ranges as part of its Input Methodologies.[25] The logic of the New Zealand approach to estimation error was described in CES1 by Dr Martin Lally in the following terms:

> *"But, I would say to them that if you are a consumer, the worst fear that you have in this area is not that your power bill is going to be a little bit high, but that the true Rate of Return has been accidentally underestimated and therefore, the regulated businesses lose interest in investing and then the network runs down and then your lights don't go on one night. And, as a consumer, that is likely to be the bigger fear."*[26]

The argument underpinning the justification of setting a Rate of Return allowance on the higher side rather than on the lower side is that consumers will suffer through poor service where investors are not earning sufficient to attract the necessary capital to invest in and maintain a quality, safe, reliable and secure supply and this is considered a worse outcome than consumers paying a higher return than would be achieved in a workably competitive market.

This analysis however is simplistic, especially in the context of the regulatory rules and protections in place in Australia. Consumers do not just over-pay for the relevant period in which the higher Rate

[24] Proofed transcript of concurrent evidence session 1 on 15 March 2018 at p 7

[25] "*We already recognize the possibility of estimation error through our estimate of the standard Rate of Return, and use of the 67th percentile when setting price-quality paths*." New Zealand Commerce Commission IM Review – Final reasons Papers at p 10

[26] Proofed transcript Concurrent Evidence session 1 held 15 March 2018 at p 96

of Return allowance is available. They over-pay for decades, as the investor is incentivised to over-invest in the network, thus increasing the RAB, on which the consumer then pays a rate of return for the life of the assets. In Australia, this is accentuated by the strict rules preventing any stranding or reduction in value of assets included in the RAB. In other jurisdictions, the risk of asset stranding can mitigate the risk and long-term cost of over-investment in response to a Rate of Return that is too high. On the other hand, the strong reliability rules that are set independently of the AER demonstrably place a high floor under the level of investment, reducing the risk of under-investment in the short to medium term if the Rate of Return is set too low.

The New Zealand High Court made the following observation about the interaction between RAB and Rate of Return:

> *"[1189] In determining Rate of Return, precision is therefore an elusive and perhaps non-existent quality. Setting Rate of Return is, we suggest, more of an art than a science. The use of Rate of Return, in conjunction with RAB values, to set prices and revenues in price-quality equation gives a significance to Rate of Return estimates that may not exist outside this context. ...."*[27]
>
> There is a direct relationship between the cost of capital and the return on that capital and risk to the investor on investing the capital. This has been described by the New Zealand high court as:
>
> *"[1069] The cost of capital a firm faces is the financial return that investors require from an investment in the firm, given the risk. Investors have choices, and will not invest in an asset unless the expected return is at least as good as that they might expect from a different investment of similar risk."*[28]

The AER's task therefore is to calculate the systematic risks of the investment in electricity and gas businesses and then estimate a Rate of Return allowance which is consistent with the cost of capital faced by suppliers in a workably competitive market. Put simply, investors have choices and will not invest in an asset unless the expected return is at least as good as the return they would expect to get from a different investment of similar risk.

As part of the estimate of Rate of Return and the focus on investment risk it is important to remember that Rate of Return is the market's view of the cost of capital for providing the service generally and not the cost of capital specific to one supplier or even the supplier's view of its cost of capital.

The risks in the regulatory framework are tilted in favour of investors, as the model is a 'network propose and regulator respond' model.

When calculating the systematic risks facing the investors under the Australian energy framework, there are several risks from which the investors are insulated that would be relevant in a workably competitive market. Investors are allowed to recover:

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[27] At p 388

[28] Wellington International Airport and others and the Commerce Commission [2013] NZHC 3289 at p 346, available at http://www.comcom.govt.nz/dmsdocument/11470

- Efficient costs at the time of investment even though those costs may subsequently become inefficient or the assets they purchased stranded;
- Costs associated with regulatory obligations such as Government imposed reliability standards;
- Total revenue including all asset costs under a revenue cap, irrespective of fluctuations in demand; and
- Recovery of the real costs of the original investment through RAB indexation.

The experts in CES1 agreed that non-systematic risk should be managed through opex proposals, rather than through the setting of the Rate of Return. Again investors are protected from many diversifiable risks through pass-through options for unexpected cash flow events.

When considering asymmetry of risk, it is critical to take these investor protections into account. Consumers do not have any protection against the timing of over investment. With falling demand, over investment early is a cost to consumers for a very long time.

CCP16 submits that the basis the AER had when formulating the existing rate of return guideline to err to the extent it has on the side of investment risk has disappeared. There is no evidence of sustained increase in general risk perceptions, which was the reason for increasing MRP in 2013. As discussed in the next section, it is possible that the cumulative result of the AER's decision to choose the high range of individual parameters is a Rate of Return allowance higher than it intended. In any event, there are now lower risks of underinvestment as the market has matured, there is little growth in demand, there is a low level of utilisation of existing assets and networks are either stable or have improving reliability performance. CCP16 argues that this all points to excess emphasis on the risks of underinvestment.

Instead, CCP16 believes that there is a growing risk for consumers and inefficiency of excess prices on overall consumer welfare. This is evident in the impacts of excess prices on consumers and the economy as a whole, which has been fuelled in part by rapid RAB growth. Accordingly, it is time for the AER to reconsider the risk allocation to a more balanced perspective, while maintaining regulatory stability for investors.

3.5. The role for cross-checks

The AER must be focused on Rate of Return assessment as a whole, rather than be locked into outcomes of individual parameter assessments.

CCP16 considers that:

1. There is an essential role for cross-checks in the exercise of judgment and discretion in the four-yearly reviews of the binding instrument that sets the Rate of Return.
2. The AER's current foundation model approach provides a sound framework that already provides for transparent and reasoned consideration of cross-checks in the exercise of discretion to determine the overall Rate of Return and parameter values.
3. Inclusion of additional cross-checks, such as RAB multiples or profitability measures, is an incremental change within the existing model that would improve the determination of the overall rate of return and reduce biases at the individual parameter level.

The AER must be focused on Rate of Return assessment as a whole, rather than be locked into outcomes of individual parameter assessments. However, it is clear that many submissions to the AER and many arguments advanced at the concurrent evidence sessions are focused on individual parameters and the identification of risks in an isolated fashion. As Professor Johnstone argued in the concurrent evidence session, this risks 'missing the wood for the trees'. An important issue raised in this review is whether the AER should respond to the pressure of considering individual parameters individually by including a cross check of a final Rate of Return allowance to determine if the proposed Rate of Return is a commercially realistic estimate of the cost of capital and reflects an appropriate risk allocation between consumers and investors.

In CES1, the Presiding Chair posed the issue in these terms:

> "*This is more a broader question. So we've been talking about the sensitivity analysis, and materiality was one of the points that I raised in the introduction; if we could consider some more materiality of this. So if we do that with all of the variables, at what point do you, sort of, optimise it? And, I think this is going back to David's point; what is the optimal solution? Because if you look at all the variables and the ranges – and yes, we can do sensitivity analysis, but it's almost like in funds management where you sort of, try and optimise a portfolio, there are so many variables. So do you have any thoughts on that process and how meaningful it would be*?"

The comments by Professor Johnstone in the Joint Expert Report highlighted an important difference of view among the experts on how the additional information and cross-checks should be taken into account in decision-making. The experts sponsored by the networks and investors considered that "all evidence that is relevant to estimating a parameter should be considered together rather than reserving some evidence to the role of 'cross check' … [and that cross-checks could] result in, even if unintended, a further avenue for backdoor discretion which, following the removal of LMR, does not promote confidence in the stability of the process."[29] In contrast, Professor Partington emphasised that "there is a role for reasonableness checks. This may also affect parameter estimation, e.g. an estimate may be given low weight if it leads to unreasonable estimates of the cost of capital".[30] As noted above, Professor Johnstone also emphasised the importance of cross-checks separate from the detailed parameter analysis, noting that "ultimately the judgement has to be applied to the whole value of the allowed RoR not just the constituent parts (as proposed above)".[31]

CCP16 considers that:

1. There is an essential role for cross-checks in the exercise of judgement and discretion in the four-yearly reviews of the binding instrument that sets the Rate of Return.
2. The AER's current foundation model approach provides a sound framework that already provides for transparent and reasoned consideration of cross-checks in the exercise of discretion to determine the overall Rate of Return and parameter values.
3. Inclusion of additional cross-checks, such as RAB multiples or profitability measures, is an incremental change within the existing model that would improve the determination of the overall rate of return and reduce biases at the individual parameter level.

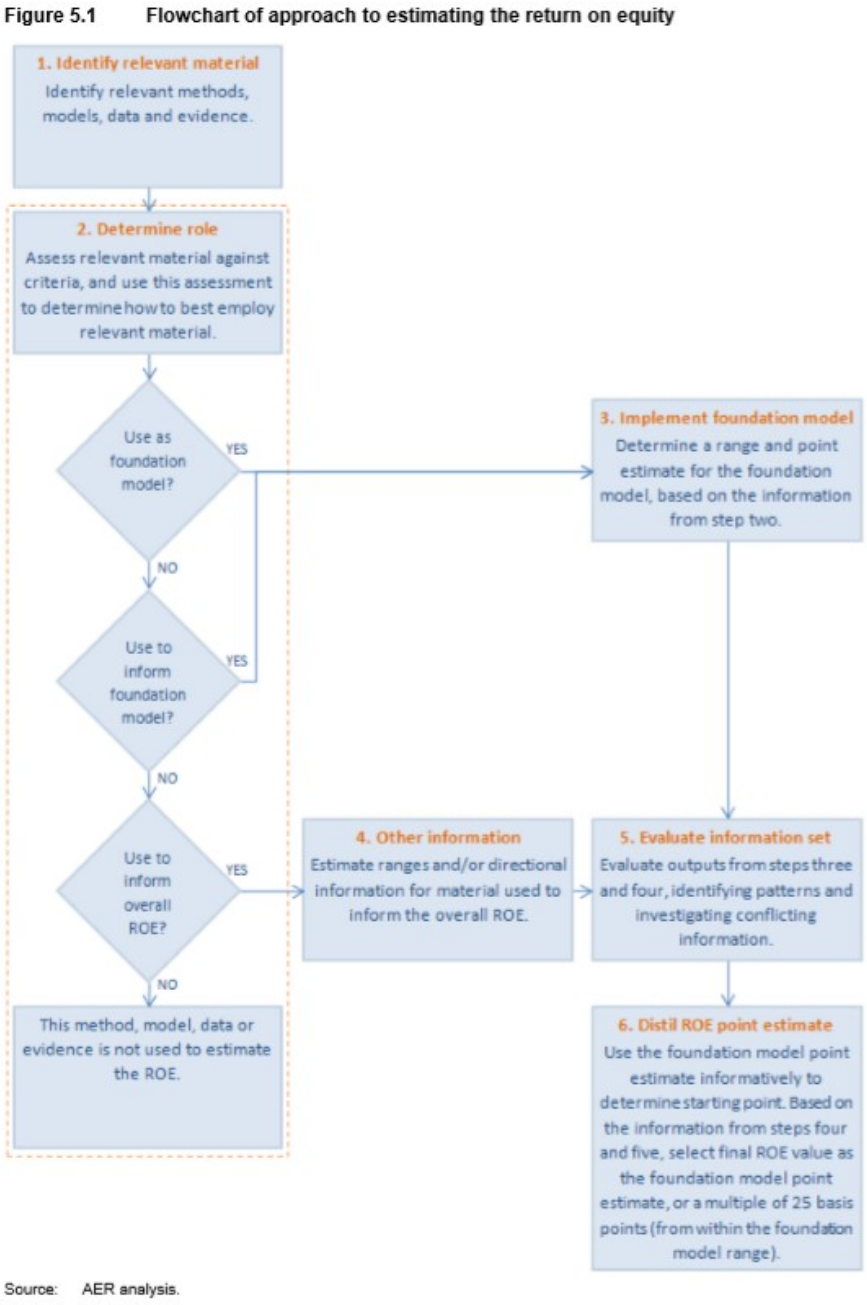
[29] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p19
[30] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p19
[31] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p21

CCP16 considers that the AER has been adopting conservative (generous) values for each individual parameter, which has resulted in Rate of Return allowances being too generous. CCP16 supports the AER exercising its judgement in a more holistic manner to ensure that the final Rate of Return is in fact set at an appropriate level. Such an approach should definitely have regard to changes in the economic and investment climate since the previous guideline. One benefit of the New Zealand Commerce Commission's percentile approach is that it seeks to quantify the correction being made in favour of investors, which is not present in the AER's approach to date.

While the current foundation model does not use the percentile approach of the NZ Commerce Commission, it provides for the transparent assessment all information and the use of information as cross-checks at the parameter level and the overall return level. Flowchart 5.1 in the AER's Explanatory Statement, which is reproduced below, sets out the current decision framework and the role for cross checks within that framework.[32]

[32] AER, Explanatory Statement, Rate Of Return Guideline, December 2013, p53

Figure 1: Flowchart of approach to estimating the return on equity



This sets out a transparent process where relevant information is identified, assessed against agreed, explicit criteria. Depending on that assessment of the information, it may have a role in the determination of the ROE at the:

- Model level;
- Parameter level; and
- Overall ROE level.

If the assessment indicates that the information does not meet minimum requirements, it may have no role. Under the existing framework, the Wright model, decisions of other regulators, takeover /

valuation reports, and broker rate of return estimates are considered at the overall rate of return level, with the latter two considered as directional indicators.

While the exercise of judgement through the use of cross-checks is not reduced to a formula, it is incorrect to characterise it as a 'black box', 'non-transparent', or introducing an unpredictable level of discretion. The current framework provides a highly structured approach to the consideration of all information that facilitates the transparent explanation of how the AER has exercised its judgement.

This creates predictable expectations for the AER's consideration of information in the future. While it does not specify specific probability distributions (this would be false precision) of a Bayesian approach to decision-making, it adopts the same principles with respect to the efficient use of all relevant, available information. This approach recognises that although there may be a preferred model and source of information that provides a starting point, the decision should take into account other information relevant to the decision. The suggestion that there is no role for sense checks places more faith in the CAPM model (and its variants) and the precision of parameter models than can be rationally supported. It results in a suggested binary approach to the use of information that envisages that competing information can only be considered by giving all weight to one source of information and none to the other, then somehow flipping between the two.

CCP16 supports the use of financial information to inform this judgement (see section 8 discussed below). This is an incremental change within the existing foundation model. Evidence (see section 6) indicates that the existing model has provided framework that is highly supportive of investors and has not created concerns of excessive discretion or uncertainty. Furthermore the introduction of the binding instrument further reduces the scope for judgement and structures its exercise by:

1. Limiting the exercise of judgement to the four-yearly reviews; and
2. Strengthening the process requirements for the reviews that help structure the exercise of judgement.

4. Purpose of the concurrent evidence sessions

As these were the first sessions of this style run by the AER board, it is useful to undertake a post-analysis of the process, so that improvements can be incorporated for next time.

Due to time constraints in appointing the experts, it was not possible for the experts to clarify the points of agreement and disagreement fully before the sessions. If there had been greater time, the experts could have made their positions available earlier, which would have honed the focus to the areas of disagreement.

The only expert representing consumers was paid for by the ECA. In future, CCP recommends that the AER considers how consumers can be better represented at the sessions through one or more experts, given the NEO's focus on their long-term interests.

We found it very helpful to hear the views of the investor expert who stressed that investors take a very long-term view of the assets and the capital structure of the markets and highly value regulatory certainty.

As presiding Chair, Christina Cifuentes stated in the opening of CES1:

> *"The purpose of the session is to assist the board members in making decisions around a rate of return that will best achieve the NEO and the NGO and we expect that this session will help us do that by clarifying those areas where there are agreement, if there is agreement between the experts or areas of disagreement..... It will also be an opportunity for the AER board to ask questions and seek clarification of the expert's positions and through this to explore the materiality of the issues that have been raised, the implications of the issues, particularly for various stakeholders, the businesses, consumers and investors. And potential for resolution of some of these positions for those stakeholders."*

Ultimately, it is for the AER board to determine to the extent the sessions achieved greater agreement of issues among various stakeholders and to the extent it assisted the Board.

CCP16 makes the following observations about the two concurrent evidence sessions:

- As these were the first sessions of this style run by the AER board, it is useful to undertake a post-analysis of the process, so that improvements can be incorporated for next time.
- The sessions were well facilitated by Dr Jonathan Mirrlees-Black.
- Due to time constraints in appointing the experts, it was not possible for the experts to clarify the points of agreement and disagreement fully before the sessions. There was a noticeable increase in exchange of ideas before the second session. If there had been greater time, the experts could have made their positions available earlier, which would have honed the focus to the areas of disagreement.
- The AER retained Professors Lally and Partington to appear at the session. Networks, network industry associations and investors funded additional experts, whereas the only expert representing consumers was paid for by the ECA. In future, CCP recommends that the AER considers how consumers can be better represented at the sessions through one or more experts, given the NEO's focus on their long-term interests.

- Many of the issues that were discussed in the sessions were obvious from the announcement of the review. It was always likely that all experts would agree that gearing would remain at 60/40, that the data set for the estimation of the beta was shrinking, and that the transition to the trailing average for debt estimations would not be reopened. CCP16 questions the utility of devoting limited time at the concurrent sessions to discussion of these topics.
- We found it very helpful to hear the views of the investor expert who often bought balance to the views of the networks. The main things stressed by Ilan Sadeh were that investors take a very long-term view of the assets and the capital structure of the markets. The trailing average protected investors against movement in interest rates, and regulatory certainty, including not reopening the guideline for minor fluctuations in inputs to parameters, was paramount for investor confidence.

5. Outcomes of the current approach

Market evidence on the attractiveness of the sector for investors suggests that the current approach as implemented by the AER has more than met the requirements under the NEO and ARORO to provide the utility with the opportunit y to earn a fair return. Indeed most measures support the view that the allowed ROR and tax expenses have exceeded the required returns and expected tax payments. In particular:

- Acquisition values (Market Value to RAB multiples) indicate that the allowed returns have most likely exceeded the returns required by investors.
- Existing investors do not appear to be seeking, on balance, to reduce their exposure to the sector. The NSPs have pursued a rapid program of RAB expansion (with mostly constant or declining asset ages and declining utilisation) while reducing gearing. This has resulted in an increased net equity exposure to the sector. This would be expected if the allowed returns exceeded the required returns, but would be counter intuitive if they did not.
- Commentaries from brokers and rating agencies provide a positive assessment of the regulatory regime for investment.

Taken together, these provide strong evidence that the allowed ROR has exceeded investor expectations. Ideally this would be supported analysis of historic profitability measures compared to allowed returns and returns in other sectors. The AER has advised that consistent and comparable measures are not presently available, but it is currently working on developing a robust set of profitability measures that can support such comparisons.

Acquisition values

The role of RAB multiples in the assessment of the ROR of return is discussed more fully in section 8.4.1 below. In summary, while there are other factors that affect RAB multiples, the relativity of the allowed return and the investors' required return will be an important factor. RAB multiples will be higher if the allowed return exceeds investor expectations for the level of risk.

As set out later in this section, RAB multiples for purchases of regulated energy assets have increased strongly during the period of the current guideline. In the period post GFC up to 2013 RAB multiples were around 1.2 – a value widely accepted as being with normal boundaries and accepted by other regulators as supportive of ROR settings. Since then, RAB multiples have increased with, the last substantial asset sales (TransGrid, Ausgrid and Endeavour Energy being in the range 1.4-1.6). While the information is imperfect and requires further analysis, when faced with RAB multiples of this level, other regulators – such as Ofwat and NZ Commerce Commission – have sought to take this into account as a directional indicator in setting the ROR.[33]

Increasing equity exposure

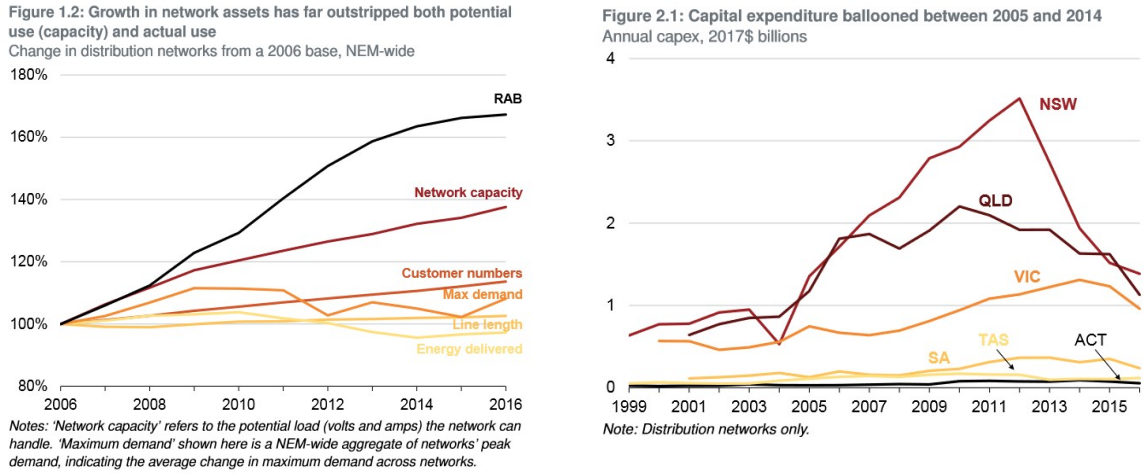
If the allowed Rate of Return was lower than investors required, one would expect to see a reduction in equity exposure to the sector through a reluctance to invest and increasing levels of gearing

[33] See below and AER, Financial Performance Measures, Discussion Paper, Feb 2018, p17-21

(subject to debt providers willingness to provide debt). In fact the opposite has occurred, consistent with the allowed ROR exceeding investors' required return.[34]

As the recent report by the Grattan Institute has shown, the electricity network RABs have grown rapidly since 2006 as the networks have embarked on large-scale capex programs. The growth in the RAB has far outstripped the growth in customers and demand, resulting in declining capital utilisation and increasing network charges – and increased revenues for the networks. While the growth in the RAB was strongest in NSW, QLD and Tasmania (driven by Government-imposed requirements), capex has also increased in real terms over the last 5 years in the other states. As this has occurred, the average asset age has been declining or stable.

Figure 2: Growth in networks' capital expenditure



Source: T. Woods, D Blowers and K Griffiths, Down to the Wire: A sustainable electricity network for Australia, Grattan Institute, 2018, p7, p13

Clearly a substantial driver of the rise in the RAB was beyond the direct control of the NSPs (although in NSW the networks did not resist this 'imposition', indeed the stronger reliability standards were in response to concerns expressed by the networks about the need for more investment). However, the Grattan Institute suggests that a high ROR may also have been a factor.

> A high Rate of Return may have encouraged over-investment. The regulator sets the Rate of Return for network businesses to recover their costs of capital: cost of debt and cost of equity. Historically the costs of debt and equity appear to have been set too high for distribution businesses.
>
> … setting these costs too high over time may also create an incentive for over-investment, because money will chase above-market returns. The Rate of Return was particularly high in the late-2000s, when most of the capital expenditure occurred (see Figure 2.3). A high Rate of Return was justified on the basis of higher debt costs following the Global Financial Crisis. But given significant investment during that period, it appears the Rate of Return was more than sufficient.

[34] A reduction in gearing can also be a result of an inability to raise debt on reasonable terms, but given the stable or improving credit ratings during this period there is no indication that it has been the case in this period.

> The Rate of Return is calculated in the same way for all network businesses. So if a high Rate of Return was solely responsible for increased investment, there would have been excessive capital expenditure across all networks. Yet businesses in South Australia and Victoria did not grow nearly as fast as those in Queensland and NSW.

The caveat in the last paragraph is important: the RAB did not grow as quickly in Victoria as in NSW and QLD. But there is another important incentive in the regime: the incentive to spend less than allowed during the regulatory period. Even where the ROR is above the required return the business gains by underspending during the regulatory period, especially in the early years.[35] During the period since 2011 the Victorian distribution networks underspent the allowed capex by 10%, moderating the rise in RAB.

The other factor in the increased equity exposure which the NSPs have more control over is the decline in gearing. As the table below indicates there has been an overall decline in gearing (based on book values) over the last 10 years. Gearing estimates using market values show a similar trend.

Table 1: AER gearing estimates based on book values

	ENV	APA	DUE	AST	SKI	AVE
2007	90%	69%	75%	57%	82%	75%
2008	82%	71%	76%	58%	90%	75%
2009	80%	70%	79%	67%	86%	76%
2010	79%	68%	79%	62%	69%	71%
2011	78%	63%	77%	60%	71%	70%
2012	78%	64%	77%	61%	71%	70%
2013	71%	63%	79%	61%	70%	69%
2014	71%	65%	76%	64%	69%	69%
2015	N/A	68%	74%	69%	68%	70%
2016	N/A	71%	65%	66%		67%
5 year average	**73%**	**66%**	**74%**	**64%**	**69%**	**69%**
10 year average	**79%**	**67%**	**76%**	**62%**	**75%**	**72%**

Source: AER, Gearing Discussion Paper, Feb 2018, p16

While a reduction in gearing may be the result of an inability to raise debt there is no indication that this is the case for the NSPs. Indeed the trend to higher rather than lower credit ratings suggests an increasing access to debt markets.

Third party assessments

Brokers and rating agencies appear to regard the regulatory regime and the rates of return offered as positive features of the investment environment.

[35] The AER subsequently introduced the CESS to equalise the incentives across all years of the regulatory period.

For example, in its report on Spark after the purchase of TransGrid, Credit Suisse commented that TransGrid was "governed by a generous regulatory regime which still by design errs on the side of over-incentivising."[36] In its presentation for investors, Jemena noted that both Moody's and Standard and Poor's referenced the maturity and strength of the regulatory regimes in providing the underpinning for the regulated businesses cash flows. As noted below (section 8.4.2), since the current ROR Guideline was published in 2013, of the eleven regulated networks for which continuous credit ratings are available, six have been upgraded and five have the same rating.

[36] Credit Suisse, *Spark Infrastructure Group, Equity Research,* 25 November 2015, p1

6. Use of judgement and compensation for risk

Setting of the ROR at the four-yearly review requires a significant element of judgement that cannot be reduced to the mechanical application of rules and formulae. The question is how judgement and formulae can both be used to determine the ROR within a consistent framework over time, and to explain clearly and transparently how the decision was reached. The outcomes may not be predictable in a formulaic sense, but they should not be surprising.

The current framework, which starts with the foundation model and provides a structured approach to considering other models and information, is a sound approach to setting the ROR. It recognises the high degree of uncertainty in the ROR and the underlying parameters and provides a transparent and consistent framework for setting the ROR that can withstand changing economic conditions.

However, as discussed in Section 8 below, we consider that the AER should consider RAB multiples and comparisons of historical profitability measures in assessing the determining the ROR and assessing whether outcomes under past determinations of the ROR have been consistent with the NEO/NGO.

In regard to the specific issues raised in the discussion paper:

- Only systematic risk should be compensated through the ROR.
- No new information has been presented that would suggest the betas for electricity and gas or transmission and distribution can be distinguished from each other.
- The argument that technology and policy risks are systematic is tenuous and unproven. Indeed under the current rules, the consumer, not the utility, bears the policy risks.

6.1. Questions posed by the AER

6.1.1. AER Issues Paper

The AER Issues Paper did not directly pose questions in regard to the exercise of judgement in setting the rate of return. However, the first priority area for review listed in the Issues Paper – "Examining the outcomes under the current Guideline to test whether they have been consistent with achieving the NEO and NGO" – implies the role for judgement in determining the ROR. If the ROR were simply the outcome of the best estimates for each parameter, there would be no role for a retrospective review in determining the ROR.

Risk is discussed in more detail in the section on beta, but as the AER noted "The allowed rate of return objective is a rate of return commensurate with efficient financing costs and the risks involved in providing energy network services". (p15)

6.1.2. AER papers for the Concurrent Evidence Sessions

The AER published a Discussion Paper on "The allowed rate of return, compensation for risk and the use of data when judgement is required" to assist the discussions at the Concurrent Evidence Sessions.

The AER emphasised the need to exercise judgement:

> "In our role as a regulator, we must exercise our regulatory judgement about the use of different models, data, methods and other evidence that may be available to us when making our decision. We recognise that there are potential strengths and weaknesses in the different models and estimation methods."[37]

Users supported the need for the AER to exercise discretion, but were concerned that in exercising discretion, the AER had erred towards the top end of the range for several parameters, and that this created a significant upward bias in the ROR that was inappropriate.

In the 2013 guidelines, the AER set out criteria that it would use in assessing the weight to be given to the various models and sources of information. Submissions largely accepted these criteria, but differed on what information should be included and how. Networks generally argued against broadening the data set and wanted additional information to be considered at the parameter level only. Other submitters generally sought an expansion in the information considered, and its consideration at the overall return and parameter level.

The AER has provided compensation for risk through the CAPM framework, which distinguishes between systematic risk and non-systematic risk and rewards only systematic risk through the ROR. The AER has assessed this risk through conceptual and empirical analysis. Network submissions have placed more weight on recent empirical analysis, while pointing to rising technological risks. Other submitters have questioned the applicability of the empirical analysis and emphasised that the regulated businesses face much lower fundamental risks than the other businesses.

The questions posed in the paper are:

Criteria for exercising judgement

1. Are the assessment criteria created in the 2013 Guideline and used to assess the merits of the various sources of information in setting the allowed rate of return still appropriate (these are set out on page 6 of the current Guideline)?

Use of judgement and data

2. Do the current data sets remain appropriate and what are the strengths and weaknesses (mainly to be discussed in each topic)
3. Where does the balance between judgement and data lie, and how precisely can we seek to estimate rate of return parameters objectively, and in a way that can be replicated independently by any stakeholder, using market data?
4. Is the current foundation model approach to return on equity a sound approach to decision making under uncertainty?
5. Is there a feedback loop that starts with a given rate of return (which could be too high or too low) and perpetuates the same outcome due to a focus on market data to make decisions?
6. Is there better (or different) data to inform judgement? Can we use other data to better inform judgement (e.g. RIN or profitability data)?

[37] AER, The allowed rate of return, compensation for risk and the use of data when judgement is required, Discussion Paper, Feb 2018, p10

Risk and compensation

7. What risk should be compensated through the allowed rate of return objective? Should only systematic risk be compensated in the allowed return on equity?
8. Is it likely the required compensation varies (materially) as between: gas and electricity networks; transmission and distribution segments; and price and revenue caps?
9. To what extent are emerging technologies and policy risks systematic? Should these risks be compensated through the allowed rate of return?
10. What impacts investor confidence and how might this impact the exercise of discretion?
11. How might compensable risk be measured (high level with detail on specific topics expected to be covered in specific topic discussions)?
12. How should any changing risk profile faced by networks be taken into account in the regulatory framework?
13. Under what circumstances should a binding Rate of Return Guideline be re-opened?

6.2. CCP initial position

6.2.1. Role of judgement

In its earlier submission, CCP16 concluded that the AER's current approach to setting of the ROR considers a wider range of information than previously, and provides for the structured exercise of discretion. While the framework allows for the consideration of changing market conditions, the outcomes have been highly predictable and consistent across decisions. This reflects the AER's foundation model approach, which provides certainty about the range within which parameters and the overall ROR will sit, while providing discretion to reflect changing conditions as required. The current approach also withstood appeals to the Australian Competition Tribunal.

We concluded that the approach was fundamentally sound, but that in its application the AER has set the ROR at levels above those necessary to meet the requirements of the NEO/NGO and ARORO.[38] We argued that this can be addressed by broadening the range of information to include RAB multiples and comparisons of profitability, and review of specific parameters such as the MRP, beta, and the cost of debt benchmarks. The review of profitability measures would provide a cross check on the overall ROR that can support the judgements exercised in setting the parameter values within defined ranges.

6.2.2. Compensation for risk

In our submission, we argued that, consistent with the CAPM framework, only systematic risk should be included in the ROR. In our view, technology risks were non-systematic risks and were in any case borne by the customers rather than by the NSP. This is because the return on the assets is guaranteed under the regulatory rules even if the assets are subsequently stranded by technology change.

[38] We recognised that it is often accepted that regulators will aim high and that at times efforts have been made to justify this on the grounds that the consequences of investment are asymmetrical. We rejected the latter argument, particularly in the Australian context of strong separately determined reliability standards and the absence of any asset stranding risk.

6.3. Issues raised in Concurrent Evidence Session

6.3.1. Role of judgement

The experts at the Concurrent Evidence Session agreed that the exercise of judgement was a necessary part of the determination of the ROR.[39] There was also agreement that judgement should be exercised in a way that:

1. Is predictable and transparent;
2. Has a high regard for certainty and stability;
3. Recognises that uncertainty/instability have a real cost; and
4. Has a high bar to change.

Furthermore, the experts agreed that the current ROR guideline criteria for assessing information are broadly appropriate, except for some concerns around the wording of the simplicity criterion, and concerns expressed by Professor Gray that the criteria were too general or vague.

Professor Partington and Dr Hancock emphasised that certainty and stability in the rate of return reduced risks, and created a 'wealth gain' for businesses.[40] The question they posed for the AER is how this gain is to be shared with consumers.

An area where there may be significant discretion and judgement for the AER within the period of the binding ROR instrument is whether to reopen it during the period if circumstances change. There was agreement among the experts that there should a high bar for re-opening the instrument and that the conditions/criteria for reopening should be transparent and specified in advance to reduce the potential uncertainty created by the re-opening provisions. However there was not agreement on what the reopening provisions should be.

The Experts generally supported continuation of the foundation model approach whereby primary reliance is placed on the Sharpe-Lintner CAPM but other models and information are considered at the parameter and overall return level in a systematic manner. Under this approach the alternative models and information are assessed against explicit criteria and accordingly given some (or no) weight in decision-making. However, Professor Johnstone emphasised the need to consider a wide range of information to avoid the risk that a "pseudo-scientific financial model approach hides the wood (dollars) behind the trees (beta, WACC, etc.), and is a recipe for gaming and false-consulting pressures on the regulators."[41]

The issue of the role of cross-checks in the exercise of judgement was discussed in Section 3 of this submission.

6.3.2. Risk and the rate of return

The experts agreed that all risks – both systematic and non-systematic – must be accounted for within the framework and that the AER should elaborate on the implicit classification of risks within the regulatory framework and identify where the allowance for each relevant risk is accounted for in

[39] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p13
[40] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p14
[41] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p18-19

the framework.[42] However, Professor Johnstone challenged the CAPM framework and its common application.

It was also agreed that within the CAPM framework only systematic risk should be reflected in the ROR. Providing that the effect of any non-systematic risks are properly reflected in expected cash flows, the allowed rate of return should not make any allowance for such risks.

Cash flows reflected in the building blocks approach must be expected cash flows for the benchmark entity. This is consistent with the NPV neutrality principle. The experts cited two examples:

1. An uninsurable negative risk with a particular probability should be included in cash flows. As a result the utility may appear to outperform in years in which the negative risk did not occur. It was agreed that there cannot be double compensation for the same risk – that is if the cash flows allow for 'self-insurance' of an event there is no further compensation if the event occurs.
2. A network may improve its performance through, say research and improved practices and under the incentive framework. This should be rewarded – with the majority benefit already shared with customers under the EBSS/CESS mechanisms.

The experts agreed that it is difficult to assess the extent to which the risks associated with technological change are systematic in nature. Professor Gray and Dr Houston considered that the AER should explicitly set out how it has considered the risk of asset write-downs, arguing that it would be incorrect to assume the risk is zero.

6.4. CCP assessment

6.4.1. Criteria for exercising judgement

The areas of common agreement are that:

1. In setting the ROR the AER is facing a problem of decision making under uncertainty. There are multiple imperfect models, data is often poor, and parameters cannot be estimated with precision.
2. The exercise of judgement and discretion is essential for the determination of the ROR, and the rules for its application, at the four-yearly review
3. In exercising that judgement the regulator should have regard to all relevant information (balanced by an assessment of the 'quality' of the information). Not to do this would be inconsistent with principles of sound decision-making and the obligations on the AER under administrative law.

The first question then is what information should be considered. The current framework[43] sets out explicit criteria for the assessment of that information that were endorsed at the concurrent evidence, with amendment to the simplicity criteria so that simple methods are preferred where they perform as well as more complex methods.[44]

Our concern is not with the criteria but their application. In the draft 2013 rate of return guidelines, the AER proposed to consider the profitability measures at the overall ROE level, but excluded these

[42] CEPA, Expert Joint Report, Rate of Return Guideline Review, April 2018, p24
[43] AER, Explanatory Statement for the Rate of Return Guideline, Dec 2013, pp23-4
[44] It is assumed that the comparison would have regard to the relative costs of implementing the methods. That is more complex methods need to demonstrate benefits that exceed any additional costs.

measures from consideration in the final guidelines. We consider AER's initial judgement was correct and that profitability measures meet the existing criteria.

Response to AER Question:

1. Are the assessment criteria created in the 2013 Guideline and used to assess the merits of the various sources of information in setting the allowed rate of return still appropriate (these are set out on page 6 of the current Guideline)?

   The criteria remain (with the modification to the simplicity criteria suggested at the Concurrent Evidence Session) appropriate and provide a sound basis for assessing the range of information and models that can assist in the determination of the ROR. CCP16's concerns relate not with the criteria but its application in some cases (e.g. consideration of profitability data).

6.4.2. Use of judgement and data

Given that the exercise of judgement is essential, the challenge for the regulator is how to exercise discretion and judgement in a manner that is transparent, well justified, and uses a logical consideration of information, so that outcomes, while not predictable in a formulaic manner, are not surprising.

The issue of the weight to be given to DGM estimates provides a practical example of the difficulties of trying to reduce the exercise of judgement to a formula. Our earlier submission analysed this issue in detail but the key points are:

1. DGM estimates contain information on expected returns but the weight that can be given to this information is not constant and is contingent on other factors.
2. DGM estimates depend on various assumptions on investor expectations that are difficult to verify but more importantly DGM estimates depend critically on the assumption that financial markets are efficient. Evidence on the performance of financial markets over the short to medium term does not support the efficient market assumption.
3. As a result variations in DGM estimates cannot be given a fixed weight but must be considered in the context of a range of other indicators of investment climate. Hence, it cannot be reduced to a formula. As our earlier submission points out, other users of DGM estimates, such as the Bank of England, have reached the same conclusion.

Under the AER's current approach, once it is determined that a model or source of data/information will be considered the question is at what level will the information be considered: should it be considered at the parameter level, at the ROE level or the ROR level. For example, DGM estimates could be considered at either the ROE level or the parameter level (MRP), but are currently considered at the parameter level. Other information, such as the RAB multiples or profitability measures are better considered at the ROE or ROR level. These measures provide an important practical cross-check on the outcomes of the detailed parameter level analysis. As Professor Johnstone stated, it enables the regulator to see the wood (overall returns) for the trees (parameter estimates).

This contrasts with the views of other experts (see section 8 on Profitability Performance Measures) that cross-checks should not 'over-ride' parameter estimates. This view would effectively negate the value of considering information at the overall ROR or ROE level, and result in exclusion of relevant information that cannot be reduced to a specific parameter within the CAPM. As noted above, this

would be inconsistent with efficient use of information in decision-making under uncertainty, and the AER's obligations under administrative law. The parameter values are not known with certainty. If the outworking of an initial set of assumption of parameter values results in an outcome that other information suggests is implausible it is only rational to review the parameter values and the information considered at the parameter level. The AER's current model provides a rational, transparent framework for incorporating feedback from other data and models into the overall return and parameter values.

Our key recommendations for improving the application of the current model are:

1. Include consideration of RAB multiples and profitability measures at the aggregate ROE and/or ROR level, together with the other information considered at that level.
2. Include a clear statement that the AER rejects the argument that it should 'aim high' on the ROR. The objective is to set a ROR that achieves the NEO/NGO and is fair for NSPs and their end-customers.
3. Given (1) and (2), review the current beta and MRP values to reduce the overestimation of the required returns.

The AER has posed the question as to whether there are feedback loops between the AER decisions on the ROR and expectations for future returns. This can be considered at two levels: does a higher ROR create higher expectations for the required ROR; and does a higher value for a parameter affect future data for that parameter. For example, if the AER sets a higher beta, does that affect the measured beta at the next review?

If the AER set a higher overall ROR, it would make investment in the sector more attractive and increase market values for regulated businesses/assets. As noted earlier, the experts and others highlighted the importance of stability so that a decision to set a higher value for the ROR or a specific parameter may create a 'stickiness' and expectation that flows through to future decisions.

However, this feedback loop can be constrained by having regard to RAB multiples and profitability measure. The higher ROR would flow through to higher RAB multiples that could then be considered at the next review to provide an objective basis for reconsidering the higher ROR.

While there may be an effect at the aggregate level it is unlikely that there would be feedback loops at the parameter level – in the sense of the decision on parameters affecting future data on which future decisions are based. The risk-free rate and MRP are economy-wide parameters than cannot be affected by the value chosen by the regulator. Beta is specific to the sector and will be affected by regulatory decisions to the extent that those decisions affect the variability of profits over time, but decision on the level of beta, per se, does not affect the future empirical estimates of beta. However, to the extent that other regulatory decisions affect systematic risk, those decisions can reduce beta in future. The adoption of revenue caps and the change in approach to debt costs to reduce the NSPs exposure to interest rate changes should reduce the measured beta over time.

Responses to AER Questions

2. Do the current data sets remain appropriate and what are the strengths and weaknesses (mainly to be discussed in each topic). ***This is discussed under the relevant topic.***

3. Where does the balance between judgement and data lie, and how precisely can we seek to estimate rate of return parameters objectively, and in a way that can be replicated

independently by any stakeholder, using market data? ***This question may reflect unrealistic standards. "Replicated independently … using market data" The setting of the ROR at the four-yearly review requires a significant element of judgement that cannot be reduced to the mechanical application of rules and formulae. The question is not what should be the balance between the exercise of judgement and the use of formula but how both can be used to determine the ROR consistent with the NEO/NGO in manner that uses a consistent framework over time and can be clearly and transparently explained so that stakeholders can understand how the decision was reached. The outcomes may not be predictable in a formulaic sense, but they should not be surprising.***

4. Is the current foundation model approach to return on equity a sound approach to decision making under uncertainty? ***The current framework, which starts with the foundation model, and provides a structured approach to considering other models and information, is a sound approach to setting the ROR. It recognises the high degree of uncertainty in the ROR and the underlying parameters and provides a transparent and consistent framework for setting the ROR that can withstand changing economic conditions.***

5. Is there a feedback loop that starts with a given rate of return (which could be too high or too low) and perpetuates the same outcome due to a focus on market data to make decisions? ***There may be some affect at the overall return level but we think this can be reduced through consideration of RAB multiples and profitability measures. There is no feedback loop at the parameter level. The risk-free rate and MRP are economy-wide parameters than cannot be affected by the value chosen by the regulator. Beta is specific to the sector and will be affected by regulatory decisions to the extent that those decisions affect the variability of profits over time, but decision on the level of beta, per se, does not affect the future empirical estimates of beta.***

6. Is there better (or different) data to inform judgement? Can we use other data to better inform judgement (e.g. RIN or profitability data)? ***As discussed in Section 8 below, we consider that the AER should consider RAB multiples and comparisons of historical profitability measures in assessing the determining the ROR and assessing whether outcomes under past determinations of the ROR have been consistent with the NEO/NGO.***

6.4.3. Risk and compensation

Systematic risks

Consistent with the standard CAPM framework we consider that only systematic risks should be included in the ROR. This is an area of common agreement.

The questions that follow are: what are systematic risks and how should non-systematic risks be treated.

Systematic risks are the inherent risks in the sector that are correlated with general market risks; that is those risks driven by general economic trends, such as demand, cost pressures and financing costs. The 2013 ROR Guideline Review considered, based on reports by Frontier Economics[45] and Mackenzie and Partington[46] whether the systematic risks – and hence beta – varied between gas and electricity and between transmission and distribution and concluded that it did not. Given very small

[45] Frontier Economics – Draft rate of return guideline – Assessing risk when determining the appropriate rate of return report - July 2013

[46] M McKenzie and G Partington – Draft rate of return guideline - Risk, asset pricing models and the WACC report – June 2013

sample size for empirical studies of beta (see section on Beta), the issue would need to be considered on a conceptual rather than empirical basis.[47] We are not aware of new analysis that would provide convincing evidence to shift from the current position that it is not possible to positively distinguish the betas for these sectors.

Non-systematic risks

The principles in regard to non-systematic risks are comparatively simple but can be complex or difficult to implement. Because of this, and the concerns about information asymmetry, a high bar should be set for the inclusion of non-system risks.

In principle, a non-systematic risk should be reflected if it is asymmetric and significant. 'Asymmetric' means that the expected value of the risk is non-zero. The criterion of 'significant' is important because of:

- Concerns about the complexity and uncertainty of the estimates. We need to be sure the size of the risk justifies the effort.
- Concerns about information asymmetry. The NSP will most likely focus on identifying and proposing negative rather than positive risk. Inclusion of a larger number of non-systematic risks that are individually smaller may exacerbate this.

In some cases, the risk may be insurable or otherwise capable of being efficiently managed or reduced. If so, the insurance or risk management costs should be included in the opex but subject to rigorous review as a step change in costs. In other cases regulatory provisions – such as force majeure provisions – may already cover the risk, in which case a separate regulatory allowance is not required.

Where a risk is accepted as a non-systematic risk the regulator will need to make an assessment of the probable expected value of the risk and include this in cash flows. This requires an assessment of likelihood and consequence that may be quite complex. Furthermore, the focus should not only be on negative risk, but also positive risks. For example, if the evidence demonstrated that the expected value of the incentives under STPIS was positive due to the design and measurement criteria, there is a positive non-systematic risk that should be factored into forecast cash flows.[48]

Technology risks

An issue raised in the submissions has been whether some form of adjustment to the ROR is required for the increasing technological change (the shift to renewables and de-carbonisation) in the sector. The two questions to consider are: who bears the risk and is it a systematic risk.

First, the NSPs do not bear the technology risk at present – end-consumers do. Under the rules, once assets are included in the RAB they cannot be 'stranded' (i.e. optimised or reduced in value because they are no longer fully used or needed). Consumers bear the risk of the underutilised assets as the full costs of the assets must continue to be reflected in regulated revenues and prices.

Second, the technology risk identified is as much a result of changing community attitudes/aspirations and policies designed to reduce carbon emissions as technology changes.

[47] International empirical evidence on relative beta may be less relevant because of the importance of regulatory frameworks that affect risk in the sectors

[48] Although the better option may be to review the design of STPIS to ensure the expected value is zero.

These pressures – community aspirations and policies – are long term trends unrelated to economic cycles. To argue that there is a systematic component the networks would need to show that:

1. The changes in costs of other technologies and the policy and social pressures for decarbonisation are related to economic cycles; and
2. Most critically, that the likelihood of a rule change, to remove the protection of existing assets from stranding, changes with general economic conditions.

The networks have not made this case. It has been argued that investors are starting to price-in the possibility of a rule change. If so, it is not apparent in the most recent RAB multiples. If it is starting to be priced-in by investors, it has not been shown to be a systematic risk, so it would need to be considered as a non-systematic risk. To the extent that expectations of these risks are now affecting volatility of returns to shareholders pro-cyclically this would be reflected in the Beta. However, such effects seem likely to be very small, tenuous, and difficult to discern from the high level of statistical noise in beta estimates.

The question is then whether the AER should include an allowance for the expected value of this in the cash flows. CCP16 would argue that it should not.

1. As a matter of principle the AER should regulate under the existing rules rather than what they may be in future. Considering future rule changes would be highly speculative and could not be constrained to just this possible rule change.
2. The prospect of a rule change actually being made is highly uncertain. One of the strengths – for investors – of the current regime is the built-in barriers to rule change through the separation of powers between AER, AEMC, and the Ministerial Council, and the requirement for changes to be agreed between multiple governments
3. If there is to be compensation for the financial impacts of a policy change, that is a matter for consideration by governments at the time of the policy change, not by the regulator in anticipation of the policy change.

Investors and employees in many industries are substantially affected by changes in technology and economic trends but do not receive adjustment assistance. This is accepted as a normal part of change and growth. As Jaguar Consulting points out, there was no presumption of transitional assistance for the impacts of major microeconomic policy changes under National Competition Policy.[49] However, there are also precedents for the provision of adjustment assistance or compensation for policy changes.[50] The critical point is that the consideration of the case for compensation for policy changes is a decision for governments in making those policy changes not a

[49] Jaguar Consulting, Overview of Possible Transitional Strategy: Moving from a Tightly Restricted Supply Model to an Open Entry Model, Paper Prepared for the Victorian Taxi Industry Inquiry, October 2011.

[50] In Australia governments have provided assistance to primary industries such as the egg, dairy, fisheries and forestry sectors when they have been undergoing major structural change. The Commonwealth government has also provided transitional assistance to manufacturing industries such as the automotive, textile, clothing and footwear industries, which have faced increasing competitive pressure and declines in government protection. In many jurisdictions, such as New Zealand, South Australia, and various states in the USA, the taxi sector has been deregulated without assistance or compensation, despite substantial losses being suffered by existing taxi owners. In other cases assistance has been provided. The Northern Territory provided full compensation for the loss of value of existing licences whereas Ireland and Victoria provided a smaller level of assistance targeted on hardship cases was provided. The cases where no assistance was provided appear to greatly outnumber the cases where assistance was provided.

decision of the regulator that may anticipate not only the policy decision but also the government's decision on compensation.

Uncertainty and the exercise of judgement

The level of uncertainty in the setting of the ROR and the prospect that the allowed ROR will be less than, or exceed, investors required return will impact investor confidence. But investor confidence is not the end objective and should not be pursued at the expense of determining a ROR that is fair for both consumers and investors and the NEO/NGO.

There can at times be tension between these two objectives – providing greater certainty and setting the right ROR. In changing market conditions, an approach that is strictly codified and absolutely predictable may predictably yield the wrong answer. As noted above, using the example of the MRP, the exercise of judgement is required at the four-yearly review, and it is not possible to reduce this to a formula. AER's current approach provides certainty by structuring in a very transparent fashion the manner that discretion and judgement will be exercised. While the 2013 guideline introduced greater discretion in the setting of the ROR there is no evidence that it has adversely affected the investment climate and deterred investors. As noted in Chapter 5, RAB multiples have risen under the current guideline.

The AER has signalled that it will adopt an incremental approach to the review of the current guideline. Furthermore, the changes proposed by stakeholders, such as ourselves, are generally consistent with this incremental approach. Inclusion of profitability measures, as we have proposed, does not change the current approach but the information considered within it. Even if it were considered to marginally increase the discretion available to the AER, this will be offset by the removal of discretion within the four-year duration of the instrument and the strengthened engagement and review requirements at the four-yearly resets of the binding instrument.

In summary, the changes proposed are incremental changes within the existing framework and do not substantial affect the level of discretion – indeed within the four-year period the scope for discretion and judgement will be removed (except for the decision to reopen the binding instrument).

Responses to AER Questions

> 7. What risk should be compensated through the allowed rate of return objective? Should only systematic risk be compensated in the allowed return on equity? ***Only systematic risk should be compensated through the ROR. If there are significant asymmetric non-systematic risks (both positive and negative) these should, in principle, be estimated and included in expected cash flows.***
>
> 8. Is it likely the required compensation varies (materially) as between: gas and electricity networks; transmission and distribution segments; and price and revenue caps? ***The issue of the relative risk of gas and electricity networks and transmission and distribution networks was considered carefully in the 2013 review which concluded that no significant differences could be identified. As far as we are aware no new information has been presented that would suggest otherwise. In principle revenue caps should reduce systematic risk (relative to price caps). But the impact would have to be measured through simulation of cash flows rather than empirical beta estimates***

9. To what extent are emerging technologies and policy risks systematic? Should these risks be compensated through the allowed rate of return? ***The argument that technology and policy risks are systematic is tenuous and unproven. Indeed under the current rules, the consumer not the utility bears the policy risks. There are some examples (e.g. taxis) where compensation has been provided by the government ex post but compensation should not be provided ex ante for the uncertain possibility of a policy change by governments.***

10. What impacts investor confidence and how might this impact the exercise of discretion? ***The level of uncertainty in the setting of the ROR and the prospect that the allowed ROR will be less than, or exceed, investors required return will impact investor confidence. But investor confidence is not the end objective and should not be pursued at the expense of determining a ROR that is fair for both consumers and investors and the NEO/NGO. The changes proposed are incremental changes within the existing framework and do not substantial affect the level of discretion.***

11. How might compensable risk be measured (high level with detail on specific topics expected to be covered in specific topic discussions)? ***This is discussed in the section on beta.***

12. How should any changing risk profile faced by networks be taken into account in the regulatory framework? ***Only changes in systematic risk should be considered in the ROR. Both empirical and conceptual evidence on changing risk profiles can be considered when the binding instrument is reviewed each four years through the estimation of beta.***

13. Under what circumstances should a binding Rate of Return Guideline be re-opened? ***The provision for re-opening should be removed. See Section 3.***

7. Gearing

This chapter assesses the gearing assumption **for the purpose of setting the ROR, and does not pre-empt any views on gearing for the purpose of estimating tax expense.** As the AER's discussion paper notes, whether the gearing estimate used to calculate tax expenses could or should differ from the gearing estimate used to calculate the ROR is outside the scope of this review.

The gearing assumption has a relatively small effect on the ROR, and we do not consider that persuasive evidence has been presented to support a shift from the current benchmark of 60/40 and the approach to the estimation of this. The current approach is reasonable and consistent with commercial and regulatory practice in estimating the ROR.

Given the small number of NSPs for which data is available, the AER could consider:

- The gearing benchmarks used by other regulators to define a plausible range for the benchmark gearing; and
- Market value estimates for government-owned and non-listed entities could be used as cross-check, taking into account the limitations of the data.

However, primary weight should be placed on gearing for listed companies. The current approach to parent company debt and overseas ownership is appropriate, given the information limitations.

7.1. Questions posed by the AER

7.1.1. AER Issues Paper

Gearing is used for two purposes: in converting estimates of the equity beta from firms with different gearing to a common basis, and weighting the return on equity and cost of debt in calculating the Rate of Return. The AER currently uses a benchmark gearing ratio of 60% debt and 40% equity. In the Issues Paper, the AER explained that:

> Our current position is that an efficient provider of energy network services would use debt to finance 60 per cent of its capital, and would finance the remaining 40 per cent with equity. In the Issues Paper for the review AER explained that its "current position is based on benchmarking the actual gearing levels of businesses with a similar degree of risk to regulated Australian energy networks. We consider this benchmarking approach remains appropriate and, subject to compelling arguments to the contrary, we do not intend to conduct an extensive review into our approach to setting the benchmark level of gearing. However, we may re-consider the types of gearing measures that should be benchmarked – for example, whether market or book values should be used. We also propose to update our empirical estimates of the benchmark gearing level." (P19)

The Issues Paper posed the question: Is the current approach to setting the benchmark term and level of gearing appropriate?

7.1.2. AER papers for the concurrent evidence sessions

In the discussion paper on gearing prepared for the concurrent evidence sessions, the AER provided background on its approach on the benchmark gearing, the approach of other regulators, and updated information on actual gearing of the NSPs.

The paper summarised the AER's current approach as:

- "The estimation of a benchmark gearing ratio should, subject to practical data limitations, be consistent with the estimation of other rate of return parameters.
- We should consider gearing estimates based on both market and book values.
- Due to the limitations of calculating the market value of debt, the book value of debt is likely to be a valid proxy for the market value of debt.
- It is inappropriate to use net debt, as cash could be funded by debt and/or equity.
- The book value of loan notes should be removed from the book value of total debt.
- It is not clear whether or not adjusting for double leveraging is more representative of the level of gearing and, in the absence of further evidence, both will be considered.
- Gearing data of an annual frequency is likely to be sufficient, and an average of gearing outcomes over a period of time reduces the likelihood that any recent events may distort recorded gearing outcomes."[51]

The questions posed in the discussion paper were:

1. Should we use market, book, or RAB, values for determining the gearing level?
2. Is it preferable to directly use annual reports / financial statements as a source of data as opposed to relying on Bloomberg?
3. What timeframe should gearing be measured over?
4. What gearing comparators are appropriate? Is our current list appropriate?
5. Are our current approaches appropriate (e.g. use of market values, use of gross debt, inclusion of asset level debt when calculating the gearing of holding companies like Spark, and current treatment of loan notes)?
6. How should we treat the hybrid securities issued by AusNet Services?
7. In the absence of sufficient market data about gearing, how should the AER determine efficient gearing?
8. How should data relating to privately owned / non-listed entities debt be accounted for in calculating gearing? Should overseas ownership, and parent companies' financing acquisitions of network equity entirely from parent-company debt, be accounted for in determining gearing and how?
9. Is the relationship between equity beta and gearing a 'vicious/virtuous' feedback loop if gearing is based on market value/enterprise value of the entity?
10. Should the business obtain a rate of return on equity or on debt for retained earnings, revaluation values?
11. If a business has regulated and unregulated assets, how much of the debt should be assigned to each?
12. What do the current measures of gearing indicate over different time frames?

[51] AER, Gearing, Discussion Paper, Feb 2018, p 5

13. Is there sufficient relevant market data to determine an estimate for gearing for an efficient network business?

7.2. CCP16 initial position

In our earlier submission, we noted that the current benchmark of 60/40 gearing is a long-standing assumption that has been well accepted. We did not consider that there were strong grounds for changing the benchmark, and recommended that AER update and review the evidence on actual gearing of the NSPs.

7.3. Issues raised in Concurrent Evidence Sessions

The Expert Joint Report from the concurrent evidence sessions indicated broad agreement among the experts that:

1. The current approach resulted in a plausible benchmark gearing.
2. Market value of the firm should be used in measuring gearing rather than the RAB.
    a. Data from listed firms only should be used as data from unlisted firms would be hard to obtain, and gearing for government-owned businesses distorted.
    b. Professor Partington proposed that in principle the objective was to measure the debt-carrying capacity of the RAB, and acknowledged this was difficult to measure.
3. Gearing should be stable over time, and estimates of gearing should be averaged over the medium to long term.
    a. Variations in benchmark gearing have little impact on the Rate of Return (a 8% variation in gearing would change the Rate of Return by only 0.8%).
4. It is appropriate for the AER to look through holding company structures to estimate gearing
    a. Mr Sadeh considered that this is not appropriate. The interest in any one entity is typically part of a portfolio of investments and parent debt is not included in the credit ratings assessments.

The treatment of loan notes and hybrid instruments is a complex issue. Most agreed that stapled notes should be treated as equity and hybrid instruments allocated on the basis of their terms and conditions. However, Professor Partington argued that the allocation of loan notes should reflect the underlying nature of the instrument. He also observed that hybrid securities are allocated 50/50 by rating agencies.

7.4. CCP assessment

In this section, we assess the gearing assumption for the purpose of setting the rate of return. This assessment does not pre-empt CCP's views on gearing for the purpose of estimating tax expense. The gearing assumption has a comparatively small effect on the rate of return, but it can have a substantial effect on the estimation of tax expense. The AER's discussion paper on gearing foreshadows a review of the regulatory treatment of tax. It notes that whether the gearing estimate for calculation of tax expenses could or should differ from the gearing estimate used to calculate a weighted average cost of capital is outside the scope of the AER's current review of the Rate of Return Guideline.

7.4.1. Outcomes of current approach

The benchmark gearing assumption of 60:40 has been well-accepted to date, stable over time, and consistent with the practice of regulators overseas. Other regulators in Australia use a gearing ratio of 60:40 and the gearing assumptions of overseas regulators are generally in the range of 55:45 to 70:30.

Furthermore, changes in the gearing have a relatively small effect on the ROR. This is because as gearing rises so does the equity beta due to the greater concentration of risk on equity. Hence, a higher gearing does not necessarily result in a lower ROR as the benefit of greater use of lower-cost debt is offset by the higher cost of equity.

Given this, while the AER should update the underlying empirical analysis and review its approach, we do not expect, a priori, that the AER should change its approach.

7.4.2. Basis of calculation of gearing

The AER current considers gearing ratios calculated on both a market value basis and a book value basis. Due to the difficulties of obtaining estimates of the book value of the debt appears to be used in both cases. So the difference is only in the denominator for the calculation of gearing: market value or book value of the entity. The advantage of the market value is that it is forward looking and, assuming that the market value reflects future cash flows, the capacity of the business to bear debt. In theory market value is the better measure but financial practitioners use both methods.[52] Book value measures reflect historic asset values that may not be as good an indicator of future revenues but can be collected for a larger number of entities.

On balance, it is appropriate that, consistent with commercial practice, that the AER consider both market value and historic value.

Rating agencies use the ratio of debt to RAB in assessing credit ratings. This provides a conservative estimate of the debt carrying capacity of the regulated business since it excludes those factors (such as incentive payments, differences between the allowed tax and debt costs and the actual tax or debt expenses, and differences between the allowed ROE and requires ROE) that add to the value of the regulated business and its capacity to at least repay debt. Gearing relative to market or book value may be a better indicator of the capacity to repay debt and a return. To the extent that RAB multiples reflect an implied gap between allowed returns over required returns or tax allowances and actual tax expense, or asymmetries in expected payments under the incentive schemes, these should be addressed, respectively, in the allowance for the ROR and tax or the design of the incentive schemes (or the cash flows). If the RAB were to be used to calculate gearing:

1. It would not address these problems, as gearing only has a small effect on the ROR; and
2. For consistency, debt would need to be split into debt for the regulated and unregulated activities and adjustments made to the RAB for factors such as expected positive revenues from the incentive schemes for the benchmark entity, and the implied gap between allowed returns over required returns.

[52] "In its survey of European valuation experts Bancel and Mittoo observes less than half of the experts use the target market value gearing and a significant percentage use book value gearing (34%) and sector gearing (31%)", CCP Submission to the review of the Rate of Return Guideline, Nov 2018, p 34

In considering whether hybrid securities and notes should be treated as debt or equity the AER has sought to assess the underlying nature of the securities and risks borne. This approach is supported but as we are not fully aware of the terms and conditions of each security we cannot offer a view on the allocation of specific securities.

The AER has also used gross debt rather than net debt as cash reserves are required for the funding of short terms cash flows within the NSP.

7.4.3. Updated data on gearing

The AER has provided updated data on gearing for the listed NSPs (see table below). The key conclusions we have drawn from this are that:

1. If both gearings using market value and book value are considered, more weight should be given to the market value measure.
2. If the two measures of gearing are given equal weight, a case could be made to increase the gearing to 65%. However, given that it has a small impact on the ROR and the past stability of gearing assumption, there is merit in keeping the gearing assumption constant.

Table 2: Gearing of Network Service Providers for the period 2007-16

	ENV	APA	DUE	AST	SKI	Ave
Gearing - Market Value						
5-yr average	54	48	64	58	60	57
10-yr average	65	55	70	60	64	63
Gearing - Book Value						
5-yr average	73	66	74	64	69	69
10-yr average	79	67	76	62	75	72

Source: AER, Gearing Discussion Paper, February 2018

7.4.4. Expanding the comparator set

AER's current comparator set comprises only five NSPs. Such a small data set makes it difficult to identify trends with confidence. Given the small number of NSPs for which data is available, the AER should also consider the gearing benchmarks used by other regulators to define a plausible range for the benchmark gearing. Since other regulators have regard to the actual gearing of utilities of regulated businesses in their jurisdictions, this provides a meta-comparison with gearing of utilities in other jurisdictions. While gearing may be affected by country and sector specific factors, such as thin capitalisation rules, length of the regulator period, and the design of incentive mechanisms, the gearing assumptions used by other regulators in the sector can help establish a plausible range for the gearing benchmark.

Market value estimates for government-owned and non-listed entities would not be available but it may be possible to calculate gearing based on book values. This would expand the potential data set, and additional gearing ratios could be used as cross-check, taking into account the limitations of the data. But primary weight should be placed on gearing for listed companies.

Responses to AER questions

We consider that the AER's current approach is appropriate and provides plausible outcomes that are consistent with the benchmarks used by other regulators. Furthermore, as it has little impact on ROR, further detailed, complex analysis of gearing offers limited value in achieving the objective determining an efficient ROR in the long term interest of consumers and efficient NSPs. Many of the responses below follow directly from this assessment.

1. Should we use market, book, or RAB, values for determining the gearing level? ***The current approach is reasonable and pragmatic. The use of RAB values is problematic. For example, we have argued that the RAB multiples may partly reflect a difference between allowed ROR and investors' required ROR. It would be inconsistent to then base gearing on a measure of total debt to RAB.***

2. Is it preferable to directly use annual reports / financial statements as a source of data as opposed to relying on Bloomberg? ***No view expressed.***

3. What timeframe should gearing be measured over? ***Gearing should be measured over the long term and the benchmark based on observed levels of gearing over at least 5-10 years. The benchmark gearing would be expected to be relatively stable across multiple reviews.***

4. What gearing comparators are appropriate? Is our current list appropriate? ***Given the small number of NSPs for which data is available, the AER should also consider the gearing benchmarks used by other regulators to define a plausible range for the benchmark gearing. Since other regulators have regard to the actual gearing of utilities of regulated businesses in their jurisdictions, this provides a meta-comparison with gearing of utilities in other jurisdictions.***

5. Are our current approaches appropriate (e.g. use of market values, use of gross debt, inclusion of asset level debt when calculating the gearing of holding companies like Spark, and current treatment of loan notes)? ***We agree with the current approach. In regard to hybrid securities and loan notes the AER has sought to assess the underlying nature of the securities and risks borne.***

6. How should we treat the hybrid securities issued by AusNet Services? ***As with other loan notes the AER should examine the underlying nature of the security and risks borne to assess whether the extent to which they have the characteristic of equity or debt. We are not in a position to separately assess this.***

7. In the absence of sufficient market data about gearing, how should the AER determine efficient gearing? ***See response to Q4.***

8. How should data relating to privately owned / non-listed entities debt be accounted for in calculating gearing? Should overseas ownership, and parent companies' financing acquisitions of network equity entirely from parent-company debt, be accounted for in determining gearing and how? ***Market value estimates for government-owned and***

non-listed entities would not be available but it may be possible to calculate gearing based on book values. This could be used as cross-check, taking into account the limitations of the data. But primary weight should be placed on gearing for listed companies. The AER's current approach to the parent company debt and overseas ownership is appropriate given the information limitations, particularly in regard to overseas ownership.

9. Is the relationship between equity beta and gearing a 'vicious/virtuous' feedback loop if gearing is based on market value/enterprise value of the entity? ***There could be a feedback loop (lower gearing leading to a higher market value that then led to a lower gearing assumption) if a lower gearing led to a higher ROR. But the effect of gearing on the ROR is very small and any feedback loop would also be very small.***

10. Should the business obtain a rate of return on equity or on debt for retained earnings, revaluation values? ***The benchmark gearing is applied to the total RAB for the purposes of setting the overall ROR. It is not clear how this proposal could be implemented, but the concept of treating components of equity as debt appears inconsistent with accounting and economic principles.***

11. If a business has regulated and unregulated assets, how much of the debt should be assigned to each? ***In principle, the debt should be allocated on the basis of the debt carrying capacity of the two businesses. But the estimation of this may be problematic and given the relatively small impact of the gearing assumption on the ROR the more practical approach would be allocate debt based on gross revenues of the regulated and unregulated businesses***

12. What do the current measures of gearing indicate over different time frames? ***The gearing estimates provided by the AER indicate a trend towards lower gearing since the GFC. However, the data is still consistent with the current benchmark gearing***

13. Is there sufficient relevant market data to determine an estimate for gearing for an efficient network business? ***See response to Q4 and Q8.***

8. Financial performance measures

General financial performance measures can inform the overall judgement on the ROR, which will in turn be reflected in the values for the underlying parameters such as the MRP and beta, around which there is considerable uncertainty. While general performance measures do not provide direct evidence at the parameter level, they can inform the AER's exercise of judgement at both the aggregate and parameter level. CCP16 recommends that the AER should give greater consideration within its current framework to general financial performance measures. Current financial performance measures indicate that the allowed ROR has increasingly exceeded investors' required ROR, given the low level of risk for the sector.

RAB multiples provide information on expected returns that is directly relevant to the AER's task of determining a fair rate of return. While other factors affect RAB multiples, CCP16 considers that there are sound regulatory and commercial precedents for disaggregating the impacts of these factors. The implied ROE can then be used in a directional manner in setting the ROE and ROR. Lack of consideration of these measures increases the risk of setting a ROR that does not meet the requirements of the NEO / NGO.

8.1. Questions posed by the AER

8.1.1. AER Issues Paper

The Issues Paper posed the question:

> Should information on profitability, asset sales, financeability and any other financial information be used when assessing outcomes against the NEO and NGO, ARORO, and the related RPPs? If so, how?

Various stakeholders have previously submitted that information on profitability, asset sales and financeability provides a potential test of whether the allowed rate of return is too high or too low. However, the AER stated that it found it difficult to draw firm conclusions from this information. For instance:

- "Financeability refers to whether a business has sufficient cash flow to continue to finance its operations, service its debts, and maintain its credit rating. Issues of financeability may raise concerns with our benchmarks used in determining the allowed rate of return, such as the gearing ratio and credit rating. However, issues of financeability may also be driven by rigidity in standard credit metrics … [and] financeability analysis typically employs a range of assumptions and qualitative judgements which limits its usefulness.
- Regulated asset base (RAB) multiples from asset sales may indicate the appropriateness of the allowed rate of return. However, they may also be indicative of other elements of the firm's cash flows. … However, if RAB multiples significantly and persistently differ from one, it may be informative of the reasonableness of our overall rate of return estimates over time and in context of the overall building block allowances.
- It is possible to use financial statements to compare free cash flows to equity with the estimated cash flows to equity under the rate of return building block. However, differences in estimated

regulatory return on equity allowances and the return to equity holders from financial statements could be due to a range of factors."[53]

8.1.2. AER papers for the Concurrent Evidence Sessions

In its Discussion Paper on Financial Performance Measures (Feb 2018), the AER posed the following questions:

General financial performance measures

1. What is the available evidence to test whether or not the application of the current ROR guideline has delivered appropriate outcomes when tested against the NEO and NGO, from a consumer perspective, and what does that evidence suggest?

2. What do the currently available (as referred to in this discussion paper) financial performance measures indicate?

3. Can financial performance measures be used to better estimate parameter point estimates?

4. Can financial performance measures inform exercise of discretion?

RAB multiples

5. Are there any common views that can be agreed about the interpretation of RAB multiples and their potential role in network regulation?

6. What are the risks of having regard to RAB multiples in a 'directional' sense as the NZCC has done?

7. How significant are these risks?

8. What conclusions should we draw from the acquisitions and trading multiples set out in section 3.2?

Financeability

9. The evidence suggests that actual credit ratings for the regulated networks have been relatively stable over time, including a period spanning the GFC. What were the factors that contributed to this stability?

10. Are there any common views that can be agreed about potential use of financeability analysis in rate of return determination?

10a. If so, what approach would be recommended in estimating the metrics (notional or actual or other method?) and what benchmark values would be appropriate?

10b. What would be the risks to the AER and regulated networks in adopting financeability analysis in rate of return determination? How significant are the risks?

[53] AER Issues Paper, p16-17

Historical profitability analysis

11. Are there any common views that can be agreed about potential use of profitability analysis in rate of return methodology or rate of return determination? If so, what measures would be recommended and what benchmark values would be appropriate?

8.2. CCP initial position – response to the AER's Issues Paper

8.2.1. Role of profitability measures

CCP16 concluded that profitability measures can help address three questions central to considering whether the current approach has delivered reasonable outcomes for consumers and investors:

1. Are actual returns higher than allowed? If so why, and is a regulatory response required?
2. Are actual returns higher than in comparable businesses? If so why, and is a regulatory response required?
3. Is the allowed return higher that the investors' expectations? If so why, and is a response required. This question goes directly to how the AER sets the ROR.

While CCP16 supported consideration of profitability measures, it recognised that

1. All measures of profitability are likely to be imperfect in some ways and better suited for some purposes than others. Consequently, it will be necessary to consider a range of measures, with some being given more weight for some purposes, and less weight for other purposes.
2. Profitability measures can help inform decisions on the ROR, but cannot be used mechanically. Once the relative profitability is observed, it is important to ask why it is what it is. If higher profits that are a reflection of, and reward for, increased efficiency are in the long-term interests of consumers. However, higher profits may also signal opportunities to improve regulation. For example, comparatively high profits across multiple decisions and utilities may signal problems and biases in regulation.

A comparison of performance against different measures of profitability can also provide insights. For example, if across multiple decisions the EBIT/RAB ratio is comparable to the allowed Rate of Return but the return on equity is significantly above the ROE within the allowed ROR it may suggest either:

1. The tax allowed is higher than the actual tax paid;
2. Actual gearing levels are significantly different from the assumed level; and/or
3. Actual debt costs are significantly below the benchmark debt costs assumed.

8.2.2. Proposed measures of profitability

CCP16 submitted that the most relevant profitability measures for considering the ROR are RAB multiples. However, in assessing the performance of the regulatory regime, including the ROR allowed, the AER should also consider measures of past profitability such as EBIT/RAB measures, Return on Equity (especially in comparison to EBIT/RAB and the respective regulatory allowances). None of these measures is perfect, and each requires further analysis and interpretation to extract the most relevant information.

RAB multiples provide the most direct information available on the relativity of allowed and expected returns on capital or equity and are easily observed at the time of transactions. They are commonly used by other regulators and by investment advisors in examining transactions. Importantly the Market Value/RAB takes into account the investors' perceptions of the risk for cash flows from all sources, including technological change.

The weakness of RAB multiples is that further analysis is required to make the best use of the information on the relativity of expected and actual return. As such, it cannot be used in a mechanical manner.

8.2.3. The role of financeability analysis

Other regulators have made greater use of financeability tests than the AER. It is common practice among regulators in the UK,[54] and is also used by other regulators. Three key principles have been adopted in applying financeability tests:

1. It is a cross-check of the regulator's decision, not a driver of the decision.
2. The primary responsibility for addressing financing issues – including through equity injections - rests with the utility – as the utility is best placed to understand and manage these risks.
3. If a financeability adjustment is made, it must be transparent and revenue neutral.

These are important principles to ensure that financeability tests do not displace the current framework.

8.3. Issues raised in Concurrent Evidence Session

The Joint Expert Report summarised the discussion at the Concurrent Evidence Sessions as follows:

> "Profitability analysis was considered to provide information on reasons for under- or over-performance by networks rather than evidence on the ROR expected by investors. Financeability analysis was considered to provide evidence on the timing of cash flow rather than required returns, although another view was that it could provide a consistency check on the regulatory parameters. EV/RAB ratios can in theory be used to assess differences between expected and required returns, but experts noted that considerable analysis to adjust for a myriad of reasons for observed ratios would be required. There was a difference of opinion on this. Some thought it would be difficult to incorporate objectively into a ROR process while others considered that the information would be helpful to the AER in deliberations on the ROR."[55]

8.3.1. Profitability analysis

Most of the experts considered that while historical analysis of actual profitability could be undertaken, it would not provide useful information for setting the ROR. In their view the allowed ROR would reflect past financial conditions while actual profitability would reflect numerous factors not related to the determination of the ROR. However, Professor Johnstone considered historical

[54] See, for example, Ofgem and Ofwat, Financing Networks: A discussion paper, February 2006; Ofwat, Financeability and financing the asset base – a discussion paper, 2015; Ofgem, RIIO-GD1: Final Proposals - Finance and uncertainty supporting document, 2012; Joint Regulators Group (JRG), Cost of Capital and Financeability, March 2013

[55] AER Joint Expert Report, April 2018, p7.

returns can provide information on the reasonableness of the overall framework for setting revenues and within that the methodology for determining the ROR.

8.3.2. RAB multiples

There was agreement that RAB multiples contain information on expected returns, but disagreement on if and how RAB multiples can be used in determining the ROR. The experts' views divided along the lines of their sponsorship. Those sponsored by the networks industry associations or owners were of the view that it was too difficult to decompose the various sources of value to provide useable information for the regulation. The experts sponsored by AER and consumer groups disagreed with this. Professor Johnstone argued that the reasons presented for RAB multiples exceeding 1 were "an attempt to obscure how the market is extracting a share of these regulated income streams."[56]

8.3.3. Financeability analysis

Most of the experts considered that financeability analysis identified issues in the timing of revenues rather than providing information on whether the ROR was too high or low. However, Professor Gray suggested that it could also provide an internal consistency check on the revenue determination.

The experts concluded that should the regulatory determination result in an actual or threated downgrade, this could be addressed by the owner (e.g. lower dividends, equity injections) or the regulator (e.g. through adjustments to developments).

8.4. CCP assessment

As discussed in section 5 above, market evidence on the attractiveness of the sector for investors suggests that the current approach to the rate of return has more than met the requirements under the NEO and ARORO to provide the utility with the opportunity to earn a fair return. Indeed, most measures support the view that the allowed rate of return and tax expenses have exceeded the required returns and expected tax payments. Since 2013, investors have purchased assets at RAB multiples that have exceeded recognised benchmarks, and have been at levels that have caused other regulators, such as the NZ Commerce Commission, to conclude that allowed rates of return have exceeded expectations. Owners of existing networks have increased their equity exposure to the sector through rising RABs and declining gearing. Third parties such as investment analysts have commented favourably on the regulatory regime and investment climate, and rating agencies have increased ratings in response to the strong cash flows and the regulatory framework (including the AER's current Rate of Return Guideline).

Response to AER's questions

1. What is the available evidence to test whether or not the application of the current ROR guideline has delivered appropriate outcomes when tested against the NEO and NGO, from a consumer perspective, and what does that evidence suggest? ***The strongest evidence is in the actions of investors and the assessments of third parties. Since 2013 investors have purchased assets at RAB multiples that have exceeded recognised benchmarks and have been at levels that have caused other regulators, such as the NZ Commerce Commission, to conclude that allowed ROR have***

[56] AER Joint Expert Report, April 2018, p35-36

exceeded expectations. Owners of existing networks have increased their equity exposure to the sector through rising RABs and declining gearing. Third parties such as investment analysts have commented favourably on the regulatory regime and investment climate and rating agencies have increased ratings in response to the strong cash flows and

2. What do the currently available (as referred to in this discussion paper) financial performance measures indicate? ***As the answer to (1) indicates, current financial performance measures indicate that the allowed ROR has increasing exceeded investors' required ROR given the low level of risk for the sector.***

3. Can financial performance measures be used to better estimate parameter point estimates? ***General performance measures can inform the overall judgement on the ROR which will in turn be reflected in the values for the underlying parameters such as the MRP and beta around which there is considerable uncertainty. While general performance measures do not provide direct evidence at the parameter level they will inform the AER's exercise of judgement at both the aggregate and parameter level. The AER's current framework provides a structured approach within which this can be done. Our recommendation is that within this framework the AER should give greater consideration to general financial performance measures.***

4. Can financial performance measures inform exercise of discretion? ***Given the uncertainty and imprecision in the estimation of the ROR evidence general financial performance measures, weighted for the quality of the information provided, should be used to inform the AER's exercise of judgement in setting the ROR within the binding instrument. Not to do so increases the risk of continuing to set the ROR higher than needed or, perhaps in the future, set it too low.***

8.4.1. RAB multiples

The use of RAB multiples was a contentious topic at the Concurrent Evidence session. There are, some common elements of agreement:

1. The investors' required expected rate of return is an important factor in, if not the driver of, the determination of market values.
2. Market-to-RAB multiples ('RAB Multiples') contain information on investor expectations that is relevant to the regulator's consideration of the appropriate rate of return if the implied rate of return in the valuation can be uncovered.
3. RAB multiples will also reflect various other factors such as: expect outperformance against efficiency targets and other performance incentives; potential growth in unregulated income; differences in the market value and book value of debt; differences between the tax allowed by the regulator and expected tax payments.

The point of difference is whether:

1. Estimates of the other sources of value can be made so as to uncover a plausible range for the implied required return that can be compared with the regulator's allowed return; and/or
2. There is a range for RAB multiples such that if RAB multiples across a range of transactions are outside that range it is strong prima facie evidence that the allowed rate of return exceeds investors' required rate of return

In the Concurrent Evidence Session the experts sponsored by the networks and investors were of the view that this information content could not be 'uncovered' reliably. In contrast Professor Johnston argued that while the implied return cannot be estimated with precision it is reasonable to draw qualitative conclusions from very high values.

CCP16 broadly supports Professor Johnstone's position, which is consistent the previous submission of CCP16 and other CCP sub-panels. The research paper by Dr Biggar has also provided cautious support for consideration of RAB multiples in concluding:

> "Careful analysis may be able to isolate and adjust for the effect of these factors, "peeling away estimates of other sources of value". The resulting RAB multiple can be a useful sanity check on the operation of the regulatory regime. In particular, a RAB multiple close to one suggests that the investors in the firm expect to be adequately compensated in the future (whether or not the firm is delivering value-for-money to its customers overall). However a RAB multiple which is materially and persistently different from one should be the trigger for closer investigation, to explore the potential reasons and to quantify the other sources of value.
>
> Still, after peeling away estimates of other sources of value, the RAB multiple may remain materially different than one. A key question is whether or not a regulator can use information on RAB multiples in setting the cost of capital. Should information on the RAB multiple be used to adjust the regulatory-allowed cost of capital up or down?
>
> Doing so gives rise to a potential problem of circularity – the value of the firm would then depend on the regulator's actions, which would depend, in turn, on the value of the firm. However, the analysis in this paper suggests that this does not prevent the existence of an equilibrium in which the regulatory-allowed cost of capital is consistent with the RAB multiple and vice versa. **This analysis suggests that there is scope for the regulator to take into account RAB multiples (as one among a range of factors) when setting the regulatory-allowed cost of capital despite the circularity issue.**" (emphasis added)

This conclusion is broadly in line with our earlier submission that emphasised that it cannot be automatically assumed that a premium above or below the RAB value indicates that the allowed rate of return is above or below the investors required rate of return. Careful analysis is required and assumptions must be made, but the key point remains – RAB multiples can provide useful information that can be used in a qualitative manner. Using RAB values in a qualitative manner can help the regulator reach a reasoned, balanced judgement on the appropriateness of the ROR given the individual parameter estimates.

However, we would argue that the concerns in regard to circularity may be overstated. This would be a more significant concern if the decision on the ROR was specific to a utility and only had regard to the RAB multiple for that transaction. In practice, the decision applies across all utilities and has regard to a set of transactions. Hence the feedback from transaction values to the ROR is diluted.

As noted above in Section 3, several of the experts questioned whether there was, in principle, a role for 'cross-checks' of this kind in determining the ROR. In contrast, we consider that there is a clear and rational basis in decision-making for sense checks and that this is consistent with the AER's current framework. While it does not specify specific probability distributions (this would be false

precision) of a Bayesian approach to decision making it adopts the same principles with respect to the efficient use of all relevant, available information. As noted above, RAB multiples provide evidence on the range for the implied required return on equity and cost of debt that is directly relevant to the overall rate of return and within that the return on equity and debt. It is entirely appropriate that the AER should, within its current decision-making framework, assess the overall ROE for a given set of parameter assumptions against this check in a qualitative manner. If the overall ROE fails this qualitative test, the AER can then review its exercise of judgement at the parameter to take into account the information on the implied ROE from the RAB multiples. Not to do this would overstate the precision and certainty of the parameter estimates and understate the value of the information contained in the RAB multiples.

This is an exercise of judgement but:

1. The experts agreed that the setting of the ROR necessarily involved the exercise of judgement
2. The exercise of judgement may not be reduced to a formula but it can be expressed clearly and transparently against known criteria so that future changes in parameters due to the exercise of judgement are predictable.

This submission will not repeat in detail the points in CCP16's previous submission but in brief:

There are substantial regulatory precedents for the use of RAB multiples. Other regulators, including Ofwat, CAA, and the Commerce Commission of NZ, have regard to RAB multiples as a qualitative check.

1. The use of RAB multiples draws on accepted finance theory. Tobin's Q ratio which is the same concept applied to firms generally has been widely used in finance theory and practice in assessing firm value.
2. There is a substantial body of commercial precedent for the unbundling of value required to analyse RAB multiples. The CCP16 submission to the AER's Issues Paper cited examples by CEPA and Credit Suisse, and these are two of many. The analysis requires assumptions to be made and tested, but in essence is simply the reverse engineering of how bidders value the firm.

The Commerce Commission in New Zealand usefully summarised the way in which market valuations, or RAB multiples have been used in assessing the reasonableness of rates of return. This is reproduced in the box below.[57]

[57] Commerce Commission of NZ, *Amendment to the Rate of Return percentile for price-quality regulation for electricity lines services and gas pipeline services Reasons paper*, 2014, pp152-154.

"C17.1 The Chairman of Ofwat has referred to high RAB multiples for UK water utilities as evidence that the regulator's allowed WACC is too high noting that "the continuing trend for water companies to be sold for prices around 130% of RAV (regulated asset value) only suggests that the regulator's adopted cost of capital is too high and the premia reflect excess demand for these assets".

C17.2 In its February 2014 report on the split cost of capital, the Queensland Competition Authority referred to UK and Australian RAB multiples as evidence of above-normal returns.

C17.3 While the AER decided not to use RAB multiples to assess the reasonableness of its WACC parameters, the AER does monitor RAB multiples as part of a set of indicators to help inform it of potential areas of inquiry and research.

C17.4 In its 2013 advice to the UK Office of Water (Ofwat) on the approach to reviewing the appropriate returns for water companies, PwC noted that "the expectation for out-performance on regulatory assumptions can be gauged by looking at the market-to-asset ratio (MAR) of water industry companies…". PwC reports an average MAR in the UK water sector of 1.23 and concludes that "the relatively high MARs suggest that there have been consistent expectations of higher returns…". PwC lists three potential drivers of these expectations:

C17.4.1 outperformance that is attributable to unregulated business units which PwC comments is generally small;

C17.4.2 synergies available to the new entity that are not allowed for by the regulator; and

C17.4.3 allowed revenues being set at levels higher than finance providers require "suggesting operational targets were easy to outperform, and/or the WACC was set too high relative to the actual costs of financing".

C17.5 In 2014, Grant Samuel prepared an independent expert's report relating to APA Group's proposal to acquire the Australian gas distribution company Envestra. In this report, Grant Samuel commented that:

C17.5.1 "A common rule of thumb parameter used in the valuation of energy infrastructure assets is RAB multiples";

C17.5.2 "Theoretically, listed infrastructure entities should trade at, and assets should be acquired at, 1.0 times RAB. However, that does not occur and, in fact, most assets generally trade at a premium to RAB"; and

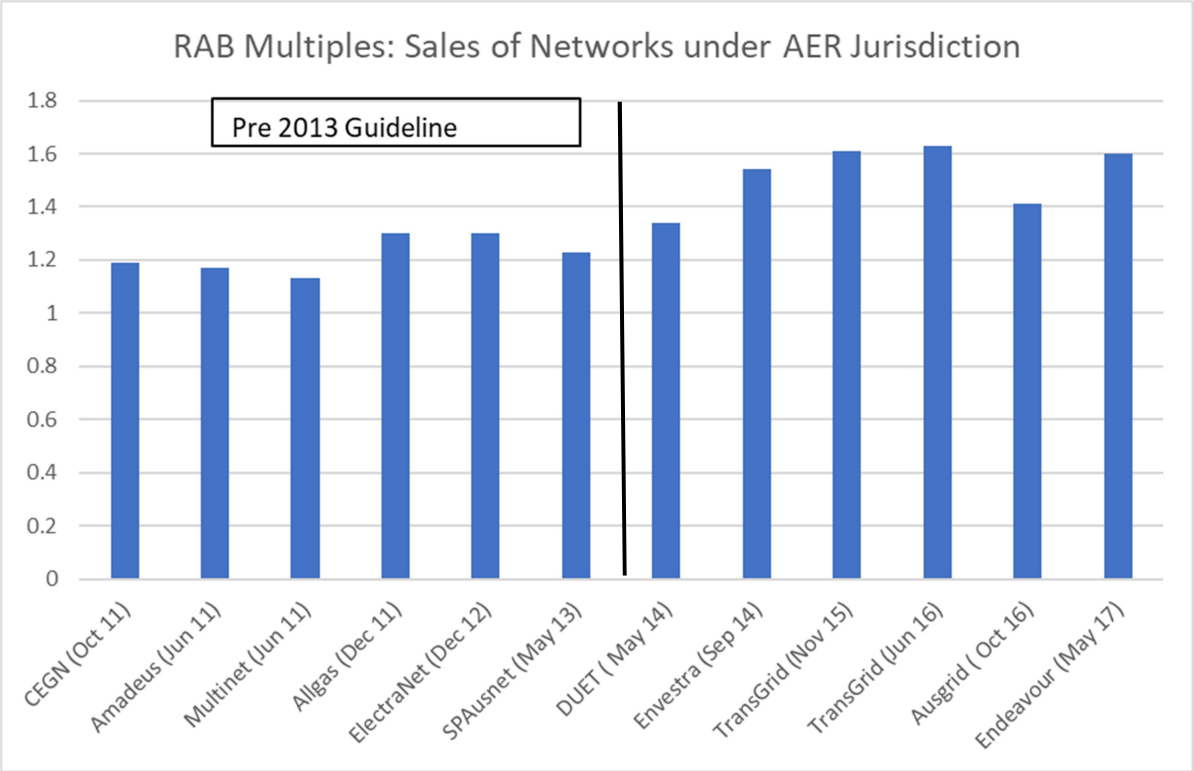
C17.5.3 "The precise reasons for this are uncertain but contributing factors probably include: expectations of volume growth above the levels used by regulators…; expectations of savings relative to the operating and capital costs assumed by regulators…; a cost of capital less than that assumed by the regulators…; growth options…; and profit streams from other businesses".

C17.6 In 2013, PwC published a report on regulated airports in the UK noting that "regulated airports are allowed to earn a return on their regulatory asset base (RAB). RAB is therefore a key valuation metric, and the market places significant emphasis on enterprise value to RAB multiples in assessing the value of regulated airports."

C17.7 In 2011, Deloitte published a paper in which it explored a number of valuation issues concerning regulated infrastructure assets. When describing factors that had led to Australian utilities trading at a premium to their RAB, Deloitte said: "the effective cost of capital borne by the asset owner may be lower than that assumed by the regulator due to either a cheaper cost of capital and/or greater leverage."

As Dr Biggar points out, there are widely accepted benchmarks for RAB values. He suggests a range of 0.9-1.3 might be considered. He also cited a pre-GFC survey of analysts which indicate that a RAB multiple up to 1.2 was regarded as normal by 60% of analysts, but multiples beyond that raised questions. With that background the graph below is striking. It shows the RAB multiples for asset sales (whole or part) of energy networks under the supervision of the AER. Prior to the 2013 ROR guideline RAB multiples averaged around 1.2. Since then, there has been an upward trend in the RAB multiples across six transactions over three years. While not proof, it is consistent with the view that the 2013 Guidelines' parameters erred on the high side and that while the parameters (other than the risk free rate) have remained constant the gap to expected returns has increased since 2013 as financial markets have continued to stabilise, albeit around lower long term growth prospects.

Figure 3: RAB multiples: sales of networks under AER jurisdiction



Source: AER, Financial Performance Measures Discussion Paper, Feb 2018, Table 2, p 14.

Response to AER's questions

5. Are there any common views that can be agreed about the interpretation of RAB multiples and their potential role in network regulation? ***It is accepted that RAB multiples contain forward-looking information on the required returns, but there are differing views on how this information can be uncovered and used. The experts sponsored by networks and their owners where of the view that it could not, in contrast to the views of Professor Johnstone, regulatory precedents, finance theory, and commercial practice. CCP16 view is that with careful analysis using widely accepted techniques the market value can be unbundled and relevant information on expected return obtained.***

6. What are the risks of having regard to RAB multiples in a 'directional' sense as the NZCC has done? ***If it is accepted that RAB multiples contain relevant information on the required return that can be uncovered, this is the wrong question to ask. The relevant question is "What are the risks of not having regard to RAB multiples? If regard is had to RAB multiples should it be directional or quantitative?" This is a general question of decision making under uncertainty and imperfect information. In principle, having regard to a broader range of data, duly weighted, reduces the risk of substantial errors. Hence, a reasoned and careful consideration of RAB multiples will reduce the risk of significant errors. In the current circumstances it would lead the AER to consider whether the ROR exceeds the required return and/or whether there are other sources of value such as a gap between the allowed tax and expected tax expense. However, RAB multiples due to the range of assumptions required and the difficulty in positively verifying those assumptions, RAB multiples should be used in a directional rather than quantitative manner.***

7. How significant are these risks? ***The current size of the RAB multiples suggests that the risk of error in regulatory decision-making is high if they are not considered.***

8. What conclusions should we draw from the acquisitions and trading multiples set out in section 3.2 ***The analysis by Credit Suisse of the TransGrid transactions suggests that even after allowing for the outperformance on the efficiency incentives, zero tax payments for the foreseeable future and growth in unregulated business there is an additional $1b (or around 15% of the RAB) in unaccounted value. The most likely remaining explanation for this is that the allowed ROR exceeds the required ROR.***

8.4.2. Financeability analysis

In our previous submission we highlighted other regulators, such as Ofgem, Ofwat and IPART had used financeability analysis as a cross-check on revenue determinations but we did not propose that AER use financeability analysis in determining the ROR. We continue to maintain that view financeability analysis should not be a direct input to the consideration of the ROR.

1. Where regulators have used financeability analysis it has been as a cross check of the overall determination rather than as a driver of the determination or a specific component of the revenue requirement such as the cost of capital
2. The high degree of certainty in the regulatory framework provides a strong financial underpinning for the NSPs that enables the long term financing of the business that will avoid the need for financeability adjustments.
3. Use of financeability analysis to determine the ROR would be incompatible with the NEL/NGL framework and the binding ROR instrument

Regulatory practice in the use of financeability analysis and adjustments was discussed in detail in our submission and will not be repeated here. However, a few key points will be reiterated.

In undertaking financeability analysis regulators use the rations and benchmarks used by rating agencies for ratings 1-2 steps above 'junk bond status. That is, the question is whether the allowed revenue stream will enable the utility to fund its operations at reasonable cost and certainty. The ratios used are well accepted, but ratings also depend on the qualitative evaluation of the business environment. For the regulated businesses, the quality of the regulatory framework is critical.

The AER's current regulatory framework is more than achieving this objective. As Table 4 (p32) of the AER discussion paper shows, the framework has delivered relative stable ratings at or above investment grade. Indeed, since the current ROR guideline was developed in 2013, six NSPs have had a rating upgrade, and five have remained the same.

As the experts agreed at the Concurrent Evidence session, the primary issues addressed by financeability tests are matters of timing. The building block model, properly applied, provides a revenue stream over the asset's life that matches the costs. However it is accepted mismatches between revenues and cash flows can arise due, for example, large waves of investment or the differences between cash flows for nominal and real debt. It is for this reason that regulators have:

1. Placed primary responsibility on the utility for managing cash flows across regulatory periods
2. Required that any financeability adjustment is NPV neutral.

Over time the level of risk and uncertainty in the current regulatory regime has fallen and/or is lower than in other comparable regimes. Key factors have been the protection from asset stranding, the adoption of revenue caps, better matching of allowed debt costs to actual debt costs, and now, the adoption of a binding rate of return instrument.

Finally, financeability assessments are specific to a utility. If a financeability issue arises it is likely to require a utility specific adjustment which is not possible within a framework that:

1. Requires NPV neutrality within each regulatory period
2. A common ROR determined in accordance with a binding instrument.

The only mechanism available would appear to be a depreciation adjustment. This would raise issues of inter-period equity, especially where the regulatory regime provides a sound foundation for the utility to manage its cash-flows across periods through financing strategies.

Response to AER's questions

9. The evidence suggests that actual credit ratings for the regulated networks have been relatively stable over time, including a period spanning the GFC. What were the factors that contributed to this stability? ***Over the period since 2013 the trend has been for the credit ratings of NSPs to improve, not simply remain stable. The certainty and cash flows provided by the regulatory regime and the ROR applied by the AER have probably been important contributing factors.***

10. Are there any common views that can be agreed about potential use of financeability analysis in rate of return determination? ***It is agreed it has a very limited role in determining the ROR.***

10a. If so, what approach would be recommended in estimating the metrics (notional or actual or other method?) and what benchmark values would be appropriate? ***N.a.***

10b. What would be the risks to the AER and regulated networks in adopting financeability analysis in rate of return determination? How significant are the risks? ***In theory application of financeability tests would reduce the risk for the NSPs. In practice, given the evidence of***

cash flows under current determinations and the upward drift in ratings the application of financeability tests would not impact decisions.

8.4.3. Historical profitability measures

Historical profitability measures can be used to assess whether:

1. Actual profitability has been lower or higher than the allowed ROR under the determination
2. Actual profitability for the regulated is comparatively higher or lower than that other comparable regulated and unregulated businesses.

As these measures are backward-looking, they provide limited direct guidance on expected returns. But comparisons of historical profitability measures can provide information on the performance of the regulatory system as a whole and the comparative level of profitability. This information cannot be used at the parameter level, but it can inform the overall exercise of judgement in setting the Rate of Return – or reviewing other elements of the regulatory regime.

In using historical profitability measures, it is important that:

1. The measures are comparable
2. Multiple measures of profitability are used
3. To go below the 'raw' numbers to uncover the reasons for the differences.

The AER noted in its Discussion Paper that it has commenced a project to identify and collect data on historical profitability measures. CCP16 welcomes this, but we understand that AER has concluded that the current data cannot provide comparable profitability measures over time or on a comparable basis to the profits reported by unregulated businesses. The latter is not surprising. Our submission and the separate CCP submission to the profitability measures review identified the many significance differences in reporting that made it difficult to compare the profits of the regulated and unregulated businesses.

The AER's review of profitability measures has highlighted difficulties in comparing actual returns and allowed returns on a comparable basis that will need to be addressed through information requests and strengthened uniform reporting requirements. This information is important for assessing the overall performance and internal consistency of the regulatory regime. Importantly, the variations over time in actual returns compared to allowed returns should, in principle, be symmetrical (that is the expected NPV should equal zero). That is, while some NSPs will 'outperform targets and achieve higher returns, others would be expected to under-perform against the targets with resulting lower returns. If not, the regulatory system would be violating the NPV-neutrality principle that Professor Partington stressed in the Concurrent Evidence sessions.

A persistent bias towards, for example, actual returns that exceed expected returns may reflect, for example:

1. Bias in the forecasts of efficient costs. This may occur in a variety of ways: soft assumption' on the frontier efficient costs and/or trend productivity growth, bias in the inclusion of step changes in costs towards inclusion of step-ups but not step-downs, and bias in assumptions of trends in unit costs.

2. Bias in the forecasts of capex. This may occur due to the similar factors that affect opex plus the additional difficulties and asymmetries in forecasting capex. Another factor is the asymmetry in response to changing events and information: it is easier to defer a project than bring projects forward resulting in a bias towards under spending
3. Biases in the service performance incentives. Service performance incentives are not necessarily designed to encourage improvements in services standards and generate additional revenue. The performance incentives balance the efficiency incentives so as to prevent a reduction in costs through a reduction in service standards valued by customers.

The question then is: if there is a bias, what should be done? It does not follow that a lower allowed ROR is the correct response. The first step is to try to minimise the root cause of the biases through, for example, stronger efficiency assumptions or recalibration of performance incentives and exclusions. If this cannot be achieved, the biases should in principle be considered an asymmetric non-systematic risk and incorporated in the cash flows (see Section 8 on the treatment of non-systematic risks).

In summary, comparisons of historical profitability measures can provided important information in regard to the operation of the overall regulatory framework, not just 'whether the ROR is too high or low'. This leads to the two further requirements: to extract the most information the regulator needs to identify the underlying reasons for the variation and compare profitability using multiple measures. For example, if across multiple decisions the EBIT/RAB ratio is comparable to the allowed weighted average cost of capital, but the return on equity is significantly above the ROE within the allowed Rate of Return, it may suggest that:

a) The tax allowed is higher than the actual tax paid;
b) Actual gearing levels are significantly different from the assumed level; and/or
c) Actual debt costs are significantly below the benchmark debt costs assumed? Lower actual debt costs could be because the utilities have better credit ratings than assumed, or because lenders perceive that regulated utilities have lower business risks that are not fully reflected in the ratings and are willing to lend at lower rates than the benchmark for comparable businesses.

Response to AER's questions

11. Are there any common views that can be agreed about potential use of profitability analysis in rate of return methodology or rate of return determination? If so, what measures would be recommended and what benchmark values would be appropriate? ***There are some common views. Historical profitability measures cannot be used directly in setting the parameter values and the overall ROR. But in contrast to the most of the experts at the concurrent evidence session, and in support of Professor Johnstone, we consider that sensible, nuanced comparison and analysis of historical profitability measures provides useful information on the overall performance of the regulatory system and the approach used to set the ROR in the past. The analysis should include multiple profitability measures covering the overall ROR and ROE, and subject to resolution of differences in accounting treatments, comparisons with comparable unregulated businesses.***

9. Estimating equity beta

CCP16 continues to support the AER's overall approach to estimating equity beta (beta) by establishing a range for beta based on an empirical analysis, then selecting a point estimate from within that range, taking account of other information. We also support the principle that there must be a high bar for changing the existing value of beta.

However, CCP16 has previously argued that the beta point estimate of 0.7 in the 2013 Guideline is overly conservative. Having reviewed the new information in the AER's Discussion Paper and the concurrent evidence sessions (CES), CCP16 remains of that view. Moreover, we consider that many of the AER's reasons for adopting a conservative estimate are no longer relevant. Therefore, the AER should reconsider its decision and adopt a value for beta below the existing estimate of 0.7 and closer to the empirical evidence on long-term equity beta. The reasons for CCP's conclusions include:

- The majority of the empirical estimates of the beta for both the individual and portfolio network firms sit around a median value of 0.5 to 0.6 (using the AER's 2017 analysis), and the Bloomberg *Utility* index also sits around a median value of 0.5 to 0.6.
- The analyses provided by Frontier and others that purport to establish a trend in the empirical equity beta are taken over too short a period to establish such a trend, particularly given:
    - The AER's regulatory WACC framework focuses on long-term average returns commensurate with the long life of the underlying assets.
    - The small number of firms in the group and the shorter time period mean it is difficult to identify statistically significant and long-lasting trends.
    - There is evidence of large swings in beta estimates on a year-to year basis.
    - The analysis by the AER (updated to April 2017) does not support this claim of an overall trend, there are significant individual differences.
    - There is evidence that individual firms (e.g. APA) have significantly changed their revenue sources and business plans towards higher risk energy investments.
- Neither the international data nor the data on Australian 'infrastructure stocks' make suitable comparator data for informing the point estimate of the differences between these stocks and the characteristics of the BEE.
- There is too much uncertainty around the empirical analysis of the Black CAPM theory for it to play a substantive role in the AER's decision, and is not generally applied by market practitioners or regulators
- "Disruptive technology" should not be a consideration in the assessment of systematic risk for the BEE; technology risk is an ongoing market wide issue and is incorporated in the observed MRP. Moreover, technology also offers benefits and opportunities (e.g. lower costs).

- While de-levering and re-levering individual company gearing ratios to the gearing assumptions for the BEE (60%) may be appropriate in principle, CCP16 questions whether the benefits outweigh the risks in practice, given that:
    - The actual gearing is relatively close to the BEE target of 60%; and
    - The actual leverage does not appear to affect the network' credit ratings (within a reasonable range of 60% to 75% leverage).
- There is no evidence in the financial data of the firms such as EBIT, CARG, gearing, credit ratings and RAB growth that would support an increase in equity beta.

Summary and recommendations

CCP16 proposes that the AER should reconsider its decision in the 2013 Guideline to apply an equity beta (beta) of 0.7. We recommend that the AER select a figure that is lower than that for the following reasons.

The AER should adopt a less conservative perspective when estimating the WACC parameters

While CCP16 accepts the general approach adopted by the AER of examining the empirical evidence and then selecting a point estimate within the range of the empirical analysis, we do not accept that the AER should select a figure at the top of the empirical range. CCP members have had doubts on this policy for some time. The analysis that CCP16 has presented at the start of this submission demonstrates that the AER should no longer err on the side of regulatory caution. The balance between investment risk and consumer price risk has shifted, as prices have risen and the market growth has stalled. CCP16 now strongly recommends that the AER adopt a more balanced view on each of the parameters including the equity beta.

Empirical estimates of equity beta and trends in beta

Empirical data has consistently supported over a considerable period of time an equity beta of below 0.7, with the median values observed centred on the values of 0.5 to 0.6. The AER has also concluded in its Discussion Paper that:[58]

> *On balance, when each of the above estimates is considered independently, two thirds of the above estimates are less than 0.6. In addition, the mean and median values of the estimated betas across scenarios, methods and portfolios are also less than 0.6.*

The AER also very usefully considered betas at a sector/industry level using Bloomberg's industry data. The *Utility i*ndex, which included the 3 remaining listed networks in the top 5, indicated an equity beta of around 0. 6.

CCP16 believes that the AER can no longer ignore the weight of evidence pointing to an equity beta of less than 0.7. However, we are aware of a range of other considerations for the AER and also posited by the networks and their consultants. Overall, CCP16 does not give much weight to these matters for the reasons summarised below.

[58] AER, *Equity Beta Discussion Paper*, March 2018, p 37

- **The theory of the Black CAPM/low beta bias**: CCP16 notes the theory and its derivation based on ex-post empirical assessment of actual outturns. However, this is not an unbiased estimate of ex-ante expectations. Moreover, there is significant variability in the proposed zero beta estimates, a variability that is consistent with the fact that neither the market nor regulators generally rely on the estimate. We do not, therefore, consider it is particularly suitable for estimating ex-ante the equity beta or for 'adjustment' to the empirical data.
- **Equity betas have increased in recent years**: CCP16 is particularly sceptical of this finding that is reported by the networks' consultants.
    - Five years is too short a period to detect a fundamental shift in the equity beta of a BEE
    - The AER's analysis of the industry betas suggest significant annual movements, an observation which supports the need to take, on balance longer term perspective, particularly given the small number of data points.
    - There is no other evidence available that supports the empirical analysis of an upward trend, such as a perception in the market that networks are increasingly risky and/or less protected by the regulatory shield.
    - A review of the individual network businesses that remain indicates that with such a small sample, changes in the individual networks revenue sources, capital structures and business plans can have significant influence on the estimates of the average beta and on the standard errors of these estimates.

Other Issues to be resolved

- The use of leverage to 'normalise' the gearing to the regulatory 60% raises many questions as indicated by the debate in the concurrent evidence session. CCP16 considers Partington and others have a good case to use the raw estimates of beta for the networks, although this raises other issues in the context of expanding the comparator set.
- CCP16 strongly supports the use of weekly and monthly data given the issues around limited trading and the volatility of the daily data. However, we do not support moving to annual data.
- It is essential that a long-term data series is used, as on balance and noting the risks of this, the task of the AER is to estimate ex-ante the long-term beta and to see through the ups and downs of annual data and short-term trends.
- Establishing a reasonable and acceptable comparator set to supplement the limited data now available on the networks is a formidable issue. CCP16 concludes that:
    - It is very difficult to effectively 'normalise' international data, and it should be used only for information.
    - The views of the investors' experts lead CCP16 to have concerns with the use of Australian infrastructure businesses given, inter alia, many are privately owned in complex structures.
    - There is value in considering the broader Bloomberg *Utilities I*ndex which includes but goes beyond the three remaining listed networks.
    - It is important to investigate the characteristics of any comparator firms as well as the changes in the structures of the existing network firms.

Recommendations

- The AER should select an equity beta below the existing beta, taking account of the substantial empirical evidence accumulated over some 8 to 10 years that the equity beta for the networks is around 0.6.

- The AER should investigate further the potential for the Bloomberg *Utility* Index to support its analysis of the equity beta for the BEE.
- The AER should undertake further investigation of the best approach to leverage (including using raw data rather than unlevered data), given the issues raised by Partington, and the issues that may arise if / when a larger comparator set is adopted.

9.1. Questions posed by the AER

9.1.1. The AER's Issues Paper

Q.8: Is the theory underlying the Black CAPM still appropriate for informing an equity beta point estimate? In its place, should alternative information to guide the selection of an equity beta point estimate?

9.1.2. Discussion Paper Equity Beta for CES2

Approach to date

1. Does the approach to date remain appropriate for estimating equity beta including the roles allocated to relevant materials? What does the current evidence indicate?
2. What are the limitations of the current evidence?
3. How should the AER consider technological changes as part of its conceptual analysis? Are technological changes systematic risk that should be compensated for through the equity beta or are they risks that can be diversified away?

Comparator firms

4. Does the current Australian empirical data used by the AER remain sufficient for informing the equity beta of benchmark efficient entity with a similar degree of risk as that which supplies regulated energy network services?
5. What weight should be given to data from de-listed firms when estimating equity beta?
6. If available Australian data is not considered sufficient, what might be done to augment this (use of international data, theory, etc)? Will this augmentation improve the estimation?

    a) What are the strengths and weaknesses of broadening comparator firms?
    b) Should the AER's broaden its comparator firms to include international energy firms and/or other Australian infrastructure firm? Please explain the additional firms' comparability with the benchmark efficient entity with a similar degree of risk as that which applies to a service provider in respect of the provision of regulated energy network services.
    c) What adjustments would be required to international energy firms and/or other Australian infrastructure firms to make them suitable comparators if we chose to consider their estimated betas?
    d) Should Australian industry/sectors betas be considered to determine the equity beta?
    e) If we include Australian industry/sectors betas, then how should they be considered to derive a point estimate?
    f) Could the AER use regulated cash flows as opposed to market returns to estimate beta for networks businesses?

Empirical methodology

7. What length data should be used to estimate beta given the current regulatory regime and application, empirical evidence and finance theory?
8. Do the AER's estimation periods remain appropriate?
9. When estimating gearing for firms with minority stakes in regulated energy networks, how should the AER arrive at an estimate that appropriate reflects the debt carried by the firma and its share of asset-level debt? Is the AER's look-through method appropriate for this adjustment?
10. Does it remain appropriate to use the look through method to adjust SKI's gearing estimate? Should the AER use 'borrowing' or liabilities' to make this adjustment?

Range and selection of point estimate

11. Does theory support relatively stable regulated network equity beta estimates (at a given gearing through time and over what time periods?
12. How do you pick a range and a point estimate? Do empirical studies around 'low beta bias' support an adjustment to beta estimates or imply judgement should be exercised differently?
13. Do empirical estimates of equity beta provided sufficient support to warrant departure from the current empirical range of 0.4 to 0.7?
14. Does the AER's current practice of selecting a point estimate from an empirical range remain appropriate?
15. Should the AER continue to regard the theory of the Black CAPM and the international beta estimates when estimating equity beta? How should the AER have regard to these materials?
16. What regard should be given to stakeholders' desire for certainty and stability?

9.2. CCP16's initial position

CCP16 provided a detailed response to the AER's Issues Paper. We concluded that the AER's current approach was fundamentally sound. However, the AER's final decision on the point estimate for beta (0.7) was selected at the top of the range of empirical observations of beta (0.4 – 0.7). CCP16 argued that this outcome was excessively conservative given the intrinsically low risks facing the regulated networks.

In coming to these conclusions, CCP16 agreed that that there was sufficient similarity in systematic risk across electricity and gas and distribution and transmission networks to adopt a single point estimate for beta. CCP16 also considered the role of the Black CAPM, whether the value for beta was increasing in recent years as proposed by Frontier and others, and whether other market data supported a change in systematic risk for the network businesses. .

What is the role of the Black CAPM?

CCP's first concern was that while the Black CAPM attempts to better explain actual returns outcomes ex-post. As stated in CCP16's response to the Issues Paper:[59]

> *Under the Black CAPM the risk-free rate [for the purposes of estimating beta] is the return on a zero-beta portfolio estimated from the actual returns on portfolios with low medium and high betas.*

[59] Ibid, p 92

However, explaining actual returns is conceptually different than estimating expected returns and it ignores the impact of various factors that result in a spread between expected and actual returns.

This is largely because there is no consensus on the ex-ante estimate of the zero beta premium. Analyses by CEG (2008), NERA (2013) and SFG (2015) report zero beta premium estimates ranging from 3.34% (SFG) to 19.95% (NERA).[60] As a result, it is possible to derive almost any value for the ROE ex ante, and this decision could be overly influenced by prior assumptions on the value of ROE.

CCP16 concluded, therefore, that the Black CAPM is not an unbiased estimator of expected returns and is not suitable for selecting either a range or point estimate of expected returns on the regulated networks. CCP16 also noted that neither the theory of the Black CAPM nor the associated estimates of the zero beta premium have been used by investment practitioners.

Has the equity beta increased in recent years?

Frontier and other advisors to the networks have stated that the empirical estimates of beta have increased in recent years. For example, they state that recent 5-year estimates of equity beta are higher than the 10-year estimates of beta. However, given the short time period, the small sample sizes and the large standard errors of the estimates, CCP16 was not convinced that this data provided sufficient evidence to change the equity beta, particularly in the context of the AER's approach to estimating WACC over a long-term period.

In addition, there was no other external evidence that would support a view that the systematic risks of the networks were increasing. To the contrary, there were many features of the post 2013 regulatory regime that would reduce systematic risk and enhance the predictability and resilience in cash flows and returns.

CCP16 concluded that the evidence to date was not sufficient to support an increase in the estimate of the equity beta compared to the existing conservative estimate of 0.7. CCP16's conclusions with respect to the AER's estimation of beta in the new instrument included recommendations that the AER should:[61]

- Be clear that there are merits in stability of the beta and a high burden of proof would be required to change the current beta;
- Give less weight to the Black CAPM given its limited use in practice and give greater weight to the practice of advisors and investment analysts; and
- Consider measures of RAB multiples, firm profitability and other firm/industry data when assessing the overall ROE and the decision on beta.

Following the AER's Discussion Paper and the CES2, CCP16 considers there is little reason to change our view on the limitations of the Black CAPM and assessment of the so-called trends in the equity beta. This position along with our conclusions on the relevant beta for an efficient firm providing regulated energy network services, will be explained further in section 9.4.

[60] CCP16, *Submission on rate of return Issues Paper*, 18 December 2017, pp 92-93
[61] Ibid, p 97

9.3. AER Discussion Paper and CES2

The summaries below do not cover all the issues raised in the Discussion Paper and in CES2. Only matters relevant to CCP16's assessment in section 9.4 are covered in the summaries.

9.3.1. AER Equity Beta Discussion Paper (March 2018)

As a prelude to CER2, the AER published a discussion paper on the estimation of the equity beta. The paper emphasises important matters of principle in assessing risk within the SL CAPM framework. CCP16 has carefully considered these in our assessment set out in section 9.4. In addition to the general principles of regulatory stability, transparency and certainty, they include:[62]

- Equity beta measures the standardised correlation between the returns on an individual risk asset or firm with that of the overall market.
- Risk arises from the possibility that actual returns will differ from expected returns; the greater the uncertainty around the returns, the greater the firm's level of risk.
- Investors do not require compensation for business specific risk; only systematic (non-diversifiable) risk is relevant to the assessment of risk.
- The relevant risks are the risks of a firm that is providing regulated energy network services.

The AER has undertaken both a conceptual analysis and empirical analysis of the equity beta, with the conceptual analysis of systematic risk indicating the risk is lower than the market average beta of 1.[63] The conceptual analysis provides a cross-check to the empirical analysis.

The AER noted the following outcomes of the various empirical analyses:[64]

- The analysis conducted by Allan Consulting Group in 2009, suggested a value for equity beta in the range of 0.41 to 0.68.
- The studies conducted by the AER's consultant, Professor Olan Henry in 2008, 2009 and 2014 all supported a range of 0.4 to 0.7.
- The AER's update of Henry's study, using the same methodology and including data up to April 2017 continued to support a range of 0.4 to 0.7.

The AER also concluded that the development of disruptive technologies is not part of systematic risk.[65] If the 'risk' is to be addressed, it is better addressed through adjustment of the cash flows, such as an increase in the regulatory depreciation allowance than through changes to the equity beta.

However, the AER also suggested that the theory of the 'low-beta bias' and international empirical estimates of beta do influence its decision on selecting a point estimate at the top of the observed range of values.[66] This does not extend to directly using international data in the estimate of beta.[67]

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[62] Ibid, p 7. Specifically the AER considers both business risk and financial risk. Business risk is assessed as low and while gearing is relatively high, the regulatory framework provides a 'buffer' due to the relatively more stable EBIT

[63] Ibid, p 21-22

[64] Ibid, p 15

[65] Ibid, p 24. The AER states that systematic risk include changes in GDP growth, inflation, currency, prices, commodity prices and real long term interest rates (p 7)

[66] ibid, pp 25-26

The AER's discussion paper also identifies practical decisions and challenges in determining the equity beta for this future Guideline. These include:

- The limited sample size available for analysis;
- The period over which observations are taken, and the frequency (daily, weekly, monthly);
- The regression methodology, in particular the decision to use ordinary least squares (OLS) or Absolute deviation (LAD) estimators;
- Whether the observed betas should be adjusted for 60% leverage, and if so, should the AER assume a zero asset beta and on what basis; and
- Adjustments to gearing for firms that hold minority interests in an asset (e.g. the 'look-through' methodology).

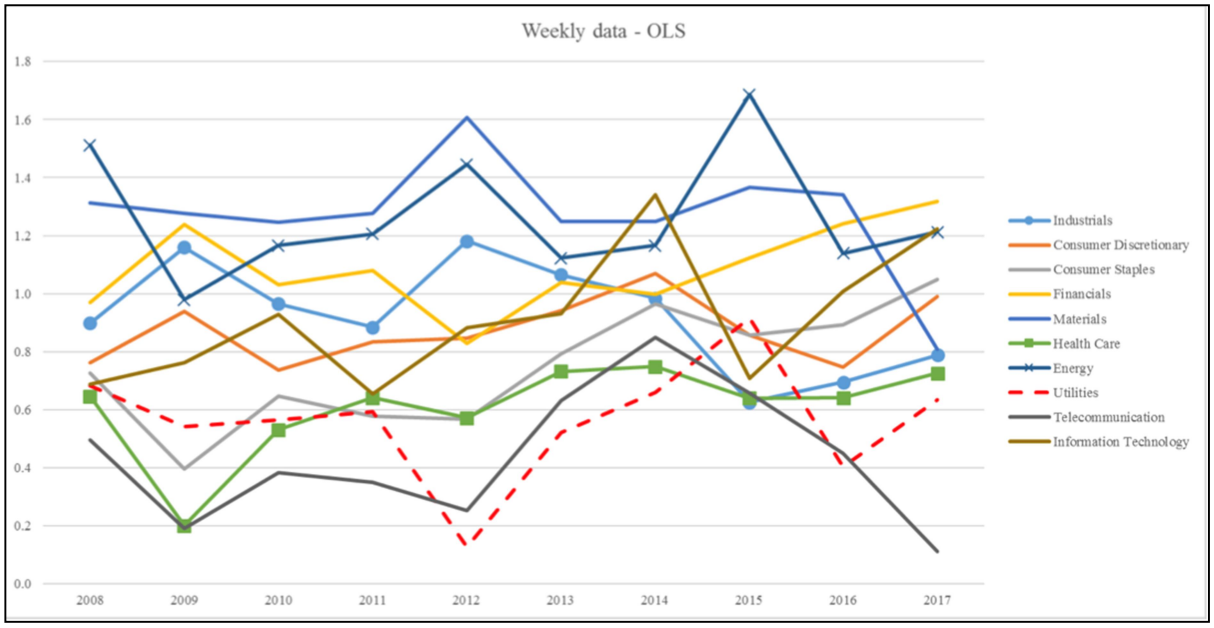
The AER's preferred approach is to rely on weekly observations over different time periods, using both OLS and LAD results (although OLS is preferred) for both individual firms and portfolio levels. An important extension of the AER's analysis beyond the immediate network industry data to include estimates of industry/sector level betas and tabulation of beta estimates from some sixteen different studies (although care must be taken in the regression permutations).

CCP16 particularly notes the following observations in the AER's Discussion Paper:

- For both the individual firm estimates and portfolio estimates for re-levered betas, the AER's analysis indicates that the majority (around two thirds) of beta observations are below 0.6.[68]
- No 'sensible evidence of thin trading, a structural break or parameter instability in the beta estimates from both individual firm and portfolio levels.[69]
- The majority of other empirical studies identified by the AER have a range of betas that sit below the AER's current estimate of 0.7 for individual firm averages (sixteen out of twenty studies).[70]
- Of eleven industry sectors examined by the AER, the Australian Utilities industry (that includes the listed networks) has some of the lowest equity beta scores (close to 0.6). This sector provides a reasonable comparator set for further investigation as it includes the listed networks.[71]
- Figure 4 below illustrates the observed equity betas for each of the industry sectors over the period 2008 -2017.[72]
    - The *Utility* beta shows many changes year on year, however, there is no evidence of a longer term trend.
    - In contrast, the betas for the *Material* and the *Energy* sectors are consistently above 1.

[67] Ibid, pp 30-31
[68] Ibid, pp 35- 37
[69] ibid, p 37
[70] ibid, p 45-46
[71] Ibid, p 38. The AER states that the Bloomberg utilities index includes the AER's comparator firms that remain listed (APA, AST and SKI)
[72] Figure 4 includes the results of the OLS regression using weekly data. The results reported for the LAD regression are very similar (see Ibid, Figure 2, p 42)

Figure 4: Australian industry beta, weekly data, OLS, 2008-2017 (AER analysis)



Source: AER, *Equity Beta Discussion Paper*, March 2018, Figure 1, p 41.

Finally, the AER discusses the series of reports submitted by Frontier[73] and CEG[74] over 2016-17. Both studies claim that the empirical estimate of equity beta for the networks has increased since 2014, justifying an increase in the equity beta above 0.7 in the new instrument. These results differ from the AER's updated 2017 study results. The AER suggests this may be because the studies did not adjust SKI's gearing levels appropriately and may have used different data sources.[75]

9.3.2. Concurrent Evidence Session 2 (CES2)

The experts in CES2 discussed beta in the context of previous discussions in CES1 on risk. Specific issues raised with respect to the equity beta in the SL CAPM included:

- Overall framework and methodological issues such as the role and method of re-leveraging equity beta to the regulatory gearing level for the BEE of 60% and the assumptions on debt beta;
- Selection of appropriate comparators, particularly given the decline in the number of relevant Australian comparators to three firms by 2018;
- Estimation details, such as the length of the data series for estimation and the volatility of estimates over time; and
- Interpretation of the empirical evidence, and the use of regulatory judgement to select a point estimate and consideration of the academic literature on low-beta stock bias.

Overall framework and methodological issues

Most experts agreed that the overall framework of using market data to estimate equity beta was appropriate, given the widespread use of the beta analysis and the lack of a viable alternative approach. With respect to the new instrument and the AER's preference for 'incremental change',

[73] For example, Frontier, *An equity beta estimate for Australian energy network businesses*, December 2016.
[74] For example, CEG, *Replication and extension of Henry's beta analysis*, September 2016.
[75] Ibid, p 47

Gray advised that the appropriate approach was to start with the existing beta (0.7) and consider what evidence is there for change.

However, there was disagreement among the experts regarding the more detailed features of the AER's approach, such as de-levering and re-levering of the observed relationships to the gearing for the BEE (60%).

The view of most experts agreed that all beta estimates must be estimated on the basis of a common gearing assumption of 60%. However, both Partington and Satchell disputed applying this approach in practice given their concerns with the leverage approach and the indication that the regulated entities were already sufficiently close to the BEE gearing. For instance, Satchell suggested that: "mixing good data with bad is always problematic".[76] With respect to the debt beta, there was dispute about if it was significant or not in assessing the equity beta. No suggestions were put forward on how debt beta might be measured or applied in the AER's decision on beta.

Johnstone highlighted the interplay between the AER's decision on the rate of return and the observed beta. While some other experts considered it might be a factor to be aware of, it was hard to quantify the impact of this circularity on an ex-ante basis.

Technology risk

The experts agreed that it was hard to quantify the impact of technology as part of the ex-ante decision-making as the risks are not fully understood. Nor can the risk be readily disaggregated into systematic and non-systematic risk. Given this, it was best to assume the market has priced this risk in and will be reflected in the beta over time. Sadeh, however, noted that the stock market as a whole may not have fully priced in the risk of new technology although it was difficult for this to be included in the current process.

Comparators

Given the declining number of listed network companies, and doubts about the relevance of one of the three companies (APA), experts generally considered it was appropriate for the AER to consider information from other international network service providers and domestic infrastructure firms. However, most experts recognised that there were significant issues with using such information to estimate the beta for the BEE and various adjustments would be needed for factors such as the need industry composition, different regulatory environments, currency differences and the extent to which use of this data introduces new biases into the estimation.

Sadeh, representing the investor community, considered that the AER should place less weight on these other comparators. Moreover, when considering the use of international comparators and domestic infrastructure businesses, Sadeh suggested less weight be given to the domestic infrastructure businesses because of their different characteristics and debt profiles.

Partington and Satchell were also cautious about the use of other comparator sets. Partington for instance, acknowledged the issue of the small sample size, but considered this was less of an issue given the relative stability of the beta estimates for the networks.[77] Both Partington and Satchell agreed that reducing the standard error of the estimate was not an end in itself and there was a

[76] See for instance, AER, *Expert Joint Report,* 21 April 2018, p 39.
[77] Ibid, p 43

trade-off between a large sample and the introduction of biases in the analysis. Overall, equity betas from distinct populations should not be mixed.[78]

The same issues arise in using industry and sector indices given that the risks may be different than those of the BEE. The experts generally agreed that beta estimates from other regulators are not particularly relevant, although it is useful to consider alternative methodologies and data sources.[79]

The experts also took different views on whether there should be different betas for transmission/distribution and gas/electricity. Most of the experts appeared to agree that there should be scope for different betas assuming the empirical evidence, and theory supports this. It was noted that the NZ Commerce Commission has allowed different betas. However, Partington highlights that there is no objective way of making such estimates and it would require the AER to exercise judgement in making its decisions.[80]

Estimation details

The most important issue facing the experts was the estimation period for beta. Longer periods (e.g. ten years) provide more statistically reliable results, while shorter periods (five years) may better identify any changes in beta. There was general agreement that longer periods were better on balance, if you could assume that beta was relatively constant. However it was appropriate to look at both periods and if consistent body of evidence across the relevant parameters of a trend then this should be investigated. Other experts, such as Hancock observed that the annual movements in beta are such that it is not clear if there has been a statistically significant change over the last five years.[81]

Regarding beta frequency, there is a question of whether longer periods are preferred over shorter periods. Longer periods reduce the issues arising from thin trading, shorter periods provide more data and may be better indicators of changes in risk. However, daily estimates are more variable and increase issues with thin trading. Overall, most of the experts' seem to agree that weekly or monthly estimates would be preferable, subject to applying statistical tests for thin trading. However, Wheatley suggested daily data should be used alongside weekly data, with adjustments and filters for thinly traded firms.[82]

A further issue related to whether the binding instrument should include a fixed equity beta value. There appears to be agreement that it was acceptable to fix the equity beta for the period of the Guideline but that should not lead to the assumption that beta is necessarily fixed over the long term.

Interpretation of evidence

The discussion here covered the process of selecting a point estimate, whether the equity beta has changed and how the Black CAPM/low beta bias might be considered in the estimation process.

There was strong criticism by Gray and others regarding the AER's current approach of establishing an initial range using a subset of evidence and then use a different subset of information to select a

[78] Ibid, p 44
[79] Ibid, p 45
[80] Ibid, p 49
[81] Ibid, p 50
[82] Ibid, p 50

point estimate from within the range – it was argued that this approach had no reasonable basis and was likely to lead to error. Nor could an independent expert readily replicate the results.

There were different views on whether equity beta has changed (increased) since 2013 and whether the theory of the Black CAPM should have a significant influence on the selection of the equity beta.

Some experts supported the view that the estimates of the three 'live' firms are materially higher than observed in 2013, and that the evidence from international studies and domestic infrastructure firms support an equity beta above 0.7. Partington, however, argued that there is no substantive statistical evidence for change, while Satchell considered the results were more to do with the 'problematic gearing' than any substantive change. Hancock also disagreed with the claim that the evidence supported a change in equity beta.[83]

Most of the experts who spoke on this issue supported the AER taking account of the Black CAPM in the estimation of beta. These experts pointed to the outcomes of a considerable body of finance research over decades and across national markets. Partington, however, argued that the Black CAPM should be disregarded in the regulatory setting because it was too subjective in its application. Satchell similarly pointed to the highly variable estimates of the value for the zero beta and therefore it should be disregarded in the regulatory context. Hancock also suggested that much of the evidence to support the Black CAPM comes from the US and the Australian studies showed much less of an effect.

To the extent that the low beta bias is accepted, the question remains as to how to incorporate this into the SL CAPM framework. Some of the experts suggested that an explicit adjustment to the 'best estimate' of beta was required to offset the downward bias. It was also suggested that any adjustment should be based on empirical evidence rather than the theory of the Black CAPM. Other experts argued that even if the theory is accepted (and that is not certain- there could be other explanations for the observations), it is not clear what the appropriate response is. Hancock argued that if the AER were to move away from the SL CAPM by introducing 'adjustments', then the AER would need to consider the whole model of the WACC to ensure a consistent framework for estimating WACC.

A final point of discussion was the question of if/how the AER should consider stakeholders' desire for stability. It was generally agreed that certainty and stability were important to investors and consumers alike and there was a cost for consumers if investors faced regulatory instability. However, Partington raised the question of how much wealth consumers are willing to surrender for this stability, while Hancock raised the question of what allowance in other WACC parameters should be given for stability as stability reduces investor risk.

9.4. CCP16's assessment

CCP16's response to the AER's Issues Paper provided a detailed exposition on the assessment of the equity beta for the BEE. Having considered the AER's Discussion Paper and the CES2, CCP16's views have not substantially changed. Therefore, in the first instance, we refer the AER to our detailed response to the AER's Issues Paper.

[83] For example, see summary in Ibid, p 52

The current assessment will therefore concentrate on the new evidence provided by the AER and the CES2. Our comments below are set out in line with the issues raised in the CES2, rather than explicitly addressing the individual questions raised in the AER's Discussion Paper.

Overall framework and methodological issues

CCP16 supports the AER's overall framework of estimating a range of equity beta based on empirical analysis and then selecting a point estimate within that range after taking account of other relevant information. We do not agree with Gray and others who consider that this approach is inconsistent and too restrictive. Rather, as agreed by the NSW Tribunal in 2016, the AER has adopted a reasonable approach to estimating beta.

Moreover, CCP16 considers it is important that the final point estimate of the equity beta does not sit outside a reasonable range of the empirical observations. It does not make objective sense to take a series of observations of the 'real world' and then make some adjustment to it such that the final figure sits outside the real world observations. The empirical observations must provide the anchor for the AER's estimation process.

With respect to the approach of de-levering and re-levering the observed beta, CCP16 accepts that this is a relatively standard practice to 'normalise' the equity beta for different gearing levels when comparing firms. However, there are reasons why this may not be appropriate for the current task:

- While most of the experts suggest that debt beta of the firms is small and the impact on the beta is close to zero. However, Partington suggested it might be significant (over 0.1), as did Hancock who also observed that the current leverage formula did not allow for inclusion of a debt beta.[84]
- Partington suggests calculating the values directly without leverage given the many practical issues he has observed with implementing the leverage process. [85]
- Satchell highlighted the complexity and multiplicity of the formulae, which raised further concerns about the de-levering/re-levering process.[86]
- The observed gearing of the networks is close to the allowed value for the BEE of 60%.

Overall, CCP16 sees some practical merit in the suggestion of Partington and Satchell that it is better in the current circumstances to rely on the raw beta estimates with known standard errors than to introduce further complexity. This may be acceptable while the observed gearing levels of the networks are reasonably close to the allowed gearing of 60%. However, this conclusion would need to be reconsidered if the AER were to expand the comparator set to other industries and to international estimates – although this too will complicate the leverage process. What is important, both now and in the future, is that there is transparency about the leverage process, the assumptions and the risks. Clear comparisons of both unlevered and levered betas are required.

CCP16 notes the comments from Johnstone that there is a risk of circularity in the parameter estimates. The AER's beta estimates influence the level of future revenue rather than its variability. Other aspects of the regulatory framework reduce revenue variability and it seems that the feedback from regulation to future estimates of beta occurs through this mechanism rather than the selection of the beta value. Further clarification of the nature of the feedback loop suggested could be sought

[84] ibid, p 40-41
[85] Ibid, p 39-40
[86] Ibid, p 40

from Johnstone. In the absence of this, it is difficult to know how to account for this in an ex-ante model. However, it is important that the AER consider this impact of regulatory changes in its analysis of beta and the overall return on equity.

Technology risks

CCP16's views accord with the views of many of the experts. We do not agree that technology risk is a major and/or increasing factor underpinning any changes in systematic risk that would impact significantly on the equity beta of the networks and suggestions that this might 'explain' the claim that betas have increased (or should increase in the future) are speculative at best.

Moreover, technology risk and obsolescence is an issue facing many industries in the Australian market and to the extent it is recognised, it would be reflected in the overall market risk premium rather than in the equity beta of a network providing regulated services.

In addition, the networks enjoy significant protections built into the regulatory framework that reduce the impact of technology changes, at least in the period covered by the new instrument. For example, the networks revenue and real returns are protected by the regulatory approach. Similarly, the value of the existing assets is protected by the annual CPI indexation of the regulated asset base. In addition, there are explicit rewards for outperformance of the AER's allowances, opportunities to pass through costs associated with significant unexpected events, protection against counterparty risks (such as the retailer of last resort scheme) and so on. If anything, therefore, the network businesses are less exposed to the financial implications of technology change and obsolescence than many industries in the ASX.

Comparators

CCP16 has acknowledged that the declining number of relevant network comparators is a significant issue. We have also highlighted the changing nature of these comparators. For example, for the financial year 2011, APA reports that approximately 45% of the Group's pro forma revenue came from assets subject to full regulation.[87] By 2017 this figure was down to 9.4%[88] due to APA's expansion into unregulated pipelines and other energy related businesses such as solar and wind farms.[89]

Notwithstanding this reduction in the sample size, CCP16 remains cautious about the inclusion of either international comparators or domestic infrastructure assets. As Partington said, it is not much point in expanding the data set if the new data is not particularly relevant to the BEE. We agree, and note that considerable difficulties facing the AER in 'normalising' international and domestic infrastructure equity betas to achieve better comparability with the BEE.

For example, CCP16 remains sceptical of the previous work by Gray and others to include and refine US utility data in the estimation of the equity beta for the BEE, including the extensive leveraging required. Moreover, it has not been made clear by Gray and others why they rely almost exclusively

[87] APA, *Replacement prospectus,* 17 August 2012, p 35. https://www.apa.com.au/investors/reports-and-presentations/?term=Prospectus&cat=0&year=2012

[88] APL, Financial results, year ended 30 June 2017, p 33. https://www.apa.com.au/globalassets/documents/annual-reports/2017-annual-reports/20170823-apa-fy17-results-presentation.pdf

[89] See for instance, Ibid, p 17. In 2016 APA announced $1.5B in growth projects that included solar and wind farms, other generators and gas processing plants.

on US data, given the known differences in regulation, capital structures and market structures. For instance, US networks are generally part of an integrated business that includes higher risk segments such as generation and retailing.

CCP16 also notes the comments by the investors' representative, Sadeh, that domestic infrastructure businesses are very poor comparators to include in the estimation of the equity beta for the BEE, because of their different approaches to debt, other funding arrangements and private ownership (among other things).

However, CCP16 considers that using industry/sector indices (as defined by Bloomberg) to improve the estimate of the equity beta for the BEE appears to have some potential and should certainly form part of the AER's considerations for the new instrument. Bloomberg provides 11 industry/sector specific indices including a *Utility* index. The *Utility* index includes the three remaining networks, and these represent 3 of the top 5 firms in the index.[90] However, the *Utility* index uses a sufficient number of firms to allow a reduction in the standard errors of the equity beta estimates and reduce reliance on the year-by-year variations in policies and actions of the individual businesses.

The results of the AER's analysis of the equity betas in the total *Utilities* industry index found: [91]

- The *Utilities* industry index is among the lowest risk of all Australian industries indices for the period 2008-2017, with estimates for this period ranging from 0.56 to 0.60, with 95% confidence intervals of 0.42 to 0.71 (weekly data, OLS) and 0.41 – 0.78 (weekly data, LAD).
- When each of the estimates is considered independently:
    - 80% of the observations are less than 0.7;
    - The mean values across years are less than 0.6; and
    - The median values across years range from 0.62 (LAD) to 0.58 (OLS).

The benefits of the expanded sample can be seen in the range of the 95% confidence level and the similarity in the equity beta estimates of the OLS and the LAD.

On this basis, CCP16 considers there is considerable benefit in the AER further pursuing the option to use the Bloomberg Utilities index as part of the information contributing to the estimation of the equity beta for the BEE.

Adopting different equity betas for different segments of the industry

A further question arises on whether the AER's new instrument should include separate betas for gas and electricity or distribution and transmission. The draft regulation indicates that only one parameter value should be included in the Guideline, so a decision to adopt separate betas (and therefore different return on equity) would require the AER to prepare a separate Guideline for each different beta estimate. This additional complexity, in turn, indicates that there should be a high bar to justify adopting separate betas for separate segments of the network industry.

In addition, there are the substantial issues around quantifying any differences in systematic risk in a reasonably objective and statistical fashion. It is true that the NZ Commerce Commission used different equity betas for gas and electricity. However, the Commerce Commission also used a

[90] AER, *Equity beta discussion paper,* March 2018, pp 37-38

[91] Ibid, p 38. The figures are rounded in the discussion above to two decimal places. More detailed results are included in the AER's paper.

substantial sample of international data enabling it to assess different industry segments with some degree of statistical reliability. Absent this, CCP16 agrees with Partington that it would be very difficult for the AER to justify assigning a separate equity beta to different sectors of the industry. It would be even more difficulty to quantify this difference.

Estimation Details

Length of the estimation period:

There is clearly an argument for using shorter estimation periods to determine the range or point estimate of the equity beta, particularly if there is a reason to hypothesise that equity beta is not stable over time and it is possible to define ex-ante the factors that might result in such a change.

Moreover, regulators such as the ERA use a five-year period for estimation of the MRP and the equity beta. However, it should be noted that the ERA also uses five-year yield curves to estimate the risk free rate and the commercial bond rate, rather than the AER's ten-year yield curve. The proposal to use a shorter period for beta would be inconsistent with the overall approach by the AER.

CCP16's position is that, on balance, the AER should place most weight on the longer period analysis of the equity beta, albeit there are changes in the industry composition over time. CCP16 therefore, is inclined to support the views of Partington, Satchell and Hancock. We also note the following:

- The longer time frame is consistent with the AER's estimation of all other parameters in the WACC model based on values that reflect expectations of return over the life of the assets, rather than short-term movements.
- The advice from the investors' expert was that investors in these types of assets, like the AER, take a long-term perspective on expected returns and are not particularly swayed by shorter-term investment cycles.
- The sample of comparators is relatively small (even using the *Utility* index as suggested above), and as a result, it is important to maximise the number of observations. Older observations may have some issues but on balance these are probably less than the issues arising from undue 'horizontal' expansion of the comparator group.
- While there may be some changes over time, in general the network industry is a fairly stable industry with stable cash flows and indexed RAB, and it could be expected on these grounds that equity beta is also relatively stable over time.
- The AER's Discussion Paper illustrates that the estimates of beta are relatively volatile year on year; a longer time frame is better able to reflect the underlying systematic risk of the BEE than a shorter time. Figure 4 above illustrates the volatility of the annual estimates since 2008 and the risks therefore of shorter-term estimates.
- Frontier, CEG and other expert reports that identify an increase in the empirical beta since 2013 do not therefore provide convincing evidence of a structural shift relevant to the BEE. The AER's own analysis does not support these conclusions, and the variability of annual data as seen in Figure 4 above at the sector level, suggests that little can be made of the so called 'structural shifts'.

Sampling periods & estimation frequency

CCP16 supports the use of weekly and monthly periods in estimating the equity beta. While it appears that 'thin trading' is not an issue for the three remaining businesses, a large comparator

sample may face this risk. In addition, daily data is volatile and creates noise in the estimates rather than information. We do not support using annual interval data, particularly given small sample size.

Interpretation of Evidence – trends in the estimation of equity beta

As highlighted in the AER's Discussion Paper, and reiterated in CES2, Frontier and others claim that the examination of recent data on the network firms indicates an increase in the equity beta with a structural break around 2013-2014. No reasons were provided to explain this change.

CCP16 has previously stated that it is sceptical of these results given they arise in a comparatively short period of time and that longer periods are required to assess this. In addition, we could find no reason in other data sources why this should change so quickly. The AER also noted that it did not find these arguments for a structural break convincing and its own analysis did not support such an outcome across the board. The AER provided the following summary table in the Discussion Paper, using 3 scenarios, the third of which covered the most recent five years of data up to 30 April 2017.[92]

Table 3: Summary of re-levered beta at the individual firm level

Firm	AAN	AGL	APA	DUE	ENV	GAS	HDF	SKI	AST
Scenario 1									
OLS	0.83	0.69	0.72	0.34	0.37	0.35	1.30	0.39	0.40
LAD	0.64	0.71	0.73	0.27	0.32	0.28	0.77	0.44	0.52
Scenario 2									
OLS	0.95	0.71	0.79	0.38	0.36	0.35	0.93	0.41	0.56
LAD	0.69	0.51	0.73	0.30	0.30	0.28	0.71	0.55	0.57
Scenario 3									
OLS			0.93	0.31				0.48	0.79
LAD			0.94	0.39				0.54	0.79

Source: the AER's analysis

Source: AER, *Equity Beta Discussion Paper*, March 2018, Table 3, p 35.

The AER has not provided estimates of the standard errors, and the assessment that follows is ultimately subject to that information.

However, subject to that important limitation, it is reasonable to conclude that DUET and SKI showed little change in the observed equity beta under all scenarios. APA's results indicated that there might be a change in the last five years in the systematic risk for APA as indicated by Scenario 3. This result is not, however, surprising given the substantial change in APA's revenue sources and business plans as highlighted above. Indeed, it would be surprising if moving more into the *energy* sector would not increase the equity beta of APA given the considerably higher average beta of that sector compared to the *utility* sector (see Figure 4).

The only remaining result is for AusNet Services (AST), which also shows in increase in the equity beta in Scenario 3. This outcome is difficult to explain on the basis of fundamentals of the company. In any case, one instance is not sufficient evidence compared to the overall picture to support a

[92] The 3 scenarios included (1) the longest possible period of data for the benchmark sample of 9 Australian energy utility firms (2) the longest possible data after the tech boom (3 July 1998 to 30 October 2001) and excluding the GFC (5 September 2008 to 30 October 2009) and (3) the most recent 5 years of data. See AER *Discussion Paper*, March 2018, p 34.

change in the equity beta for the BEE as suggested by Frontier and others. CCP16 agrees with the AER on this issue.

Moreover, the AER's Discussion Paper also presents results on a portfolio basis. The AER concludes that there is no significant trend observable and the results cluster around a 0.6.[93]

CCP16 concludes from this analysis that:

- No reasonable statement can be made about either structural breaks or trends that are relevant to the estimation of equity beta for the BEE.
- The annual data is variable and equity beta should be considered over a longer period in the context of the AER's overall framework.
- Over the longer term, beta remains relatively stable which provides some comfort that the historical data can be used, albeit with some caution.
- There is value in looking further into the changing behaviour/structures of the listed network firms as this is potentially distorting estimates of the equity beta.

The other claims for a higher equity beta relate to views that the AER should give more credence to the Black CAPM. This is discussed below.

Interpretation of Evidence - Use of the Black CAPM/low beta bias

NSPs and their consultants have also stated that a higher beta could be supported by consideration of the Black CAPM and the perceived low beta bias. The two issues are conceptually different although the Black CAPM came out of a study that identified an apparent low beta bias.

The Black CAPM replaces the risk free interest rate with an estimate of the return on a 'zero-beta portfolio' of securities. This relaxes the assumption in the SL CAPM of unlimited access to debt financing but replaces it with an assumption that investors can enter into unconstrained short-selling to construct the zero-beta portfolio – an assumption that is equally impractical.

The effect of the Black CAPM is to increase the risk free rate and hence the ROE for low beta stocks. The key issue is that estimates of the return on the zero-beta portfolio are uncertain and unstable. Houston Kemp has previously estimated the RFR under the Black CAPM at levels almost equivalent to the MRP, making beta estimates essentially irrelevant.[94]

To date the AER has considered the theoretical implications of the Black CAPM in a directional sense but has not considered the empirical estimates.[95] It concluded that:

> *The empirical implementation of the Black CAPM is unreliable because:*
>
> - *In contrast to the risk-free rate, the return on the zero beta asset is unobservable.*
> - *Methods for estimating the zero-beta asset are unreliable.*

[93] Ibid, pp 36-37.
[94] Due to the small margin between the average market return and RFR, which mean the beta can have very little impact on the ROE.
[95] AER, *Explanatory Statement, Rate of Return Guideline*, Dec 2013, p85

- *We consider NERA's 2012 submission to us illustrated the unreliability of the Black CAPM. This presented estimates of a Black CAPM that implied a negative MRP.*[96]

- *There is little evidence that other regulators, academics or market practitioners use the Black CAPM to estimate the return on equity.*[97] *In particular, regulators rarely have recourse to the Black CAPM.* [98]

- *Using a conservative estimate of beta in the SLCAPM can accommodate potential issues that arise from not estimating the Black CAPM.*[99],[100]

No persuasive evidence has been produced that CCP16 is aware of that would substantially alter these conclusions. Hence, we consider that the AER current approach to consideration remains sound. However, it should be recognised that the range of estimates for the beta is broad and the impact of the Black CAPM uncertain. To date AER has chosen a beta at the top end of the range however it is open to the AER, while still considering the theoretical implications of the Black CAPM to set the beta below the top of the range. As noted earlier we consider that the AER should consider profitability measures such as RAB multiples in exercising its judgement at the parameter and overall return level. This would support a beta below the current level of 0.7.

Whether there is a low beta bias or not is an empirical rather than a theoretical issue. To date the AER has placed more weight on the theoretical implications of the Black CAPM but the evidence on low beta bias should be critically reviewed. CCP16 does not wish to suggest that there is robust empirical evidence of a low beta bias but if there were the AER would need to consider how this information should be incorporated in its exercise of judgement and whether it is also already considered through the Black CAPM or needs to be considered separately.

[96] NERA, *The Black CAPM: A report for APA Group, Envestra, Multinet and SP AusNet*, March 2012. For a response to this submission, see McKenzie and Partington*, Review of NERA report on the Black CAPM*, 24 August 2012.

[97] See, AER, *Explanatory statement to the rate of return guideline (appendices)*, 17 December 2013, p. 17; AER, *Final decision: Envestra access arrangement*, June 2011, p. 40; Handley, *Advice on the return on equity*, 16 October 2014, p. 12. As part of reviewing the material, service providers submit in support of their claims, we examined 32 valuation (expert) reports completed in 2013 and 2014 — none of which used the Black CAPM. NERA now appears to have accepted that the Black CAPM is not a well-accepted model adopted by market practitioners. See NERA, The Fama-French Three-Factor Model A report for the Energy Networks Association, October 2013, p. 41; NERA, *Return on Capital of a Regulated Electricity Network: A report for Ashurst*, May 2014, p. 92.

[98] A recent study examined regulatory practices in 21 countries and did not point to any uses of the Black CAPM. See Schaeffler, S., and Weber, C., 'The cost of equity of network operators - empirical evidence and regulatory practice', *Competition and Regulation in network industries*, Vol. 14(2), 2013, p. 386.

[99] Handley found, 'The AER's choice in using the Black CAPM to inform the beta estimate, using the DGM to inform the MRP estimate and not using the Fama-French model is also appropriate and reasonable' in *Advice on the return on equity*, 16 October 2014, p. 5. McKenzie and Partington advised the theory underpinning the Black CAPM does not necessarily support an uplift to beta. McKenzie and Partington advised, 'the theory of the Black CAPM may have a role to play in choosing the equity beta, although exactly how is still not clear to us' in *Report to the AER part A: Return on equity*, October 2014, p. 24.

[100] AER, Ausgrid final decision 2015–19, Attachment 3: Rate of return, p264-5

10. Assessment of the Market Risk Premium (MRP)

CCP16 recommends that the AER adopt a value for the MRP that is no higher than 6%. Our recommendation is based on the following:

CCP16 supports the overall approach that the AER has adopted to estimating the MRP, including the use of the historic excess returns (HER) as an 'anchor' to its assessment. However, we have some concerns regarding the role of the DGM as currently represented.

Historically the AER has adopted a value of 6%, and only adjusted this to 6.5% in the 2013 Guideline in response to concerns expressed by the networks regarding the impact of the GFC.

While historic excess returns (HER) serve as an anchor to the AER's decision on the MRP, the AER has paid insufficient heed to the analysis of HER based on geometric averages despite its view that the MRP should sit between the arithmetic and geometric averages:

- It is relevant that the geometric average represents cumulative returns as this is closer to the expectations of investors as indicated by the investor expert at CES2.
- Arithmetic means are particularly susceptible to volatility in the annual returns and both DImson et al and Damodaran have clearly demonstrated that annual returns are highly volatile.

The evidence provided by the networks' advisors that the MRP is increasing, depends on a particular interpretation of the DGM and its inputs and should not be relied on by the AER:

- Other DGM analyses (e.g. Damodaran and Fenebris) provide different outcomes, and do not show such an increase.
- The evidence from the HER is if anything indicating a slow decline in the MRP.
- The stated increase in the MRP is inconsistent with information provided by surveys, the contingent variables and financial data including the financial stability reports of the RBA.

CCP16 does not entirely dismiss the possibility that the DGM may provide some useful information. This is subject to the AER assessing the outputs of the DGM against pre-specified criteria such as stability over time and consistency with other independent measures such as the contingency variables.

- The recent work by Damodaran et al and Fenebris that is cited in the AER's discussion paper point to a somewhat different approach to the DGM using 10-year bonds and a variable growth rate.
- This approach appears to satisfy better the criteria set out by CCP16 and others, and we encourage the AER to further investigate this alternative approach.

Overall, the HER indicate a point estimate for the MRP in the range of 5 to 5.5%. While the various DGMs point to a higher value than this, the results should be treated with caution, particularly as currently presented. CCP16 considers that the AER's point estimate should not exceed 6%.

Summary and recommendations

Having considered the AER's Discussion Paper on the MRP, and the material in the concurrent evidence sessions (particularly the second session (CES2), CCP16 concludes that the AER should on balance adopt a point estimate for the MRP that does not exceed 6%, for the reasons set out below.

While this represents a change from the 2013 Guideline value of 6.5%, the estimate better reflects the current market conditions and a better balance of risk between investors and consumers. Moreover, it does not – and should not - represent a significant change, as historically the AER has adopted 6% for most of its decisions prior to 2014 and is consistent with market expectations as revealed by survey evidence.

The reasons for CCP16's conclusions are summarised below and explained in more detail in section 10.4. CCP16 also refers the AER to our original submission on the AER's Issues Paper, which contains considerably more detail on the estimation of the MRP. The discussion below largely concerns new evidence from the AER and explanations from the concurrent evidence sessions.

Overall decision framework

CCP16 supports the AER's overall approach of anchoring its decision on the MRP using the historical excess returns (HER) data while considering a range of other relevant information in determining the point estimate of the MRP. We do not accept the argument by some experts that the AER needs to place explicit quantitative weights on how each source of evidence.

Nor does CCP16 agree with the view that there should be some predefined weighting of the alternative, and competing propositions that the MRP is stable over time, or that the ROE is stable over time. Again, judgement is required and the AER's hands should not be tied.

However, CCP16 also contends that the AER should place more weight on the contingent variables, surveys and related financial measures. These variables serve a three–fold purpose. They provide direct evidence on the markets' expectations of the MRP and any changes that might be occurring in these expectations. In particular, they also assist in the assessment of the outputs of the Dividend Growth Models (DGM), which can be quite volatile and vulnerable to prior expectations of the modeller.

Historical Excess Returns – how should these be assessed?

As noted, the AER correctly anchors the estimation of the MRP in the HER outcomes. However, there are important methodological issues that must be resolved as part of this analysis. They include:

- **Use of geometric and arithmetic averaging**: CCP16 contends that the AER has not placed adequate reliance on the outputs of the geometric average nor critically assessed the problems in the arithmetic average given the volatility of the annual Australian equity market returns of 17.7% that Dimson, Marsh and Staunton (2015) report (Dimson et al, 2015). The arithmetic average is not, as claimed, an unbiased estimate. A preferable weighting of the two measures would lead to an HER of between 5 – 5.5%.
- **The length of the estimation period**: CCP16 contends that the estimation period should at least be 50 years, and would prefer the estimates commencing from 1938.
- **Trends in the HER estimates of the HER**: CCP16 considers there is some evidence of a downward trend in the MRP since at least the 1970s based on the work of Dimson et al (2015) and Bianchi,

Drew and Walk (2015). Such a trend would be consistent with improved liquidity, stricter governance requirements and expansion of risk tools.

Dividend Growth Models

While recognising that the DGM has a 'solid theoretical base' and has value in certain circumstances, CCP16 remains concerned about the reliance of the DGM in the context of an ex-ante regulatory decision. We noted the following concerns that were not, in our view, resolved in the concurrent evidence sessions. They are:

- Sensitivity of the estimates to the assumptions ;
- Volatility and variability of the estimates between different versions of the DGM;
- Short to medium term volatility of the implied long-term ROE estimates; and
- Apparent frequent inconsistency between short to medium term changes in the implied long-term ROE estimate and market fundamentals.

The DGM also assumes that markets are efficient and stocks are valued at a point in time on the rationale assessment of the NPRV of expected cash flows. The evidence suggests, however, that investors tend to over-react to news, a part explanation of why the outputs are so volatile.

Trends in the estimation of the MRP from HER and DGM approaches

As noted above, the HER approach indicates if anything that over the last 5 decades, the MRP has slowly declined reflecting the relative stabilisation of financial and economic indicators. In contrast, the proponents of the DGM having a greater role in the MRP decision point to an increase in the DGM outputs from 2013 from around 7.5% to some 9.5%.

CCP16 considers that these reported results from the DGM reinforce the concerns with the DGM. It is difficult to conceive why a relatively stable parameter such as the MRP would change by some 2% points in the course of 3 years. Moreover, such a significant change would also be paralleled in changes to other financial and economic variables. Yet no evidence of this is submitted, nor can CCP16 find such evidence. To the contrary, volatility and other measures have been very stable or improved over the period.

The AER's updated analysis of the MRP also does not support an upward trend in the DGM, with a range of 6.15 – 8.55% and a central value of 7.5%, much as it found in 2013. Nor do we see upward trends in the data provided by experts such as Damodaran and Fenebris. Indeed, Fenebris reports a decline in the MRP for Australian equity markets since 2013 to 2.58% (December 2017)

CCP16 has also noted the AER's recent analysis of the DGM using a moving growth rate linked to the 10-year Government bond rates. CCP16 considers this approach is worth investigating further as it produces more stable DGM outputs, consistent with other market indicators while minimising the impact of volatility in the risk free rate on DGM outputs.

Recommendations:

1. The AER adopt a value for the MRP of 6% consistent with the appropriate assessment of the HER and recognition of the AER's recent work on the DGM and the findings of Damodaran and of Fenebris.

2. The AER undertake further investigation into how it uses geometric and arithmetic averages given the volatility of the annual returns identified by Dimson et al.
3. The AER further investigate the option of using a moving growth rate to estimating the DGM, taking into account how this might be incorporated into the fixed Guideline.

10.1. AER questions

(a) AER Issues Paper, October 2017

> Q. 7: Would a more prescriptive approach to setting the equity risk premium be appropriate. If it is appropriate, what set of conditions for reopening the Guideline would best achieve the NEO and NGO and the allowed rate of return objective.[101]
>
> Q. 9: What is the appropriate role of dividend growth models (DGMs) in setting the allowed return on equity? Is it appropriate to limit the review of the imputation credits to updating the empirical analysis? Are there particular issues we should take into account when updating the empirical analysis?

(b) AER Discussion paper: Market risk premium, risk free rate averaging period and automatic application of the rate of return, March 2018

MRP – General

1. What are the determinants of market returns?
2. How can required market returns be estimated and what information is available and likely to be useful for this task? Does this indicate change?
3. How should we use the available evidence to select an MRP point estimate?

MRP – Historical Excess Returns (HERs)

4. Does the Geometric Average Historical Return have a part to play in determining the point estimate of MRP?
5. Should HERs be the main method of estimation of the MRP?

MRP – Dividend Growth Models

6. Is the DGM a useful model when directly estimating a forward-looking MRP? What are its strengths and weaknesses?
7. To what extent are investor's return expectations likely to be relatively constant (in real or nominal terms)? Has there been a change in evidence regarding the potential negative correlation between the risk free rate and the MRP?
8. Should the AER be considering alternative specifications of the DGM
9. Should the DGM, and in particular the growth rate, be adjusted from its current construction/estimates? How should the growth rate (or rates) be estimated?

MRP – Other estimation Methods

10. What role should other information (e.g. the Wright approach, survey evidence) play in estimating the MRP?

[101] The equity risk premium is a function of the MRP and the equity beta. The draft legislation published in March 2018 removes reference to the allowed rate of return objective.

11. Should any of the 'other' MRP estimation methods listed above play a significant role in the estimation of a potentially fixed MRP under the proposed binding rate of return instrument?

10.2. CCP16 submission to the AER Issues Paper

CCP16 supported the overall approach adopted by the AER in estimating the MRP. However, CCP16 also recommended that the AER broaden the range of information for assessing all the components of the ROR (including the MRP and the equity beta). We also encouraged the AER to consider the reasonableness of the overall ROR decision including an assessment of the outcomes of its decisions against other criteria such as the range of 'profitability' measures currently under review by the AER.

CCP16's considered that the AER's current methodology has resulted in a ROR that was higher than necessary to meet the requirements of the NEO, NGO and the ARORO. [102] This outcome reflected the AER's conservative approach to assessing each of the ROR parameters, which in turn reflected its view on the balance or risks between underinvestment and costs to consumers.

In looking at the AER's decision on the MRP, CCP16 emphasised the importance of taking a long term perspective, based on observing the MRP over a significant period of time. While there may be trends in the MRP over time, it was important to avoid over-reaction to short term events.

CCP16's view was summarised as follows:[103]

> *The long-term average for the MRP may provide an anchor for current expectations for the MRP in future periods, but, as the AER's consultants have previously advised, the MRP can vary from this (up or down). This is most likely during periods of abnormal economic conditions.*

Overall, CCP16 advised the AER to use the outputs of the historical excess returns (HER) as the 'anchor' for its decisions on the MRP within the framework of a binding rate of return guideline. Other information also had a role including the DGM outputs, surveys and contingency variables.

In this context, CCP16 considered there were limitations in using the DGM model(s) The DGM models are sensitive to the model specifications, the input assumptions and short term fluctuations in sentiment. While we acknowledged that the DGM potentially contained some relevant information, the problem facing the AER was to 'sort out the signal from the noise.'[104]

CCP16 concluded that, the weight given to the DGM could not be specified in advance but must be considered in the light of evidence from other market indicators prior to finalisation of the Guideline. CCP16 provided a set of criteria, which the AER might refer to in assessing the weight it might give to the DGM in its final decision.

For example, the evidence from the conditioning variables was inconsistent with the claim by some experts that based on the DGM modelling the MRP had increased since 2013. This implies that investors were seeing risks increasing across the equity market. However, the contingency variables provided no support for such an assumption. Rather, measures such as the P/E ratios and the

[102] Ibid, p 81
[103] Ibid, p 81
[104] Ibid, p 98

volatility index indicated increasing confidence by investors in the market. CCP16 therefore concluded that:

> *Specifically, weight may be given to the DGM estimates where there is consistency between these estimates and the index of investment climate/uncertainty proposed above. But less weight – or no weight – should be given to changes that are contrary to investment fundamentals.*[105]
>
> …
>
> *The weight that can be placed on the DGM results cannot be fixed in advance but would depend on the:*
>
> 1. *extent to which the results are consistent between different versions of the DGM*
> 2. *extent to which the results are not transitory but have been sustained for a period, and*
> 3. *consistency of the results with the conditioning variables and other indicators.* [106]

CCP16 was also aware of the limitations of the HER approach, particularly in the face of significant 'black swan' events in the market that could not readily be modelled ex-ante. CCP16 therefore suggested that some form of a 'safety valve' mechanism might be required in the binding Guideline although it would also need to guard against responding to what are shorter-term perturbations in market expectations.

10.3. AER Discussion Paper and CES2

The summaries of the AER's Discussion paper and the CES2 that are included in this section are not intended to be comprehensive. CCP16 has focused only on those elements that are relatively new and/or have relevance to the issues included in our assessment of the outcomes of the expert sessions.

10.3.1. AER Discussion Paper on the MRP Risk Free Rate

As a prelude to the relevant concurrent evidence session, the AER published a discussion paper[107] on the MRP, the risk free averaging period and the automatic application of the rate of return.

The discussion below is focused on the MRP component of the AER's Discussion Paper.

Background to the AER's MRP discussion

The 2013 Guideline determined a MRP of 6.5%, which the AER has retained in all its subsequent decisions. The AER's discussion paper emphasises that the AER's role is to establish an MRP for a future time period of 10 years:[108]

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[105] Ibid, p 98.
[106] Ibid, p 107.
[107] AER, *MRP, Risk Free Rate Averaging Period and Automatic Application Discussion Paper,* March 2018. (AER, *MRP Discussion Paper).*
[108] Ibid, pp 7-8.

Our role is to estimate an MRP for a future time period, in order to set the allowed rate of return. The forward-looking MRP is estimated over a terms period of 10 years.

The main methods for estimating the MRP used by the AER have been the HER and the DGM. The underlying assumption of the HER is that historic average of returns above the risk free rate are a reasonable proxy for future returns (in the long run). The DGM in contrast uses forecasts, current market variables and predictions to estimate future returns.

The AER is concerned to explore what weight to give to each of these methodologies as well as to other factors such as conditioning variables and survey data and what if any relationships exist between the MRP and other variables, particularly the risk-free rate. More specific questions concern the detail of how the HER and DGM might be assessed in the context of the SL-CAPM framework, the 10-year measurement horizon and a 4-year fixed rate of return Guideline.

To assist stakeholders, the Discussion Paper also provides some important updates to the MRP estimates for the HER and for the DGM. The summary below focuses on the new information as this new information is relevant to CCP16's evolving views on various MRP issues.

Historical excess returns

The AER's Discussion Paper provides a summary of the observed HER for different time periods, including updating the data to 2017. The table below suggests that:

- the geometric HER averages are consistently lower than the arithmetic average
- the data sets beginning 1937 may be more reasonable to rely on than the longest data sets.

Table 4: AER Update of the MRP averages from the HER analysis

Table 2 Updated MRP averages

Sampling period	Arithmetic average	Geometric average
1883–2017	6.2	4.9
1937–2017	5.9	4.1
1958–2017	6.4	4.1
1980–2017	6.3	4.1
1988–2017	5.8	4.3
2000–2017	5.7	4.0

Source: AER, *MRP Risk Free Rate Averaging Period and Automatic Application Discussion Paper*, March 2018, p 14.

With respect to the question of geometric or arithmetic averages, the AER states that it considers both averages are relevant. However, in the AER's 2013 Guideline it a range of MRP values that were higher than the top value of the geometric average (4.9% in the table above). While this matter has been a subject of some dispute (both for and against the use of geometric averages), the AER proposes revisiting its approach to the geometric average results. The AER states:[109]

[109] Ibid, p 15. For example, the AER cites Damodoran's view in support of using a geometric average.

In reviewing the evidence for the 2018 guideline review, we have identified various pieces of academic literature which state the geometric average is useful in estimating a forward looking MRP. The mathematics involved with the two methods suggests that with low current volatility the geometric average is likely to compensate an allowed return more fairly. Other academics stated that when considering a multi-year MRP (our current approach is to estimate a 10 year forward looking MRP) a geometric average should be given weight to provide an accurate estimate. This is due to the compounding nature of the geometric average.

CCP16 discusses this issue in our response to the CES2, and the move by some experts to dismiss the averaging approach as no longer an issue, as they claim that only arithmetic averages were relevant.

The AER also noted in the Discussion Paper that there were different views on what data time periods should be used in order to obtain the best estimate of the HER MRP. Some advisors to the networks considered it should be the longest series possible (without overlaps), while others such as Partington argued that shorter periods would be more relevant, but consideration should be given to the statistical issues. There was agreement that overlapping historical periods did create issues for the HER assessment and the AER should be more transparent about those issues.

Dividend Growth Models

The AER's Discussion Paper provides a table of DGM outcomes using a two and a three stage DGM and 3 forecasts of the long-term growth rate (3.78%, 4.6% and 5.1%). It also demonstrates the sensitivity of the DGM output to variations in analyst forecasts (+10% and -10%) and to differing averaging periods for the analysts' forecasts.[110] The expected range for the MRP across these different model formats and input variables was 6.15% to 8.66% (as at December 2017).[111] The AER notes that while the DGM has many different potential constructions and mathematical functions, there has been no submission challenging the AER's construction of the DGM.

A key question in developing the point estimate for the DGM is to determine the growth to apply to future dividends. The AER to date has adopted Lally's recommendations based on an adjusted forecast of nominal GDP growth rate and resulting in a central dividend growth rate forecast of of 4.6%. Table 5 below updates the estimates of DGM growth rates and illustrates the variation in approaches as captured by the Damodaran result in Table 5.

[110] See Ibid, Table 3, p 18.

[111] Ibid, For the two-stage model, the range was 6.15% to 8.66%, for the three stage model, the range was 6.21% to 8.55%, with the central value of circa 7.44% (based on unadjusted analyst forecasts for growth rate of 4.6% and 12 month average to the end of December 2017.

Table 5: Updated growth rate assumptions in the DGM

Table 4 DGM Growth Rate Comparisons

	December 2013	December 2017
AER – Chosen Growth Rate	4.6%	4.6%
Damodaran	4.24%	2.58%
AER – Top Sensitivity	5.1%	5.1%
AER – Lower Sensitivity	3.86%	3.86%
IPART	5.5%	5.5%

Source: AER, MRP Risk Free Rate, Averaging period and Automatic Application, Discussion Paper, March 2018, Table 4 page 20.

The AER was also concerned that in some of the DGM models, there was a very strong negative correlation between the risk free rate and the MRP outputs from the DGM. This indicated that the MRP results could largely be explained by movements in the risk free rate, an outcome similar to the Wright approach, which the AER did not support.

The AER paper provided an alternative assessment based on the works of Damodaran and Fenebris,[112] that use a changeable growth rate derived from trends in the 10-year Government bond yield. The AER's modelling of their 3-stage DGM with a variable dividend growth rate indicates a gradual decline in the MRP to around 6% by December 2017.[113] This outcome is in significant contrast to other DGM modelling (e.g. Frontier 2016) which suggests a progressive increase in the MRP to around 9% in late 2016.[114]

The AER's Discussion Paper also included assessments of other sources of evidence that may be used as a 'cross-check', including the Wright approach, survey and broker reports, decisions by other regulatory, conditioning variables and comparison with the debt risk premium. CCP16 notes in particular the following aspects of the AER's assessments:

- Conditioning variables: The AER considers three measures (volatility index, dividend yields and credit spreads) as relevant data. The AER concluded that this data allows the AER to 'contextualise our MRP estimate'.
- Debt risk premium (DRP): While this was not formally considered in the 2013 Guideline, the decision by the Tribunal in 2016 suggests that it was "an appropriate and obvious cross-check" and could be used as evidence in the overall return on equity decision.[115]

As discussed in section 10.2 and 10.4, CCP16 shares the concerns raised by the AER in its Discussion Paper with DGM model in the context of the regulatory decision making. We do, however, consider that the AER could usefully explore Damodaran's of using a moving 10-year government bond as a guide to long term dividend growth, as this appears to generate more 'sensible results'. We also

[112] See for instance, Fenebris, *Determination of a Market-Wide Implied Cost of Capital*, May 2016.
[113] See ibid, Figure 5, p 21.
[114] See, Frontier Economics, *The Market Risk Premium*, September 2016.
[115] Australian Competition Tribunal, *Applications by PIAC Ltd and AusGrid,* ACompT1, February 2016, para 812

support the AER's use of conditioning variables, and would extend their application further as indicated in our submission on the Issues Paper (see above).

10.3.2. Concurrent Evidence Session 2: the MRP

Based on earlier discussions, the participants in CES2 agreed that their discussion would focus on three methods for identifying the MRP. They are:

- Historic returns (HER);
- Dividend growth models (DGM); and
- Survey evidence.

There was limited discussion on the value of survey evidence and the summary below addresses commentary on the historic excess returns (HER) and the DGMs. The summary is necessarily brief and is focused on particular areas of concern to CCP16. A full assessment of the CES2 meeting is available on the AER's website.

The key issues discussed in the CES2 session from CCP16 perspective were:

- The use of the arithmetic versus geometric averages in calculating the HER;
- The length of the data series for calculating the HER;
- Whether the MRP should be regarded as a relatively constant, or the ROE;
- Is some form of weighting of the AER and the Wright approach (constant ROE) appropriate; and
- What role and/or what weighting should the DGM outputs have in the assessment of the MRP.

Historic excess returns (HER)

An initial question concerned whether it was best to measure the arithmetic average return or the geometric average return.

Some of the experts dismissed the use of geometric averages in calculating the HER largely it seems on the basis that the PTRM used annual building blocks. Therefore, using a cumulative measure such as the geometric average would not be consistent with the PTRM. [116]

On this same basis, these experts claimed that the question of how long an investor holds onto an asset was not relevant. However, other experts thought that the views of investors were relevant and this supported a focus on cumulative returns in the real world. Therefore it was appropriate that the AER takes account of both the geometric and arithmetic averages.

At the end of the day, there was no final agreement on this issue at the CES2 with respect to the AER's current approach of averaging the estimates of the geometric and arithmetic historical means.

The discussion on the relevant historic period for analysis of the HER concluded that, on balance, it should be at least 50 years given the volatility of the annual return data. Moreover, longer periods would be required to demonstrate any trends over time in the MRP. The reports by Challenger, which looked at rolling 20 year periods, were cited by Partington as a demonstration of a downward trend in the MRP using HER data.

[116] See: CES2, unproofed manuscript, p 53.

CCP16 noted the strong case put by the investor expert that, of all the parameters in the WACC, the MRP should be the most stable and that over the last 20 years or more, the two major independent valuation firms in Australia have not changed their assessment of the MRP as 6%. There may be circumstances where the MRP might change, but they would be extreme conditions and the regulator would need to pre-define these conditions. Other experts (but not all) confirmed that stability in the MRP (rather than the ROE) was appropriate – if the MRP was set at the right level.

The alternative view from some experts was that the MRP would sit somewhere between the AER approach (relying largely on the HER) and the Wright approach of a constant ROE and a variable MRP. However, it was not clear how a point estimate would be derived be reference to two very different models of how the MRP operates.

To the extent there was a conclusion on this issue, it was that the MRP could be fixed for the period of the Guideline subject to predefined openers, but this did not necessarily mean that the MRP is fixed as a matter of theory or principle.

Dividend Growth Model

It was widely acknowledged by the experts that there was probably a role for the DGM in the regulatory context based on the DGM being a model of future expectations for market returns. However, there remains the question of if/how the DGM can be used to reliably track changes in the MRP and how it might be applied in the context of a fixed Guideline.

Concerns here related to factors intrinsic to the DGM, and which have been raised in numerous previous reports, such as the long term growth rate estimates, 'incurable optimism', the general upward bias in the input forecasts, 'sticky dividends' and the impact of dividend reinvestment activity. Importantly, it was also highlighted that a range of estimates of the DGM arise from what appear to be reasonable assumptions. As a result, it would be hard to have confidence in the DGM estimate even if various scenarios are considered – how do you know what is 'sensible'.

As discussed above, CCP16 agrees with the views of at least some of the experts that there are significant limitations with the DGM. These limitations present a challenge to the AER in determining using the outputs of the DGM. It would require cautious use of the DGM estimates at each four-yearly review. We consider that primary weight would be placed on the HER, but some weight may be given to DGM estimates to the extent that the trends are consistent with conditioning variables, and exhibit sustained and consistent outputs across an expanded range of DGM models.

CCP16 reiterates that given the current environment, the AER's decision on this should not be swayed by the objective of minimising the risk of underinvestment. In the current conditions, the AER adopt a balanced view in its allocation of risks between investors and consumers.

10.4. CCP16 response to Discussion Paper and Concurrent Evidence Sessions

10.4.1. Overview

As noted above, CCP16 generally supports the AER's overall approach of anchoring its decision on the MRP using the HER data, while also considering a range of other relevant information. However, CCP16 also contends that when evaluating the outcomes, the AER should place more weight on

contingent variables in assessing the output of its models, with particular emphasis on their value in assessing the relevance of the DGM outputs.

Having considered the evidence provided by the experts, CCP16's position remains much the same as we set out in the submission to the Issues Paper. Our assessment of the CES2 evidence and multiple other reports and the general economic outlook suggests that the AER adopts a value that is no higher than 6% for the MRP in the Guideline. This is hardly a significant change for investors as it was the AER's position prior to the GFC and in its decisions between 2012 and 2014.

CCP16's stating point is to acknowledge that the MRP is a relatively stable measure over time, but may move to a small degree in response to economic cycles or extreme events (such as during the GFC). Our view is further supported by the feedback from the investment expert at the CES2. As discussed above, the investment expert suggested that investors generally took a long-term view of market parameters such as the MRP and considered it a relatively stable parameter that should only be changed in response to exceptional and predefined circumstances.

This is a fundamentally different concept of the MRP and its role in the CAPM framework, than the one promoted by many of the networks and their advisors, namely that the MRP moves in an inverse relationship (albeit not necessarily one for one), with the risk free rate and so therefore can be expected to change over relatively short periods.

CCP16 therefore acknowledges that there is a possibility that the MRP might move up or down in response to exceptional factors such as the GFC and / or to broader economic trend and/or cyclical movement reflecting long-term shift in risk perceptions. As a result, while CCP16 does not support the option to allow re-openers of the instrument, formulae could be built into the instrument that allow changes if certain objective criteria are met (providing these are rarely occurring events).

The discussion above does not, however, directly address the issue of the point estimate of the MRP that should be included in the new instrument. As noted, CCP16 considers that the current MRP is too high and a more preferable figure for the next four-year instrument should be no more than 6%. Our reasons are summarised below. Our preference for a lower MRP takes account of the two approaches to estimating the MRP that were considered most relevant by the expert panel, namely:

- The historical excess returns (HER) – defined by the experts as the 'backward looking historic equity market returns'; and
- The dividend growth model (DGM) – defined by the experts as the 'forward looking implied cost of equity'.

There may be some role for surveys as a 'cross-check' or in developing the inputs into the DGM (such as dividend growth rates). However, CCP16 does not proposed to examine this option in detail in the current submission.

CCP16 concludes that:

- The AER is correct to place most emphasis on the HER outcomes, although we have some criticisms of the AER's current process for selecting the range of MRP values to be considered in the final point estimate. Moreover, we would dispute the description of the HER as the 'backward looking historic equity market returns'.

- There is a need to exercise a high level of caution in the use of the DGM. We believe the DGM estimates should be given very little, if any, weight in the current review given the anomalous results and the lack of empirical support for the claimed increase in the MRP in the last 3-4 years using the model. As currently described the DGM is also indirectly reliant on historical data in estimating parameters, however, this reliance is not as transparent as in the HER.
- However, CCP16 has set out criteria (above) which, if satisfied, might lead the AER to place some weight on the DGM in estimating a point value for the MRP.
- CCP16 also shares the AER's view on the role of survey data. While we accept that the survey data can be overly influenced by exogenous factors and bias, CCP16 also considers it can serve as a cross check to the modelled solutions. Further, the DGM relies on survey data to quantify the DGM parameters such as forecast dividend growth – although the experts promoting the DGM sometimes dismiss survey data.
- CCP16 is concerned that the experts did not further consider the potential value of conditioning variables and how these variables (and other financial and economic data) might have in independently testing the modelled outcomes, particularly with the DGM outputs.

The sections below further examine each of these matters.

10.4.2. Assessment of the MRP using Historical Excess Returns (HER)

In the first instance, CCP16 disputes the view that the HER is a 'backward looking' assessment of historic equity market returns. It is important to emphasise that the HER is a valid way of estimating future expected market returns, but it does so using actual historical data rather than forecasts of a variety of inputs.

CCP16's other primary concern is that the current 2013 Guideline does not adequately consider:

- The possibility of a long-term declining trend in the MRP as measured by the HER; and
- The relevance of geometric averages compared to arithmetic averages of the HER in estimating the market expectations of the MRP over the longer term.

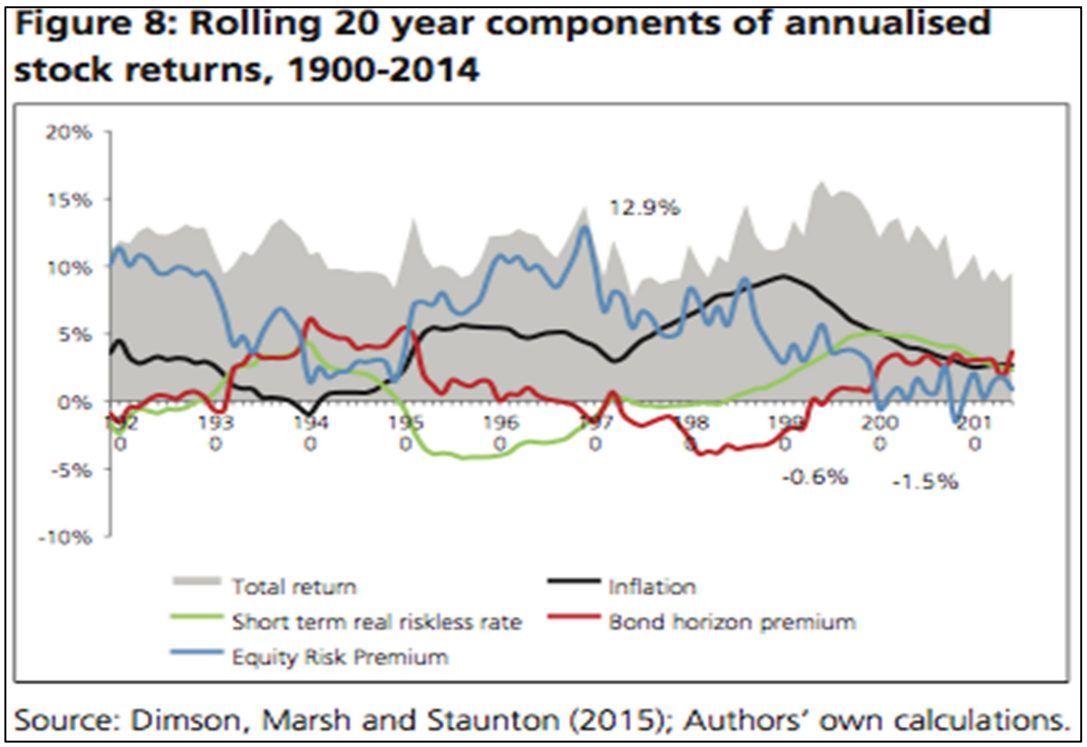
Moreover, the decision on the MRP in next 4-year Guideline should take into count the context in which the AER first decided to move from an MRP of 6% to an MRP of 6.5%. In addition, the new instrument should take into account the changing perceptions of risk allocation between networks and consumers. Decisions should be made on the balance of risk rather than excessive concerns with promoting investment in the current market environment.

Long term trends in the HER

The issue of assessing if there were longer-term trends in the MRP was raised at the expert panel. For instance, Professor Partington highlighted a recent report by Bianchi, Drew and Walk for the Challenger Group, using 20 -year rolling averages of the MRP. Overall, there is a declining trend in the MRP over the last 50 or so years.

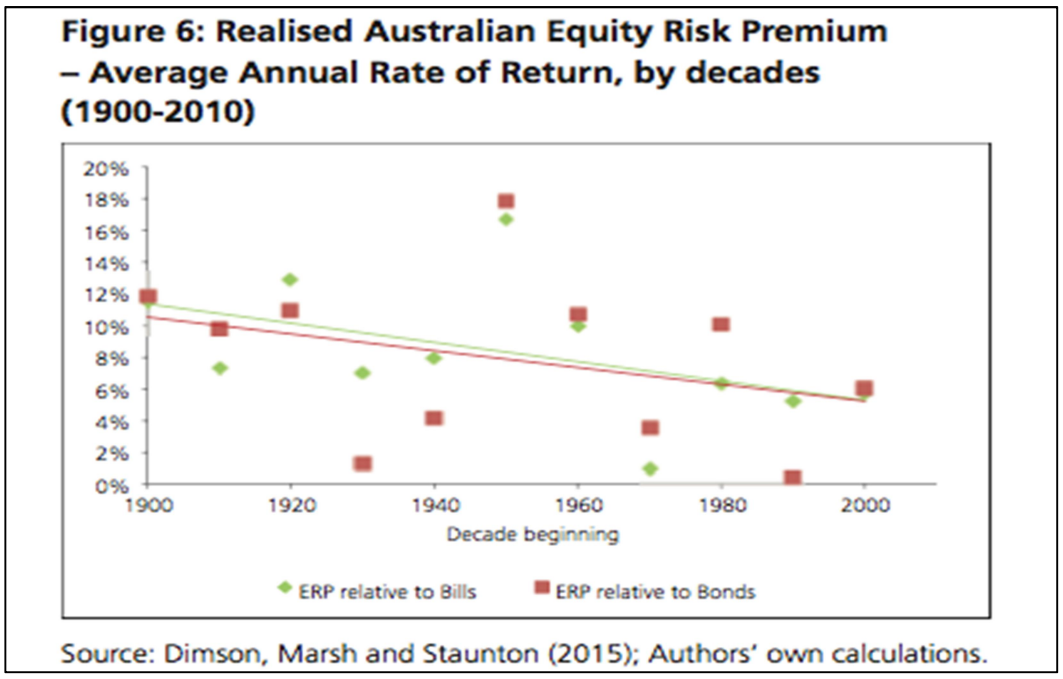
The two charts below provide an illustration of this trend in the MRP that has emerged since the 1980s. The charts use data on historical stock returns from the report by Dimson, March and Staunton (2015). Figure 5 represents a decomposition of international data on stock returns, risk free rates and the equity risk premium. Figure 6 illustrates the trends in the ERP over time.

Figure 5: Rolling 20-year components of annualised stock returns 1900-2014 (International data)



Source: Bianchi, Drew and Walk, *The (un)Predictable Equity Risk Premium*, 2015, p 17.

Figure 6: Realised Australian equity risk premiums by decade 1900-2014



Source: Bianchi, Drew and Walk, *The (un)Predictable Equity Risk Premium*, 2015, p 16.

Table 6 below also illustrates the decline in the equity risk premium in the Australian market using sub-samples of equity returns.

Table 6: Components of Returns, Sub-samples (Australian equities)

Sample Period	Stocks Geometric Mean (%)	Bonds Geometric Mean (%)	Bills Geometric Mean (%)	Stocks Arithmetic Mean (%)	Bonds Arithmetic Mean (%)	Bills Arithmetic Mean (%)	Inflation (%)	ERP vs Bonds (%)	ERP vs Bills (%)
Panel A: Nominal									
1946-2014	11.4	6.3	5.9	13.6	6.9	6.0	5.2	5.1	5.5
1975-2014	13.5	9.9	8.1	15.7	10.5	8.2	5.2	3.6	5.4
1995-2014	9.9	8.9	5.1	11.4	9.4	5.1	2.7	1.0	4.8
Panel B: Real									
1946-2014	5.9	1.1	0.7	8.1	1.7	0.8		4.8	5.2
1975-2014	7.9	4.5	2.8	10.0	5.1	2.9		3.4	5.1
1995-2014	7.0	6.1	2.3	7.6	5.6	2.4		0.9	4.7

Source: Dimson, Marsh and Staunton (2015); Authors' own calculations.

Source: Bianchi, Drew and Walk, *The (un)Predictable Equity Risk Premium*, 2015, Table 6, p 20.

A significant aspect of the Dimson, Marsh and Staunton (Dimson et al) data is the revelation of the degree of volatility in the individual yearly returns and equity risk premiums. In the Australian market, Dimson reports a standard deviation for Australian equity returns of some 17.7%.[117] Although this is low relative to the rest of the world sample, it nevertheless means that:

- The HER must be based on a significantly long historical period, and certainly at least 50 years, and preferably longer; and
- Care must be taken in identifying any trend in the data given the 'noise' in the data from year to year.

Nevertheless, the observation of a downward trend is consistent with other observations of the equity markets in general and reflects a gradual reduction in risk perceptions over time, subject to shorter periods of volatility. The trends are particularly apparent over the last 50-60 years and can be explained by factors such as the improvement in governance of the equity markets, improving liquidity in equity markets, technology and communication improvements and a variety of options to manage risk. For example, the much broader and deeper national equity markets and integration with international markets allow investors to manage risk through diversification of their investments.

In Australia, share markets have also benefited from the establishment of an independent RBA in the 1980s and its successful setting of monetary policy linked to an agreed inflation target.

CCP16 considers that it is reasonable to assume that all these factors have reduced equity market risk compared to previous years. As stated by Damodaran (2015):[118]

> *The risk in equities as a class comes from more general concerns about the health and predictability of the overall economy. Put in more intuitive terms, the equity risk premium should be lower in an economy with predictable inflation, interest rates and economic growth than in one where these variables are volatile.*

[117] Dimson, March & Staunton, *Long-term Asset Returns* (corrected June 2017), p 11.
[118] A Damodaran, *Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2015 Edition,* Updated Mach 2015, p 10.

Of course, this does not mean that at any one point in time, equities won't go up or down, as will yields on bills and bonds - and the MRP. However, this is precisely why the AER's regulatory setting must focus on the long-term views of current equity investors. This point was made clearly in the 2009 WACC review, and was recognised by the Tribunal (see quotation above). However, it does not appear to have been a priority consideration by the AER in the development of the 2013 Guideline. This issue is discussed below.

The AER's decision in 2009 to move to a MRP of 6.5% - and to revert to 6% pre the Guideline

Prior to 2008-09, the AER adopted a value for the MRP of 6.0%. This was on the basis that: **"the MRP should be a value that reflects the forward looking long term MRP".**[119] In 2008-09, the AER conducted a review of the WACC parameters,[120] and it was intended that these parameter values would be in place for some time.

In its draft decision, the AER proposed to continue with an MRP of 6%. However, in its final decision (May 2009), the AER adopted a value of 6.5% for the MRP, while noting that:[121] [emphasis added]

- Long term historical estimates (1883-2008, 1937-2008, 1958-2008), 'grossed up' for a 0.65 value of imputation credits, produce **a range of 5.7 to 6.2%** [arithmetic average, statistically significant at the 0.5% level].[122]
- Survey measures strongly indicate that a **MRP of 6% is far the most commonly adopted value** by market practitioners, although these surveys occurred before the global financial crisis.
- Up until 2008, cash flow measures consistently indicated **a forward looking MRP well below 6%.** However, the more recent cash flow based measures (i.e. in 2009) indicated a forward-looking MRP well above 6%.

The AER explained why they had deviated from their original position of 6% in its final 2009 WACC review decision, as follows:[123]

> *The AER considers that prior to the onset of the global financial crisis, an estimate of 6 per cent was the best estimate of a forward looking long term MRP, and accordingly, under relatively stable market conditions – assuming no structural break has occurred in the market - this would remain the AER's view as to the best estimate of the forward looking long term MRP.*
>
> *However, relatively stable market conditions do not currently exist and taking into account the uncertainty surrounding the global economic crisis, the AER considers two possible scenarios may explain the current market conditions:*
>
> - *that the prevailing medium term MRP is above the long term MRP, but will return to the long term MRP over time, or*

[119] Ibid, p 236
[120] AER, *Final decision, Review of electricity and distribution WACC parameters*, 1 May 2009.
[121] Ibid, p 237
[122] Note, the value of imputation credits referred to here is the value of imputation credits distributed – equivalent to the value of theta, not the overall gamma. For further information see Ibid, Table 7.3, p 215.
[123] Ibid, p xiv & p 238

- *that there has been a structural break in the MRP and the forward looking long term MRP (and consequently also the prevailing MRP is above the long term MRP that previously prevailed.*

The influence of the GFC on the AER's decision to move the MRP from 6.0% to 6.5% was further illustrated in its overview of the 2009 decision as follows:[124]

> *…Where, however, the parameter is a fixed value, the global financial crisis in particular has influenced the AER to adopt a cautious approach to interpreting the market data whilst endeavouring to maintain the integrity of the CAPM framework pursuant to the NER.*
>
> *For example, the AER has now adopted a market risk premium of 6.5 per cent… in this final decision, which recognises the additional uncertainty on a forward looking basis associated with the global financial crisis.*

It is very clear from this discussion, that although the AER perceived its task (correctly) as determining the current markets view of the long term value of the MRP, it also took what we might now see as an overly cautious account of the near-term uncertainty arising from the GFC.

In practice, however, it can be argued that the unstable conditions that occurred during the GFC reverted to more normal levels relatively, at least with respect to the equity market and financial measures. Indeed the AER reverted to a MRP of 6.0% in its decisions made from 2011-12. In the face of appeals from four different networks,[125] the Tribunals consistently accepted the AER's use of an MRP of 6% as being reasonable.

Implicit in these decisions by the AER, and affirmed by the Tribunals, is the view that the MRP is a long-term measure that can be expected to remain relatively stable subject to extreme conditions. It can be argued however, that the decision to increase the MRP in response to the GFC illustrates the risk of responding too readily to what can be a short term crisis – it was fortunate for consumers that the AER had the flexibility to readjust the number down (pre the 2013 Guideline) when it became more confident that the financial and economic indicators were returning to more 'normal' levels.

The AER's treatment of historical averaging estimates

CES2 spent some time discussing whether the AER should use arithmetic or geometric averages for estimating the long-term MRP. As discussed above, there was no overall consensus on this issue. Before discussing CCP16's views on this, it is worth highlighting that several key providers of historical data on equity risk premiums (Damodaran and Dimson, et al) present both geometric and arithmetic averages in their reports, recognising that both contain information value to investors.

In the 2013 Guideline, the AER has identified both geometric and arithmetic averages as having some information value. It is generally accepted that a geometric average will tend to understate the 'true' HER, while the arithmetic average will tend to overestimate the 'true' HER, particularly when there is

[124] Ibid, p iii

[125] See for instance, AER Explanatory Statement – Appendices, Rate of Return Guideline, December 2013, pp 102-103.

significant volatility in the annual return data – which there is, given the estimated standard deviation of 17.7% for Australian equity returns). As reported by Dimson et al (2006): [126]

> *The geometric mean is, of course, always less than the arithmetic mean, the difference being approximately half of the variance of the historical equity premium.*

This sensitivity to the volatility in the annual returns is, of itself, a reason to put more weight on the geometric average results. As Dimson et al (2006) also commented:[127]

> *Care is needed, however, in comparing and interpreting long-run arithmetic mean equity premiums.*

Certainly, the reports and updates by Dimson et al on equity risk premiums include both geometric and arithmetic averages and there is no indication that provide they regard arithmetic averages as preferable in estimating the long run HER– to the contrary, as per the quotation above.

The reason for this caution expressed by Dimson et al on the use of long-run arithmetic means included the observation that many of the countries that had the highest average arithmetic equity premiums (greater than 9%), also had below average arithmetic equity returns over the whole 2000-2014 period.[128] This anomalous outcome arising directly from the use of arithmetic averaging was due in part to the greater volatility of the annual returns in these countries.

The high arithmetic equity premiums were, therefore, not a predictor of higher equity returns in these markets, but an indication of the extreme volatility in their respective equity markets (24% to 33%). It follows that within Australia, higher arithmetic equity premiums in a given period may be simply a signal of higher volatility in annual returns – an explanation of the past perhaps, but not a basis for predicting long-term MRP and long-term average returns.

However, in practice, the AER set a value for the MRP of 6.5% in the 2913 Guideline, which is at the top of the arithmetic average range of MRP's using HER data. Table 7 below from the 2013 Guideline indicates the differences between the estimates of the arithmetic means and the geometric means of HERs. Using Dimson et al data (with some adjustments), the geometric means range from 3.6 to 4.8% with all the data samples taken since 1958 being below 4%. The arithmetic means lie in the range of 5.7 to 6.4%. The difference arises because of the greater impact that volatility in annual returns has on the arithmetic mean.

[126] Dimson, Marsh and Staunton, *The Worldwide Equity Premium: A Smaller Puzzle*, revised 7 April 2006, p 18. The equity premium puzzle refers to the observation that the historical equity premium in the US, measured as the excess returns on stocks relative to the relatively risk free Treasury bills was larger than could be justified as a risk premium on the basis of standard theory (see Mehra and Prescott (1985)). Interestingly, using the historical data, Australia had one of the highest historical average returns on equity and equally, one of the highest historical equity risk premiums (total returns minus the risk free rate) despite one of the lowest volatility in share prices.
[127] Ibid, p 19
[128] Ibid

Table 7: Historical excess return estimates – assuming a usage rate of distributed imputation credits (theta) of 0.7

Sampling period	Arithmetic mean	Geometric mean
1883–2012	6.3	4.8
1937–2012	5.9	3.9
1958–2012	6.4	3.8
1980–2012	6.3	3.6
1988–2012	5.7	3.6

Source: NERA, AER analysis.

AER, *Rate of Return Guideline*, December 2013, Table D.1, p 82. Note: the AER has since amended the value of theta for use in all its subsequent decisions.

A review of the AER's 2013 Guideline, which included the point estimate of the MRP of 6.5%, starts with an assessment of the historical excess return data (as per Table 7 above), by stating that*: "we consider a range for the MRP of 5.0 to 7.5 per cent is reasonable based on the evidence before us. The range we determine in this decision reflects the span of evidence before us."* [129]

The AER then goes on to suggest that the lower value of the MRP range (5.0%) should sit above the highest point of the geometric average. On this basis, and with reference to the arithmetic mean, the AER regarded 6.0% as a reasonable point estimate based on the HER.

However, as noted above, DImson et al highlighted in their reports, that the arithmetic mean is not an unbiased estimator of the forecast MRP (as is sometimes claimed) because of this significant volatility in the annual equity return data.

Given this, it was therefore open for the AER to decide that the reasonable point estimate for the HER was between the range of 3.6 to 6.4%, in which case a point estimate of the HER of 5% (rather than 6%) would better reflect all the relevant data and given would be an appropriate reflection of the difficulties with the arithmetic mean. In fact, elsewhere in the 2013 Guideline material, the AER indicated that this is what it was doing. The AER said:[130]

> *Both the arithmetic and geometric averages are relevant to consider when estimating a 10-year forward looking MRP using historical annual excess returns. The Tribunal has found no error with this approach.* ***The best estimate of historical excess returns over a 10 year period is therefore likely to be somewhere between the geometric average and the arithmetic average of annual excess returns.*** [emphasis added]

CCP would have less of a problem with the AER's analysis - **if the AER had actually done what it said it would do in the quote above.** Instead, the AER has set the HER range above the top of the range of geometric averages and well above the more recent observations, excluding 1883-2012. There is no adequate explanation given by the AER for selecting a point estimate of the MRP that effectively ignores the information contained in the geometric averages – and does not take adequate account of the difficulties with the arithmetic mean noted above.

[129] AER, *Explanatory statement, rate of return guideline*, December 2013, p 93.
[130] Ibid, p 83

The average of the geometric HER (approximately 4%), and the average of the arithmetic HER (approximately 6.1%) would be close to 5% and this figure that would be more consistent with the AER's stated approach of estimating the MRP that lies somewhere between the two HER estimations.

In the AER's decisions that preceded the 2013 Guideline, the question of which HER average to use when estimating the long-term (10 year) MRP also came up as an issue.

For example, in its draft decision on the SP AusNet access arrangement,[131] the AER referred to a report by McKenzie and Partington that supported the AER's position that over a 10-year period, the unbiased MRP lies between the arithmetic and geometric average.[132]

However, the AER also cites a 2011 report from SFG acting on behalf of the pipelines, stating it was wrong to place any reliance on geometric averages because it was downward biased – ignoring the fact that the arithmetic mean is upward biased, particularly when there is significant annual volatility in returns. As the Tribunal said on the same issue on appeal by Envestra:

> *It may be accepted that an arithmetic mean of historical excess returns is an unbiased estimate of expected future one year returns. It is not, however, an unbiased estimate of expected future returns over longer time horizons…* [133]
>
> *…*
>
> *Envestra's submission that, because the CAPM model uses expected returns, only the arithmetic mean may be used cannot be accepted once it is understood that the arithmetic mean of annual historical returns is not an unbiased estimate of expected 10-year returns.*[134]

Subsequent reports by the network representatives (e.g. NERA) argued that the AER's approach to estimating the WACC assumes one-year returns without compounding. The AER also suggested that Lally advised that there was no compounding effect in the current regulatory process and, without this, the arithmetic mean is preferable if annual returns are independent and drawn from the same distribution.[135]

The argument that only the arithmetic average should be used in estimating the MRP continues to be put forward by the network experts and was most strongly and categorically stated at the CES2. Ultimately, however, there was little consensus on this issue among the CES2 experts. For instance, Partington and Satchell both took the view that the MRP lies somewhere between the two approaches. While they agree that the AER's PTRM model doesn't compound returns within the regulatory period, investors do consider compound returns and form expectations of returns over a longer period than one year.

CCP16 endorses this latter view. The underlying purpose of the estimation of the return on equity in the regulatory context is to determine the expectations of investors for market returns over the long-run. Therefore, although the AER's PTRM model is technically an 'annual model', this is a limitation of

[131] AER, Draft Decision SPI AusNet, Part 3, section B.2.1.
[132] Cited in Ibid, p 28.
[133] Australian Competition Tribunal, *Application by Envestra Ltd (No 2)[2012] ACompT3*, 11 January 2012, para 157
[134] Ibid, para 157
[135] See AER, *Draft Decision SPI AusNet*, Part 3, section B.2.1, p 28.

the model and should not drive the task of establishing the best estimate of required returns to the market over the long-run – and then, having undertaken that task, incorporate the results not the PTRM model. The alternative is to ignore investor considerations and to 'put the cart before the horse', and a somewhat broken cart at that (due to volatility in annual returns).

Moreover:

- While the PTRM is an annual model, it uses a constant MRP over the regulatory period. That is, within the PTRM, the arithmetic and geometric mean of the MRP are identical since a constant MRP is assumed. Hence the PTRM does not provide a reason for choosing one averaging approach over another.
- Actual cumulative returns over the long-term, rather than year-by-year returns, are more relevant to long-term investment expectations. Hence the geometric mean is likely to be a better guide to expected returns over their investment cycle than the arithmetic mean.
- The proponents of using an arithmetical average have neither acknowledged or proposed a solution to the obvious fact that any MRP based on arithmetical HER average will overestimate the MRP – and therefore the return on equity – for each year within the regulatory period. As the revenue allowance has been determined by the building blocks compounds each year (under the CPI-X formula), the error caused by the initial overestimation will also compound each year.

In summary with respect to the use of geometrical versus arithmetical averages for the MRP, CCP16 concludes:

- This is not a trivial issue, and needs to be resolved before the finalisation of the new instrument.
- The AER has accepted that the arithmetical averaging of HER provides an upward bias for the MRP, while the geometrical averaging has a downward bias.
- The upward bias of the arithmetical average increases as a function of the volatility in the annual returns and the equity markets feature significant year-on-year volatility in returns (17.7% for Australian equities). It cannot then be argued that the arithmetic mean is an unbiased estimator and it is important that this is recognised by the AER in its decision.
- There is no is no clear indication from the literature to assist the AER in identifying which approach represents the better estimate of the investors long-term expectations for the MRP.
- While the AER claims it supports an MRP between the geometric and the arithmetic average, that is not in fact what it does. The MRP range (5 to 6.4%) and point estimate (6%) for the HER analysis has a strong bias towards the estimates from the arithmetic average. The AER fails to adequately explain this bias.
- A better estimate for the HER analysis is around 5 – 5.5%, an outcome which places a reasonably equal weight on both HER estimation methods.
- CCP16 does not give much credence to the argument that only the arithmetic average should be considered. In our view, they have allowed the technical limitations of the PTRM to override the objective of setting a long-term MRP consistent with investor expectations. The proponents of this view also fail to account for the risk to consumers of the cumulative effect on revenue of the overestimation of the MRP across the 5-year regulatory period.

10.4.3. Assessment of MRP using the Dividend Growth Model (DGM)

The 2013 Guideline indicated that the AER put some weight on its construction of the DGM. The effect of the DGM was to:

- expand the range that the AER considered for the MRP, to a range of 5 to 7.1%, where 7.1% represented a middle value from the AER's construction of a 3-stage MRP[136]
- increase the MRP from the point estimate of 6% that the AER derived from the HER analysis, to 6.5%.

In more recent determinations, the AER appears to have exercised some judgement on the extent to which it will adjust the MRP in response to report changes in the DGM outputs. In particular, despite the (disputed) claim that the DGM has increased between 2013 and 2016, the AER has not modified the value of MRP from the Guideline value of 6.5%.[137]

CCP16's critique of the DGM and CES2 observations

CCP16 provided a very detailed critique of the DGM in its response to the AER's Issues Paper, which mirrors many of the issues raised by the AER and its expert advisors. CCP16 noted the following areas of concern:[138]

- Sensitivity of the estimates to the assumptions;
- Volatility and variability of the estimates between different versions of the DGM;
- Short to medium term volatility of the implied long-term ROE estimates; and
- Apparent frequent inconsistency between short to medium term changes in the implied long-term ROE estimate and market fundamentals.

The CES2 session did not change our views on the limitations of the DGM and therefore we refer AER to our submission on the Issues Paper for a comprehensive assessment of the DGM, and to our summary of our submission provided above.

In brief, CCP16's submission to the Issues Paper, acknowledged that the DGM has a 'solid theoretical basis' and has been used to estimate the cost of equity in regulation and finance. We noted that its primary advantage is that it offers a means of inferring the current required ROE for the market as a whole based on current market expectations (as assessed by surveys among other methods).

Nevertheless, in addition to problems with the estimates of various input assumptions (as above), the DGM requires a further strong assumption that markets are efficient and that stocks are valued at a point in time on the basis of the net present value of expected cash flows. Evidence suggests, however, that investors in equity markets consistently overact to information in the short term even though the MRP calculated over time (such as in the HER) is relatively stable.

The high level of volatility observed By Dimson et al, in annual returns and equity premiums is a manifestation of this tendency for the market to over-react to short-term events. Even such large events as the GFC did not have a particularly long-term impact on Australian equity markets, illustrating the risk of the regulator overreacting to headline events.

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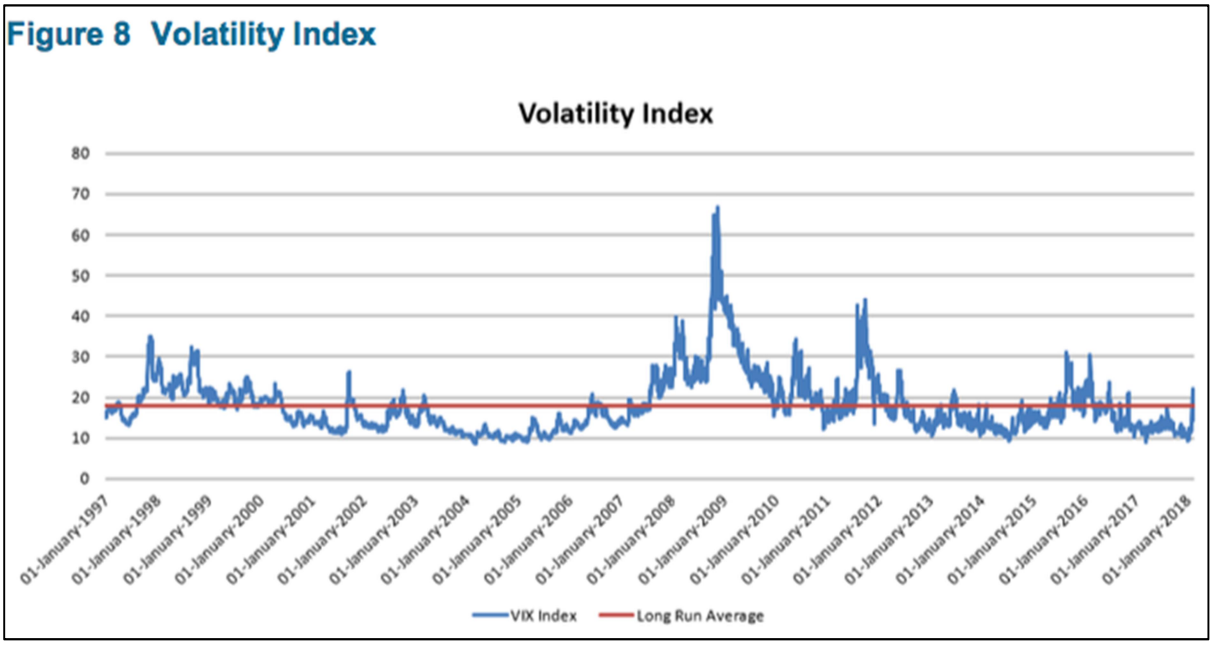
[136] See for instance, AER, *Explanatory statement, rate of return guideline appendices,* December 2013, *Table D.3, p 87.*

[137] The AER reinforced this interpretation in a recent letter to the Consumer Representative Group, dated 13 February 2018. The letter is now posted on the AER's dedicated rate of return review web-site. See also APA VTS Final Determination, Attachment 3.

[138] CCP (sub panel 16), *Submission on the rate of return Issues Paper*, 18 December 2017, p 99).

Figure 7 below, for instance illustrates the implied volatility index before, during and after the GFC. Dividend yields demonstrate a similar pattern of response. In each case, the indices return to 'normal' within 2 to 3 years.

Figure 7: Volatility Index January 1997 to January 2018



Source: AER, *MRP Discussion Paper*, March 2018, Figure 8 p 30.

While these issues with the DGM are not new and have been raised through multiple submissions, there has been limited consideration of these matters by those experts who argue that the AER should give greater weight to the DGM. Nor are we aware of these experts proving a systematic economic framework for objectively deriving values for the input assumptions. Yet it is very clear that the DGM output is very sensitive to these assumptions.

DGM models deliver different and often conflicting outcomes

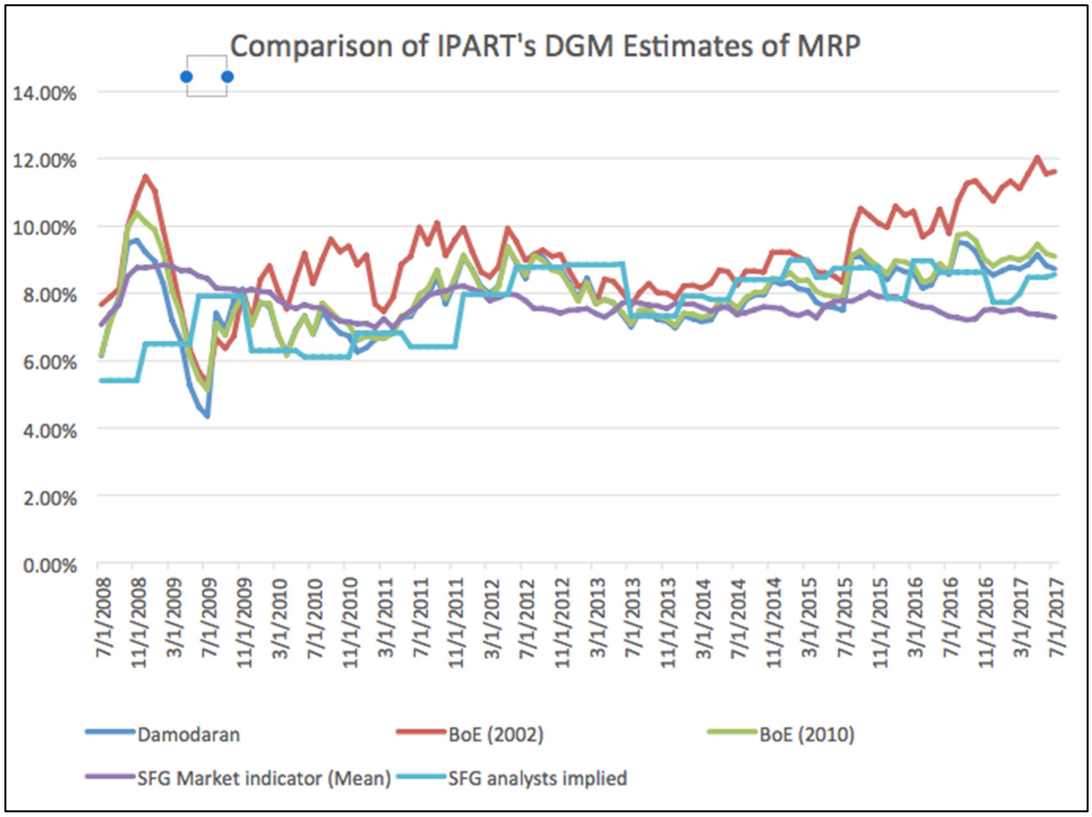
Nor is there agreement on the structure of the DGM model itself. CCP16's previous submission looked at the implied world MRP prepared by the Norges Bank using a variety of DGM models. IPART similarly compared the output of a variety of DGM model specifications. Both studies demonstrate that:[139]

- The outputs of all the models were quite volatile on a year-to-year basis.
- The spread of outputs from the DGMs varied at different period, particularly in the way they responded to events such as the GFC.
- Some models demonstrated a significant (and unexplained) increase in the DGM since 2015.

Figure 8 illustrates the different DGM results in IPART's assessment of five different DGM models.

[139] See for instance, ibid, Figures 14 and 17.

Figure 8: Comparison of IPART's DGM estimates of MRP



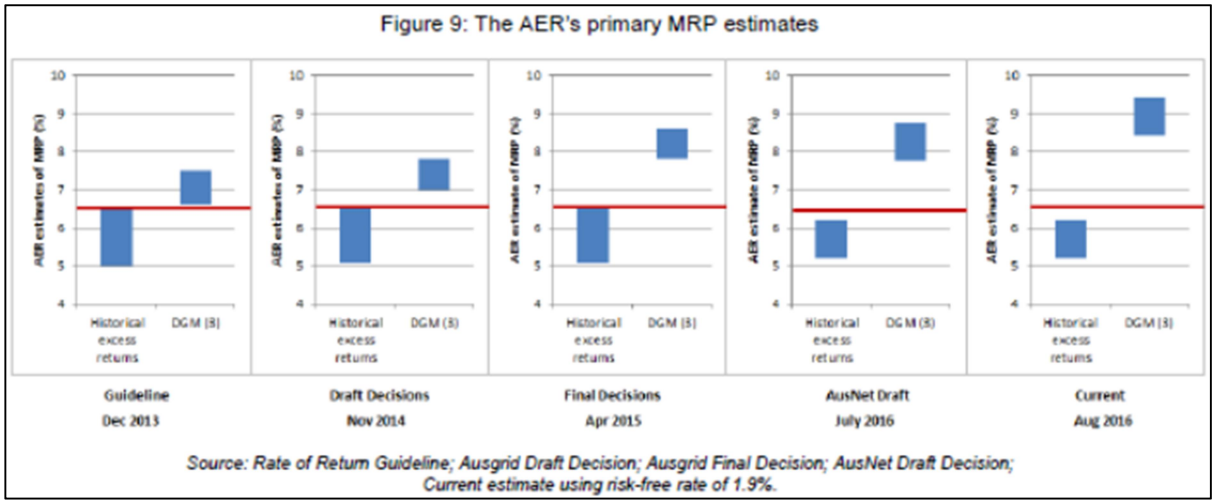
Source: IPART (2017) cited by CCP16 in its submission to the AER's Issues Paper, Figure 17, p 104.

CCP16 also observed from the Norge Bank study, that models which assumed dividends grew at the average of past long-term GDP growth rates and/or gave greatest weight to analysis forecasts of dividend provide the highest estimates of the DGM.

Frontier has provided DGM estimates to the AER based on their analyses of DGMs over the period from December 2013 to August 2016 (Figure 9) and using the AER's models and assumptions of the HER and the DGM. Frontier states that the chart indicates an increasing MRP and a growing gap between DGM estimates and the HER estimates of the MRP.[140]

[140] This report by Frontier has been submitted by several network businesses in their regulatory proposals over 2017 and 2018.

Figure 9: Frontier 2016 estimate of the MRP from both HER and DGM approaches



The AERs Discussion Paper also updated the DGM estimates and it provided a useful table of sensitivities to the long-term growth rate, analysts' forecasts and the AER's 2-stage and 3-stage models. The outcomes of the AER's DGM analysis range from 6.15 to 8.55% with a central value of around 7.5%.[141] The range of outcomes for the DGM as at December 2017 is significantly lower than Frontier's last assessment of the DGM in August 2016 (see Figure 9).

Moreover, the AER's updated results are only slightly higher than the AER's initial estimates in 2013 providing little supporting evidence for the proposed trend increase in the MRP, using the DGM.[142]

Do DGM models that use a moving growth rate linked to bonds provide an answer?

Other experts have observed different trends in the DGM in recent years than those reported by Frontier. The AER's March 2018 Discussion Paper also tested the approaches that have been used by Damodaran and by Fenebris. These approaches look at a growth rate that moves in response to changes in the Government 10 year bond rates.

Using a **moving growth rate,** Damodaran found that the implied MRP has declined from 4.24% in December 2013 to 2.58% by December 2017.[143] The analysis by Fenebris, cited by CCP16 in its previous submission of the MRP in Australia, shows a distinct decline in the MRP since 2008, albeit the MRP is more stable than either the overall return on equity or the risk free rate.[144] As at February 2018, the Fenebris report on the implied market risk premium for Australia is 4.45%.[145]

The AER has tested these alternative approaches to estimating the growth rates in its Discussion Paper. The AER states that:[146]

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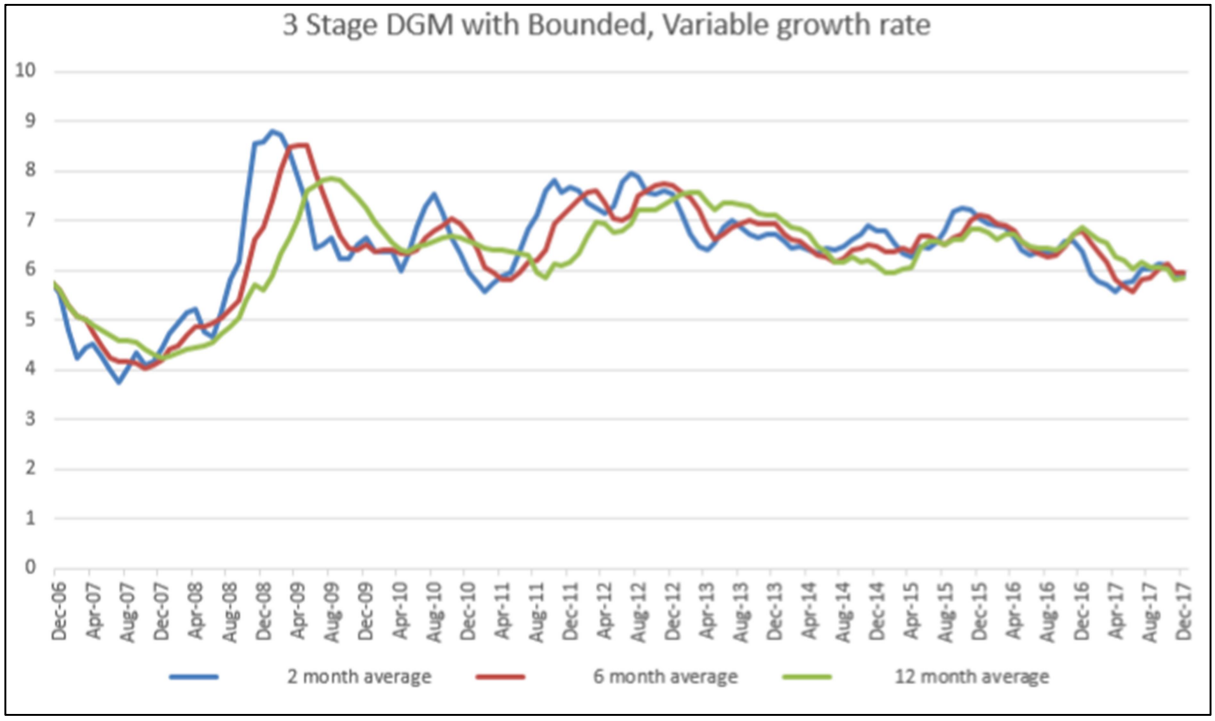
[141] See AER, MRP Discussion Paper, March 2018, Table 3, p 18.
[142] The AER's 2013 Guideline suggests a reasonable range for the MRP of 6.2 to 7.5% for the 2 months to November 2013. See for instance, AER, *Explanatory statement, rate of return guideline*, December 2013, pp 93-94.
[143] See AER, *MRP Discussion Paper*, March 2018, Table 4, p 20.
[144] See CCP16, *Submission on the rate of return Issues Paper*, December 2017, Figure 16, p 103 and updated assessments by the AER,
[145] See http://www.market-risk-premia.com/au.html. Accessed on 25 April 2018.
[146] AER, *MRP Discussion Paper*, March 2018, p 21

This could potentially produce a result that relies more on the forward looking elements of the model to enact changes in the MRP, rather than mirroring the changes in the risk free rate.

CCP16 considers that if this is the case, then it is worth further exploration by the AER. In the first instance, this approach will provide more stable outcomes as illustrated in the AER's Discussion Paper in Figure 5 and repeated in Figure 10 below. As a result, this approach to the DGM may be more suitable for the regulatory task of estimating a current value for the long term MRP.

Figure 10: Three-stage DGM with bounded, variable growth rate



Source: AER, *MRP Discussion Paper*, March 2018, Figure 5, p 21.

The approach also reduces the AER's reliance on subjective and potentially biased forecasts by linking to objective measurements, in this case, the movements in the 10-year government bond yield. Above all, the outputs of the revised model as presented by the AER 'make sense', particularly in the context of other market data as revealed by trends in the various conditioning variables.

Could contingent variables and other market data assist the AER in evaluating DGM outcomes?

From a CCP16 perspective, what is distinctly lacking in some of the alternative representations of the MRP is a clear link between the MRP outputs and what is happening in the broader equity and financial markets and the economy as a whole. For instance, despite Frontier's claim that the DGM has increased (and therefore the MRP should be increased), it is by no means clear if this is a reflection that investors really do perceive substantially increased risks in the equity market.

To help us answer this question it is useful to look at the various conditioning variables considered by the AER in the 2013 Guideline. The conditioning variables, along with other data, provide a broader picture in which to assess claims that the MRP has increased.

CCP16 provided an extensive assessment of these conditioning variables and other data in its submission on the Issues Paper regarding market measures. They included bond spreads, the volatility index, forward price to earnings ratios and inflation expectations:[147]

None of these measures supported a view that market risk had increased since 2013. The results pointed more to an easing of risk conditions over the period since 2013 – see for instance the volatility index in Figure 3 above. CCP16 also noted Damodaran's useful list of factors that could be used to assess the MRP:[148]

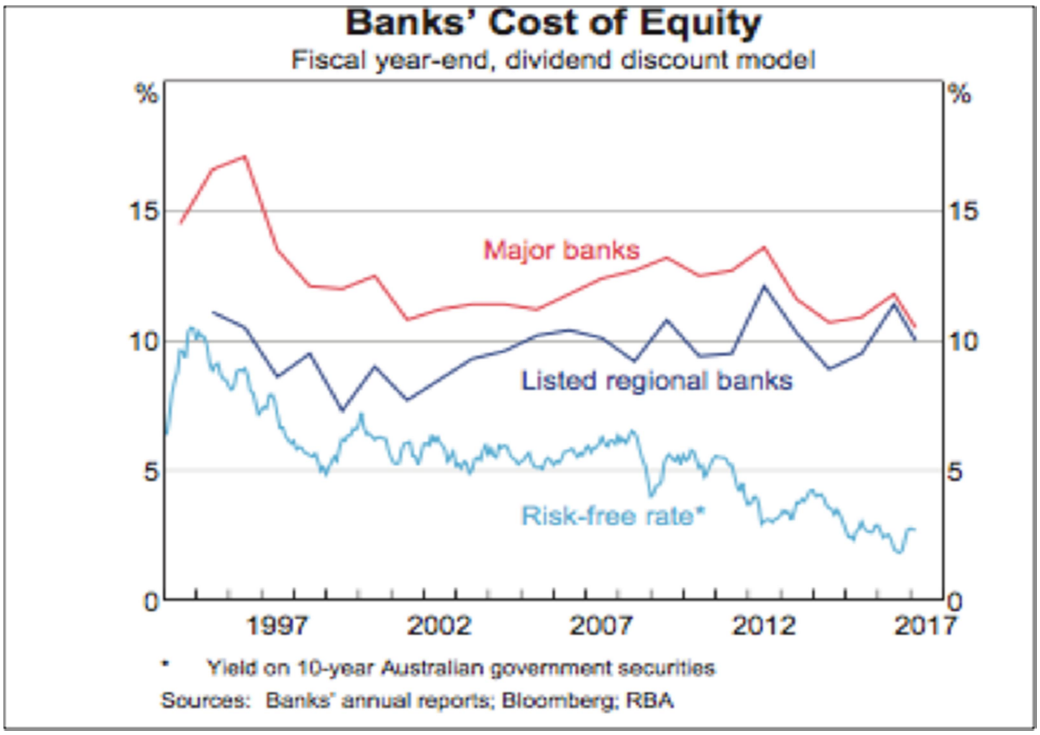
1. Risk aversion and consumption preferences;
2. Economic risk;
3. Information and volatility returns;
4. Liquidity and funds management;
5. Catastrophic factors;
6. Government policy changes;
7. Monetary policy; and
8. The behavioural/irrational component.

CCP16 recommends that the AER have regard to all these factors and the contingent variables in assessing its approach to the DGM. We also note the more recent commentary by the RBA in their financial stability reviews. Financial stability underpins the confidence of investors in the market as a whole, and the most recent reports from the RBA indicate ongoing improvements in their stability metrics.[149]

The importance of the AER adopting a broader perspective in its assessments is also highlighted in an article in the RBA's March 2017 quarterly report.[150] The report first demonstrated that the return on equity for banks has remained fairly stable since the GFC and relatively unresponsive to the reductions in the risk free interest rate over that same period (see Figure 11). It could be argued that this outcome supported a constant ROE assumption.

[147] See CCP16, *Submission on the rate of return Issues Paper*, December 2017, pp 20-26.
[148] A Damodaran, *Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2016 Edition, Updated: March 2016*, pp 10-21.
[149] See, Reserve Bank of Australia, *Financial Stability Review*, April 2018.
[150] David Norman, *Returns on Equity, Cost of Equity and the Implications for Banks*, RBA Quarterly Bulletin, March Quarter 2017, pp 51-58.

Figure 11: Cost of equity for the Australian banking sector



Source: David Norman, *Returns on Equity, Cost of Equity and the Implications for Banks*, RBA Bulletin, March Quarter 2017, Graph 3, p 54

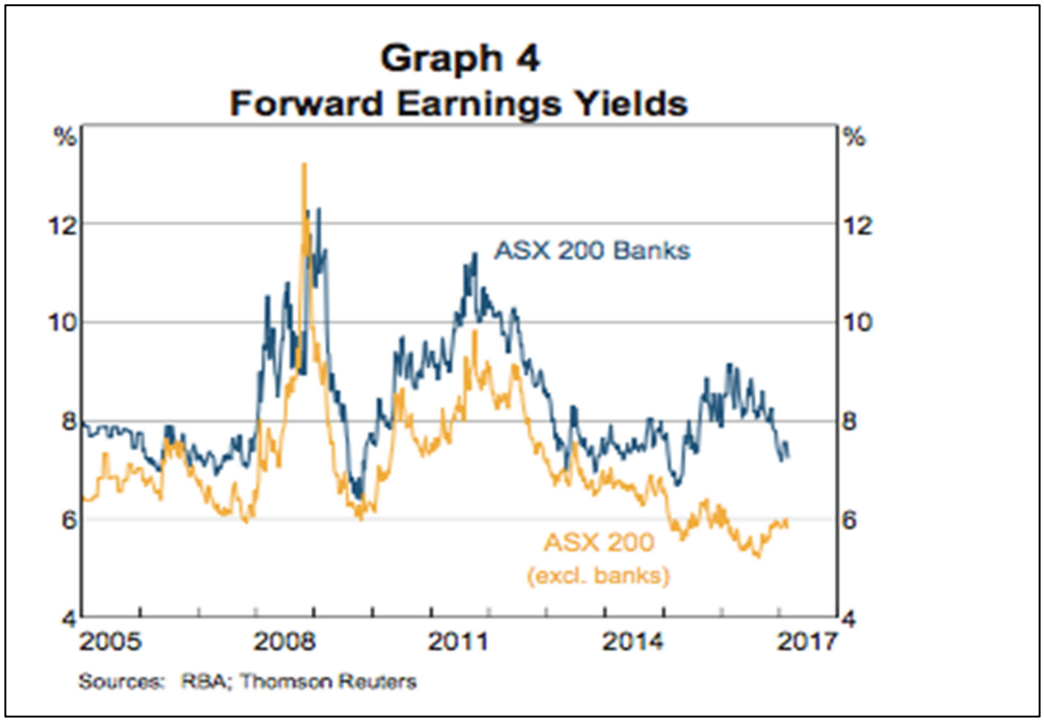
However, further analysis in the RBA report indicated that the ROE for the rest of the equity market has aligned far more closely with the change in the risk free rates (see Figure 12).

While the article by Norman is focused on the returns to the Australian banking sector, the banking sector is a relatively major component of the total Australian equity market, accounting for over 40% of the value of the ASX 200.

At the very least, the findings set out in the RBA report strongly suggest that, as part of the new instrument, the AER needs to take account of the structural change issues in the Australian shareholder index and how these compositional changes might influence the outputs of the DGM and the subsequent estimation of the MRP.[151]

[151] For example, an article in the Sydney Morning Herald by Jonathan Shapiro, reported the commentary by a senior portfolio manager of Lazard on the Australian equity market on the problems with the concentration in the Australian share market index. : In the year 2000, technology, media and telcos made up 37% of the ASX 2000 but by 2008 had declined to 10%. . On the other hand, due to the mining boom, by 2008, 'materials & energy' made up 39% of the index, but by 2015, this had declined to 16%. Instead, the banks accounted for more than 42% of the ASX 200. See: Jonathan Shapiro, Australia's bank-bloated stock index 'loaded with risk', updated 27 May 2015. https://www.smh.com.au/business/banking-and-finance/australias-bankbloated-stock-index-loaded-with-risk-20150520-gh60bw.html

Figure 12: Forward Earnings Yield ASX 200 Banks versus ASX (excluding banks)



Source: David Norman, *Returns on Equity, Cost of Equity and the Implications for Banks*, RBA Bulletin, March Quarter 2017, Graph 4, p 54

So what is to be made of these different outcomes of the DGM models?

First, it is important to highlight that although the DGM is said to be a forward looking model of expectations, it is difficult to escape the view that the inputs to the model are based on historical trend data, albeit more indirectly and less transparently than in the case of the HER. Expectations reflect past experience and past experience is relevant to the forecast for each of the DGM assumptions. Forecasts are not made 'de novo'.

Overlaying this is the question of the behavioural tendencies and motivations of the forecasters. CCP16's previous submission provided evidence of the type of systematic and temporary biases that may impact on the assumptions in the DGM model and the resulting outputs.[152] Thus, while the DGM models (properly specified) may be reasonable predictors of the MRP over a one to two year horizon, they are considerably less useful for the AER's regulatory task of estimating current perceptions of the long-term MRP, at least in the form that has been put to the AER so far.

In this respect, CCP16 has sympathy with the views of the investor representative at the CES2. His view was that the MRP was relatively stable over time, and that typically, investors will 'look-through' the short term market fluctuations and will assess their portfolio of investments from the perspective of expected market returns above the risk free rate in the longer-term.

The AER's updated model of the DGM (using 10-year bond yields) reflects the approaches of Damodaran and of Fenebris are more likely to deliver outcomes that reflect these investor expectations. As noted, because this version of the DGM includes assumptions linked to objective measures, it is more likely to gain acceptance from consumers, all other things being equal.

[152] See ibid, p 104.

Role of the DGM in the binding rate of return guideline

Ultimately, the AER has to come to a decision on the use of the DGM, and to do so in the context of a binding guideline with no, or very restricted re-opening options. However, the DGM outputs are generally relatively volatile year on year – a fact that may have strengths in some settings but is a major issue in the process of setting an estimate for the MRP in a binding guideline for four years.

CCP16 considers therefore that with respect to the role of the DGM that, while the theory may be useful, the practical application of the DGM must be carefully considered. While all models, including the HER, can be 'manipulated' to some extent, the DGM is inevitable extremely sensitive to this risk – it is possible to derive almost any output simply by manipulating a range of more or less feasible individual inputs to the model.

Therefore, CCP16 concludes that, given sensitivity of the outputs to the selection of the model and the assumptions, along with its relative volatility over time, the DGM should be used very cautiously in the estimate of a point value for the MRP. For instance, CCP16 does not support the view that there should be some fixed quantitative weighting given to the DGM. Primary weight should be given to the HER.

To the extent that DGM estimates are consistent with conditioning variables that indicate the investment climate, and show a sustained consistent trend over time and across a wider range of models some weight may be given to the DGM estimates. In the current review, the DGM estimates should be given little if any weight, due to the inconsistency with conditioning variables and the limited range of models currently considered.

Summary

- The weight that the DGM results cannot be fixed in advance but must be considered alongside other information to assess whether it provides a sufficient basis for varying the best estimate from the HER. For instance, before finalising the role of the DGM in the estimation of the MRP in the Guideline, the AER should make an explicit assessment of the:
    - extent to which the results of the AER's modelling of the DGM are consistent between different versions of the DGM (sensitivity test)
    - extent to which the results are not transitory, but have been sustained for a period
    - consistency of the results with the conditioning variables and other indicators, such as those listed by Damodaran (see above)
    - the different approaches to assessing key parameters such as growth rates
    - changes in the structure of the equity market and how that might influence expectations for growth over time.
- If the DGM is to be used in any form estimating a fixed MRP for the Guideline, it must be must follow a transparent process of selection and be based on:
    - a clearly described, replicable and well supported model structure that produces reliable results that can be explained by reference to economic fundamentals
    - pre-specified decisions on how the key inputs to the model are to be defined and calculated, and the theoretical and empirical bases for these decisions
    - a decision on whether the relevant DGM output should be calculated on a short term basis or averaged over a longer period (e.g 2 months versus 12 months)
    - an agreement in advance on the role of the DGM in the assessment of the point estimate – for example, whether it is qualitative or quantitative (CCP16 suggests the former).

Finally, the work of Damodaran and others referred to in the AER's Discussion Paper and described above may provide a worthwhile direction for further investigation by the AER. It has the advantage of more objectivity in the input assumptions and to date appears to be more consistent with the information provided by other sources such as the contingency variables, financial stability data and the criteria suggested by Damodaran.

11. Value of imputation credits – gamma

While CCP16 generally supports the AER's approach, CCP16's view is that the AER should determine a value for gamma of at least 0.5. Specifically, CCP16 recommends the AER adopt:

1. Distribution ratio between 0.75 (all equities using recent ABS equity ownership data) and Lally's estimate of the distribution ratio of 0.83 based on the top 20 listed companies; and
2. Utilisation rate of 0.65 based on the most recent estimates of 'all equity' ownership statistics and Lally's recommendations; and
3. An overall gamma in the range of 0.5 to 0.55, which given a corporate tax rate allowance of 30%, will result in an effective total 'taxation' allowance of around 15%.

In coming to this recommendation, CCP16 finds the analysis by Lally the most consistent with the conceptual framework of the Officer CAPM and agree with Lally's view that the distribution ratio is a firm or at least industry specific measure, while the utilisation rate is a market-wide parameter. Lally's view is that the Officer CAPM is a fully segmented market model, while the reality of the Australian equity market is one of partial segmentation.

CCP16 sees limited value in the tax statistics that have published by the ATO although some experts have suggested various ways in which these statistics might be used. However, all the suggested methodologies face the same underlying issues.

First, the reports provide inconsistent estimates of the key parameters and there appear to be considerable issues with the interpretation of the existing reports from the ATO (noting that the different reports were not designed for the purposes to which they are being applied). Nor does the ATO appear to support the use of this data for the regulatory objective. Second, the ATO reports provide estimates from the total equity market, where Lally confirms that in the Officer CAPM, the distribution ratio is a firm / industry specific measure. Attempts to 'square the circle' on this appear convoluted and subject to multiplication of estimation

Summary and recommendations

The 2017 and 2018 decisions by the Full Federal Courts and the SA and ACT Tribunals made clear that the AER was not in error when it defined the Officer CAPM model as being a post corporate tax but pre personal taxes and costs. As a result, the arcane debates about the meaning of the 'value of imputation credits', which have dominated the assessment of gamma to date, can be put aside in this review. Specifically, market measures such as the dividend drop-off studies estimated a value for gamma that includes the impact of personal taxes and costs on the utilisation ratio.

As a result, CES2 focused on what were the best approach to estimating gamma, and each of the individual components of gamma namely the distribution ratio and the utilisation rate, within the Officer CAPM framework. In particular, the CES2 discussed if and how statistics on distribution ratios and redemption rates sourced from the Australian Taxation Office (ATO) reports might be used in the assessment of gamma. In the view of some experts, the ATO reports provided the best data, while other experts concluded that there were too many difficulties with interpretation of the data and resolution of the conflicting outputs from different reports. The preference among these experts was for the AER to rely mainly on the ABS data on equity ownership.

There were three other important discussions in the CES2 that have implications for the AER's Guideline:

- The Officer CAPM is based on the assumption that national equity markets are completely segmented from international investors and, therefore, the utilisation rate of franking credits should be close to 1. A fully integrated equity market would have a utilisation rate of very close to 0, suggesting an international CAPM model – but this is beyond the current incremental review. The Australia equity market is a partially segmented market and assumptions must be made on how to interpret this reality within the Officer CAPM framework.
- The two parameters of the distribution ratio and utilisation rates differ in their underlying assumptions. The distribution ratio is a firm (or perhaps industry) specific ratio and can be estimated in principle based on the behaviour of actual firms. In contrast, the utilisation rate is a market wide figure and can in principle be estimated using market wide data such as the equity ownership data. The AER is, therefore, not bound to apply the same estimation methodology to each of the parameters.
- With respect to the distribution ratio in particular, it is important for the AER to define the characteristics of the benchmark efficient entity (BEE) as this will determine the set of comparators used in the estimation, particularly given the limitations of the dividend and franking data that is provided in the networks' annual reports.

CCP16 has carefully considered the above arguments. We have also considered principles such as the preference for retaining consistency and stability in regulatory decisions. However, off-setting this is our view that:

- There is evidence from both theory and data that a preferable estimate of gamma is somewhat higher than 0.4: we recommend a gamma of at least 0.5 to 0.55 based on both a higher distribution ratio (between 0.75 and 0.83) and a higher utilisation rate (0.65) that is based on the updated equity ownership data for all equity.
- A higher figure provides a better balance in the overall outcome between the risks for networks, the risks of overinvestment and the risks for consumers of higher than necessary prices.
- The combination of a 30% corporate tax rate, which is higher than actual tax paid, and a gamma of 0.5 results in an effective adjusted net tax allowance of 15%. As this is closer to the actual tax rates that appear to be paid by the privately owned networks, a reduction in the adjusted tax rate should not adversely impact on the efficient overall revenue allowance.

However, CCP16 also urges the AER to pursue the tax statistics issue further with the ATO before finalising the new Rate of Return instrument, in order, at the very least, to quantify better the impact of the issues identified by Hathaway and the ATO's concerns with Hathaway's analysis.

11.1. Questions posed by the AER

11.1.1. AER Position Paper

The AER's Issues Paper posed the question:

> Q. 10: Is it appropriate to limit the review of the imputation credits to updating the empirical analysis? Are there particular issues we should take into account when updating the empirical analysis?

11.1.2. Gamma Discussion Paper

The AER's Gamma Discussion Paper for CES2 posed the following questions:

1. What relative weights should be attached to the different data sources?
2. How likely is it that Franking Credits Redeemed / Company Taxation Paid from ATO tax statistics would give a reliable estimate of the value of imputation credits for the benchmark firm?
3. What reliance should we place on tax statistics?
4. What role should the updated equity ownership data from the ABS have in informing the estimate of the utilisation rate used for estimating the value of imputation credits?
5. What regard should be given to Lally's preferred approach of using annual financial report data for a subset of large ASX listed firms (of which his estimate from the top 20 ASX firms is one such estimate) to inform the distribution rate of BEE?
6. What is a reasonable range for an estimate of the value of imputation credits given currently available empirical evidence (including the updated ABS data and Lally's estimate of the distribution rate based on data from the financial statements of the top ASX listed firms)?
7. What point estimate of the value of imputation credits is appropriate given currently available empirical evidence (including the updated ABS data and Lally's estimate of the distribution rate based on data from the financial statements of the top 20 ASX listed firms)?

11.2. CCP initial position

CCP16 generally supported the overall conceptual framework in which the AER assessed the value of imputation credits (gamma). CCP16 contended that the decision of the Full Federal Court in May 2017 settled the question on the 'value of imputation credits'.

As a result of the Court's decision, CCP16 advised the AER that market based studies such as the dividend drop-off study should play little of no part in the AER's assessment of the value of gamma in the new instrument. CCP16 advised that the AER that should now focus on developing a consistent framework and data set for the assessment of gamma and its two components, the distribution ratio and the utilisation rate using both equity ownership and tax statistics data. At the time of preparing the submission, CCP16 specifically noted the potential value of tax statistics for estimating both the distribution and utilisation rates and encouraged the AER to continue to seek further refinement of this ATO data in conjunction with the tax office.

Finally, CCP16 highlighted that the AER's current allowance for taxation does not reflect actual taxation that is paid by the network businesses. We concluded that: "the AER should collect a more comprehensive data base on the actual practices with respect to tax and imputation credits, particularly of entities that are close to the BEE but also embracing the infrastructure sector more generally." [153]

[153] CCP, *Submission on Rate of Return Issues Paper*, 18 December 2017, p9.

11.3. AER Discussion Paper and CES2

11.3.1. AER Discussion Paper – Value of Imputation Credits

As a prelude to the relevant concurrent evidence session, the AER published a discussion paper on the value of imputation credits. The discussion paper notes that while the AER has broadly maintained the approach set out in the 2013 Rate of Return Guideline, it has re-examined the relevant evidence and estimates for both the payout ratio (distribution ratio) and the utilisation rate.

The 2013 Rate of Return Guideline established a value for gamma of 0.5 based on the product of its estimates of a payout ratio of 0.7 and utilisation rate of 0.7. In making this decision, the AER considered a variety of evidence and concluded that it would place:

- Most reliance on the equity ownership methodology;
- Some reliance on tax statistics; and
- Limited reliance on market measures such as the dividend drop-off studies.

However, in its subsequent regulatory decisions, the AER adopted a value for gamma of 0.4 from within a range of 0.3 to 0.5. The AER states that this change from the Guideline was based on its re-examination of new evidence on each of the two parameters. In particular, the AER has updated is estimate of the utilisation rate to 0.5. The AER has used this value of gamma of 0.4 in all its revenue decisions since 2014.

While the AER's decision on the value of the distribution ratio has remained largely unchallenged by the networks and their advisors, the AER's decision on the utilisation rate has been subject to numerous appeals by networks to Tribunals and the Federal Courts. These challenges relied on the argument that the AER did not appropriately interpret the meaning of the term 'value' of imputation credits in the NER and NGR. The networks argued that the term referred to 'market value' and the most appropriate measure of market value was through the application of the dividend drop-off methodology.

The debate culminated in the decision by the Full Federal Court in May 2017 that the AER had not erred in its interpretation of the utilisation rate. A second decision by the Full Federal Court in a separate appeal concurred with this first decision. The AER's 2018 discussion paper states that: "we consider that this issue has been largely settled following the federal court decisions". [154] As indicated above, CCP16 supported this view in its initial submission to the AER's Issues Paper.

The AER's March 2018 Discussion Paper emphasises some points that CCP16 finds are particularly relevant in its current assessment of gamma. These include:[155]

- The AER confirms that it adopts a conceptual framework based initially on the work of Officer (1994),[156] and that the Officer framework specifies that the value of gamma is determined on a post corporate tax but before personal taxes and transaction costs basis. It follows from this that the value of imputation credits is the equivalent of the proportion of company tax returned to investors through the utilisation of imputation credits. As discussed further in section 11.4 below,

[154] AER, *Gamma Discussion Paper*, March 2018, p 8
[155] See Ibid, pp 8-9.
[156] R Officer, "The cost of capital of a company under an imputation system", *Accounting and Finance*, vol 34(1), May 1994, pp 1-17

the market based studies such as the dividend drop-off studies are not consistent with this framework as market based estimates include the impact of personal taxes and transaction costs on the value of imputation credits to investors.

- The AER has regard to evidence from all equity (private and public companies) as well as the subset of listed equity, given that there is no consensus on which approach better estimates the value of imputation credits and that both estimates are 'reasonably consistent' with a benchmark efficient entity.
- Applying the widely accepted approach following the work of Monkhouse (1993, 1996) and others, to extend the Officer framework to include the value of imputation credits as the product of the proportion of imputation credits generated that is distributed to investors (the distribution ratio) and the utilisation value to investors in the market per dollar of imputation credits utilised (the utilisation rate).

Distribution ratio estimation:

The AER's current approach is to estimate the distribution ratio as the proportion of imputation credits that is generated by a BEE and distributed to investors. This proportion is estimated as follows:

- Relying mainly on the 'cumulative payout ratio approach', using ATO data on accounts used by companies to track their stocks of imputation credits (franking account balances or FABs). The estimated ratios from ATO data are 0.75 for listed equity and 0.7 for all equity.
- Have some regard to Lally's estimate of 0.83 for listed equity based on the 20 largest ASX-listed firms.

Utilisation rate estimation:

This represents the value to investors of utilising imputation credits per dollar of imputation credits distributed. The assumption is that for an 'eligible' investor, the utilisation rate should be 1. Conversely, 'ineligible' investors will have a utilisation rate of zero. As per the work of Monkhouse, the overall utilisation rate will be the 'weighted average, by wealth and risk aversion, of the utilisation rates of individual investors'.[157] As noted above, the AER currently calculates the utilisation rate taking account of the following:[158]

- Significant reliance on the equity ownership approach, which estimates the value-weighted proportion of domestic investors in the Australian equity market, using data from the National Accounts published by the Australian Bureau of Statistics (ABS) to estimate the domestic ownership share.
- Some reliance on ATO statistics, which provides an estimate of the amount investors redeem to reduce their tax liabilities (the 'redemption rate'). The AER's reliance on this data is modified by its concerns with the ongoing issues in the ATO statistics. The AER also places more reliance on ATO data post-2004 as the AER considers this data is of higher quality.
- Less reliance on implied market value studies such as the dividend drop off studies. The AER's discussion paper indicates that these studies are inconsistent with the AER's conceptual framework (post company tax and before the impact of personal taxes and personal costs). The

[157] Ibid, p 9. Citing the Monkhouse 1996 paper
[158] See ibid, pp 9-10.

AER states that this view is consistent with the most recent Tribunal decision, which considered that dividend drop-off studies take account of investor's costs and therefore do not meet the Rules.[159]

The AER's Discussion paper notes that three more recent decisions by the Federal Court and the Tribunal have supported the AER's interpretation of gamma, and the assessment and use of various data sources. They are:

- Federal Court of Australia, Australian Energy Regulator v Australian Competition Tribunal (No 2) FCAFC 79, May 2017;
- Australian Competition Tribunal, Application by ActewAGL[2017] ACompT 2 October 2017;
- Federal Court of Australia, SA Power Networks v Australian Competition Tribunal (No 2)[2018] FCAFC 3, Jan 2018.

The AER presented the following tables in its Discussion Paper. It concluded that the evidence suggests that a reasonable estimate of the value of imputation credits is within the range of 0.3 to 0.6. This compares to the range considered in determinations since 2014 of 0.3 to 0.5, and reflects revised equity ownership data from the ABS National Accounts. The result of this reassessment was a small increase in the range of the utilisation rate for both all equity and listed equity for the equity ownership data using 'matched data'[160]. The AER's table includes Dr Lally's (Lally) estimate of the distribution rate based on the annual financial reporting data of the top 20 ASX firms.[161] Lally also recommended the utilisation rate be set "at least 0.6".[162]

The AER's tables are inserted below.

[159] ACT, *Application by ActewAGL [2017]* ACompT 2, October 2017, para 337

[160] 'Matched data' refers to the matching of the data sources for the assessment of both the distribution ratio and the utilisation rate (namely the ABS data). Dr Lally has argued that this is not necessary, and that distribution ratio and utilisation rate can be derived from different sources as they are different measures – the distribution ratio may be estimated using market-wide data, but is in principle, a firm-specific parameter. See also discussion in section 11.3.2 below.

[161] Ibid, p 16

[162] While not cited in the AER's table, it is cited in the footnotes to the table (see footnotes 36 and 39). The footnotes refer to the paper by Lally, M Lally, *Gamma and the ACT Decision*, May 2016, p 6 & others.

Table 8: AER's estimates of the value of imputation credits – evidence from all equity

Table 2 Estimates of the value of imputation credits—evidence from all equity

Evidence on utilisation rate	Utilisation rate	Distribution rate	Value of Imputation Credits
Equity ownership approach	0.61 to 0.70[34]	0.7[35]	0.43 to 0.49
Equity ownership approach (using the most recent quarter's estimate)[36]	0.65[37]	0.7	0.45
Equity ownership approach (Lally estimated distribution rate)	0.61 to 0.70[38]	0.83	0.51 to 0.58[39]
Equity ownership approach (Lally estimated distribution rate and the most recent quarter's estimate)	0.65	0.83	0.54
Tax statistics	0.5	0.7	0.35
Tax statistics (Lally estimated distribution rate)	0.5	0.83	0.41

Source: AER analysis; Lally, *Gamma and the ACT Decision*, May 2016, p. 6.

Table 9: AER's estimates of the value of imputation credits – evidence from listed equity

Table 3 Estimates of the value of imputation credits—evidence from listed equity

Evidence on utilisation rate	Utilisation rate	Distribution rate	Value of Imputation Credits
Equity ownership approach	0.52 to 0.58[40]	0.75	0.39 to 0.43 [(a)]
Equity ownership approach (using the most recent quarter's estimate)[41]	0.58[42]	0.75	0.43
Implied market value studies	0 to 1	0.75	0 to 0.75
SFG dividend drop off study	*0.35 (0.4)*[(a)]		*0.26 (0.30)*[(b)]

Source: AER analysis.

(a) We note Lally recommends the utilisation rate from all equity over the utilisation rate from listed equity. However, if his estimated distribution rate was paired with the utilisation rate for listed equity it would give a range for the value of imputation credits of 0.43 to 0.48.

(b): Following the adjustment proposed by Handley and Lally. This adjustment is discussed further in in AER's recent decisions.

Source: AER, *Discussion Paper, Value of imputation credits*, March 2018, pp 15-16.

11.3.2. Concurrent Evidence Session (CES2) discussion

There was agreement among the experts that the Federal Court's decisions meant that the market based studies such as the dividend drop-off studies, would not be significant in the determination of gamma, although it was also argued by Professor Gray that the Federal Court has misunderstood the role of gamma in the regulatory framework.

As such, the CES2 focused on the following themes:

- Whether the BEE should be provided with an allowance equivalent to the corporate tax rate (currently 30%);
- The use of tax statistics in the assessment of gamma and each of the two individual components of gamma ; and
- The characteristics of the BEE and if and how this should influence the decision on gamma.

The relevant elements of the CES2 discussion are summarised below.

Tax and the Officer CAPM model

The CES2 began with an agreement that it was appropriate to adopt the assumption of the statutory corporate tax rate of 30%. There was also acceptance that for the purpose of the 2018 Guideline, the Officer CAPM model was based on assessment of 'post corporate tax but before personal tax and personal costs'. This interpretation has been confirmed by the decisions of the Federal Court (May 2017, Jan 2018) and the ActewAGL and SA Competition Tribunals. The Tribunals and Courts also ruled that it was reaonsable for the AER to rely mainly on equity ownership data to assess the value of imputation credits and the two parameters of dividend payout ratio and the utilisation rate.

As a result of these decisions, the CES2 discussion did not further consider the market-based studies such as the dividend drop-off studies.

The discussion highlighted that the Officer CAPM is based on the assumption of a 'fully segmented' market. That is, the model assumes that there is no foreign investment in Australia and no Australians invest overseas. In this case, the value of the utilisation component of gamma would be close to 1 subject to the 45-day rule[163]. The other extreme is to assume that the Australian equity market is a fully integrated market, in which case the utilisation would be close to zero[164] and it would be appropriate to align the AER's decision with an international CAPM model. The reality is that the Australian equity market is partially segmented. However this poses two issues:

- The practical issue of defining the level of segmentation in the Australian market; and
- The theoretical problem that there is no theoretical framework that could effectively define a CAPM in a partially segmented market.

Given these difficulties, it was clear that any assessment of gamma, and the two gamma parameters, would need to rely on various sources of data. Having ruled out consideration of the market data used in the dividend drop-off studies, a good part of the expert discussion involved discussion about whether the data from the Australian Taxation Office (ATO) on imputation credit distribution and redemption rates could be used, and if so how it might be used. The debate on the use of ATO data was largely to contest the AER's 2013 Guideline position of relying largely on equity ownership data from the ABS National Accounts, and to place limited reliance on the ATO data (see above).

A third view was promoted by Lally who argued that as the distribution ratio was a firm specific measure it is best measured by reference to firm specific, or industry specific practices. Similarly,

[163] Although the 45-day rule was discussed as relevant in reducing the utilization rate there was no discussion on its overall impact. Lally regarded it as having a small impact overall.

[164] This is because the 'weight' of international equity markets would swamp any impacts of the local Australian market and its imputation policy.

while the utilisation rate is a market wide parameter, the best estimate would assume a theoretical utilisation rate of 1 but perhaps to recognise some level of overseas ownership (as a proxy for a partial segmented market).

Lally's approach to the dividend payout ratio in a partially segmented market required the AER to estimate the distribution payout ratio using data from a set of companies consistent with the definition of the BEE (or as near as possible). In this context, the experts agreed that the relevant definition of a BEE for all relevant aspects of the WACC was an entity providing regulated services that operates exclusively within Australia and pays corporate tax only within Australia. However, there was no agreement that Lally's approach to using this data was appropriate for the estimation of the value of the distribution ratio.

A summary of the key arguments on the ATO data, and on Lally's approach, that were raised in CES2, are discussed below.

The use of ATO data to estimate the distribution ratio and the redemption rate[165]

As noted, the Tribunals and the Federal Courts have concluded that it was reasonable for the AER to rely principally on the equity ownership data to determine gamma and the individual parameter values. They accepted the AER's position that the AER would place less reliance on the ATO data.

Nevertheless, much of the experts' discussion on gamma centred around the use of the ATO data, with most experts suggesting that the AER should place more reliance on this data. Lally, however, strongly disagreed with this conclusion. A summary of the key points of the CES2 discussion is set out below.

Potential use of ATO data

Hathaway identified significant issues with the ATO data in 2006 and updated in 2014,[166] namely that different reports provided very different outcomes for the gamma parameters. In particular, one report indicated a dividend payout ratio of 70%, the other indicated a dividend payout ratio of 50%. Since that date, however, the ATO has not been able to reconcile these differences. Indeed, the most recent correspondence from the ATO warned against using the data from their report.[167]

As noted above, the AER placed less reliance on the ATO data precisely because of the issue with the data and the recommendations of its experts that the data was not suitable for the regulatory requirement, as this requires a separate assessment of the distribution ratio and the utilisation rate.

However, there was agreement among at least some of the experts that the AER could place more reliance on the ATO data despite these issues, subject to some modifications. In particular, they argued that the ATO statistics provided good evidence on the overall gamma and on the redemption

[165] In this instance, the ATO 'redemption' rate was regarded as equivalent to the utilisation rate specified by Hathaway.
[166] See N. Hathaway, *Imputation credit redemption ATO data 1988-2012: Where have all the credits gone? (draft)*, October 2014.
[167] See for instance, AER, "Note on ATO staff response to AER staff inquiries about Hathaway's 2013 report on imputation credit redemption", dated 29 March 2018, p 1. The AER states that the ATO's staff response (unpublished) suggests that there are "certain limitations on relying on taxation data and an analytical tool in the calculation of imputation credits" (Ibid, p 1).

rate.[168] For instance, the overall range for gamma could be calculated on the basis of a distribution ratio of 70% and 50%, assuming the same utilisation rate from the redemption data. Gray suggested, with some support, that tax statistics could be used to reliably estimate gamma as the ratio of imputation credits redeemed to imputation credits created.

There was also some expectation among most of the experts that the AER should again approach the ATO for further clarification of their tables and for some quantification of the impact of foreign companies paying tax in Australia in the interpretation of the ATO tables.

Lally, however, disputed this approach on conceptual and practical grounds, as discussed below.

Lally's assessment of gamma, the distribution ratio and utilisation rate

Lally's fundamental arguments run contrary to both the views of the experts described above and to the AER's analysis in setting a value for gamma of 0.4. In particular, Lally states that:

- The two parameters of the distribution ratio and the utilisation rate are two different constructs; the first is measured on a firm or industry specific basis while the utilisation rate is a market wide parameter. In particular, the ATO's data on the distribution ratio is not only conflicting; it is also irrelevant as it is based on a market wide calculation – the 'grand calculation'.
- The Officer SL CAPM is a segregated CAPM, and as such the utilisation rate should theoretically be 1 (or very close to 1).
- The ATO data and Hathaway's interpretation of this data in his initial and updated analyses is flawed. The ATO, for instance, has suggested that Hathaway may not have taken into account the impact of non-resident companies paying tax in Australia but who do not generate franking credits. Hence overall company tax data and franking credits distributed data will never reconcile given these companies cannot issue franking credits. Lally also argued that, given this major gap in Hathaway's analyses, we cannot be confident that there are no other gaps in the analysis.
- The ATO is unable to quantify the impact of various issues (such as the non-resident tax payers) on the data.

However, while Lally is critical of the ATO data on both theoretical and practical grounds, he does not endorse the AER's approach of relying mainly on equity ownership data. The key elements of Lally's approach with respect to each parameter are as follows:

Lally: Distribution ratio:

In principle, the AER should rely on a observations of the network companies to obtain a relevant distribution ratio for franking credits. However, the relevant data from company reports is scarce and inconsistent, with only two of a possible five comparator companies providing sufficient data. Of these two, the evidence over the last three years is for a distribution ratio above 1[169] (versus the AER's distribution ratio of 0.7).

[168] That is, by calculating two estimates of gamma, using the two estimates of the dividend payout ratio of 70% and 50% (given an assumed constant utilisation rate).

[169] For instance, a distribution ratio of more than 1 could arise if a company is drawing down its franking credit balance in any one year.

For these reasons, Lally proposed that the 'next' best option (noting the limitations of this) was to review the actual dividend pay-out ratios of the top 20 ASX listed firms. Based on some three years of data from these firms, Lally recommended a distribution ratio of 0.83, a ratio consistent with an assumption of partial segmentation of the equity market. However, Lally also argued that 0.83 was a conservative estimate for the BEE.[170] Nor is the estimate a 'cap' on the distribution ratio range. It is wrong to treat this as a 'maximum value', it should be treated as an estimate of a central value and does not require further 'adjustment'.

Lally acknowledged the limitations of his current analysis of 20 large listed firms but considered it was the best estimate until and unless there was an agreement on the definition of the BEE and an expanded and more directly relevant comparator set.

However, all assessments still suffer from the issue of foreign investment in Australian companies paying tax in Australia. Lally considered that the ABS equity ownership data might provide some guidance on the extent of this issue.

There were various criticisms of Lally's argument among the other experts at the CES2 and these remained largely unresolved. They included:

- Many of the regulated energy firms are not listed. Therefore, Lally's observations, which were based on the largest 20 ASX listed companies, represented a 'cap' on the ratio, not the best estimate of the distribution ratio.
- Lally's examination of three years of data on the listed energy network data is too short at least in part due to company policies of 'smoothing dividends' over time. Company structures can also distort the relevance of observed data.
- An alternative to Lally's view would be to estimate what would be a 'sensible' dividend policy and, therefore the credit distribution policy, for the BEE. However, Lally disputes how this would be calculated, given that published company information is generally expressed as dividends paid out over accounting profit, not over taxable income.

Lally: Utilisation rate

Lally's view was that the utilisation rate should in principle be 1, or close to 1.

Lally begins with the proposition that in a perfectly segmented market (consistent with the Officer CAPM framework), the utilisation rate would be 1 (along with distribution rate of at least 0.83). The estimation of the utilisation rate if the Australian equity market was fully integrated in the world equity market would be zero. Lally considered that the AER's task is to use its judgement to estimate the value under each of these two extremes, and then use its judgement to decide where the rate sits between these two extremes.

Lally concluded: "Once you do decide to use local information, the ABS data on equity ownership are the natural way of estimating the utilisation rate".[171] Lally also suggests that the AER use 'all equity' for this assessment. He does not see it necessary here to be consistent with the distribution ratio calculation, which might rely on either all equity or listed equity (subject to data quality). Nor did

[170] See also, M. Lally, *Gamma and the Australian Competition Tribunal Decision,* 23 May 2016, P 29.
[171] See Concurrent Evidence Session No. 2, Un-proofed version, 5 April 2018, p 111.

Lally consider the AER's estimate from equity ownership data of a utilisation rate of 0.5 as an upper bound.

Rather Lally has indicated in other papers that his best estimate of the utilisation rate (based on the ABS data) of the proportion of Australian equities held by local investors is 0.6.[172] In the same paper (but not cited at the CES2), Lally highlights that this figure of 0.6 is not an upper band – and should not be treated as such - as it is subject to estimation errors in either direction.

Given the two estimates described above for the distribution ratio (0.83), and the utilisation rate (0.6), Lally concludes that the overall value of gamma used by the AER should be at least 0.5.

Defining the BEE

An important sub-text of the discussion on gamma was the definition of the BEE. For example, in Lally's assessment of the distribution ratio, the 'ideal' comparator set of companies would be determined by the definition of the BEE.

There was agreement among the experts that for the purposes of the estimation of WACC for the network businesses, the BEE should be defined as an Australian owned entity paying tax in Australia providing regulated services. However, all agreed that there were few if any network companies that met this definition.

The experts also highlighted the following:

- Ultimately, the AER would need to exercise its judgement in selecting comparator firms and the same firms should be used for assessment of each of the relevant components of the WACC (beta and distribution ratio).
- However, the relevance of data from the different selected comparator firms may vary from one component decision to another. For instance:
    - in estimating the distribution rate for gamma, it was important to distinguish between listed and unlisted firms as they tend so have different distribution payout policies (listed companies have higher distribution rate than unlisted companies due to different tax treatments)
    - similarly, capital-intensive businesses have different approach to dividend payouts than other businesses
    - in estimating beta, the key criteria is the assessment of the systematic risk profiles of the members of the comparator set, and it was less important whether they paid tax only in Australia.

11.4. CCP16's assessment

It is clear from the AER's analysis and from the evidence at CES2 that gamma is not observable, and there can be no precise estimate of gamma. Each data source has weaknesses, but some more than others. At the end of the day, the AER will have to exercise its judgement on which evidence is more

[172] See, M Lally, *Gamma and the Australian Competition Tribunal Decision,* 23 May 2016, pp 30, 32. The figure is based on estimates of all equity rather than listed equity only. As noted, Lally does not see it as an issue that he has used listed equity to derive the distribution ratio and all equity to derive the utilisation rate as the distribution ratio is a firm specific estimate, and the utilisation rate is an overall market estimate of the ratio of those who can use the credits and those who cannot.

relevant to the estimation of gamma (and its components) in the context of the regulatory decision-making.

The three high-level approaches considered by the AER in exercising its judgement in order of reliance by the AER are:

- Equity ownership data;
- Taxation statistics; and
- Market studies (e.g. the dividend drop-off studies).

CCP16 notes the fundamental criticism by Lally of all these three approaches, namely that they are estimates based on an embedded assumption of a partially integrated equity market, where the Officer CAPM assumes a fully segregated Australian equity market (an assumption that is also perhaps more consistent with the suggested definitions of the BEE, as an entity operating only in Australia and only paying tax in Australia).

Having considered the information provided by the AER and the experts in CES2, CCP16 has concluded the following, with respect to the overall approach to estimating gamma:

- The market studies should be given no role in the estimation of gamma or the components of gamma (especially the utilisation rate). CCP16 considers that the careful analysis of the Officer model confirms that the Officer CAPM theory requires an assessment of that is 'post corporate tax, and pre personal taxes and costs' and that the Courts now accept that this interpretation and its implications. The market studies such as the dividend drop-off studies reflect the decisions of individual investors after taking account of their personal taxes and costs. The market studies are, therefore, not relevant considerations in the current Officer CAPM framework.
- The ATO taxation statistics currently provide very limited useful information on the value of gamma or its components for the purposes of the Officer CAPM model. While there is some suggestion that the tax statistics from the ATO could be used to estimate the overall value of gamma, there is still considerable doubt over what the tables are measuring in regard to the overall company tax – for instance, whether the figures presented in the ATO FAB data include or exclude overseas investors paying tax in Australia. The ATO's own apparent lack of confidence in the data (at least for the designated purposes) indicates that the AER should adopt a very cautious approach to using this data *at this stage*.
- The equity ownership data from the ABS National Accounts provide some guidance on the proportion of equities issued in Australia and owned by Australians, and of the utilisation rates by investors. However, even this data is subject to some limitations. Lally argues, for instance, that the ABS data provides a market wide average estimate of the distribution ratio. However, the relevant distribution ratio for the AER's analysis is company and/or industry sector specific measures. Lally suggests that evidence from the industry sample indicates a higher distribution ratio, as does the evidence from his analysis of the top 20 ASX companies.

CCP16 recognises the criticisms of Lally's estimate of a distribution ratio with a central value of 0.83, to the extent that Lally's estimate is based on a limited set of actual dividend payout data.[173]

[173] Lally makes clear that 0.83 is not a cap, and should not represent the statistical top of the range, it is a 'mid-point' and the real outcome may be more or less than 0.83.

However, CCP16 does support Lally's view that, in principle, the distribution ratio can be best calculated using actual behaviour of the individual network companies or a relevant group of companies that fit within the AER's definition of the BEE, including the existing networks. We do not support the proposal by Gray (for instance), that the AER estimate payout ratios based on the stated dividend 'policies' of relevant organisations.

CCP16 also is cautious of Gray's argument that the AER should take into consideration what it considers is the efficient dividend policy for a BEE. Both these arguments by Gray et al lack sufficient empirical support to give confidence to consumers that the decision is being made in the long term interests of consumers in accordance with the NEO and NGO.

CCP16 also suggests that the evidence of the actual behaviour of the listed networks suggests that there may be higher dividend payout ratio for the BEE entities than the AER's aggregate market based figure of 0.7. Certainly the data does not support a figure lower than 0.7.

Therefore, CCP16 also agrees with Lally's own suggestion that the AER undertake further empirical investigation of relevant companies once it has defined the BEE and identified the comparator companies that are most consistent with the BEE.

Related to this, Lally's conceptual argument that the distribution ratio is a firm or industry specific ratio and the utilisation ratio is market wide figure within the Officer CAPM framework is supported. It leads CCP16 to the conclusion that it is not necessary, per se, for the distribution ratio and the utilisation rate to be calculated on the same basis in order to derive an appropriate gamma for the BEE. For example, this has some parallel with the combination of an industry specific equity beta with a market wide MRP to derive the overall equity risk premium in the CAPM model.

We therefore suggest that the AER is not, in principle, bound to use listed entities for both the distribution ratio and for the utilisation rate, or to use all equities (listed and unlisted) for both the distribution ratio and the utilisation rate.

On the other hand, some experts at the CES2 put forward a reasonable argument that that the energy networks include a mix of both listed and unlisted networks, and an estimate of the distribution ratio should include consideration of both using some form of weighted put a reasonable argument average.

From this debate, CCP16 concludes that:

- The appropriate reference point for estimating the market wide parameter of the utilisation of imputation credits is 'all equity' derived from the ABS National Accounts data; and
- The appropriate reference point for estimating the dividend payout ratio is a weighted average of listed and unlisted equity where this weighting is based on the observations of the BEE comparator set of entities (whatever that might include).

With respect to these two options, CCP16 is comfortable that there is reasonably good data from the ABS National Accounts for the estimation of the utilisation rate. However, it is likely that estimating the distribution ratio for the BEE from the overall market data set out in the National Accounts will be more problematic given Lally's assessment that the distribution ratio is a company/industry specific measure.

As such, it is important for the AER to consider Lally's proposition. CCP16 supports Lally's recommendations that the AER undertake further investigation of the actual practices of the BEE comparator set of companies and to incorporate a suitable weighting of listed and unlisted companies in the set. In the absence of this additional research, CCP16 recommends that the AER regards estimates of the dividend payout ratio from the national accounts as a conservative estimate as it includes multiple unlisted companies whose dividend policies differ from listed companies. The current estimate of 0.7 will therefore underestimate the dividend payout ratio for the relevant firms in the comparator set.

Consideration of the overall tax / imputation credit outcomes in the context of the BEE

As a final comment, CCP16 reiterates its advice to the AER in response to the Issues Paper. That is, gamma cannot be looked at in isolation from the overall normal vanilla WACC. More particularly, it cannot be looked at in isolation of the decisions on the relevant corporate taxation rate (30% in this case). There is much evidence now available to the AER that for one reason or another, including organisational structures, the privately owned energy networks in Australia pay considerably less tax on average than the 30% allowance.

CCP16 understands that the AER will be looking at this specific issue of the treatment of tax over the next year. In the meantime, CCP16 suggests that the AER at least acknowledge that the allowance of 30% for taxation in the PTRM is in excess of the observed taxation rate of the existing regulated networks and, most likely, of the BEE (however defined). In other words, consumers are funding networks for costs that they do not incur in practice.

Given this, it is appropriate for the AER to consider how it approaches the estimation of gamma and the two components of gamma. Since 2014, the AER has adopted a conservative approach to estimating gamma. CCP16 suggests that this is not appropriate if the AER considers the tax/gamma outcome as a whole (assuming the 30% tax allowance as the base). We would strongly recommend that the AER reconsider this conservative approach and revert to an allowance for gamma that is still within the empirical observations. We support Lally's recommendation that a gamma of at least 0.5 is appropriate. A gamma of 0.5 will result in an effective adjusted tax allowance of 15%, which is closer to the reality of the actual taxation paid by the networks but will still overcompensate the firms given the imputation benefits.

This figure of 0.5 for gamma represents a change from the AER's current estimate of 0.4, albeit it is consistent with the AER's 2013 Guideline. The estimate of 0.5 is also consistent with the expectation that this Guideline will focus on incremental changes represent as it does not represents a significant change or introduce new regulatory risks that impede the recovery of efficient costs.

As noted above, this estimate of 0.5 delivers a total *adjusted* tax allowance of some 15%, which is more realistic than the current assumptions.

This proposed update to gamma is also important because it reflects the general view of CCP16 and many other stakeholders that the AER has previously adopted conservative estimates throughout the assessment of WACC components. This approach has been driven, at least in part, by the AER's concern with the risks of underinvestment. We have argued elsewhere in this submission that the balance of risk has now moved more towards the centre. A gamma of 0.5 better reflects the balancing of risks between the networks and consumers.

Recommendations:

1) The AER place significant reliance on the equity ownership data rather than the ATO data or the market-based data (dividend drop-off studies), at least in the absence of further information from the ATO.
2) The AER continue its dialogue with the ATO to refine the existing data set including some quantification of the impact of the issues raised by the ATO with respect to Hathaway's 2013/2017 analysis of ATO data.
3) Subject to receipt of further, and more accurate data from the ATO, the AER should adopt:
    - A distribution ratio between 0.75 (all equities) and Lally's estimate of 0.83;
    - A utilisation rate based on the most recent estimates of 'all equity' utilisation of 0.65 (see AER's all equity table above); and
    - A gamma of at least 0.5, which, given a corporate tax rate allowance of 30%, will result in an effective total 'taxation' allowance of 15%.