Rate of return and cashflows in a low interest rate environment

Response to Draft AER Working Paper

2 July 2021

Energy Networks Australia

Contents

1	Overview	3
2	The importance of an unbiased allowed return	8
3	The context for the 2022 RoRI review	12
4	Risk-free rate	22
5	Market risk premium	34
6	Financeability	43
7	Appendix A - Response to CRG feedback and assessment framework	52

1 Overview

Key messages

- The long-term interests of consumers are best served by setting the regulatory allowance to match the market cost of capital. Such an approach ensures that network investors receive efficient compensation for their required returns and that consumers pay no more than the efficient cost of the service that is provided to them.
- Efficient investment has the potential to simultaneously improve reliability, lower prices, and allow customers to optimise the benefits of their own behind-the-meter investment. The best way to support efficient investment is to set the allowed return to the best possible estimate of the market cost of capital at the time of each decision.
- Since the 2018 RoRI, the allowed return on equity has fallen to historical lows. Brattle (2020) concludes that:
  - the AER's allowed return on equity is lower than that adopted by every other regulator for which a comparison could be made. This finding is corroborated independently by evidence from a range of other sources; and that
  - The AER's approach to the allowed return on equity "*is not as effective as the approach of other regulators*" such that the AER should consider a number of areas for reform.

  It is important that the Brattle recommendations be given careful consideration through the 2022 RoRI review process.
- ENA proposes that, as part of the 2022 RoRI process, the AER consider:
  - Whether the prevailing government bond yield is an appropriate proxy for the Capital Asset Pricing Model (CAPM) risk-free rate; and
  - How a best unbiased estimate of the required return on equity should be determined in circumstances where central bank interventions have driven government bond yields lower than the level that would be determined by the market.
- Brattle has advised – and ENA agrees – that a superior estimate of the market risk premium (MRP) can be obtained by giving some weight to forward-looking evidence such as the DGM. Such an approach would reduce the bias inherent in a mechanical application of the mean historical estimate across all market conditions and would also reduce the volatility in the allowed return on equity.
- ENA proposes that a financeability assessment should be performed as a cross-check of the AER's allowed return on capital, providing 'early warning' of adverse outcomes that could arise if the return on capital allowance were inadvertently set below the efficient level.

1.1 Context for this review

Energy Networks Australia (ENA) strongly endorses the Australian Energy Regulator's (AER) approach in commencing consultation on the 2022 Rate of Return Instrument (2022 RoRI) at this early stage. This

approach provides an opportunity for thorough stakeholder engagement and proper analysis of approaches and evidence. ENA welcomes the opportunities provided to engage with the AER and other stakeholders throughout this process.

1.2 Summary of ENA position

The best possible estimate of the market cost of capital

ENA agrees that the allowed return should be set equal to the best possible estimate of the market cost of capital at the time of each decision. Such an approach would ensure that network investors receive efficient compensation for their required returns and that consumers pay no more than the efficient cost of the service that is provided to them.

This review is being undertaken at a time when Australia's energy sector is in a once-in-a-generation transition phase, and where consumers are expecting networks to be ready to support the investments that they want to make behind the meter in relation to the generation, and smarter use, of energy. The sorts of new investment that will likely be required over the next decade include:

- Connecting renewable generation to the existing grid;
- Supporting the existing grid via targeted inter-connectors and other major capital investments such as those identified in the Australian Energy Market Operator's *Integrated System Plan*;
- Augmenting the existing grid to accommodate increasing distribution energy resources (DER) and to enable full support of the significant behind-the-meter investments currently being undertaken by customers;
- Expanded asset replacement programs in aging networks; and
- Integrating hydrogen assets into gas networks.

These investments will simultaneously improve reliability, lower prices, and allow customers to fully realise the benefits of their own behind-the-meter investment.

ENA proposes that the best way to support efficient investment, in the long-term interests of consumers, is to set the allowed return to the best possible estimate of the market cost of capital at the time of each network determination decision.

To be clear, ENA does not suggest that the AER should change its rate of return approach because we are now in a low interest rate environment. Rather, ENA submits that the current low rate environment has exposed more clearly the inability of some aspects of the AER's existing rate of return approach to produce the best possible estimate of the market cost of capital at the time of each regulatory decision.

Therefore, the objective should be to consider how the AER's framework might be made more robust to the sorts of events that have occurred since the 2018 RoRI, particularly insofar as those events have had an extraordinary impact in government bond markets.

It was not possible for the AER or any other stakeholder to anticipate the extreme changes in market conditions that have occurred since the 2018 RoRI was established. A reliable rate of return approach, however, should be capable of producing reliable estimates of the true market cost of capital in a range of environments—not just in very narrow circumstances. The 2018 RoRI approach has not produced reliable estimates of the market cost of equity in response to the changes in market conditions since 2018. ENA therefore considers that certain aspects of the AER's approach to determining the allowed

return on equity allowance in particular should be improved in order to produce robust and reliable estimates in all environments that may arise over the term of the 2022 RoRI.

It is also important to consider the overall allowed return, compiled from the best estimates of each parameter. This is particularly important given the high degree of imprecision and debate about each parameter, and the degree of regulatory judgment that is required in arriving at a final allowed return. ENA proposes that a financeability assessment has an important role to play in assessing the overall allowed return, as explained below.

Having regard to top-down cross-checks is consistent with the AER's expectations on networks when developing expenditure forecasts. A similar approach may help improve the robustness of estimates of the required return on capital.

For example, Brattle (2020) concluded that:

- The AER's allowed return on equity is lower than that adopted by every other regulator for which a comparison could be made; and that
- The AER's approach to the allowed return on equity "*is not as effective as the approach of other regulators*" such that the AER should consider a number of areas for reform.

Brattle's findings are corroborated by other evidence, including reports from the Council of European Energy Regulators (CEER) and Morgan Stanley.

ENA considers that it is important that the Brattle recommendations be given careful consideration through the 2022 RoRI review process.

As explained in this submission, a pragmatic response to the compelling evidence that the current RoRI is producing unreasonably low allowed returns would be better balancing of the available evidence supporting the determination of the risk-free rate, market risk premium, and the relationship between the two.

The best unbiased estimate of the risk-free rate

In the UK regulatory setting, questions have been raised about whether the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate.

Specifically, the government bond yield is affected by a convenience yield that is not relevant to the CAPM risk-free rate, and investors are able to borrow at the CAPM risk-free rate but they cannot borrow at the prevailing government bond yield.

In this regard:

- There is regulatory precedent for recognising these issues and adopting a CAPM risk-free rate above the prevailing government bond yield;
- Academic literature recommends adopting a CAPM risk-free rate above the prevailing government bond yield;
- The market practice of equity analysts, independent experts, and survey respondents is to adopt a risk-free rate above the prevailing government bond yield; and
- Standard textbooks recognise these issues and note that market practitioners tend to adopt a CAPM risk-free rate above the prevailing government bond yield.

ENA proposes that, as part of the 2022 RoRI process, the AER consider:

- Whether the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate; and
- Whether the issues raised in the UK regulatory setting, and the evidence of market practice, has any other relevance to estimating the allowed return on equity.

In addition, the RBA's unprecedented market intervention has reduced the 10-year government bond yield, which may understate the risk-free rate relevant to the application of the CAPM, by approximately 30 basis points and the impact of that intervention is expected to persist for an extended period. That is, the recent decline in government bond yields precipitated by the RBA's interventions heighten the concern that observed government bond yields may understate the risk-free rate that should be used when applying the CAPM.

ENA proposes that, as part of the 2022 RoRI process, the AER consider:

- What impact recent monetary interventions by the RBA have had on observed government bond yields; and
- How a best unbiased estimate of the required return on equity should be determined in circumstances when central bank interventions have driven government bond yields lower than the level that would be determined by the market.

The best unbiased estimate of the market risk premium

The mean historical excess returns (HER) estimate is essentially constant over time, whereas the true MRP varies over time. Consequently, the mean HER estimate is upwardly biased in some market conditions and downwardly biased in others. ENA agrees with recent observations by Dr Lally on this point.

A superior estimate of the MRP can be obtained by giving some weight to forward-looking evidence such as the DGM. ENA agrees with Brattle on this point. Such an approach would reduce the bias inherent in the mean HER estimate and would also reduce the volatility in the allowed return on equity.

ENA considers that it would be inconsistent to adopt the mean HER estimate in the RoRI (which reflects no relationship between the MRP and the risk-free rate) but then apply a mechanism to update the MRP to account for changes in the risk-free rate during the RoRI period.

ENA considers that it would be unsafe to place any reliance on two of the academic papers — Li (2006) and Kim and Lee (2008) — that are cited in the draft working paper to support the possibility of a procyclical MRP (i.e., an MRP that increases when the risk-free rate increases or vice versa). Neither of these papers use a CAPM framework. Moreover, both papers arrive at the same conclusion—that the MRP could be procyclical—while adopting antithetical starting assumptions. For these reasons, ENA suggests that it would be appropriate to rule out any reliance on these papers at this stage of the process.

A third academic report cited in the draft working paper, Damodaran (2012), has been superseded by a 2021 version of the same report. The updated study presents evidence that the MRP has been *countercyclical* since the Global Financial Crisis in 2008, and argues strongly against the use of a fixed MRP estimate.

Financeability

ENA proposes that a financeability assessment should be performed as one of a number of other cross-checks of the AER's allowed return on capital.

The financeability assessment would have two key purposes:

- To ensure that the regulatory determination was internally consistent such that the allowed return was sufficient to support the credit rating that was assumed when deriving it; and
- To ensure that the regulatory determination is robust to potential changes in future financial market conditions.

The financeability assessment would be performed by computing the set of financial ratios that form the basis of credit ratings for regulated utilities. The relevant ratios are set out in publications for ratings agencies and are used in financeability assessments conducted by a number of regulators. These financial ratios would be computed for the benchmark firm as a simple augmentation of the PTRM. The ratios would then be used as part of the information set available to the AER when making its determination.

Many regulators undertake financeability assessments as part of their regulatory process because financeability assessments have two clear benefits for consumers:

- **Keeping prices down by keeping the required return on debt low**. That is, a financeability assessment would provide an 'early warning' sign of potential future credit rating downgrades, which could have the effect of increasing the allowed return on debt; and
- **Supporting efficient and prudent investment.** If a deterioration in credit quality results in networks having to raise new debt at a premium over the allowed rate of return, then efficient and prudent investments may not proceed commercially.

As noted above, the objective is to set the allowed return equal to the best possible estimate of the market cost of capital at the time of each decision. A financeability cross-check on the overall allowed return on equity is particularly important given the high degree of imprecision, uncertainty and debate about each parameter, and the degree of regulatory judgment that is required in arriving at a final allowed return.

Financeability assessments would have no use if (a) every parameter could be reliably and precisely estimated, and (b) the formula in which those estimates are used reliably and precisely reflects the market cost of capital. However, neither of those statements are true. In reality, there is imprecision, debate and judgment in large measure.

In these circumstances, it is difficult to conceive of any reason why the determination of the allowed return on equity would be made *less* reliable by the consideration of relevant evidence such as a financeability assessment. The use of cross-checks, such as financeability tests, would be consistent with what the AER considers best practice for NSPs when developing expenditure forecasts.

2 The importance of an unbiased allowed return

Key messages

- ENA agrees that the allowed return should be set equal to the best possible estimate of the market cost of capital at the time of each decision.
- Such an approach ensures that network investors receive efficient compensation for their required returns and that consumers pay no more than the efficient cost of the service that is provided to them.
- ENA suggests that stakeholders would benefit from a clear statement from the AER that 'unbiased' should be interpreted with respect to the available evidence at the time of a decision, rather than in terms of a long-run average. That is, the allowed return in each decision should be set as an unbiased estimate of the market cost of capital at the time of that decision, rather than as an unbiased estimate of the long-run average market cost of capital. Such a statement would provide useful guidance as to how each parameter should be estimated.

2.1 The goal is the best possible estimate of the market cost of capital to best promote the long-term interests of consumers

ENA agrees with the conclusions of the AER's recent Position Paper in relation to the long-term interests of consumers:

> *Setting the expected rate of return in [sic] not a precise science and involves uncertainty and judgement. Due to inevitable uncertainty, there is a risk that the estimated expected rate of return will be higher or lower than the actual market cost of capital. If the expected rate of return deviates from the market cost of capital then it may not promote efficient investment in, and use of, the service provider's energy network in the long term interests of consumers.*
>
> *Therefore, the best possible estimate of the expected rate of return, will promote efficient investment in, and efficient operation and use of, energy network services for the long term interests of consumers.*[1]

ENA also agrees with the AER's conclusions that setting an allowed return above or below the market cost of capital is likely to be inconsistent with the NEO and NGO:

> *Due to inevitable uncertainty, there is a risk that the estimated, expected rate of return will be higher or lower than the market cost of capital.*
>
> *If the expected rate of return deviates from the market cost of capital then the expected rate of return may not achieve the legislative objectives - it may not promote efficient investment in and use of the service provider's energy network for the long term interests of*

[1] AER, May 2021, Assessing the long-term interests of consumers, p. 2.

consumers. That is, there may be costs associated with the expected rate of return being higher or lower than the market cost of capital.[2]

The AER has noted that the rationale for seeking the best possible estimate of the market cost of capital is that:

- Setting the allowed return too low would lead to inefficient underinvestment and would deny NSPs from recovering efficient costs; and
- Setting the allowed return too high would create an incentive for inefficient overinvestment and may lead to inefficient underutilisation of regulated assets:

> *Each of these principles has an important guiding role when determining an appropriate way to calculate the rate of return in order to achieve the national gas and electricity objectives. For example,* ***if the rate of return is set at a rate that is too low to promote efficient investment in infrastructure, it will lead to underinvestment****. It may not allow a provider a reasonable opportunity to recover at least its efficient costs in providing services or complying with regulatory obligations. It will not provide effective incentives for efficient investment in, or provision for, or use of services. It will not be a rate that provides for a return that is likely to be commensurate with the commercial and regulatory risks. It may lead to various economic costs and risks that might arise from under-investment in the network system. All of these factors would compromise the realisation of the national gas and electricity objectives.*
>
> *Similarly,* ***if the rate of return is set too high, it will provide an incentive to over-invest in network infrastructure****. It will not reflect a return that is commensurate with the regulatory and commercial risks. It will not promote efficient investment in the network system and it is likely to lead to underutilised investment in regulated assets.*[3]

ENA agrees with this analysis and supports the conclusion that the allowed rate of return should be set equal to the best possible estimate of the market cost of capital. This view, and the rationale for it, is set out in more detail in the ENA submission to the AER dated 9 October 2020.[4]

2.2 A clear statement on the meaning of 'unbiased' would be useful

In its recent Position Paper, the AER summed up its proposed approach in terms of 'an unbiased estimate':

> *In our view, for the 2022 Instrument to advance the NEO and NGO to the greatest degree, the expected rate of return [i.e., the allowed return] should be an unbiased estimate of the expected efficient return, consistent with the relevant risks involved in providing regulated network services.*
>
> *If it does, then it will (all else being equal) promote both efficient investment in, and efficient use of, energy network services for the long term interests of consumers.* [5]

The AER also stated that what is required is:

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[2] AER, May 2021, Assessing the long-term interests of consumers, p. 8.
[3] AER, 2018, Rate of Return Instrument, Final Decision, Explanatory Statement, pp. 30-31, emphasis added.
[4] ENA, 9 October 2020, Best-practice framework for setting the allowed return on equity, Section 3.
[5] AER, May 2021, Assessing the long-term interests of consumers, p. 12.

an unbiased estimate of the expected efficient return."[6]

ENA considers that there are two possible interpretations of "unbiased' in this context and that the 2022 RoRI process would benefit from a clear statement on this issue from the AER. The two potential interpretations are:

- The regulatory allowance has to be an unbiased estimate of the market cost of capital at the time of the decision; or
- It is acceptable for regulatory allowances to be above the market cost of capital for some periods and below it in others; so long as the unders and overs are expected to (i.e. on average) cancel out over the long run.

An example of the second interpretation can be found in Dr Lally's recent report to the AER in relation to the MRP parameter:

> *Since the MRP estimated by the AER is very stable over time (because high weight is placed on the long-term historical averaging methodology), and the true value is likely to fluctuate much more than this (with high values during unfavourable economic conditions and low values during favourable economic conditions), the MRP is likely to be overestimated during favourable economic conditions and underestimated during unfavourable conditions.* [7]

Dr Lally goes on to indicate that it may be appropriate to maintain the AER's current approach, presumably on the basis that, in the long run, the over-estimates in some periods will tend to cancel the under-estimates in others:

> *This argument does not imply that the AER's MRP estimates should be more variable over time, because it is impossible to reliable (sic) estimate short-term variations in this parameter even if one can be confident that a stable estimate will be too low (by an unknown amount) during unfavourable economic conditions and too high (by an unknown amount) in favourable economic conditions.* [8]

By contrast to this view, in its Final Position Paper on the regulatory treatment of inflation, the AER adopted the first interpretation of unbiasedness:

> *Under our regulatory framework, service providers receive a target real return plus actual inflation. As long as the estimated inflation expectation used to set the real return on assets was accurate and unbiased (in the sense that it reflects investors' expectations) at the time the real rate of return target was set, service providers are correctly compensated irrespective of actual inflation outcomes.*[9]

The AER went on to express further clear support for adopting the best possible estimate at the time of each decision:

> *[W]e note that a method that results in an unbiased estimate is not sufficient to be regarded as a good method, as it must also be accurate. A method that simply fixed expected inflation at a historical average may be regarded as unbiased—as it is unlikely to be consistently*

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[6] AER, May 2021, Assessing the long-term interests of consumers, p. 1.
[7] Lally, M., 9 April 2021, An appropriate term for the allowed cost of capital, p. 33.
[8] Lally, M., 9 April 2021, An appropriate term for the allowed cost of capital, footnote 22, p. 33.
[9] AER, October 2020, Regulatory treatment of inflation, Final position, p. 13.

above or below the correct estimate over the long term—but that does not mean [it] is a good estimate of expected inflation for a given term. [10]

In that decision, the AER concluded that:

long-term expected inflation remains anchored at the midpoint of the RBA's target band.[11]

That is, the AER took the view that, on average, the best estimate of expected inflation over the long run is 2.5% p.a., consistent with the RBA's inflation target band. However, the AER did not adopt an approach that sets the regulatory estimate of inflation expectations to 2.5% in all periods on the grounds that inflation expectations in some periods may be higher than 2.5%, lower than 2.5% in others, but that these overs and unders would even out to 2.5% over the long run. Rather, the AER adopted an approach involved deriving the best unbiased estimate of inflation expectations at the start of each regulatory period, recognising that the best unbiased estimate at any point in time may differ materially from the long run estimate of inflation expectations of 2.5%.

ENA agrees with the reasoning and interpretation of unbiased estimates adopted by the AER in its review of the regulatory treatment of inflation, and submits that the AER should apply the same reasoning and interpretation of unbiased estimates in the RoRI.

ENA considers that 'unbiased' should be interpreted with respect to the available evidence at the time of a decision, rather than in terms of a long-run average. That is, the allowed return in each decision should be set as an unbiased estimate of the market cost of capital at the time of that decision, rather than as an unbiased estimate of the long-run average market cost of capital.

ENA submits that there are two important reasons why the allowed return should be set as an unbiased estimate of the market cost of capital at the time of the decision:

- First, As documented above, setting the allowed return equal to the market cost of capital creates the correct incentives for efficient investment in, and utilisation of, energy networks. The alternative is an approach that:
  - Creates the incentive to over-invest in some periods and to under-invest in others; and
  - Results in some consumers paying more than the efficient cost of the service that is provided to them and others paying less.
- Second, the current AER is unable to bind future AERs. That is, even if the current AER determined that it would be appropriate to always maintain the same estimate of MRP because the unders and overs would tend to cancel out in the long run, the current AER cannot bind future AERs to maintain the same policy over the long run.

ENA submits that stakeholders would benefit from a clear statement from the AER that 'unbiased' should be interpreted with respect to the available evidence at the time of a decision, rather than in terms of a long-run average. That is, the allowed return in each decision should be set as an unbiased estimate of the market cost of capital at the time of that decision, rather than as an unbiased estimate of the long-run average market cost of capital. Such a statement would provide useful guidance as to how each parameter should be estimated.

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[10] AER, October 2020, Inflation review Final Decision, p. 19.
[11] AER, October 2020, Regulatory treatment of inflation, Final position, p. 50.

3 The context for the 2022 RoRI review

Key messages

- The ENA submission of 9 October 2020 established that:
  - For the allowed nominal return on equity, the 2018 RoRI resulted in a reduction of 16% and the subsequent decline in government bond yields resulted in a further reduction of 25%; and
  - For the allowed real return on equity, the 2018 RoRI resulted in a reduction of 24% and the subsequent decline in government bond yields resulted in a further reduction of 36%.
- These reductions in the allowed return on equity come on top of previous reductions – the AER has successively reduced the allowed equity risk premium in its 2009, 2013 and 2018 WACC reviews.
- Brattle (2020) concluded that:
  - the AER's allowed return on equity is lower than that adopted by every other regulator for which a comparison could be made. This finding is corroborated independently by evidence from a range of other sources; and that
  - The AER's approach to the allowed return on equity "*is not as effective as the approach of other regulators*" such that the AER should consider a number of areas for reform.
- ENA considers that it is important that the Brattle recommendations be given careful consideration through the 2022 RoRI review process.

3.1 The allowed return on equity has fallen to historical lows

The AER's approach to the allowed return on equity in the 2018 RoRI was to add a constant (reduced) risk premium to the prevailing 10-year government bond yield. Since that time, government bond yields have fallen to historical lows. The 10-year government bond yield reached its lowest level in history on 9 March 2020 and the real yield on the inflation-indexed bond maturing in September 2030 has been negative since July 2020.

In June 2021, for the first time ever, the Australian government issued Treasury debt at a negative nominal rate.[12]

The AER's draft working paper notes the decline in allowed returns and questions whether the AER's framework remains appropriate:

> *when compared to recent history, the key measures of interest rates are lower than they have been for some time as part of a sustained downward trend. This suggests that we should consider whether our framework remains appropriate in this environment.*[13]

[12] https://www.afr.com/markets/debt-markets/investors-pay-australia-to-hold-money-amid-cash-glut-20210610-p57zun#:~:text=The%20federal%20government%20has%20paid,sale%20has%20fallen%20below%20zero.
[13] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 21.

The ENA submission of 9 October 2020 documents the reductions in the AER's allowed return on equity.[14] It noted that the 2018 Instrument provided the lowest risk premium ever allowed to regulated networks and this was added to a government bond yield that fell to historical lows after 2018.

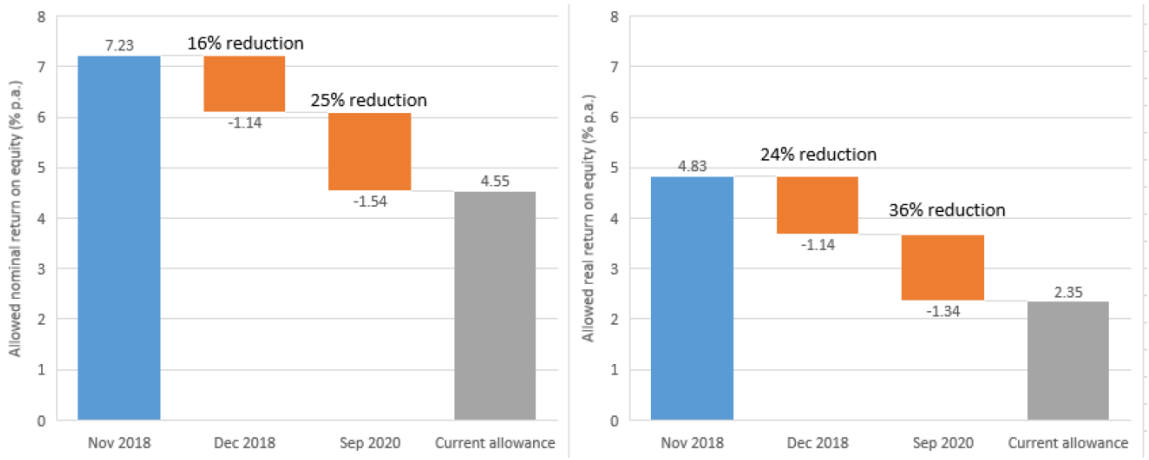
The ENA submission noted that the 2018 RoRI reduced the nominal allowed return on equity by 16% and that subsequent declines in government bond yields reduced the nominal allowed return on equity by a *further* 25%. The reduction in the allowed real return on equity, relative to the return allowed under the 2013 Guideline, was even more pronounced – it was reduced by more than half by the 2018 RoRI and the subsequent decline in government bond yields.

Those reductions, which are summarised in Figure 1 below, are due to a combination of the approach to setting the allowed return on equity in the 2018 RoRI and the fact that the binding nature of that instrument prevented any revision to reflect the new and sharply altered financial market conditions.

Note that:

- For the allowed nominal return on equity, the 2018 RoRI resulted in a reduction of 16% and the subsequent decline in government bond yields resulted in a further reduction of 25%; and
- For the allowed real return on equity, the 2018 RoRI resulted in a reduction of 24% and the subsequent decline in government bond yields resulted in a further reduction of 36%.

Figure 1: AER allowed return on equity



Source: AER decisions; RBA 10-year government bond yield data. ENA submission of 9 October 2020, Figure 2, p. 9.

These reductions reflected:

- A material fall in government bond yields, which drove down estimates of the risk-free rate; and
- The AER's decision to lower its estimates of the equity beta and the MRP.

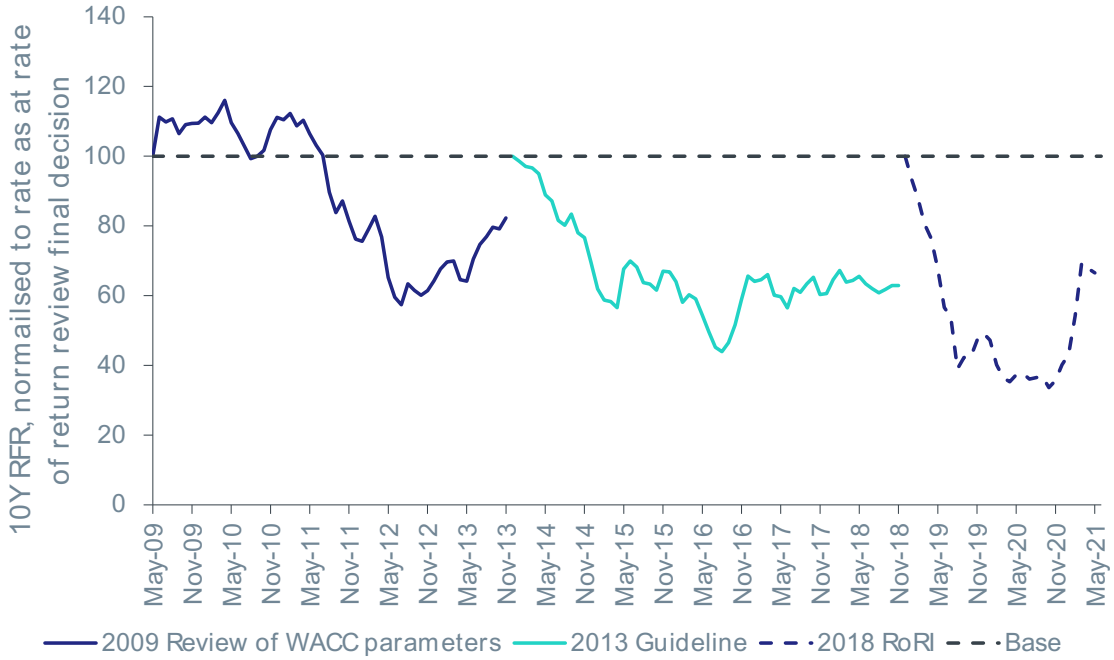
Moreover, the material reductions in the allowed return on equity in, and since, the 2018 RoRI come on top of material reductions since 2008. In particular, the AER changed its parameter estimates to reduce the allowed equity risk premium in its 2009, 2013 and 2018 rate of return reviews.

Figure 2 plots the change in 10-year government bond yields following the AER's 2009 Review of WACC parameters, the 2013 Rate of Return Guideline review and the 2018 Rate of Return Instrument review.

[14] Section 2.2.

The yields are normalised (at the time of each final decision) to a value of 100, so each curve indicates the proportional change in yields relative to the normalised starting points.

Figure 2: Proportional change in 10-year government bond yield follow each rate of return review by the AER



Source: RBA data.

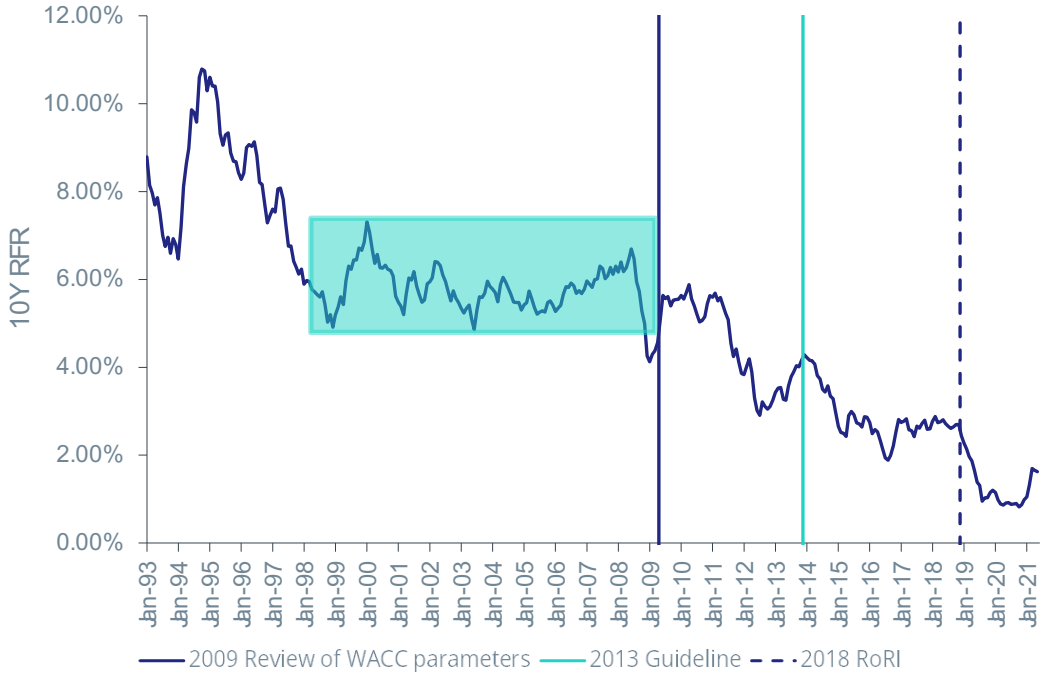
The Figure shows that government bond yields fell by up to:

- 43% following the 2009 Review of WACC parameters;
- 56% following the 2013 Rate of Return Guideline review; and
- 66% following the 2018 RoRI.

That is, the most dramatic proportional decline in government bond yields, and the allowed return on equity under the AER's approach, has occurred in the last three years since the completion of the 2018 RoRI review. In that time, government bond yields fell to the lowest level in recorded history, as shown in Figure 3. The result is that the allowed return on equity fell commensurately to an all-time low – as illustrated in Figure 4 below. Since 2008, the nominal allowed return on equity has declined from over 12% p.a. to approximately 4.5% p.a.

Figure 3 shows that during the decade or so between the development of the economic regulatory regime for energy networks in the NEM in the late 1990s and the 2009 Review of WACC parameters (indicated by the shaded region in Figure 3), government bond yields were materially higher than they are at present, and also remarkably stable (relative to the periods before and since). Given that context, it is not surprising that the 2009 Review of WACC parameters adopted an approach for determining the allowed return on equity that involved adding a fixed equity risk premium to the prevailing government bond yield. Over the preceding decade, such an approach had produced relatively stable and plausible estimates of the required return on equity.

Figure 3: Movements in 10-year government bond yield over time



Source: RBA data.

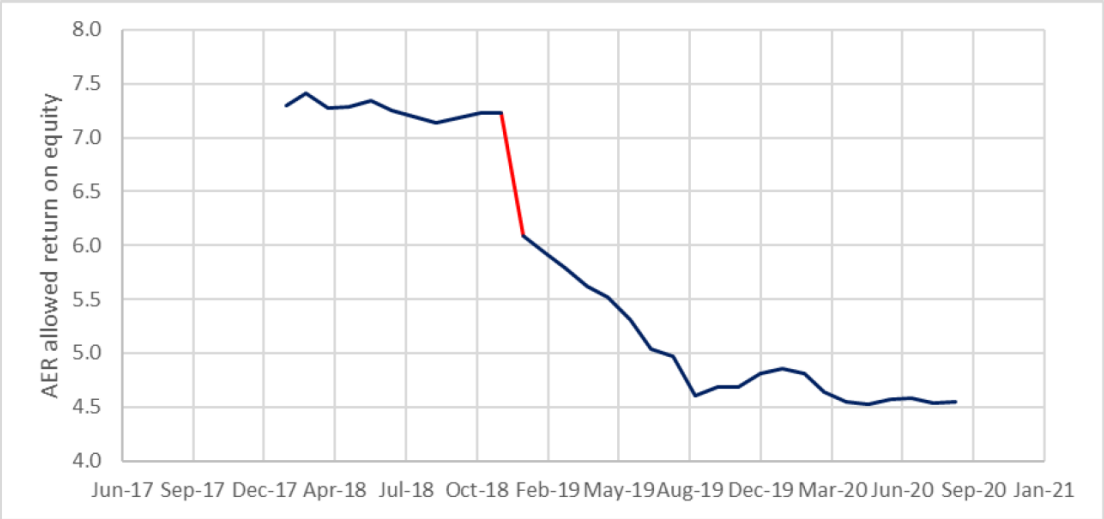
Figure 4: AER allowed nominal return on equity

Source: AER decisions; RBA 10-year government bond yield data. ENA submission of 9 October 2020, Figure 3, p. 10.

That approach had become well established By the 2013 Rate of Return Guideline review. Although government bond yields had fallen significantly from 2009 levels, following the GFC, the approach was not yet producing estimates that were implausibly low. In those circumstances, the AER's decision to retain the approach of estimating the required return on equity by adding a fixed equity risk premium to the prevailing government bond yield was understandable.

The compounding effect of changes in AER parameter estimates and the fall in government bond yields has been most dramatic over the last few years. In particular, in its 2018 RoRI the AER made its largest ever cut to the allowed equity risk premium, and government bond yields subsequently fell to the lowest levels on this historical record. Between December 2018 and July 2020, allowed returns on equity under the AER approach fell more sharply than in any equivalent period since 2006. This is illustrated in Figure 5 below, where the effect of the 2018 RoRI is illustrated in red.

Figure 5: AER allowed nominal return on equity since 2018



Source: AER decisions; RBA 10-year government bond yield data. ENA submission of 9 October 2020, Figure 4, p. 11.

The further decline in government bond yields since 2018, and the consequential historically low level of allowed returns, raises questions about the ability of the current approach to produce reliable estimates of the market cost of capital in the prevailing market conditions.

3.2 ENA supports the AER's current approach to the allowed return on debt

ENA supports the AER's current approach to the allowed return on debt. The AER's approach is designed to replicate the cost of servicing debt that would be incurred by a benchmark firm employing a benchmark efficient debt management approach. In particular, the regulatory allowance replicates the cost of servicing 10-year BBB+ debt issued on a staggered maturity basis. As the cost of servicing that debt portfolio goes up and down, so too does the regulatory allowance.

ENA considers that the AER's 10-year trailing average approach to the return on debt allowance should be maintained because:

- The current allowance ensures that the benchmark firm is compensated for the efficient cost of servicing an efficient debt portfolio—no more, and no less; and
- Consumers always pay only the efficient cost of debt used in funding the service that is provided to them—no more, and no less.

ENA notes that the allowed return on debt is based on evidence of the returns that real-world investors require for providing debt finance to the regulated firm.

ENA submits that, in the same way and for the same reasons, the allowed return on equity should be based on evidence of the returns that real-world investors require for providing equity finance to the regulated firm.

3.3 The AER's allowed return on equity is currently low by world standards

Brattle demonstrates that the AER's allowed return on equity is lower than the allowance of other comparable regulators

The AER recently commissioned a study by the Brattle Group in relation to the approaches that various regulators adopt when setting the allowed return on equity.[15] Brattle compared the AER's approach to the allowed return on equity with that adopted by other comparable regulators operating under broadly similar regulatory regimes.

Brattle has noted that comparisons need to be drawn carefully to ensure that allowed returns are considered on a like-with-like basis. Brattle also notes that the comparisons are not made at precisely the same point in time. Bearing these caveats in mind, Brattle reported to the AER that:

- The AER's allowed nominal return on equity is lower than that adopted by every other regulator for which a comparison could be made;[16]
- The AER's allowed real return on equity is lower than that adopted by every other regulator for which a comparison could be made. The closest allowed real return on equity is almost double the AER's allowance;[17]
- The AER's allowed nominal equity risk premium is lower than that adopted by every other regulator for which a comparison could be made. (This does not account for other regulators that set the allowed risk-free rate above the prevailing government bond yield.);[18] and
- The AER's allowed real equity risk premium is lower than that adopted by every other regulator for which a comparison could be made. (This also does not account for other regulators that set the allowed risk-free rate above the prevailing government bond yield.)[19]

Since Brattle completed its report in June 2020, Ofgem has published a draft determination for transmission and gas distribution businesses (July 2020), and the UK's Competition & Markets Authority (CMA) has published its findings on appeals against Ofwat's 2019 determinations sought by several water

[15] Brattle Group, June 2020, A review of international approaches to regulated rates of return.
[16] Brattle, 2020, Table 4, Row 3, p. 49.
[17] Brattle, 2020, Table 4, Row 9, p. 49. 2.42% vs. 4.19%.
[18] Brattle, 2020, Table 5, Row 4, p. 50.
[19] Brattle, 2020, Table 5, Row 9, p. 50.

companies (September 2020). The findings summarised above would remain unchanged, even if Brattle had had the benefit of these more recent decisions when preparing its report to the AER. Indeed, the CMA concluded that the return on equity allowed by Ofwat in its 2019 determinations (which Brattle showed was higher than the allowance provided by the AER) was unreasonably low, and increased the allowed return on equity by 54 basis points.[20]

Although government bond yields have also fallen to historically low levels in other jurisdictions, the allowed return on equity in those jurisdictions has not fallen by nearly as much as the AER's allowance under the 2018 RoRI. This is particularly the case for the real return on equity.

ENA notes that Brattle have demonstrated that, by every relevant metric, the allowed return on equity under the AER's 2018 approach is lower than that adopted by every other regulator for which a comparison could be made.

Brattle confirms the earlier conclusions of Earwaker (2018)

During the 2018 RoRI process, ENA commissioned a report by UK economist John Earwaker to compare the AER's allowed return on equity with that of other comparable regulators.[21] After comparing the rate of return determinations of several international regulators to the AER's Draft Guideline, Earwaker made the following observations:

> *The picture that emerges from the above discussion is one in which the AER is repeatedly taking extreme positions in its draft WACC guidelines. I am always very hesitant to say that one approach to WACC estimation is definitively 'right' and another approach is definitively 'wrong' and it is not my intention to take any such position in this paper. However, I do think it is important for regulators to be 'in the pack' with expert opinion, and yet it appears that the AER's draft guidelines on the cost of equity, taken as a package, are pushing right to the very boundary of what until now could have been regarded as mainstream regulatory thinking.*
>
> *In this regard, the contrast between the 2018 draft guidelines and the previous 2013 guidelines is quite stark. In the space of five years, there has not been a huge shift in the evidence base – if anything, the data is pointing towards there having been a small increase in the cost of equity capital relative to the return on riskless assets. I would therefore characterise the move from a 455 basis point premium over the risk-free rate to a premium of only 360 basis points as a switch from a middle-of-the- road reading of the evidence to a very stretching, possibly overstretched, take on the cost of equity.*[22]

Brattle's findings are corroborated by recent evidence from the Council of European Regulators

A 2021 report published by the Council of European Energy Regulators (CEER),[23] which surveys (amongst other things) the allowed rates of return and individual WACC parameter decisions that prevailed in 2020

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[20] CMA, Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final report, 17 March 2021, Table 9-37.
[21] Earwaker, J., September 2018, The AER's draft WACC Guideline: An international perspective.
[22] Earwaker, J., September 2018, The AER's draft WACC Guideline: An international perspective, p. 12, emphasis added.
[23] CEER, Report on Regulatory Frameworks for European Energy Networks 2020: Incentive Regulation and Benchmarking Work Stream, Ref: C20-IRB-54-03, 11 March 2021.

in European Union member states, as well as the United Kingdom, Norway and Iceland, is consistent with Brattle's findings.

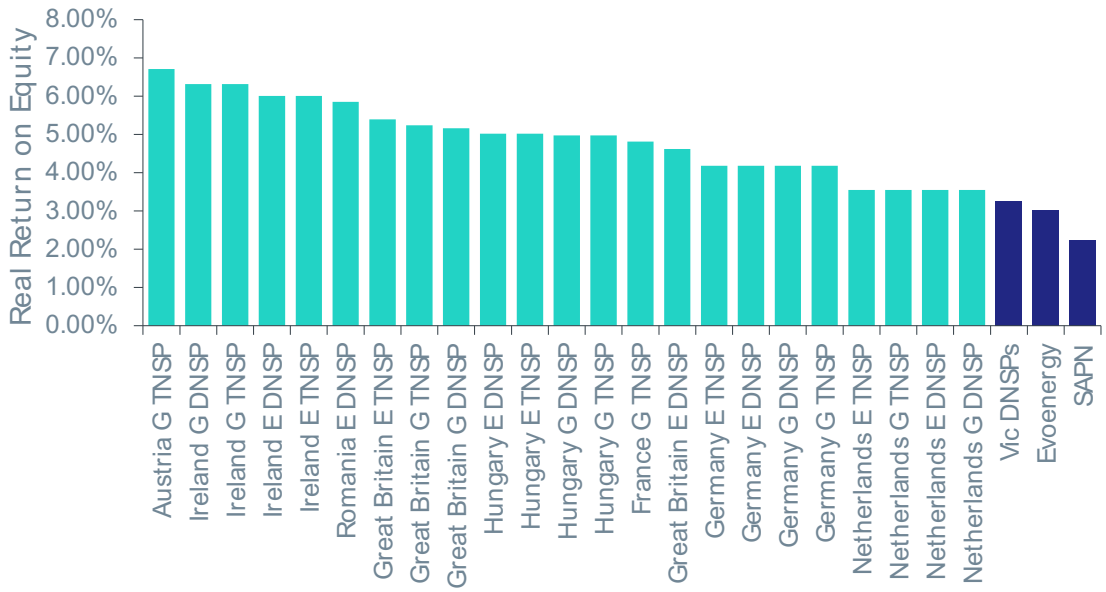
Figure 6 compares the real return on equity allowances that applied in 23 European decisions for electricity and gas DNSPs and TNSPs in 2020 with the real return on equity allowances in the AER's final determinations for Victorian DNSPs and Evoenergy (gas) in 2021 and SA Power Networks (SAPN) in 2020.

Whilst it is true that a number of the European decisions represented in the Figure below were made a number of years ago when market rates were considerably higher than they are at present, it is nevertheless the case that equity investors in all of the European networks in the sample could today earn significantly higher real return on equity allowances than would investors in SAPN and the Victorian DNSPs.

Figure 6 shows that:

- the allowed real return on equity set by the AER for SAPN was **131 basis points** lower than the lowest European allowed real return on equity in the CEER sample;
- the allowed real return on equity set by the AER for Evoenergy was **54 basis points** lower than the lowest European allowed real return on equity in the CEER sample; and
- the allowed real return on equity set by the AER for the Victorian DNSPs was **30 basis points** lower than the lowest European allowed real return on equity in the CEER sample.

Figure 6: Comparison of allowed real return on equity determined by European regulators and the AER



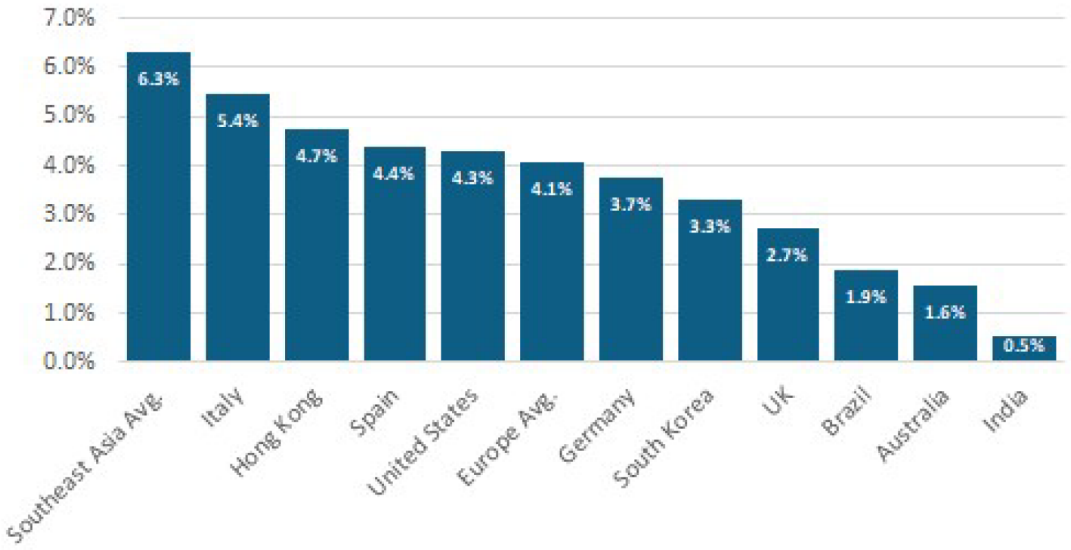
Source: Various regulatory decisions.

It is noteworthy that final determinations for the Victorian DNSPs and Evoenergy reported in the Figure above were made in April 2021, *after* the AER's December 2020 decision to change its approach to the treatment of regulatory inflation. This means that the real return on equity allowance set by the AER remains materially lower than the real return on equity allowances available to investors in European networks, notwithstanding the recent changes to the AER's approach to regulatory inflation.

The very low allowed returns available in Australia have been recognised by advisers to global investors in regulated utilities

A recent report by Morgan Stanley Research,[24] which compared the returns available to equity investors in regulated utilities in a range of economies, identified real return on equity allowances of regulated energy networks in Australia as being the lowest available in any market studied, with the exception of India—see Figure 7.

Figure 7: Real allowed pre-tax rate of return (adjusted for sovereign risk) in various overseas jurisdictions



Source: Morgan Stanley Research estimates.

ENA conclusions

Recent evidence from a range of sources suggests that the AER is currently setting lower return on equity allowances than many other regulators around the world. Even if it were the case that nearly every overseas regulator was over-estimating the required return on equity, it would remain the case that equity investors searching globally for opportunities to commit capital would find Australian networks unattractive compared to regulated networks in other jurisdictions. It is unclear why investors would choose to invest in Australia when they could secure materially higher allowed returns by investing in networks operating in stable, well-understood regulatory regimes—such as in Europe, the UK or the US—that are also offering higher allowed returns.

ENA does not suggest that any particular piece of the above evidence is determinative or that the evidence of other regulatory allowances should be used in some direct way in deriving the AER's allowance. Rather, ENA suggests that the evidence above establishes that the AER's approach to the

[24] Morgan Stanley Research, Utilities Global Lens: Where to Invest in Regulated Utilities Amidst Global Macro Environment, 5 April 2021.

allowed return on equity has tended to produce regulatory allowances that are lower than those of other comparable regulators in the current market conditions.

This has led Brattle (2020) to recommend the AER consider a number of areas of reform to its approach to the allowed return on equity. ENA agrees that this cross-check with the allowed returns of other regulators should be used to identify the various aspects of the AER's approach to the allowed return on equity that might benefit from a review to ensure that they remain fit for purpose in the current market conditions.

ENA submits that the most important consideration is whether stakeholders can have confidence that the final allowed return on equity is the best possible estimate of the market cost of equity capital in the prevailing conditions.

3.4 Brattle's recommendations for change

ENA notes that Brattle has concluded that the AER's approach in relation to the allowed return on equity is not as effective as the approaches of other regulators and makes a number of recommendations for further consideration throughout the 2022 RoRI process:

> *when we compare the AER's method with those of the other regulators, we observe important differences in four related areas concerning the cost of equity. We think that these observations indicate some areas in which the AER's approach, in our view, is not as effective as the approach of other regulators. These areas include:*
>
> *a. incorporating forward-looking evidence into the cost of equity;*
>
> *b. use of multiple models for estimating the cost of equity;*
>
> *c. how often to update the cost of equity; and*
>
> *d. equity beta estimation.*[25]

ENA considers that it is important that the Brattle recommendations be given careful consideration through the 2022 RoRI review process.

Any such consideration should focus on producing an allowed return that is the best possible estimate of the market cost of capital at the time of each decision. For the reasons set out in Section 2 above, such an approach ensures that network investors receive compensation for their required returns and that consumers pay no more than the efficient cost of the service that is provided to them.

[25] Brattle, 2020, p. 58.

4 Risk-free rate

Key messages

- In the UK regulatory setting, questions have been raised about whether the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate. Specifically, the government bond yield is affected by a convenience yield that is not relevant to the CAPM risk-free rate, and investors are able to borrow at the CAPM risk-free rate but they cannot borrow at the prevailing government bond yield.
- In this regard:
  - There is regulatory precedent for recognising these issues and adopting a CAPM risk-free rate above the prevailing government bond yield;
  - Academic literature recommends adopting a CAPM risk-free rate above the prevailing government bond yield;
  - The market practice of equity analysts, independent experts, and survey respondents is to adopt a risk-free rate above the prevailing government bond yield; and
  - Standard textbooks recognise these issues and note that market practitioners tend to adopt a CAPM risk-free rate above the prevailing government bond yield.
- ENA proposes that, as part of the 2022 RoRI process, the AER consider:
  - Whether the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate; and
  - Whether the issues raised in the UK regulatory setting, and the evidence of market practice, has any other relevance to the allowed return on equity.
- The RBA's unprecedented market intervention has reduced the 10-year government bond yield by approximately 30 basis points and the impact of that intervention is expected to persist for an extended period.
- ENA proposes that, as part of the 2022 RoRI process, the AER closely consider:
  - What impact recent monetary interventions by the RBA have had on observed government bond yields; and
  - How a best unbiased estimate of the required return on equity should be determined in circumstances when central bank interventions have driven government bond yields lower than the level that would be determined by the market.

4.1 Are government bond yields an appropriate proxy for the CAPM risk-free rate?

The convenience yield for government bonds

In a recent report in the UK regulatory setting, Oxera identifies the effect of a convenience yield that has the effect of pushing the yield on government bonds below the return on a CAPM zero-beta asset:

> *Empirical studies show that government bonds possess special safety and liquidity characteristics compared to other securities. This pushes the yields on government bonds below the required rate of return for a zero-beta asset (which is the definition of the risk-free rate in the CAPM setting). Therefore, to be used as a proxy for the risk-free rate, the yields on bonds issued by governments with a high sovereign credit rating would need to be adjusted upwards to remove the impact of the convenience premium.*[26]

In essence, Oxera (2020) observes that government bonds tend to have low yields for two reasons:

- They are effectively risk-free; and
- They possess special safety and liquidity characteristics compared to other securities.

The first of these features is relevant to the CAPM risk-free rate, but the second is not. This is because the theory of the CAPM requires the risk-free rate to reflect the rate of return on an asset that possesses the single characteristic of being uncorrelated with the market portfolio. A proxy for the risk-free rate that embodies features other than this characteristic would be inconsistent with the original theoretical foundations of the CAPM.

Oxera (2020) explains that:

> *Empirical research has found that some government bonds provide additional benefits, referred to by some scholars as the 'convenience yield', over and above their low default probability. Therefore, when purchasing these securities, investors are paying not only for a risk-free asset, but also for the additional benefits associated with these securities.* [27]

The 'additional benefits' of government bonds, relative to other securities that are available to investors, include the fact that they can be used to fulfil capital adequacy requirements, they have more value as collateral, they can be purchased with higher leverage, and they have superior liquidity. Feldhütter and Lando (2008) explain the convenience yield as follows:

> *The premium is a convenience yield on holding Treasury securities arising from, among other things, (a) repo specialness due to the ability to borrow money at less than the GC [general collateral] repo rates, (b) that Treasuries are an important instrument for hedging interest rate risk, (c) that Treasury securities must be purchased by financial institutions to fulfil regulatory requirements, (d) that the amount of capital required to be held by a bank is significantly smaller to support an investment in Treasury securities relative to other securities with negligible default risk, and to a lesser extent (e) the ability to absorb a larger number of transactions without dramatically affecting the price.*[28]

Van Binsbergen et al (2021) explain the convenience yield in government bonds as follows:

> *Safe assets provide a so-called "convenience yield" that reflects the ease with which they can be traded by uninformed agents, posted as collateral, satisfy regulatory capital requirements, or perform other roles similar to that of money. Thus, the yield on a money-like asset is below the risk-free cost of capital, reflecting the liquidity and collateral value of such assets.* [29]

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[26] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 1.
[27] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 11.
[28] Feldhutter, P. and D. Lando, 2008, Decomposing swap spreads, Journal of Financial Economics, 88, p. 378.
[29] Van Binsbergen, J., W. Diamond and M. Grotteria, Risk0-free interest rates, Journal of Financial Economics, 2021, p. 4. https://doi.org/10.1016/j.jfineco.2021.06.012.

Oxera (2020) notes that the finance literature reports that the convenience yield is significant:

> *According to Feldhütter and Lando (2008), the magnitude of the convenience yield varies over time and can range from 30–90bp. Similarly, Krishnamurthy and Vissing-Jorgensen (2012) estimated the average of the liquidity component of the convenience yield to be 46bp from 1926 to 2008.* [30]

Van Binsbergen et al (2021) report a similar estimate of the convenience yield:

> *We estimate risk-free interest rates unaffected by convenience yields on safe assets. We infer them from risky asset prices without relying on any specific model of risk. We obtain interest rates and implied convenience yields with maturities up to three years at a minutely frequency. Our estimated convenience yield on Treasuries equals about 40 basis points, is larger below three months maturity, and quadruples during the financial crisis.* [31]

In summary, the finance literature establishes that government bonds have special 'money-like' features, and that market participants are willing to accept a lower yield due to the benefits of these features. The lower yield due to these special features is not relevant to the CAPM risk-free rate, which should reflect only the single characteristic of an asset with returns that are uncorrelated with the returns on the market portfolio. Moreover, empirical estimates indicate that the quantum of the convenience yield is economically significant. The implication is that the CAPM should be implemented by adopting a risk-free rate above the prevailing government bond yield.

In this regard, Krishnamurthy and Vissing-Jorgensen (2012) conclude that:

> *Treasury interest rates are not an appropriate benchmark for "riskless" rates. Cost of capital computations using the capital asset pricing model should use a higher riskless rate than the Treasury rate; a company with a beta of zero cannot raise funds at the Treasury rate.*[32]

Oxera (2020) recommends an upward adjustment of 50 to 100 basis points:

> *On balance, based on the assessment of the academic literature and market evidence it is recommended that the risk-free rate is adjusted upwards by 50–100bp.* [33]

Inability to borrow at the government bond yield

Oxera (2020) provides a second reason why the prevailing government bond yield may be a downwardly biased estimate of the CAPM risk-free rate:

> *[T]he CAPM assumes that all investors can borrow and lend at the same risk-free rate.25 This implies that the risk-free rate proxy in the CAPM has to be adjusted to account for the gap between the risk-free financing rates accessible to corporates and those (lower rates) accessible to governments with a high credit rating.* [34]

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[30] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 2.
[31] Van Binsbergen, J., W. Diamond and M. Grotteria, Risk0-free interest rates, Journal of Financial Economics, 2021, p. 2. https://doi.org/10.1016/j.jfineco.2021.06.012.
[32] Krishnamurthy, A. and A. Vissing-Jorgensen, 2012, The Aggregate Demand for Treasury Debt, *Journal of Political Economy*, 120:2, April, pp. 233–67.
[33] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 2.
[34] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 11.

Oxera (2020) then cites the exposition of this point in the well-known Berk and DeMarzo textbook:

> *The risk-free interest rate in the CAPM model corresponds to the risk-free rate at which investors can both borrow and save. We generally determine the risk-free saving rate using the yields on U.S. Treasury securities. Most* ***investors, however, must pay a substantially higher rate to borrow funds****. In mid- 2012, for example, even the highest credit quality borrowers had to pay almost 0.30% over U.S. Treasury rates on short-term loans. Even if a loan is essentially risk-free, this premium compensates lenders for the difference in liquidity compared with an investment in Treasuries…*
>
> ***As a result, practitioners sometimes use rates from the highest quality corporate bonds in place of Treasury rates****.* [35]

That is, Oxera (2020) provides two reasons why the prevailing government bond yield may be a downwardly biased estimate of the CAPM risk-free rate. On this basis, Oxera recommends that a figure above the prevailing government bond yield should be used when estimating the risk-free rate for use in the CAPM.

Market practice in relation to CAPM risk-free rates

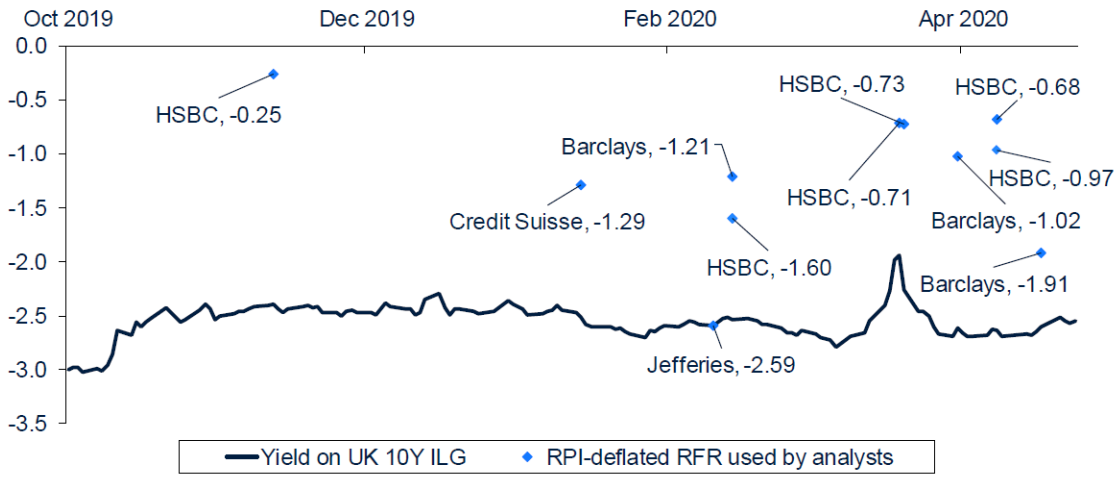
Oxera (2020) observes that the practice of investment banking analysts is to adopt a CAPM risk-free rate above the prevailing government bond yield:

> *The findings above are also consistent with the approach taken by investment banking analysts. In particular, the majority of equity analysts covering the regulated utilities in the UK have assumed a risk-free rate that exceeds the spot yield on government bonds by 69–214bp, averaging at 102bp.* [36]

These conclusions are drawn from a comparison of the real risk-free rates adopted by analysts covering UK regulated utilities with the prevailing real government bond yield, shown in Figure 8 below.

[35] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 13.
[36] Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, p. 2.

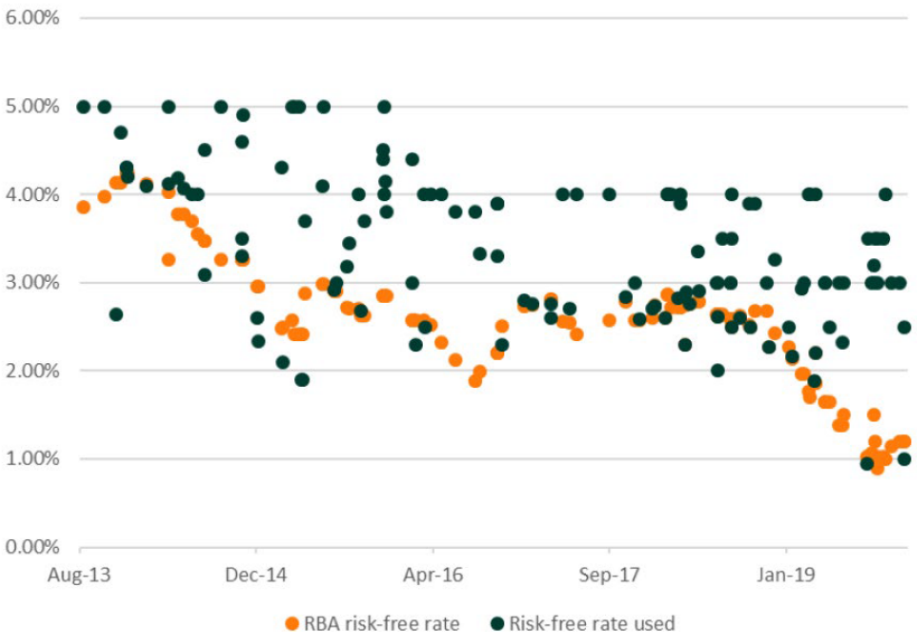
Figure 8: Comparison of prevailing government bond yield and analyst adopted risk-free rate



Source: Oxera, 20 May 2020, Are sovereign yields the risk-free rate for the CAPM?, Figure 4.1, p. 14.

ENA has previously presented evidence to the AER about the practice of independent expert valuation professionals adopting a risk-free rate above the prevailing government bond yield, summarised in Figure 9 below.

Figure 9: Comparison of prevailing government bond yield and expert adopted risk-free rate



Source: Synergies, May 2020, Determining a WACC estimate for Port of Melbourne, Figure 2, p. 87. Cited in: ENA, 9 October 2020, Best-practice framework for setting the allowed return on equity, Figure 7, p. 37.

Consistent with the above evidence, the 2019 KPMG Corporate Finance Survey indicates that respondents, on average, adopted a risk-free rate approximately 100 basis points above the prevailing

government bond yield when applying the CAPM, and that 64% of respondents adopted a figure more than 50 basis points above the prevailing yield.[37]

The Fernandez surveys, to which the AER has previously had some regard, also routinely report that participants adopt a risk-free rate above the prevailing government bond yield. The most recent survey indicates that the average risk-free rate adopted by Australian respondents is 2.6% when the prevailing 10-year government bond yield was approximately 0.9% during the survey period.[38]

We also note that standard finance textbooks observe that market participants tend to adopt risk-free rates that are higher than the prevailing government bond yield. For example, the most recent edition of Berk and DeMarzo (2020) indicates that there has been an increase in the spread that high-quality borrowers pay over the prevailing government bond yield:

> *Most investors, however, must pay a substantially higher rate to borrow funds. In mid-2018, for example, even the highest credit quality borrowers had to pay almost 0.35% over U.S. Treasury rates on short-term loans. Even if a loan is essentially risk-free, this premium compensates lenders for the difference in liquidity compared with an investment in Treasuries. As a result, practitioners sometimes use rates from the highest quality corporate bonds in place of Treasury rates.*[39]

In summary, there is substantial evidence that the practice of market participants is to adopt a risk-free rate in excess of the prevailing government bond yield.

Regulatory acceptance of the problems with the government bond yield proxy

In a recent review process, the UK Competition and Markets Authority (CMA) considered submissions about the convenience yield and the appropriateness of using government bond yields as a proxy for the CAPM risk-free rate. The CMA's analysis is summarised as follows:

> *Based on the evidence analysis discussed above we believe that the ILG yield remains a useful and relevant input into the RFR calculation. However, we note that the yields on these instruments demonstrate that the UK government can borrow at rates significantly lower than other market participants.*
>
> *It is our assessment that ILGs closely but imperfectly match the key requirements of the RFR within the CAPM model. They are very low risk but their yields demonstrate that the government can borrow at rates substantially lower than even higher-rated non-government market participants. As such, the yield on ILGs is likely to sit below the 'true' estimate of the theoretical RFR, if the RFR is expressed as the yield on a 'zero beta' asset. Given this, we use the 20-year maturity ILG as a lower bound for our estimate of the RFR,*

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[37] KPMG Valuation Practices Survey 2019, p. 10. https://assets.kpmg/content/dam/kpmg/au/pdf/2020/valuation-practices-survey-2019.pdf. The prevailing 10-year government bond yield as at June 2019 was approximately 1.4%.
[38] Fernandez, P., S. Bañuls and P. Acin, June 6, 2021, Survey: Market Risk Premium and Risk-Free Rate used for 88 countries in 2021 (June 6, 2021). https://ssrn.com/abstract=3861152.
[39] Berk, J. and P. DeMarzo, 2020, Corporate Finance: Global 5th edition, p. 447. The 2020 edition of Berk and DeMarzo indicates a 35 basis point spread, compared to the 30 basis point figure in the 2012 edition cited by Oxera (2020) above.

but we expect that the returns on low beta assets are likely to be higher than implied by a CAPM model which uses this rate as the RFR.[40]

In its Final Decision, the CMA recognised that:

a CAPM based on the ILG rate alone may understate the return required by investors on equities, if it underestimates the return associated with a 'zero-beta' asset [41]

such that:

we consider that there is merit in Oxera's argument that [departing from the previous regulatory practice of adopting a risk-free rate above the prevailing government bond yield] may have removed an inadvertent mitigation to problems associated with the standard regulatory approach of sole reliance on the potentially imperfect RFR proxy of government bond yields. [42]

This led the CMA to conclude that the prevailing government bond yield produces a lower bound for the CAPM risk-free rate, and that the appropriate estimate is higher:

On balance, the CMA has accepted arguments and evidence that the ILG rate available to the government is unlikely to be a perfect proxy for the RFR, and that the 'true' rate of RFR in the market is likely to be above this level. [43]

and that:

we consider the yield on AAA-rated non-government bonds to be a suitable input into our estimate of the RFR. [44]

That is, the CMA has concluded that the CAPM risk-free rate should be set above the prevailing government bond yield.

ENA proposal

Section 2 above sets out the importance of obtaining the best unbiased estimate of each parameter. The evidence set out above indicates that the prevailing government bond yield may not be the best unbiased estimate of the CAPM risk-free rate.

For this reason, ENA proposes that, as part of the 2022 RoRI process, the AER consider:

- Whether the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate; and
- Whether the above evidence has any other relevance to the allowed return on equity.

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[40] Competition and Markets Authority, 29 September 2020, Provisional Findings Report, p. 533. https://assets.publishing.service.gov.uk/media/5f72f3d2e90e0740cf4eb0a9/Water_provisional_determinations_report_all_-_September_2020_---_web_-.pdf.
[41] UK CMA, *PR19 Final Decision, Paragraph 9.106.*
[42] UK CMA, *PR19 Final Decision, Paragraph 9.107.*
[43] UK CMA, *PR19 Final Decision, Paragraph 9.158.*
[44] UK CMA, *PR19 Final Decision, Paragraph 9.162.*

4.2 The impact of RBA interventions

The RBA's interventions are significant and historically unique

The RBA has implemented a package of measures to help stimulate the Australian economy in response to the COVID pandemic. The key features of this package are:

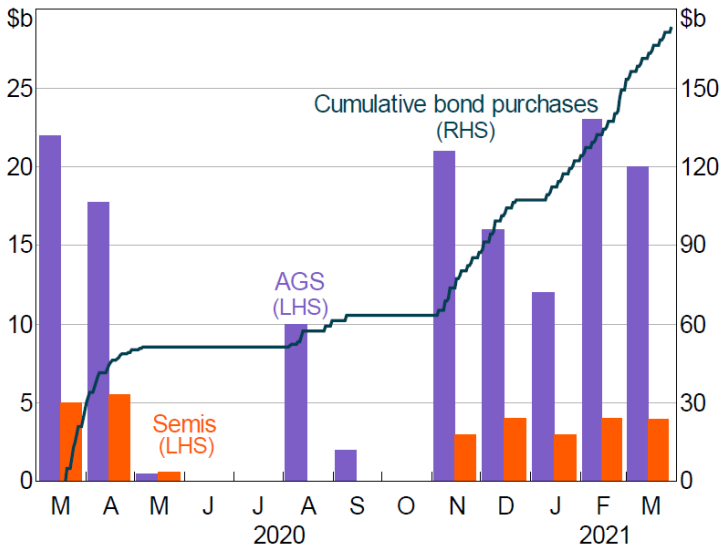
- A reduction in the cash target rate to 0.1%;
- Intervention in the market for 3-year Australian government bonds in whatever volumes are required to drive the yield down to 0.1%; and
- A government bond purchasing program targeted at maturities of 5 to 10 years.

The bond purchasing program was summarised in a recent speech by Deputy Governor Guy Debelle as follows:

> *In November 2020, the Board announced a quantity-based bond purchase program that is complementary to the 3-year yield target…The bond purchase program announced in November 2020 was for the purchase of $100 billion in bonds of maturities of around 5 to 10 years over the following 6 months...In February 2021 the Board announced an additional $100 billion with the same composition and rate of purchase of $5 billion per week.*[45]

In a recent paper,[46] Dr Debelle reported that the RBA has already purchased more than $150 billion of government bonds, as illustrated in Figure 10 below.

Figure 10: RBA bond purchases (face value, up to 29 March 2021)

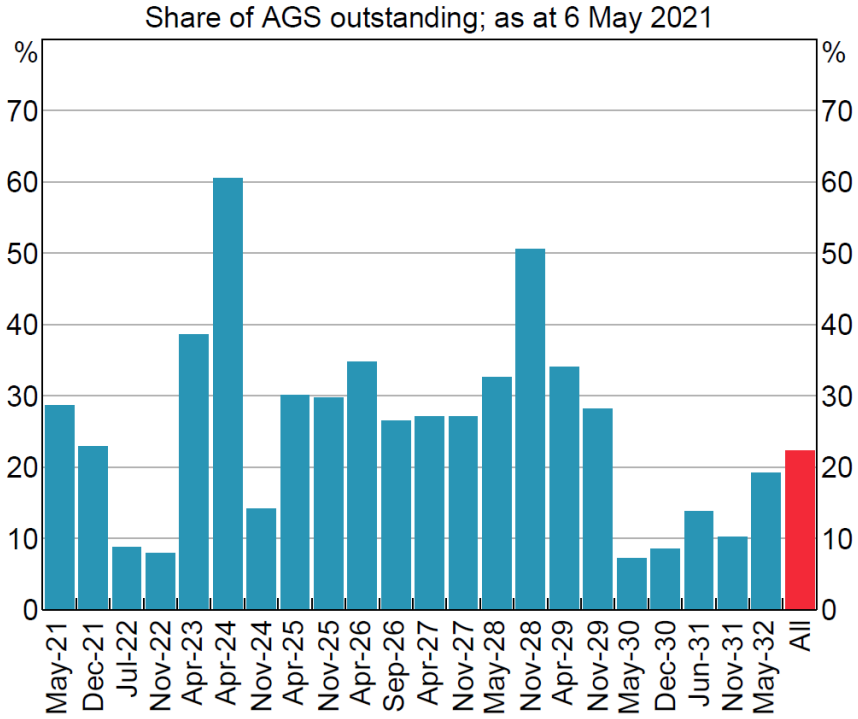


Source: Reserve Bank of Australia.

[45] Debelle, G., 6 May 2021, Monetary Policy During Covid, Shann Memorial Lecture, Reserve Bank of Australia.
[46] Debelle, G., 2021, Monetary policy in Australia during Covid, ENA, in Monetary Policy and Central Banking in the Covid Era, Centre for Economic Policy Research, CEPR Press.

The total volume of RBA holdings of Australian government bonds with various maturities is summarised in Figure 11 below, drawn from the RBA's May 2021 Statement of Monetary Policy.

Figure 11: RBA holdings of Australian government securities



Source: Reserve Bank of Australia, May 2021 Statement of Monetary Policy, Graph 3.8, p. 47.

The May 2021 Statement of Monetary Policy also reports that the RBA anticipates that its share of Australian government bonds will increase to 30% by September 2021:

> *The Bank now holds 22 per cent of outstanding AGS and 10 per cent of outstanding semis (Graph 3.8). These shares are projected to increase to around 30 and 15 per cent respectively by early September following completion of the second $100 billion of bond purchases announced at the February Board meeting. Purchases have been at a pace of around $5 billion per week, except for one instance in early March when an additional $2 billion of bonds were purchased to provide further support during the period when market conditions were strained.*[47]

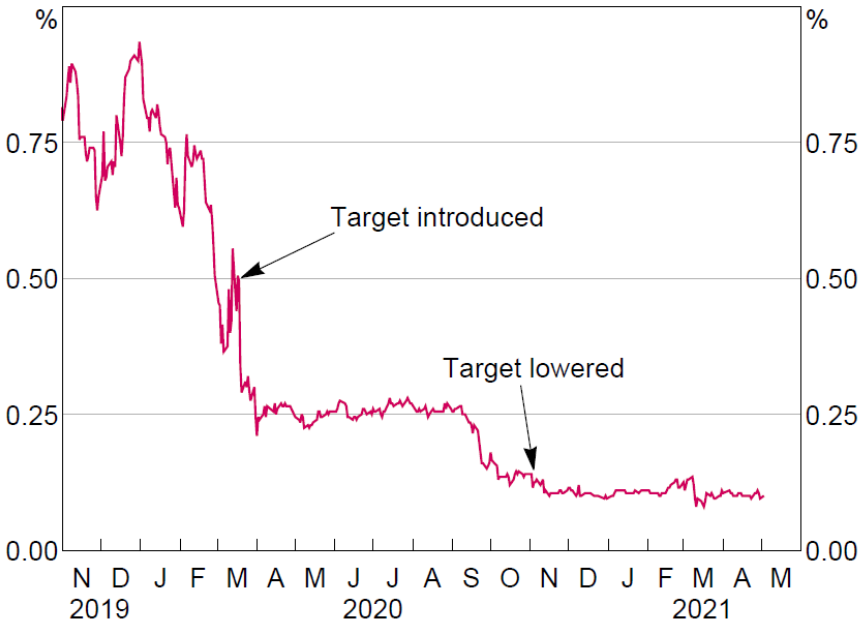
ENA notes that these interventions are significant by any metric and are historically unique – the RBA has never before intervened in this way in Australian financial markets.

The RBA's interventions have had a material impact on rates, including the 10-year yield

The RBA's targeting of the yield on 3-year government bonds has been highly successful. The RBA was able to drive the yield down to the target of 25 basis points when that program was first implemented in March 2020, and then down to 10 basis points when the target was lowered in November 2020, as illustrated in Figure 12 below.

[47] RBA, May 2021, Statement of Monetary Policy, p. 46.

Figure 12: 3-year Australian government bond yield



Source: RBA; Debelle, G., 6 May 2021, Monetary Policy During Covid, Shann Memorial Lecture, Reserve Bank of Australia, Graph 5, p. 9.

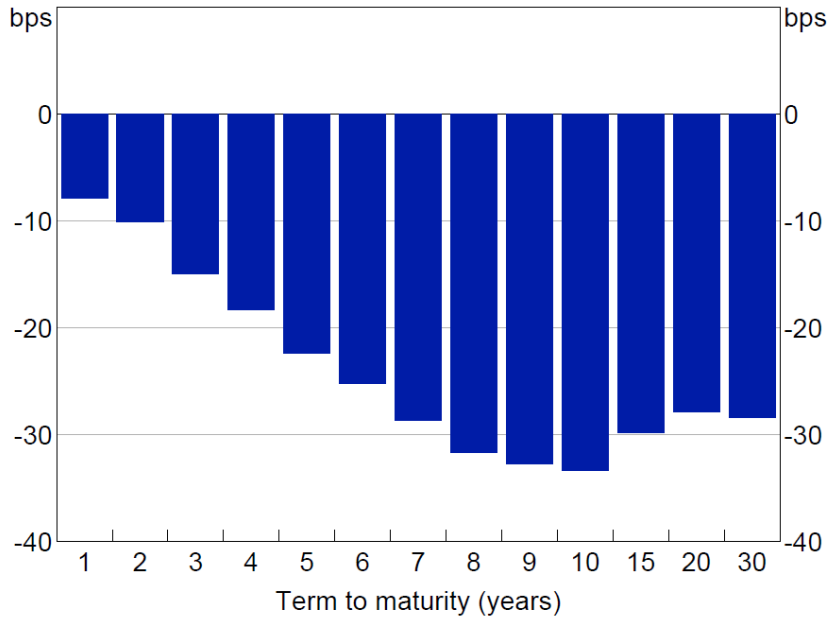
The RBA also reports that its interventions in longer-term government bonds have depressed the yield on 10-year government bonds by approximately 30 basis points. For example, Dr Debelle reports that:

> *Our assessment is that the bond purchase program has continued to keep longer-term yields in Australia about 30 basis points lower than they otherwise would have been.*[48]

This 30 basis point effect is discussed in more detail in a recent *RBA Bulletin* paper, which reports the results of an event study that is designed to capture the change in yields that occurred when markets incorporated the bond purchasing program into prices. That paper reports a reduction in the yield on 10-year government bonds of just over 30 basis points, as illustrated in Figure 13 below.

[48] Debelle, G., 6 May 2021, Monetary Policy During Covid, Shann Memorial Lecture, Reserve Bank of Australia, p. 14.

Figure 13: Change in Australian government bond yields



Source: Finlay, R., D. Titkov and M. Xiang, June 2021, An initial assessment of the Reserve Bank's bond purchase program, RBA Bulletin, Graph 1, p. 21.

In summary, the RBA has concluded that its interventions have had a significant effect – reducing the 10-year government bond yield by approximately 30 basis points below the level that would otherwise have been set by the market.

The RBA's interventions are expected to have an ongoing effect

Dr Debelle has recently noted that the RBA's interventions are expected to have an ongoing effect until the maturity of the bonds that have been purchased:

> *The general assessment of the research literature is that it is the stock of central bank bond purchases that matters rather than the flow. That is, it is the total size of the purchases that affects bond yields and financial conditions including the exchange rate, rather than how many bonds the central bank is buying each week. Clearly the two are closely related. But one important implication of this is that the stimulus remains in place even when the bond purchase program finishes. The stimulus only begins to unwind as the bonds that the central bank has bought mature.*[49]

The same view was expressed in the recent RBA Bulletin:

[49] Debelle, G., 6 May 2021, Monetary Policy During Covid, Shann Memorial Lecture, Reserve Bank of Australia, pp. 25-26.

> *[T]he evidence suggests that bond purchases serve to hold yields lower than they would have otherwise been over an extended period; this is also the evidence from studies of quantitative easing (QE) programs in other countries.*[50]

Since the RBA bond purchasing program targets government bonds with maturities up to 10 years, the effect of those interventions is expected to persist for the entirety of the 2022 RoRI.

AER preliminary views

The draft working paper accepts that RBA intervention has suppressed government bond yields below the rates that would otherwise have been set by the market, but proposes that this may not impact the role of government bond yields as a proxy for the risk-free rate:

> *These factors may impact the price but they do not change the underlying characteristics of Commonwealth Government Securities as an effective proxy for the risk free rate. We also still see a high level of liquidity in the Commonwealth Government Securities market.*[51]

ENA accepts that the yield on government bonds is the yield that can be obtained when lending money to the Commonwealth government. But the key question is whether that yield represents an appropriate proxy for the rate of return required on a zero-beta asset in the CAPM. The prevailing government bond yield may not be an appropriate proxy because it is affected by a convenience yield and the CAPM zero-beta asset is not. The same applies to RBA interventions that are directed exclusively at government bond yields.

Continuing to adopt the prevailing government bond yield as a proxy for the CAPM risk-free rate, within the AER's current framework, involves the very strong assumption that the required return on all equity has been equally reduced by the RBA interventions.

This assumption rules out the possibility that the RBA intervention has had a greater effect on government bond yields than on the required return on equity investments in the Australian economy.

The reasonableness, or otherwise, of this assumption will be an important part of the process for considering the allowed return on equity. ENA suggests that this next part of the process would benefit from a clear statement about the AER's views on this point.

ENA proposal

ENA proposes that, as part of the 2022 RoRI process, the AER consider:

- What impact recent monetary interventions by the RBA have had on observed government bond yields; and
- How a best unbiased estimate of the required return on equity should be determined in circumstances when central bank interventions have driven government bond yields lower than the level that would be determined by the market.

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[50] Finlay, R., D. Titkov and M. Xiang, June 2021, An initial assessment of the Reserve Bank's bond purchase program, RBA Bulletin, p. 19.

[51] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 6.

5 Market risk premium

Key messages

- The mean historical excess returns (HER) estimate is essentially constant over time, whereas the true MRP varies over time.
- Consequently, the mean HER estimate is upwardly biased in some market conditions and downwardly biased in others.
- Brattle has advised – and ENA agrees – that a superior estimate of the MRP can be obtained by giving some weight to forward-looking evidence such as the DGM. Such an approach would reduce the bias inherent in the mean HER estimate and would also reduce the volatility in the allowed return on equity.
- ENA considers that it would be inconsistent to adopt the mean HER estimate in the RoRI (which reflects no relationship between the MRP and the risk-free rate) but then apply a mechanism to update the MRP to account for changes in the risk-free rate during the RoRI period.

5.1 The AER's 2018 approach to estimating the MRP

In its 2018 RoRI, the AER's approach to MRP was to first construct a preliminary estimate based on historical excess returns. The AER concluded that the HER evidence supported an MRP of 6.1%. The AER then had regard to a range of other information including its DGM estimates, survey evidence, and conditioning variables and concluded that none of the other evidence warranted any revision of the preliminary estimate of 6.1%.

The HER estimate of the MRP is effectively constant, as a single new observation becomes available each year. A constant MRP implies that the required return on equity (or the market cost of equity capital) varies one-for-one with changes in the risk-free rate.

ENA has previously submitted to the AER that the MRP is likely to vary over time as financial market conditions change. Thus, a constant MRP is likely to be an upwardly biased estimate in some cases and a downwardly biased estimate in others.

ENA has also previously submitted that the market evidence suggests that the true market cost of equity capital is more stable over time than would be implied by one-for-one variation with changes in the risk-free rate.

5.2 Brattle's observations in relation to MRP

Brattle advises the AER that:

> *The AER's MRP estimate is below those of other regulators with recent determinations* [52]

and that:

[52] Brattle Group, 2020, paragraph 214.

we do not think that the overall rate of return changes one-for-one with the change in risk-free rate. [53]

Brattle then recommends that:

the CAPM using a historical MRP relies on backward-looking information, while the Dividend Growth Model (DGM) uses forward-looking information. During periods of changes in financial markets, it becomes important to consider both historical (stable) and forward-looking (contemporaneous) information. In the following we focus on how some regulators broaden the information they rely on while still focusing on the CAPM, noting that other regulators (FERC and STB) go further to rely equally on the CAPM and other models. [54]

Brattle then concludes that:

In particular, when we compare the AER's method with those of the other regulators, we observe important differences in four related areas concerning the cost of equity. We think that these observations indicate some areas in which the AER's approach, in our view, is not as effective as the approach of other regulators. [55]

and recommends that:

We think that it is beneficial to incorporate at least some forward-looking evidence into the cost of equity determination. [56]

5.3 Lally's observations in relation to MRP

Dr Lally has recently advised the AER that its current approach to the MRP produces estimates that are upwardly biased in some market conditions and downwardly biased in others:

Since the MRP estimated by the AER is very stable over time (because high weight is placed on the long-term historical averaging methodology), and the true value is likely to fluctuate much more than this (with high values during unfavourable economic conditions and low values during favourable economic conditions), the MRP is likely to be overestimated during favourable economic conditions and underestimated during unfavourable conditions. [57]

Dr Lally suggests that this conclusion may not necessarily invalidate any current or past approaches applied by the AER. However, as a finding in the context of the AER reviewing its approaches in this area, ENA concurs with his core contention regarding its potential to deliver biased outcomes across time.

5.4 Having regard to forward-looking evidence

The AER's current approach of adopting an essentially constant MRP based on the long-run average of historical excess returns produces estimates:

- That are currently below those allowed by other comparable regulators; and
- That are upwardly biased in some market conditions and downwardly biased in others.

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[53] Brattle Group, 2020, paragraph 3.
[54] Brattle Group, 2020, paragraph 142.
[55] Brattle Group, 2020, paragraph 217.
[56] Brattle Group, 2020, paragraph 222.
[57] Lally, M., 9 April 2021, An appropriate term for the allowed cost of capital, p. 33.

In this regard, Brattle concludes that it is unsafe to update one return on equity parameter and not others, noting that declines in the risk-free rate are often associated with increases in the MRP, and vice versa:

> *There are important interactions between the CAPM cost of equity parameters, such that it may create inconsistencies—and thus an inaccurate result—if some parameters are updated but others are not. When estimating a forward-looking MRP,* ***the measured MRP commonly increases as the risk-free rate declines and vice versa****. Similarly, because the equity beta is estimated using market data, the beta estimate will typically be affected by changes in market conditions. We therefore think that it is problematic to change one of the CAPM inputs without updating the cost of equity estimate as a whole.*[58]

Brattle also draws attention to the practice of other regulators. For example, Brattle notes that FERC explicitly quantifies the relationship between risk-free rates and MRP. The result is an allowed return on equity that is relatively more stable as falls in risk-free rates are partially offset by increases in MRP, and vice versa:

> *The FERC has recognized that there is a statistically significant relationship between historical movements in interest rates and equity risk premiums (defined as the authorised return on equity for electric transmission utilities over and above utility bond rates).* ***When interest rate levels are relatively high, equity risk premiums narrow, and when interest rates are relatively low, equity risk premiums widen****.*[59]

Brattle also noted that a number of regulators adopt a "total market return" (TMR) approach to setting the allowed return on equity, whereby:

> *The assumption underlying the TMR methodology is that the expected total return to equity is relatively stable in real terms, and that* ***the expected MRP adjusts over time to reflect changes in the real risk free rate****.*[60]

Similarly, IPART has recently explained that it is essential to pair together internally-consistent estimates of the MRP and the risk-free rate, and that failure to do so is likely produce "biased estimates of the market cost of equity":

> *The assumption underlying the TMR methodology is that the expected total return to equity is relatively stable in real terms, and that* ***the expected MRP adjusts over time to reflect changes in the real risk free rate****.*[61]
>
> *As spot risk free rates are very low right now and the long-term MRP is lower than the current MRP, this procedure gives a low estimate of the cost of equity.*
>
> *In our view, despite the fact that it is widely used, the [2018 RoRI] approach will generate biased estimates of the market cost of equity because it combines incompatible short term and long term market observations…because there is an inverse relationship between the*

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[58] Brattle Group, June 2020, p. 60.
[59] Brattle Group, June 2020, p. 93, emphasis added.
[60] Brattle Group, June 2020, p. 109, emphasis added.
[61] Brattle Group, June 2020, p. 109, emphasis added.

MRP and risk-free rate, it is important to adopt an approach to estimating the required return on equity that pairs the risk-free rate consistently with the MRP. [62]

Brattle also notes that the regulatory approach of setting a relatively stable allowed return on equity (i.e. by increasing the allowed MRP when government bond yields fall materially) is consistent with the approach adopted in commercial practice:

For example, Bloomberg's estimate of the MRP for Australia and the Australian 10-year bond yields are inversely related since 2015, so that the MRP increases when the risk-free rate declines and vice versa.[63]

It is also common for independent expert valuation reports to recognise that the total required return on equity has not fallen one-for-one with the decline in government bond yields. For example, Lonergan Edwards states that:

Whilst, prima-facie, recent lower interest rates globally have lowered the total equity return required by investors, based on our experience, such investors have ***not reduced their required rates of return by the full extent of the fall in risk free rates****.* [64]

ENA acknowledges that the AER is currently seeking input on how it might develop an approach to the allowed return on equity that is more robust to the sorts of events that have occurred since 2018. We consider that the starting point in this process is a consideration of how to relax the assumption of a one-for-one relationship between the allowed return on equity and the prevailing government bond yield. In this regard, ENA endorses Brattle's recommendation about having some increased regard to forward-looking evidence.

ENA also notes that a move away from the AER's current approach of adopting a fixed historical average MRP in all market conditions would also have the effect of reducing volatility in the allowed return on equity. Thus, consumers would benefit in two ways from such a change:

- They would always pay only the efficient cost of the equity that is used to provide the service to them. This creates the proper incentives at all times for investment in, and utilisation of, energy networks; and
- They would experience lower volatility in the payments they make in relation to the return on equity.

ENA encourages the AER to explore these possibilities in the forthcoming *Return on Equity* consultation process.

5.5 Updating the MRP parameter during the RoRI period

Any updating should be consistent with the approach adopted in the RoRI

Under the binding RoRI legislation, the AER is required to either set the MRP to be a constant for the duration of the RoRI period, or adopt an approach whereby the MRP can be mechanistically updated during the RORI period at the time of each network's determination.

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[62] IPART, Submission on Draft Report, SA Water Regulatory Determination 2020, 3 April 2020, pp. 2-3.
[63] Brattle Group, June 2020, p. 37.
[64] Lonergan Edwards, 2019, pp. 46-47, emphasis added.

If the AER decides, at the time of the 2022 RoRI, that the mean historical excess returns approach produces the best estimate of the MRP, there would (logically) be no reason to consider any approach for mechanistically changing the MRP figure during the life of the RoRI. This is because the mean historical excess returns approach is essentially a constant number that is entirely independent of the level of the risk-free rate. Thus, the same HER estimate would be obtained regardless of the risk-free rate. If that is considered to be the best approach, there would be no reason to adjust the MRP to account for movement in the risk-free rate during the RoRI period.

Thus, the question of whether the MRP might be mechanically updated during the RoRI period only arises if the AER determines that there is some relationship between the MRP and the risk-free rate, such that the best estimate of the MRP might vary over time.

To put this another way, it would be inconsistent to adopt the mean HER estimate in the RoRI (which reflects no relationship between the MRP and the risk-free rate) but then apply a mechanism to update the MRP to account for changes in the risk-free rate during the RoRI period. For example, if the RoRI recognised that the MRP varied over different market conditions, it would make sense to adjust the MRP as market conditions changed over the life of the RoRI. By contrast, if the RoRI determined that the best estimate of the MRP is always the historical mean of 6.1%, that same figure would be adopted throughout the life of the RoRI.

For the reasons set out above, ENA considers that the AER should:

- **Attach greater weight to forward-looking MRP estimates** – Consistent with Brattle's advice to the AER and the practice of other regulators in Australia and overseas, the AER should give greater weight than it presently does to forward-looking evidence on the MRP; and
- **Ensure internal consistency of the final cost of equity estimate** - Ensure any regulatory approaches or option discussed in the forthcoming cost of equity paper reflect the need consistency between the estimates of the MRP and risk-free rate used to determine the allowed return on equity.

Approaches that amplify the volatility in the risk-free rate should be rejected

Reasons for rejecting a 'procyclical' MRP allowance

The draft working paper provides three references to "*academic reports which have suggested a positive relationship between the risk-free rate and the MRP*."[65]

ENA submits that the approach of increasing the MRP when government bond yields rise and decreasing the MRP when government bond yields fall should be ruled out at this stage of the 2022 RoRI process because:

- The suggestion that the market cost of equity capital is set by increasing the MRP when government bonds yields rise and decreasing the MRP when government bond yields fall is inconsistent with the preponderance of evidence considered by the AER over the last two rate of return reviews. The evidence overwhelmingly suggests that the returns required by equity market investors are *more* stable than is implied by adding a constant MRP to the prevailing government bond yield. The AER's forward-looking DGM estimates imply the same thing. Thus, the notion of a positive relationship between the MRP and risk-free rate contradicts the overwhelming empirical evidence.

[65] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 29.

- ENA is unaware of any regulator or any market professional adopting a positive relationship between the risk-free rate and the MRP. By contrast, there are many examples of regulators and market professionals who adopt a negative relationship.
- The approach of adopting a positive relationship would amplify the volatility in government bond yields leading to more volatility in the allowed return on equity and on customer prices.
- The academic reports to which the AER refers do not make a strong case for the positive relationship, as explained in more detail below.

As explained below, one of those papers—Damodaran(2012)—has been superseded by a 2021 version of the same study that in fact presents strong evidence of a countercyclical (rather than procyclical) MRP since the Global Financial Crisis in 2008, and which argues strongly against the application of a fixed MRP estimate.

The two remaining studies cited in the draft working paper—Li (2006) and Kim and Lee (2008)—do not adopt a CAPM framework, and arrive at the same conclusion even though they adopt diametrically-opposed starting assumptions. For these reasons, ENA suggests that it would be appropriate for the AER to rule out placing any weight on those two academic reports and to rule out an approach that amplifies the volatility in government bond yields.

Damodaran (2012)

One of the academic reports cited in the draft working paper is a manuscript by Damodaran (2012).[66] In that paper, Damodaran investigates the empirical relationship between the risk-free rate and the MRP (which he refers to as the "equity risk premium") by regressing the implied equity risk premium (estimated using Damodaran's version of the Dividend Growth Model) against the historical yield on 10-year Treasury bonds. Damodaran found, using this simple econometric model, that every 1% increase in the 10-year Treasury bond rate was associated with a slight 0.1125% increase in the implied equity risk premium. However, Damodaran notes that this slight positive relationship performs poorly in fitting the post-2008 data (providing a particular example as at 14 March 2012 where the 'model' under-fits the implied MRP by 251 basis points).

The 2012 manuscript cited in the draft working paper has since been updated by Damodaran (2021).[67] Damodaran re-estimates the relationship between Treasury rates and the implied equity risk premium using data up to 2020, and finds that the positive relationship identified in his earlier papers could no longer be detected with any statistical precision:

> *In earlier versions of the paper, this regression has yielded a mildly positive relationship between the implied ERP and the T.Bond rate, but the combination of low rates and high equity risk premiums since 2008 seems to have eliminated even that mild connection between the two*[68]

Damodaran (2021) explains that this result should not be interpreted as support for an MRP that is invariant to changes in the risk-free rate:

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[66] Damodaran, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2012 Edition. (Cited as "Damodoran" in the draft working paper.)
[67] Damodaran, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2021 Edition.
[68] Damodaran, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2021 Edition, p. 107.

This regression does not provide support for the view that equity risk premiums should not be constant but should be linked to the level of interest rates.[69]

He goes on to explain that explain that expected returns on equity have remained sticky, even as government bond yields have declined precipitously since 2008:

The rising equity risk premiums, in conjunction with low risk free rates, can be viewed paradoxically as both an indicator of how much and how little power central banks have over asset pricing. To the extent that the lower US treasury bond rate is the result of the Fed's quantitative easing policies since the 2008 crisis, they underscore the effect that central banks can have on equity risk premiums. At the same time, the stickiness of the overall expected return on stocks, which has not gone down with the risk free rate, is a testimonial that central banking policy is not pushing up the prices of financial assets. To the extent that this failure to move expected returns is also happening in real businesses, in the form of sticky hurdle rates for investments, the Fed's hope of increasing real investment at businesses with lower interest rates did not come to fruition. [70]

If expected returns have remained sticky as government bond yields have declined materially, that would suggest that, at least since 2008, there has been a *negative*, not positive, relationship between the risk-free rate and the MRP. Given that the RoRI will apply over the relative short-term, Damodaran's analysis would indicate that a negative relationship between the risk-free rate and the MRP is what ought to inform the AER's deliberations over the RoRI.

When interpreting that Damodaran's work, it is important to consider his key conclusions and recommendations. Damodaran (2021) concludes that the historical excess returns approach performs poorly and that forward-looking DGM estimates perform well in predicting future stock returns – over both short and long periods:

Over this period, the implied equity risk premium at the end of the prior period was the best predictor of the implied equity risk premium [DGM] in the next period, whereas historical risk premiums did worst. If we extend our analysis to make forecasts of the actual return premium earned by stocks over bonds for the next five or ten years, the current implied premium remains the best predictor, though the earnings yield does well for ten-year returns. Historical risk premiums perform even worse as forecasts of actual risk premiums over the next 5 or 10 years; in fact, they operate as good contra indicators, with a high historical risk premium forecasting lowered actual returns in the future. If predictive power were the only test, historical premiums clearly fail the test.[71]

Damodaran's final conclusion is that:

If predictive power is critical or if market neutrality is a pre-requisite, the current implied equity risk premium is the best choice. For those more skeptical about markets, the choices are broader, with the average implied equity risk premium over a long time period having the strongest predictive power. Historical risk premiums are very poor predictors of both short-term movements in implied premiums or long-term returns on stocks. [72]

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[69] Damodaran, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2021 Edition, p. 107.
[70] Damodaran, Equity Risk Premiums (ERP): Determinants, Estimation and Implications – the 2021 Edition, p. 108.
[71] Damodaran, 2021, p. 128.
[72] Damodaran, 2021, p. 129.

Damodaran made similar observations in earlier editions of his manuscript, including in Damodaran (2012), that were not referenced in the draft working paper.

Damodaran also sets out a number of "widely held misconceptions about equity risk premiums." [73] One of these is the misconception that "The equity risk premium does not change much over time." [74] Damodaran observes that:

> *Equity risk premiums reflect both economic fundamentals and investor risk aversion and they do change over time, sometimes over very short intervals, as evidenced by what happened in the last quarter of 2008. Shocks to the system – a collapse of a large company or sovereign entity or a terrorist attack – can cause premiums to shoot up overnight. A failure to recognize this reality will lead to analyses that lag reality.* [75]

In summary, it would seem that a balanced interpretation of Damodaran's work would support moving away from an approach that adopts the mean historical excess returns estimate without adjustment, and which instead has due regard to forward-looking evidence.

Li (2006) and Kim and Lee (2008)

The draft working paper also cites Li (2006)[76] and Kim and Lee (2008)[77] as support for the proposition that there may be a positive relationship between the risk-free rate and the MRP. These papers both develop theoretical models to explain why it is possible for such a positive relationship to exist. Both papers refer to this positive relationship as a "procyclical risk premium" whereby the risk premium is higher during economic expansions when government bond yields are likely to be higher.

Remarkably, the model of Li (2006) generates a procyclical risk premium from countercyclical variation in risk aversion (i.e. investors become more risk averse in a recession):

> *we show that countercyclical variation in risk aversion induces a procyclical risk premium,* [78]

whereas the model of Kim and Lee (2008) generates a procyclical risk premium from procyclical variation in risk aversion (i.e., investors become more risk averse in a boom):

> *A stronger risk aversion in the boom period helps explain higher excess stock return and compensation for risk in the boom periods.* [79]

That is, a procyclical risk premium is generated by opposite assumptions about investor risk aversion in the models developed in these two papers. In turn, any acceptance of each of these papers as persuasively jointly supporting a pro-cyclical MRP would be forced to effectively give weight simultaneously to two contradictory and mutually exclusive assumptions on the cyclical variation in risk aversion from investors.

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[73] Damodaran, 2012, p. 129.
[74] Damodaran, 2012, p. 130.
[75] Damodaran, 2012, p. 130.
[76] Li, G., 2006, Time-varying risk aversion and asset prices, *Journal of Banking and Finance*, 31, 243-257. (Cited as Li (2007) in the draft working paper.)
[77] Kim, S. and B. Lee, 2007, Stock returns, asymmetric volatility, risk aversion and business cycle: Some new evidence, Economic Inquiry, 46(2), 131-148. (Cited as Kim and Lee (2007) in the draft working paper).
[78] Li, 2006, p. 244.
[79] Kim and Lee, 2008, p. 145.

It is also notable that neither paper uses a CAPM framework, which is the AER's foundation model. One has to abandon the CAPM to generate the effects that are examined in these papers.

ENA submits that, for the reasons set out above, it would be inappropriate to have regard to these papers when setting the allowed return on equity in the 2022 RoRI.

6 Financeability

Key messages

- Many regulators undertake financeability assessments as part of their regulatory process.
- Financeability assessments have two key purposes in a regulatory context:
  - To ensure that the regulatory determination is internally consistent such that the allowed return is sufficient to support the credit rating that is assumed when deriving it; and
  - To ensure that the regulatory determination is robust to potential changes in future financial market conditions.
- ENA proposes that a financeability assessment should be performed as a cross-check of the AER's allowed return on capital, providing 'early warning' of adverse outcomes that could arise if the return on capital allowance for the benchmark firm were inadvertently set below the efficient level.
- A financeability cross-check on the overall allowed return on equity is particularly important given the high degree of imprecision, uncertainty and methodological debate about each parameter, and the degree of regulatory judgment that is required in arriving at a final allowed return.
- The financeability assessment would be performed by computing the set of financial ratios that form the basis of credit ratings for regulated utilities. These financial ratios would be computed for the benchmark firm as a simple augmentation of the PTRM.
- Financeability assessments have two clear benefits for consumers by helping regulators set an allowed rate of return that is equal to the best possible estimate of the market cost of capital at the time of each decision:
  - Keeping prices down by keeping the required return on debt low; and
  - Supporting efficient and prudent investment.

6.1 ENA's proposal on financeability

ENA's proposed use of financeability assessments

ENA proposes that a financeability assessment should be performed as a cross-check of the AER's allowed return on capital.

The financeability assessment would have two key purposes:

- To ensure that the regulatory determination is internally consistent such that the allowed return is sufficient to support the credit rating that is assumed when deriving it; and
- To ensure that the regulatory determination is robust to potential changes in future financial market conditions.

The financeability assessment would be performed by computing the set of financial ratios that form the basis of credit ratings for regulated utilities. The relevant ratios are set out the rating methodologies published by the major ratings agencies and are used in financeability assessments conducted by lenders and a number of regulators.

These financial ratios would be computed for the benchmark firm as a simple augmentation of the PTRM.

The ratios would then be used as part of the information set available to the AER when making its draft and final RoRI instrument.

An internal consistency check

As part of its RoRI process, the AER makes a determination about the benchmark credit rating, which is then used in setting the allowed return. ENA proposes that a financeability assessment should be undertaken to ensure that the allowed return is sufficient to support the assumed credit rating on which it is based.

That is, the financeability assessment could be used as a check of the internal consistency of the regulatory determination.

ENA considers that internal consistency is an important feature of regulatory determinations. For example, if the regulatory allowance assumes a BBB+ credit rating but the regulatory allowance is only sufficient to support a rating of BBB, the regulatory allowance will be lower than the market cost of capital for the benchmark firm. Any such mismatch between the regulatory allowance and the costs incurred by the benchmark firm results in a bias with all of the consequences set out in Section 2 above.

A robustness check

A financeability assessment can also be used to test the robustness of a regulatory determination to a range of potential future scenarios. Used in this way, a financeability assessment would provide the AER with an 'early warning' about potential problems that might arise in the future for the benchmark firm.

In particular, the same set of standard financial ratios can be computed for each year of a regulatory period under a range of different future market conditions. This would provide the AER with useful information about the extent to which:

- The ratios are suggesting an improvement or deterioration in credit quality over time; and
- The assumed benchmark credit rating is robust to a range of future financial market scenarios.

It would be useful if the AER had a mechanism for providing early warning of potential credit rating pressures. In this regard, there have been a number of relevant credit rating downgrades since the 2018 RoRI, and it would be useful for the AER to have information about the risks or prospects of credit rating pressures on the benchmark firm. This could be tested by applying a generic benchmark PTRM over a range of different future scenarios as part of the RoRI process.

What financeability is and is not

ENA recognises that 'financeability' has different meanings and interpretations among different stakeholders. To that end, we have tried to set out clearly the standard interpretation of financeability assessments as they have been used for decades by regulators in a number of jurisdictions.

Financeability tests were first adopted by regulators in the UK, such as Ofgem, in response to legal obligations to ensure that the businesses being regulated are able to finance their regulated activities. Financeability tests have also been adopted by some regulators in Australia, such as the Essential Services Commission of Victoria (ESCV), the Essential Services Commission of South Australia (ESCOSA) and the Independent Pricing and Regulatory Tribunal (IPART).

All of these regulators use financeability tests to provide an check on the internal consistency of each regulatory decision. Specifically, the tests assess if the regulatory allowances proposed by the regulator would be sufficient to allow a benchmark efficient firm (i.e. one that incurs the costs that the regulator deems to be efficient, and one that adopts the benchmark level of gearing assumed by the regulator) to maintain the benchmark credit rating assumed when setting the regulatory allowances in the first place.

As the focus of the financeability tests is to assess whether a benchmark efficient business would be able to maintain the benchmark credit rating assumed by the regulator, the tests typically only make use of information obtained directly from the PTRM. That is, the tests do not seek to test whether the actual regulated business would remain financeable.[80]

Financeability tests are also used by regulators as an early warning tool, to identify potential financeability problems that might emerge over the course of a regulatory period, even if a financeability problem is not apparent at the start of the period.

ENA supports the use of regulatory financeability tests in these two ways—as an internal consistency check, and also as an early warning tool. Cross-checks of this kind are vital because the true cost of capital (i.e. the minimum return required by investors in order to commit capital) can never be observed. Rather, the cost of capital can only be estimated using imperfect model, imperfect data, and imperfect judgment. The significant uncertainties and imprecision involved in the estimation process leave it open to significant scope for errors. Cross-checks, of which financeability tests are only one, help safeguard regulated businesses and consumers against the consequences of inadvertent regulatory errors in determining the allowed return on capital.

The terms 'financeability' or 'financeable' are often misinterpreted. For the avoidance of doubt, we set out below what the concept of financeability (as it has been used by regulators in a number of jurisdictions) *does not* mean in the regulatory context:

- **Financeability should not be interpreted as a test of whether a firm might be able to raise capital for a particular project**.

  This interpretation of financeability is confused by considerations of whether the firm may be able to raise capital with the support of some form of government subsidy and whether the firm may be able to raise capital via an assumed equity injection and so on. Most firms can raise some capital, unless they are facing deep financial distress. The relevant question is, can the firm continue to raise debt finance at a cost that is commensurate with the benchmark credit rating assumed by the regulator? If the answer to that question is 'no', then the regulatory decision suffers from an internal inconsistency.

  Such an inconsistency would be akin to assuming that the benchmark business adopts a very high level of gearing (e.g., in excess of 90%) while simultaneously assuming that the business faces a cost of debt that is consistent with an investment-grade rating. Clearly, these two assumptions are incompatible with one another and would belie a logical inconsistency in the way the regulatory allowances have been determined. No regulator in Australia is likely to regard such an inconsistency

[80] The exception to this practice is IPART, which perform a standard financeability test using the information relevant to a benchmark efficient firm, and a separate, parallel test using information on the actual regulated business. When assessing the adequacy of the regulatory allowance, IPART focusses on the results of its 'benchmark' financeability test. The results from its 'actual' test are used only to gain a greater understanding of the potential causes of any financeability problems that might be identified by the benchmark test.

as appropriate. Nor should the AER consider appropriate a regulatory decision that involves setting allowances so low that the resulting credit metrics for the benchmark efficient business fall below a level consistent with the credit rating assumption used by the regulator to set the allowances in the first place.

A recent example of regulatory 'financeability' being interpreted incorrectly as the ability of a business to raise finance is the *Project Energy Connect* (PEC) case. In submissions to the AEMC, the AER contended that the firms in question would be able to raise the required capital without suffering a credit rating downgrade if that new capital was provided in the form of relatively more equity than is assumed in the regulatory benchmark.

The question was not whether the firms could raise any additional capital at all that would allow the project to proceed. Such a test is not useful because every firm will always be able to raise capital without affecting its credit rating if the equity portion is high enough. Rather, the question was whether the regulatory arrangements would allow businesses that follow the financing strategy that the AER considers is efficient for a benchmark efficient firm to maintain the investment grade rating that the AER assumes when setting regulatory allowances?

Thus, although the prospects of actual firms being able (and willing) to raise capital for a particular projects may or may not be relevant to specific investments, ENA considers that interpretation of financeability is not useful to the determination of the allowed return in the RoRI.

- **Financeability should not be interpreted as a test of whether a particular firm might become insolvent.**

The draft working paper acknowledges that when the AER has previously considered submissions on financeability concerns by NSPs, it has sought expert advice on whether the NSPs in question faced "a material risk of insolvency."[81]

Insolvency of a network is an extreme event that would likely have catastrophic effects for stakeholders, and involve important adverse impacts for consumers. ENA considers that to be an inappropriate threshold to apply to a financeability assessment. It is not the case that an allowed return is acceptable so long as it does not result in the potential insolvency of a network during the regulatory period.

Furthermore, no regulator that conducts financeability tests as part of its regulatory process uses insolvency as the threshold that would justify regulatory action in order to address a financeability concern.

As explained above, a financeability assessment should be used to ensure that the regulatory determination is internally consistent such that there is a match between the regulatory allowance and the efficient costs incurred by the benchmark firm. That is the standard way in which financeability tests are used by regulators in other jurisdictions.

- **Financeability should not be interpreted as a back-solving approach to setting allowed returns.**

Allowed returns should not be set by increasing or decreasing the regulatory allowance until the point where some definition of financeability is just satisfied.

[81] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 76.

Such an approach would displace all other relevant evidence, and would by definition no longer be a 'cross-check'.

Rather, ENA proposes that the financeability assessment would be one piece of relevant information to which the AER would have regard when making each determination.

» **Financeability should not be applied in a mechanistic way to adjust regulatory allowances.**

ENA considers that it would be inappropriate for a financeability assessment to result in a formulaic adjustment to the allowed return. Rather, ENA considers that the financeability assessment is one of the relevant pieces of information that the AER would consider when determining whether its allowed return is adequate and sufficiently robust to potential economic conditions over the life of the determination.

» **Financeability should not be interpreted in terms of the balance of cash returns and RAB indexation.**

The proponents in the PEC case submitted that they would be unable to finance the proposed project with the benchmark capital structure and benchmark credit rating. In particular, the allowed return would be based on 60% gearing and a BBB+ credit rating, however the proponents indicated that it was impossible to raise finance on those terms, such that there would be a mis-match between the regulatory allowance and the market cost of capital.

The proponents in that case noted that the RoRI is binding under legislation so that there was no opportunity for any adjustment to the allowed return. Consequently, they proposed a solution in terms of accelerating the cash component of the binding allowed return.

ENA does not propose that the financeability assessment should be used in this manner in the RoRI context. Rather, as explained above, ENA considers that the financeability assessment is one of the relevant pieces of information that the AER would consider when determining whether its allowed return is adequate and sufficiently robust to potential economic conditions over the life of the instrument.

The draft working paper suggests that regulators address financeability concerns by simply reprofiling cash in an NPV-neutral way:

> *It should be emphasised that to the best of our knowledge, other regulators have addressed financeability issues by bring cash flows forward and not by increasing the return on capital. Overall our return on capital is appropriate and adequately compensates debt and equity investors.*[82]

This appears to be a misreading of the approach used by regulators. For instance, IPART has set out very clearly that if its test identifies financeability concern, it would seek to determine whether the concern is due to:[83]

- Setting the regulatory allowance too low;
- The business taking imprudent or inefficient decision; and/or
- The timing of cash flows.

[82] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 40.
[83] IPART, November 2018, Review of our financeability test, Final report, p. 60.

IPART went on to explain that if financeability concern arose as a consequence of setting the regulatory allowance too low, then it would revise the regulatory decision:

> *If IPART were to set the regulatory allowance too low for a business, it would create a financeability concern. Therefore, we can use the benchmark financeability test to provide some confidence that the regulatory allowance is appropriate. If this benchmark test identifies a concern, then we would seek to pinpoint the cause and revise the pricing calculation. We anticipate doing this before the pricing decision is publicised.*[84]

Hence, IPART confirms that if a benchmark efficient business would be unable to maintain credit metrics commensurate with the credit rating assumption it adopts when setting the regulatory allowance—for instance, because the allowed return on capital has been set too low—then the appropriate course of action would be to revisit its return on capital decision rather than simply bring forward future cash flows.

Consideration of financeability cannot begin by assuming away the issue being tested

Under ENA's proposed approach, a financeability assessment would be used by the AER as one of the relevant pieces of information when setting the allowed return. It would assist the AER in determining whether a proposed allowed return was internally consistent, unbiased, reflective of the market cost of capital, and robust to potential future economic conditions.

That is, the financeability assessment would assist the AER in determining whether its proposed allowed return was appropriate.

If the consideration of financeability begins with the assumption that the AER's allowed return is already appropriate, there would be no point in proceeding further.

That is, there is no point in testing for a problem if we assume that one does not exist. Similarly, there is no point in seeking to obtain an early warning of a problem that has been assumed away.

In this regard, Appendix B to the draft working paper (prepared by the ACCC Regulatory Economics Unit) states that:

> *If the allowed return on capital and return of capital (depreciation) are correctly determined, then a benchmark efficient entity should generally be able to readily raise capital at a reasonably well-functioning capital market at costs consistent with the regulatory allowance – and therefore should remain financeable.*[85]

Similarly, in its 2018 RoRI process, the AER concluded that its estimates of CAPM parameters could not be improved by considering information in relation to financeability:

> *Consistent with our draft decision, our final decision is to not use financeability assessments to inform our rate of return. We remain of the view there is no clear guidance on the assumptions that should be used in any financeability assessment as a cross check on the benchmark parameters in the Sharpe-Linter CAPM that we are using in our foundation*

[84] IPART, November 2018, Review of our financeability test, Final report, p. 65.
[85] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 73.

model. We are of the view the appropriateness of these parameters should continue to be based on the evidence examined in determining these parameters.[86]

It is tautologically correct that, if the best possible estimate of the market cost of equity is obtained from a subset of the relevant information, there would be no point in considering information from outside that subset. But the main point of financeability assessments, as proposed above, is to provide a check of whether the allowed return is sufficient to maintain the benchmark credit rating used to set the allowance.

This is particularly important given the high degree of imprecision and debate about each WACC parameter, and the degree of regulatory judgment that is required in arriving at a final allowed return.

ENA agrees that financeability assessments would be redundant if (a) every WACC parameter could be reliably and precisely estimated, and (b) the formula in which those estimates are used reliably and precisely reflects the market cost of capital. However, neither of those statements are true. In reality, there is imprecision, debate and judgment in large measure.

This is evidenced by the fact that several regulators—including Ofgem, Ofwat, ESCV, ESCOSA, IPART and others—have adopted financeability tests. If regulators could, with complete certainty (and without error) determine the true return on capital required by investors, then there would be no need for any regulator to adopt financeability tests as a cross-check on their decisions. That regulators have chosen to incorporate financeability tests into their regulatory processes demonstrates that it is not possible for regulators to determine the true required return on capital with complete certainty and without error.

In these circumstances, ENA sees no reason why the determination of the allowed return would be made less reliable by the consideration of relevant evidence such as a financeability assessment.

6.2 Financeability tests are a key component of good regulatory practice

ENA notes that many regulators undertake financeability assessments as part of their regulatory process. Some regulators are required to consider financeability and others do so as part of good regulatory practice, that is, because they consider it promotes the long-term interests of consumers.

By way of a few examples:

- IPART has developed a financeability framework voluntarily (without any legal obligation to do so) and applied financeability tests as part of its process for the regulated NSW water businesses;
- The ESCV has applied a financeability assessment in its pricing decisions for regulated businesses in Victoria;
- ESCOSA applied a financeability assessment when setting the regulatory allowance for SA Water in 2020; and
- Ofgem (like other regulators in the UK) is required by legislation to ensure that regulated firms "are able to finance the activities" that are the subject of regulation. In applying its financeability assessment, Ofgem considers a notional benchmark operator and computes a set of 11 financial

[86] AER, December 2018, Rate of Return Instrument: Explanatory Statement, p. 393.

ratios based on benchmark gearing. Ofgem also uses its financeability framework to conduct sensitivity tests to ensure that the regulatory allowance is robust to different future scenarios.

In the recent review of its financeability framework, IPART noted that its approach to financeability enjoyed broad support among stakeholders:

> *All stakeholders agreed that we should continue to conduct financeability tests. For example, the Public Interest Advocacy Centre (PIAC) agreed with the benefits of conducting the test that we identified in our Issues Paper, and supports "continuing to use [the] financeability test as a check of the output of the price determination process and not as an input in setting the allowed prices and/or rate of return for a regulated business."* [87]

IPART also concluded that the benefits of conducting a financeability assessment significantly outweighed the costs:

> *The benefits of the financeability test outweigh the costs.*
>
> *Our final decision is to continue to conduct financeability tests, as stakeholder feedback and our analysis both support this decision. Our view is that our financeability test is effective, and the potential benefits of the test in highlighting a potential future financeability concern are high compared to the small regulatory cost of conducting the test.*
>
> *The benefits of the financeability test are significant.*
>
> *In our view the test has the following benefits:*
>
> 1. *When the test is based on financial inputs for a benchmark business, we can assess whether our pricing decisions would enable an efficient business matching our regulatory allowances to raise finance consistent with an investment grade rated business.*
> 2. *When the test is based on financial inputs from the actual business, we can assess whether the business can raise finance consistent with an investment grade rated business.*
> 3. *If we identify a financeability concern, it helps us decide what actions could be taken to address the concern.* [88]

IPART set out the following objectives for the review of its financeability framework:

> *All stakeholders agreed that we should continue to conduct financeability tests. For example, the Public Interest Advocacy Centre (PIAC) agreed with the benefits of conducting the test that we identified in our Issues Paper, and supports "continuing to use [the] financeability test as a check of the output of the price determination process and not as an input in setting the allowed prices and/or rate of return for a regulated business."* [89]
>
> *In making our decisions for this review, we aimed to meet the following objectives:*

[87] IPART, November 2018, Review of our financeability test, p. 13.
[88] IPART, November 2018, Review of our financeability test, pp. 13-14.
[89] IPART, November 2018, Review of our financeability test, p. 13.

1. *To ensure the financeability test effectively assesses the impact of our pricing decisions on the short-term financial sustainability of the regulated business.*

2. *That our process for identifying and addressing a potential financeability concern supports efficient and prudent investment decisions by regulated businesses, and supports the long-term interests of consumers.*

The financial sustainability of regulated businesses is necessary for continuing to provide services that are in the interests of consumers.

For the reasons set out above, ENA proposes that a financeability assessment is an important feature of good regulatory practice.

6.3 Ensuring financeability promotes the long-term interests of consumers

As noted above, ENA's proposed use of financeability assessments is to ensure that:

- The regulatory determination is internally consistent, such that the allowed return supports the assumed credit rating on which it is based; and
- The regulatory determination is robust to the potential financial market conditions that might arise during the course of the determination.

That is, financeability assessments would serve as a check of the internal consistency of a decision and as an early warning of potential future issues.

Used in this way, financeability assessments have two clear benefits for consumers:

- **Keeping prices down by keeping the required return on debt low**

  If the regulatory decisions made by the AER do not allow networks to maintain the benchmark credit rating adopted by the AER when setting allowances, the resulting deterioration in credit quality may result in credit downgrades. This would, in turn, push down the industry-average credit rating, which would necessitate a lowering of the benchmark credit rating, increasing the allowed return on debt.

  Maintenance of financeability (as defined above) across the industry would prevent such outcomes, by definition.

- **Supporting efficient and prudent investment**

  If a deterioration in credit quality results in networks having to raise new debt at a premium over the allowed rate of return, then efficient and prudent investments may not proceed commercially.

  By way of example, Project Energy Connect—which passed the RIT-T and, therefore, was assessed by the AER to maximise net economic benefits to all those who produce, consume and transport electricity—was only able to proceed due to Government support via the Clean Energy Finance Corporation. The project (which was efficient and prudent, and an essential 'foundational' investment under the Integrated System Plan) was not financeable through the normal means of cost recovery under the existing regulatory arrangements and would not have proceeded under the existing regulatory framework. Since the project had passed the RIT-T, there would have been an expected loss of net economic benefit (including to consumers) if the project were unable to proceed.

7 Appendix A - Response to CRG feedback and assessment framework

1.1 Why are networks focussing on the estimation of return on equity?

At the AER's stakeholder forum held on 23 June 2021, the Consumer Reference Group (CRG) questioned why network and shareholder stakeholders were not advocating changes to the AER's return on debt estimation approach in the low interest rate environment and focussing instead on the AER's return on equity estimation approach.

The ENA has set out below why this is. It centres squarely on the fact that the RoRI context means we must consider the preconditions that need to hold to protect customers' interests.

Determining an appropriate rate of return in a low interest rate environment is easier for debt than it is for equity.

- Debt pays interest whereas equity pays profit.
- We can measure interest rate projections for debt, but the profit projections required to attract equity must be approximated.

The current cost of debt allowance ensures that:

- The benchmark firm is compensated for the efficient cost of servicing an efficient debt portfolio—no more, and no less
- Consumers always pay only the efficient cost of debt used in funding the service that is provided to them—no more, and no less.

The same cannot be said of the current approach to estimating the return on equity. The table below sets out the preconditions for aligning network compensation and customer interests, and assesses the extent to which these do and do not hold for debt and equity.

Precondition	**Debt**		**Equity**	
Estimation method reflects observed costs	✓	Return on debt is set based on observed bond yields	×	Return on equity estimated using an approximation (i.e. CAPM with fixed MRP and equity beta) as no costs can be observed

Precondition	Debt		Equity	
Estimation method is dynamic to changes in interest rates	✓	Return on debt updates each year to reflect changes in observed bond yields	✓or ×?	This is unclear for return on equity. Evidence suggests that required returns on equity do not evolve in response to interest rate changes as suggested by the formula in the RORI
Relationship to networks' efficient costs	✓	Efficient debt management practices mean networks' debt costs also decline as interest rates fall,	×	No, equity providers' expected returns do not move 1 for 1 with the RFR, and equity financing of investments is jeopardised where allowed returns assume such a relationship
Relationship to customer outcomes	✓	Low rates continue to support lower prices given the 10 year trailing average, whilst still adequately funding debt for investment	✓or ×?	This is unclear for the return on equity. The 2018 RORI assumes that the RoE falls as RFR does with no MRP variation, so network prices drop. However, to the extent the RoE reduction does not align with efficient equity financing costs, then this will undermine efficient investment in the distribution and transmission networks, including that needed to support lower wholesale prices by bringing renewable generation online and best accommodating customers' DER investments.

1.2 What is the threshold for considering concern, and what evidence is driving concern?

At the AER's stakeholder forum held on 23 June 2021, the CRG questioned what is the threshold for considering concern, and what evidence is driving concern.

ENA agrees with the AER that the allowed return should be set equal to the best possible estimate of the market cost of capital at the time of each decision. Such an approach ensures that network investors receive efficient compensation for efficient investment and that consumers pay no more than the efficient cost of the service that is provided to them.

ENA notes that the issues raised in this submission are not solely attributable to the current low interest rate environment. The return on equity estimation methodological issues networks have raised are not new. The consequences of several of these methodological issues are exacerbated by both the low interest rate environment and by the approach to return on equity estimation that the 2018 RORI locked in for the current RORI period.

This submission documents the evidence of this, but it was clearly summarised by the AER's own expert The Brattle Group (Brattle) in June 2020 who concluded:

> *when we compare the AER's method with those of the other regulators, we observe important differences in four related areas concerning the cost of equity. We think that these observations indicate some areas in which the AER's approach, in our view, is not as effective as the approach of other regulators. These areas include:*
>
> *a. incorporating forward-looking evidence into the cost of equity;*
>
> *b. use of multiple models for estimating the cost of equity;*
>
> *c. how often to update the cost of equity; and*
>
> *d. equity beta estimation.*[90]

Brattle's findings are supported by other evidence, including reports from the Council of European Energy Regulators (CEER) and Morgan Stanley which we discuss in this submission.

ENA considers that it is important that the Brattle recommendations be given careful consideration through the 2022 RoRI review process. We consider that the AER's draft working paper on allowed returns in a low rate environment does not yet adequately engage with the Brattle findings.

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[90] Brattle, 2020, p. 58.

ENA therefore considers that the forthcoming AER cost of equity paper should:

1. **Engage with findings of Brattle:** It is important to engage with the key Brattle findings on comparative returns and recommendations throughout the Return on Equity process.
2. **Consider issue of the risk-free proxy:** We need to consider whether government bond yields are still an appropriate proxy for the CAPM risk-free rate in light of new evidence.
3. **Account for impact of RBA intervention on risk-free rate estimation:** We need to ensure that the RoRI is robust to RBA interventions and other potential market conditions during the life of the RoRI.
4. **Consider bias in MRP estimates:** We need to consider whether 1:1 variation with changes in government bond yields is reasonable. An approach should not be used if it leads to upwardly biased estimates in some market conditions and downwardly biased estimates in others (not in long-term interests of consumers).
5. **Give stronger weight to forward-looking evidence:** The MRP estimate would be improved by better incorporating forward-looking evidence.

1.3 Stability of RORI framework versus stability in rate of return estimates

At the AER's stakeholder forum held on 23 June 2021, the CRG noted that it supports stability of the rate of return framework rather than stability of the resulting returns that framework provides in the AER's regulated revenue allowances.

ENA is supportive of further collaborative work to develop principles to enhance certainty about the evidential bar for change to the RORI. However, we also observe that:

- The past AER rate of return reviews have not been characterised by stability of framework. For example, the AER reduced the allowed equity risk premium in its 2009, 2013 and 2018 WACC reviews. In its 2018 RoRI the AER made its largest ever cut to the allowed equity risk premium.
- To suggest that consumer preferences favour stability of regulatory methods rather than stability of outcomes (i.e. prices) is at odds with the insights gained from prior consumer engagement, including end use customers, who often have no awareness of regulatory approaches. It is also at odds with the Energy Users' Committee rule change proposal to introduce a trailing average cost of debt in 2011 and a range of one-off reviews actively advocated for by the AER Consumer Challenge Panel over the past several years (such as those relating to changing operating expenditure productivity assumptions and the methodology for setting regulatory taxation allowances).[91] ENA would welcome the opportunity to see the engagement evidence upon which the CRG has based its position. ENA would also be interested in the CRG's view of the customer consequence of 'no change' to the current

[91] https://www.aemc.gov.au/sites/default/files/content/e1fcfa7b-23e8-43c7-92fb-eb825025620f/Energy-Users-Rule-Change-Committee-Proposal.pdf

approach for key equity estimation issues such as the MRP one discussed below which would maintain equity risk premiums at internationally uncompetitive levels.

» The AER's RoRI task is one of estimating an efficient rate of return, as the AER rightly observes in its position paper on assessing the long-term interests of consumers. In this sense, the rate of return estimation framework and resulting WACC allowance is not seeking a consensus method or WACC number, nor is the regime one of 'propose-respond' (like normal revenue proposals) or 'trade-offs' where networks make a proposal that the AER accepts or substitutes against detailed Rules-based guidance. This RoRI task is about a robust unbiased estimation of the market cost of capital at the time of each AER revenue determination, under provisions of the National Gas and Electricity Law.

1.4 How do the ENA positions measure up under the CRG's assessment framework?

At the AER's stakeholder forum held on 15 June 2021, the CRG presented a framework that it considered the AER should apply to the matters raised in the term of the rate of return working paper. ENA has considered this same framework as it applies to the working paper positions on low-rate environment. This table summarises points explained throughout this proposal using the CRG framework.

Framework consideration	Best unbiased estimate of the market risk premium (MRP)	Best unbiased estimate of the risk-free rate	Financeability assessment
Description of AER position in the 2018 RoRI	The 2018 RoRI primarily reflected the mean historical excess returns (HER) estimate of the MRP. The HER estimate of MPR is effectively constant, as a single new observation becomes available each year. A constant MRP implies that the required return on equity (or the market cost of equity capital) varies one-for-one with changes in the risk-free rate.	Use the prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate	Not apply any specific financeability assessment when developing the binding RoRI

Framework consideration	Best unbiased estimate of the market risk premium (MRP)	Best unbiased estimate of the risk-free rate	Financeability assessment
Description of ENA position for the 2022 RoRI review process	A superior estimate of the MRP can be obtained by giving some weight to forward-looking evidence, such as the dividend growth model (DGM).	ENA proposes that, as part of the 2022 RoRI process, the AER consider whether: » The prevailing government bond yield is an appropriate proxy for the CAPM risk-free rate; and » The issues raised in the UK regulatory setting, and the evidence of market practice, has any other relevance to the allowed return on equity. The ENA also proposes that the AER should: » Determine how its return on equity decision can best reflect current and persistent monetary policy programs impacting on the risk-free proxy; and » Ensure that the cost of equity working paper sets out potential options to ensure return on equity estimates under the 2022 RORI can appropriate reflect market rates in an unbiased manner.	ENA proposes that a financeability assessment should be performed as a cross check of the AER's allowed return on capital. The financeability assessment would have two key purposes: » To ensure that the regulatory determination was internally consistent such that the allowed return was sufficient to support the credit rating that was assumed when deriving it. This will safeguard customers from higher prices that would arise should there be credit rating downgrades leading to a decline in the benchmark credit rating; and » To ensure that the regulatory determination is robust to potential changes in future financial market conditions.

Framework consideration	Best unbiased estimate of the market risk premium (MRP)	Best unbiased estimate of the risk-free rate	Financeability assessment
Does the AER position have a firm theoretical basis? [92]	» **No**. The mean HER estimate is essentially constant over time, whereas the true MRP varies over time.	» **No**. The government bond yield is affected by a convenience yield that is not relevant to the CAPM risk-free rate, and investors are able to borrow at the CAPM risk-free rate but they cannot borrow at the prevailing government bond yield.	» **No**. Other economic, prudential and market regulators with significant public interest responsibilities located in the uncertainty of the future commonly entertain doubt about the risks associated with error in their judgement. They therefore adopt 'stress tests' in their prudent decision making. Examples include APRA, AEMO, the AEMC, IPART, ESC, ESCOSA, and cyber security agencies.
Does the ENA position have a firm theoretical basis?	» **Yes**. The true MRP varies over time.	» **Yes**. Academic literature recommends adopting a CAPM risk-free rate above the prevailing government bond yield. » Standard textbooks recognise issues in using the prevailing government bond yield, and note that market practitioners tend to adopt a CAPM risk-free rate above the prevailing government bond yield.	» **Yes.** Applying a financeability assessment will ensure that the regulatory determination is internally consistent such that the allowed return is sufficient to support the credit rating that is assumed when deriving it.

[92] Note that in answering this element of the CRG's framework, the ENA is not saying that there is no theoretical basis for the AER's position. Instead, the ENA considers that this basis does not apply to the current circumstances in the way that the AER articulates it, and that current evidence is that approaches in the 2018 RoRI are leading to regulatory return allowances at significant variance to other comparable regulators.

Can the ENA proposal be applied effectively and efficiently in practice?	» **Yes**. The ENA considers that the appropriate way for on this issue is for the AER to: – Identify options to move to a more forward-looking MRP estimate in line with the Brattle review findings and regulatory practices of other bodies; and – Ensure internal consistency of the final cost of equity estimate (e.g. by avoiding the matching of short-term spot estimates of the risk-free rate with an effectively constant MRP estimate).	» **Yes.** It is common and accepted practice to adopt a CAPM risk-free rate above the prevailing government bond yield. » There is regulatory precedent for recognising these issues and adopting a CAPM risk-free rate above the prevailing government bond yield; – Academic literature recommends adopting a CAPM risk-free rate above the prevailing government bond yield; – Market practice of equity analysts, independent experts, and survey respondents is to adopt a risk-free rate above the prevailing government bond yield; and – Standard textbooks recognise these issues and note that market practitioners tend to adopt a CAPM risk-free rate above the prevailing government bond yield.	» **Yes**. Financeability assessment is commonly applied in Australia by IPART, the ESC and ESCOSA, and in the UK by Ofgem. » The financeability assessment would be performed by computing the set of financial ratios that form the basis of credit ratings for regulated utilities. The relevant ratios are set out in publications for ratings agencies and are used in financeability assessments conducted by a number of regulators.

Framework consideration	Best unbiased estimate of the market risk premium (MRP)	Best unbiased estimate of the risk-free rate	Financeability assessment
Are the circumstances necessitating the proposal clear?	» **Yes**. The AER rightly observes that '*when compared to recent history, the key measures of interest rates are lower than they have been for some time as part of a sustained downward trend*'.[93] The CRG observed at the 23 June public forum, that the rates are low relative to the period of 2000-2010 when economic regulation was established for most of the asset to which the RORI applies. » While we can (and do) measure interest rate projections for debt, the profit projections required to attract equity must be approximated. Any approximation for return on equity will carry risk of error. » The AER reduced the allowed equity risk premium in its 2009, 2013 and 2018 WACC reviews. In its 2018 RoRI the AER made its largest ever cut to the allowed equity risk premium (locking it in for the period), and government bond yields subsequently fell to the lowest levels on this historical record. » The RBA observes that its unprecedented market intervention has reduced the 10-year government bond yield by approximately 30 basis points and the impact of that intervention is expected to persist for an extended period. In June 2021, for the first time ever, the Australian government issued Treasury debt at a negative nominal rate.[94] » The AER's Brattle report (2020) concluded that: – The AER's allowed return on equity is lower than that adopted by every other regulator for which a comparison was made; and that – The AER's approach to the allowed return on equity "is not as effective as the approach of other regulators" such that the AER should consider a number of areas for reform. » Brattle's findings are supported by other evidence, including reports from the Council of European Energy Regulators (CEER) and Morgan Stanley. » We observe other regulators taking prudent steps to help minimise risk of error in each of the three areas listed in this table. Such prudent measures are consistent with best supporting an unbiased estimate and are about avoiding risk rather than responding to it.		

[93] AER, May 2021, Rate of return and cashflows in a low interest rate environment, p. 21.
[94] https://www.afr.com/markets/debt-markets/investors-pay-australia-to-hold-money-amid-cash-glut-20210610-p57zun#:~:text=The%20federal%20government%20has%20paid,sale%20has%20fallen%20below%20zero.

Framework consideration	Best unbiased estimate of the market risk premium (MRP)	Best unbiased estimate of the risk-free rate	Financeability assessment
Are the consequences of the proposal clear?	» **This is to be tested**. The outcome of any move to a more forward-looking MRP estimate will be path dependent upon how the AER does this. The consequences of this should be explored through the balance of this RoRI review process. » ENA would be interested in the CRG's view of the customer consequence of 'no change' to the current approach, which would maintain equity risk premiums at internationally uncompetitive levels.	» **Yes**. Adopting a CAPM risk-free rate proxy that is higher than the prevailing government bond yields to align with rates actually available to market participants would increase the resulting CAPM return on equity estimate. » This would reflect recent UK regulatory precedent that seeks to better align the CAPM return on equity estimate it with the return required by investors, thereby lowering the risk of under investment.	» **Yes**. Financeability assessments would ensure that the allowed return is sufficient to support the assumed credit rating on which it is based. » Financeability assessments would have no use if (a) every parameter could be reliably and precisely estimated, and (b) the formula in which those estimates are used reliably and precisely reflects the market cost of capital. But neither of those things are true. In reality, there is imprecision, debate and judgment in large measure. » In these circumstances, it is difficult to conceive of any reason why the determination of the allowed return on equity would be made less reliable by the consideration of relevant evidence such as a financeability assessment.