



Advice to the Australian Energy Regulator

**CRG Response to the AER's call for submissions on changing
HER sample periods and Australian Treasury advice**

November 2022



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1 Summary of advice

The AER is seeking feedback on the end date of the sample period to determine its Historical Excess Returns (HER) estimate. The HER is its preferred method of estimating the Market Risk Premium (MRP). The CRG considers that, if the AER continues with this preferred method, and given the AER's recent announcement to defer publication of the final Rate of Return Instrument (RoRI) until February 2023, the sample period should run to 31 December 2022.

This is consistent with the CRG's preference for an unconditional estimate of HER, which requires the longest possible sample period. It is also consistent with the AER's view that the sample period should be the period "most likely to be reflective of recent market structure, conditions and investor expectations¹." We see no merit in any of the other options canvassed in the AER's consultation paper. Specifically, we do not consider the extension of the sample period to include the full calendar year's data to be a change in the AER's approach.

Notwithstanding this advice, our concerns raised in our Advice to the Draft RoRI regarding the AER's decision to exclusively use the arithmetic average of a specific sample period are still pertinent.² We expect the AER to have regard to these concerns in its final RoRI decision and to explain its reasons in its Final Explanatory Statement.

Finally, the three stage Dividend Growth Model (DGM) data published by the AER bears out the CRG's advice that this metric is too volatile to be used to set the rate of return.

¹ Australian Energy Regulator, *Draft Rate of Return Instrument: Explanatory Statement*, June 2022, p. 132

² CRG, *Advice to the Australian Energy Regulator - CRG Response to the AER's Draft Rate of Return Instrument*, September 2022

2 HER sample periods

2.1 Background

The rationale for the AER's consultation on HER sample periods is the Independent Panel's observation that some rate of return parameters may have been impacted by the recent low interest rates and quantitative easing which is now being unwound. The Independent Panel therefore suggested the AER seeks expert advice on these macroeconomic matters. The AER duly wrote to the Commonwealth Treasury and the Reserve Bank of Australia for advice. Only Treasury responded with specific advice, and this has informed the AER's consultation.

2.2 Independent Panel recommendations

The Independent Panel's specific recommendations relevant to this consultation (which the AER must have regard to but is not obliged to follow³) are that the AER:

"Seeks expert advice on the implications of central bank liquidity expansion (following the onset of the Global financial crisis and during the COVID-19 pandemic) on the valuation of financial assets and the implications that this may have for historical excess returns (HER) based estimates of the long term MRP.

*Seeks expert advice on the potential implications of the normalization of central bank balance sheets for future valuations of financial assets and the associated implications for HER-based estimates of the MRP."*⁴

The Independent Panel made these recommendations in the context of broader considerations it raised around issues such as:

- The apparent difference in approach between beta and MRP around whether to adjust the 2018 estimate for the latest data in arriving at a 2022 estimate.
- The apparent move towards a more mechanical estimate of the MRP, namely directly linking it to a single estimate of HER (arithmetic average).

In this context it's worth noting that other recommendations by the Independent Panel included that the AER:

*"Explains in greater detail the means of dealing with unusual circumstances, such as COVID-19 and the war in Ukraine and to be more transparent about the way in which these issues have been taken into account in arriving at the estimates of MRP and beta."*⁵

"Justifies the change in MRP from 6.1% to 6.5% that results from using a single estimator of MRP in the context of other data and indicators.

³ National Electricity Law, *Schedule – National Electricity Law*, Clause 18L(d)

⁴ Independent Panel, *Independent Panel Report: AER Draft Rate of Return Instrument*, July 2022, p. 29

⁵ *Ibid*, pp. 21-22

Examines whether the adoption of a more mechanical approach to MRP estimation is robust.”⁶

While the AER may provide these explanations or the results of its examinations of the issues in its Final Explanatory Statement, it has elected not to consult on these issues, nor on whether recent market conditions should be taken into account when estimating beta, instead the AER's focus is purely on the MRP (and even then, only on the sample period of its HER estimate).

2.3 Treasury advice

The Treasury's feedback can be summarised by the following excerpt from its letter to the AER:

“There is a significant body of literature that identifies conceptual reasons and empirical evidence that periods of highly accommodative monetary policy, including quantitative easing programs, may contribute to a rise in measured historical excess returns (HER). The literature on the effect of the unwinding of highly accommodative monetary policy on equity prices and HER is more limited. However, we assess that it is more likely than not that, as monetary policy normalises, the measured HER will decline. The decline in equity prices that has accompanied the withdrawal of monetary stimulus by central banks in recent months may in part reflect this.”⁷

In other words, loose monetary policy is likely to increase measured excess returns while the recent tightening of monetary policy is likely to reduce them. This is unsurprising. Treasury's suggested options for the AER are:

- End the sample period for HER data as at December 2019. This avoids including the pandemic period, in which monetary (and fiscal) policy were loose (although it still includes several years of loose monetary policy between the Global Financial Crisis and 2019).
- Extend the sample period to include as much of 2022 as possible, noting that:

“This approach would incorporate into the calculation window the signalling by central banks of their intention to unwind the extraordinary monetary policy settings of the pandemic period”⁸

Treasury specifically noted that they had not analysed whether the MRP had changed since 2018.

2.4 Options for consultation

Having regard to Treasury's advice, the AER advised that the alternative options for estimating the MRP include adopting HER Data up to:

- December 2021 (the sample period in the draft determination)
- December 2019
- September 2022, given this is the latest available data, and would be consistent with the original planned date for the publication of the AER's Final RoRI

⁶ Ibid, p. 28

⁷ Australian Treasury, Letter to Clare Savage: Australian Energy Regulator review of the Rate of Return Instrument and impacts of monetary policy post the Global Financial Crisis on asset prices, 26 October 2022

⁸ Ibid.

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- December 2022, using one of two alternative approaches:
 - delaying the 2022 RORI into 2023 until the full calendar year data is available
 - including a formula in the 2022 RORI that can be mechanically applied that calculates the HER after the full calendar year data is available.⁹

The AER’s decision to delay publishing the final RoRI February 2023 simplifies the options slightly as the AER can now consider HER data for the full 2022 calendar year. Accordingly, it does not need to include a formula or to retain the September 2022 option.

The numerical consequences of each of the three remaining options, using September 2022 data as a proxy for the full year 2022, and based on the maximum spread calculated by CRG from AER data are set out in Table 1 below:

Table 2-1: Historical excess returns (per cent) – ten-year term, arithmetic average (to one decimal place)

Sampling period start date	Sampling period end date			Maximum spread across end dates
	Dec 2019 ¹⁰	Dec 2021 ¹¹	2022 ¹²	
1883	6.3	6.4	6.3	0.1
1937	6.0	6.2	6.1	0.2
1958	6.5	6.7	6.5	0.2
1980	6.4	6.8	6.5	0.4
1988	6.0	6.5	6.1	0.5

The HERs presented in Table 1 follow the AER’s previous practice of starting with ten-year HER data for its five preferred periods. In practice, complications arise if the AER persists with its preference presented in its Draft Decision to change the term of equity to five years¹³. As five-year risk-free rate data is only available from 1972, the AER has ruled out the first three sample periods in Table 1. Converting HER data from a ten-year to a five-year term results in higher estimates as set out in Table 2 below.¹⁴

⁹ AER, *Invitation for submissions on changing historical excess returns sample periods and Australian Commonwealth Treasury advice*, November 2022, p. 1

¹⁰ AER, *Rate of return Annual Update*, December 2021

¹¹ AER, *Draft Rate of Return Instrument: Explanatory Statement*, June 2022

¹² AER, *AER historical excess returns - 2 November 2022 (spreadsheet)*, November 2022 – using September data as a proxy for full year.

¹³ To match the term of equity to the length of the regulatory period. In practice, the standard period is five years.

¹⁴ Sources as per Table 1, with additional inferences by the CRG (1972-2019 period data not published by AER)

Table 2-2: Historical excess returns (per cent) – five-year term, arithmetic average (to one decimal place)

Sampling period start date	Sampling period end date			Maximum spread across end dates
	Dec 2019	Dec 2021	2022	
1972	6.5	6.9	6.6	0.4
1980	6.7	7.1	6.8	0.4
1988	6.3	6.8	6.4	0.5

The CRG does not support cherry-picking dates, or excluding certain data, to suit a particular outcome. Such practices lead to extensive debates over which data to include or exclude. For the MRP we therefore favour an unconditional estimate best served by an HER estimate based on the longest possible sample period, which includes the impacts of periods of unusually high or low returns, but no individual short period should materially impact the estimate. As Sapere pointed out in their expert report to the CRG, reasons for favouring an unconditional MRP estimate include:

“Time variation in the MRP may reflect irrational under-and-over pricing, not rational risk pricing...”

Use of the conditional MRP, if variable enough, might induce large swings in the allowed return...

The MRP is set for four years and any attempt to impose a conditional MRP that is correct today will by definition be incorrect for a network facing a new determination in, say, 3.5 years’ time.”¹⁵

We consider that these reasons all point to an approach of accommodating the latest available data. There is no obvious logic in a cut-off date of 2019 to avoid pandemic era data, but there is also no reason to end the period at December 2021, when there is now an opportunity to include the full 2022 year’s data (given publication of the final Instrument is deferred to 2023).

The AER’s logic in its Draft Explanatory Statement appears different to our logic. The AER states it is seeking an unconditional estimate, while preferring a sample period beginning in 1988, because this period most likely reflects “recent market structure, conditions and investor expectations”¹⁶. If the AER is seeking a period that reflects recent market structure, conditions and investor expectations, then surely these criteria are also best met by updating the sample period to the end of 2022.

In its Draft Decision, the AER describes an MRP of 6.8% as “the arithmetic average of historical excess returns for the period 1988 to **present**”¹⁷ [emphasis added]. In using the word “present” rather than the date “2021”, the CRG considers the AER has sufficiently indicated that if the

¹⁵ Sapere Research Group, *Estimation of the MRP and its relationship to the risk free rate in the context of regulation of electricity and gas networks*, February 2022, p13

¹⁶ AER, *Draft Rate of Return Instrument: Explanatory Statement*, June 2022, p. 132

¹⁷ Op. cit., p. 134

opportunity arose to use a later date than 2021, that it would do so, and this would not represent a change in approach.

We also draw the AER's attention to its 2018 draft and final decisions regarding a "long-term" downward trend in the equity risk premium. In its final decision, the AER noted the downward trend in excess return, and concluded:

"The theory supporting this trend is that as investing in a global portfolio becomes easier and investors are able to achieve greater diversification, the risk premium is likely to fall as systematic risk is diversified away. We give some weight to the theory that the equity risk premium is likely to be lower now than the long run historic average".¹⁸

Using the HER sample period from 1988 to 2021 appears to conflict with this argument on the long-term trend, given it results in higher estimates than 1988-2017, which contributed to the 2018 decision and no theoretical basis has been presented for such a change in the **long-term trend** observed in 2018. This highlights the importance of incorporating the maximum number of additional observations to assess whether the significant impact of quantitative easing in 2020 and 2021 created a temporary distortion in the equity markets and is not indicative of the HER long-term average or expectations.

The CRG also expects, that should the AER use conditioning variables in evaluating the HER estimate, that it updates those variables to reflect the very latest available data. The CRG continues to consider that such variables should be viewed with caution, as these indicators are impacted by short-term spikes and thus could provide a fundamentally misleading indicator of a forward looking MRP for the next decade.

2.5 Other issues

The CRG's advice as stated in the previous section is predicated on the AER's position that the MRP must be based on one specific sample period for arithmetically averaged HER. We presented a more nuanced position in our advice to the AER on its draft decision¹⁹, which included the following:

- There are implications for the way MRP is estimated arising from changing the risk free rate, which the AER has not fully considered or explained in the draft Explanatory Statement.
- It is unclear why the AER needs to definitively select a specific period as being superior to all others and then make that the point estimate, especially the AER appears less definitive about that approach in the 2018 Instrument, although its point estimate was equal to a specific period.
- If the AER followed its proposed approach in its Draft Instrument for estimating beta it could simply retain its 2018 estimate on the basis that any change is not material and the 2018 estimate contributes to an adequate rate of return as evidence by cross-checks (all subject to adjustment for term).

¹⁸ AER, *Final Decision, Rate of Return Instrument Explanatory Statement*, December 2018, p. 244

¹⁹ CRG, *Advice to the Australian Energy Regulator - CRG Response to the AER's Draft Rate of Return Instrument*, September 2022

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- The AER's acknowledges an arithmetic estimate is too high and some weight should be given to geometric estimates, a view also espoused in its 2018 Final Decision. For instance, in its 2018 summary of the debate the AER concluded:

"We observe both arithmetic and geometric averages to inform our historical excess returns. This is because there are strengths and limitations to both estimates... The geometric average is downwardly biased, but is useful when considering returns over a longer period or highlighting periods of differing volatility" ²⁰

The CRG considers that these issues remain relevant and expect the AER will address them in its Final Explanatory Statement.

²⁰ AER, *Final Decision, Rate of Return Instrument Explanatory Statement*, December 2018, p. 90

3 Dividend growth model estimates

While the AER did not raise any specific questions in relation to the DGM in its consultation paper, it issued a spreadsheet with the output of its three-stage model by month over recent years. The AER indicated that if it were to directly use the DGM output, it would “use the average estimates produced by the DGM over a period of 2 months”²¹.

As Table 3 below shows, the outcomes of this model, even averaged over two months are extremely volatile:²²

Table 3-1: Key results from AER's DGM, latest 2 years' data

Month	RFR	k	MRP	Two-month average MRP
2020-10	0.82	10.90	10.08	9.86
2020-11	0.87	10.71	9.84	9.96
2020-12	0.98	10.26	9.28	9.56
2021-01	1.05	9.29	8.24	8.76
2021-02	1.32	8.78	7.46	7.85
2021-03	1.69	8.65	6.96	7.21
2021-04	1.65	8.32	6.67	6.82
2021-05	1.62	8.29	6.67	6.67
2021-06	1.52	8.28	6.76	6.71
2021-07	1.25	7.46	6.21	6.49
2021-08	1.12	7.63	6.51	6.36
2021-09	1.28	8.02	6.74	6.62
2021-10	1.72	8.18	6.46	6.60
2021-11	1.81	8.46	6.65	6.56
2021-12	1.61	8.57	6.96	6.80
2022-01	1.88	8.47	6.59	6.78
2022-02	2.11	8.42	6.31	6.45
2022-03	2.50	8.26	5.76	6.04
2022-04	3.01	8.20	5.19	5.47
2022-05	3.38	8.44	5.06	5.13

²¹ AER, *Draft Rate of Return Instrument: Explanatory Statement*, June 2022, p. 151

²² AER, *Three stage DGM results - 2 November 2022 (spreadsheet)*, November 2022, with two-month average column calculated by CRG and added.

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Month	RFR	k	MRP	Two-month average MRP
2022-06	3.77	8.75	4.98	5.02
2022-07	3.42	10.06	6.64	5.81
2022-08	3.37	9.77	6.40	6.52
2022-09	3.74	9.49	5.75	6.07

Within the last two years alone, the AER’s preferred metric of the two-month average varies from 5.02% (June 2022) to 9.96% (November 2020). Additionally, total returns (k), as calculated by the model, vary from 7.46% to 10.90%. In other words, the variability in MRP is not due just to changes in the risk free rate. This data validates the CRG’s strongly and consistently held position that DGMs are too volatile to be used in directly estimating MRP for the purposes of the rate of return instrument, with its objective of compensating long-term investments that are not actively traded in response to market fluctuations.

References

Australian Energy Regulator, *Invitation for submissions on changing historical excess returns sample periods and Australian Commonwealth Treasury advice*, November 2022, available from <https://www.aer.gov.au/system/files/Invitation%20for%20submissions%20on%20changing%20HER%20sample%20periods%20and%20the%20Treasury%20advice%20%284%29.pdf>

Australian Energy Regulator, *Three stage DGM results - 2 November 2022 (spreadsheet)*, November 2022, available from <https://www.aer.gov.au/system/files/Three%20stage%20DGM%20results%20-%20updated%20to%20September%202022.xlsx>

Australian Energy Regulator, *Final Rate of Return Instrument: Explanatory Statement*, December 2018, available from <https://www.aer.gov.au/system/files/Rate%20of%20Return%20Instrument%20-%20Explanatory%20Statement.pdf>

Australian Energy Regulator, *Draft Rate of Return Instrument: Explanatory Statement*, June 2022, available from <https://www.aer.gov.au/system/files/Draft%202022%20Rate%20of%20Return%20Instrument%20-%20Explanatory%20Statement%20-%2016%20June%202022.pdf>

Australian Energy Regulator, *AER historical excess returns - 2 November 2022 (spreadsheet)*, November 2022, available from <https://www.aer.gov.au/system/files/AER%20-%20Historical%20Excess%20Returns%20%20-%202%20November%202022.xlsx>

Australian Energy Regulator, *Rate of return Annual Update*, December 2021, available from <https://www.aer.gov.au/system/files/Rate%20of%20return%20annual%20update%20-%20December%202021.pdf>

Australian Treasury, *Letter to Clare Savage: Australian Energy Regulator review of the Rate of Return Instrument and impacts of monetary policy post the Global Financial Crisis on asset prices*, 26/10/22, available from <https://www.aer.gov.au/system/files/Treasury%20-%20AER%20review%20of%20the%20RORI%20and%20impacts%20of%20monetary%20policy%20post%20the%20GFC%20on%20asset%20prices%20-%2026%20October%202022.pdf>

Consumer Reference Group, *Advice to the Australian Energy Regulator - CRG Response to the AER's Draft Rate of Return Instrument*, September 2022, available from <https://www.aer.gov.au/system/files/CRG%20-%20Advice%20to%20the%20AER%20re%20Draft%20RoRI%20June%202022%20-%20September%202022.pdf>

Independent Panel, *Independent Panel Report: AER Draft Rate of Return Instrument*, July 2022, available from <https://www.aer.gov.au/system/files/Independent%20Panel%20Report%20-%20AER%20Draft%20Rate%20of%20Return%20Instrument%202022%20-%20July%202022.pdf>

Sapere Research Group, *Estimation of the MRP and its relationship to the risk free rate in the context of regulation of electricity and gas networks*, February 2022, available from <https://www.aer.gov.au/system/files/CRG%20-%20Submission%20-%20Attachment%20-%20Expert%20Report%20-%20Sapere.pdf>