AER Consumer Reference Group

AER Public Forum

Rate of return

Equity Omnibus – Draft Working paper

CRG **Preliminary** response

11 August 2021

Dr Ron Ben-David

Who we are

AER
Consumer
Reference Group

An independent group set up to:

- Advise the AER on its consumer engagement, and
- Represent the perspectives and interests of consumers

in the context of the RORI review.

Our role derives from the National Electricity Law and National Gas Law.

https://www.aer.gov.au/about-us/stakeholder-engagement/consumer-reference-group

Six issues addressed in the paper (p.5)

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Today

- Estimating a forward looking market risk premium (MRP)
- The relationship between the risk free rate and MRP
- The comparator set and estimation period for beta
- The use of cross checks at the overall RoE level
- The equity beta for electricity vs gas networks
- Averaging period — nomination window for equity

Submission

The regulatory context…

CAPM

Simple model of reality

Because there is no optimal capital structure

Pursuit of precision can get us no closer to a non-existent reality

Therefore, what is the significance of the CAPM in a regulatory setting?

A model of regulatory expectations (C'rs & I'rs) – *not* market expectations.

Stability (regulatory) is a pre-condition for efficient formation of LT expectations

Reliable LT expectations are a prerequisite for efficient LT investment.

Special place of the 2018 RORI (post-LMR environment)

HIGH BAR FOR CHANGE

Persuasive evidence. Compelling reasoning. Broad consensus

Outline

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1. Estimating the MRP
2. Defining the problem
3. A proposed way forward

What has changed for the MRP?

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Special status of the 2018 RORI. It sets the 'benchmark' for the regulatory framework in the post-LMR environment. Defines a new era.

Special pleadings RoR too low (…maybe that hasn't changed).

AER's observation we are in a low interest rate environment (LIRE)

=> 2022 RORI Review is effectively asking: Does LIRE matter to RORI?

RFR = 10 year bond rate: Comparatively stable (1997-2011), Generally declining (2012-2020), Some uptick (2021?) – next slide

Lower RFR => Lower allowed RoR (via CAPM-based estimate of RoE)

Lower ARoR => networks & investors seeking revisions to MRP

Four arguments.

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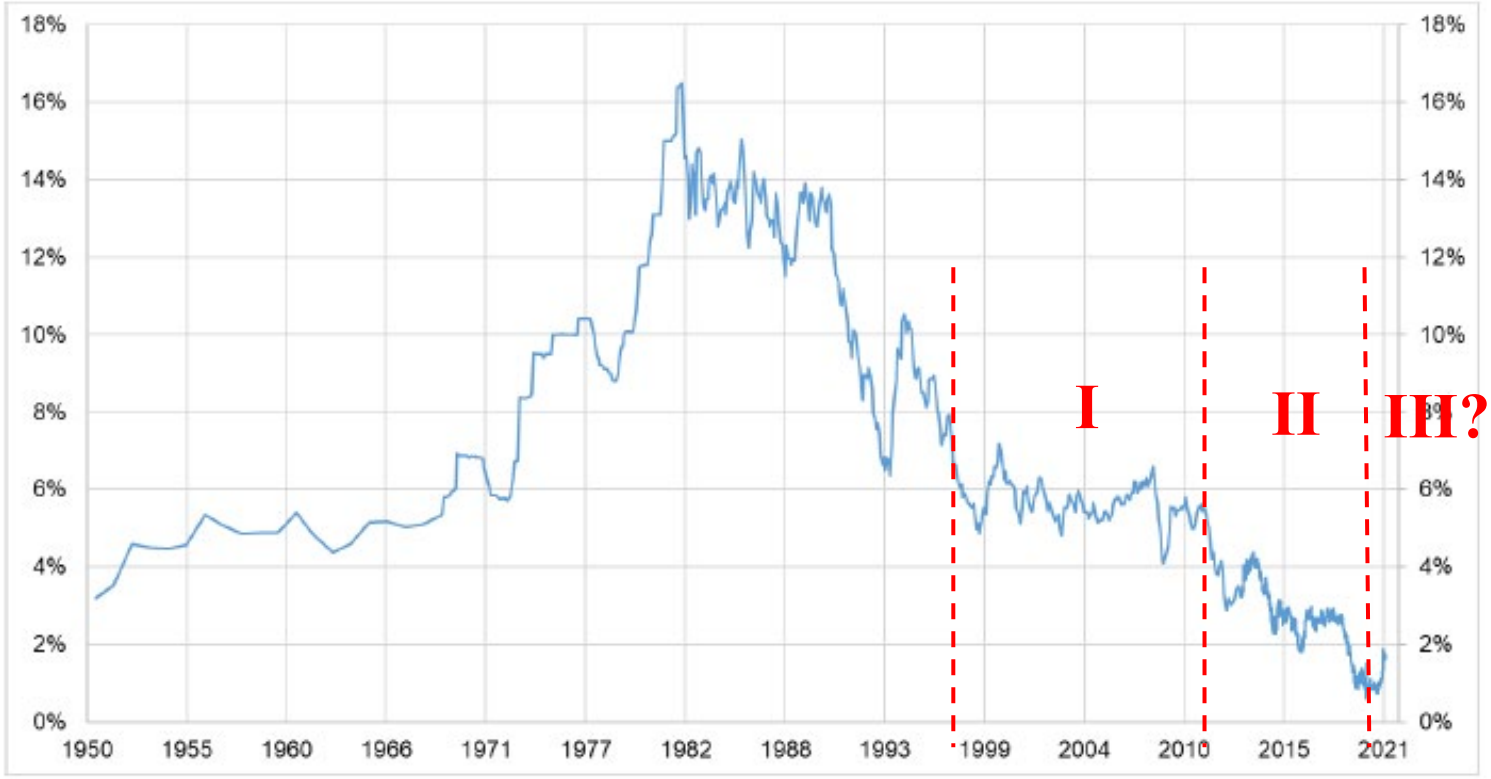
Figure 3 Historic Australian interest rates on 10 year Government bond yields



Source: RBA

(i) Wright Approach + DGM

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CAPM: $$RoE = R_f + \beta \times (R_m - R_f)$$

Fix RoE "Wright Approach"

Use DGM to estimate R_m

Incompatible arguments

(ii) Wright Approach vs CAPM

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CAPM: $$RoE = R_f + \beta \times (R_m - R_f)$$

Fix RoE "Wright Approach"

Use CAPM to estimate RoE

Incompatible arguments

Also:

Who could possibly believe Wright approach will be sustainable if/when R_f increases such that: R_f > **RoE (fixed)**

(iii) MRP & RFR

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CAPM: $$RoE = R_f + \beta \times (R_m - R_f)$$

$$\downarrow$$

$$R_m = F_1(R_f)$$

$$\downarrow$$

$$RoE = R_f + \beta \times (F_1(R_f) - R_f)$$

$$\downarrow$$

$$RoE = F_2(R_f) \quad \neq \text{CAPM}$$

(iv) DGM

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AER 2013, 2018 (WPs 2021) – Repeatedly sceptical

Brattle Report 2020 – Opinion only

& there have been decisions since the report with significantly lower WACCs

Complexity – $$P_c = \frac{m \times E(D_c)}{(1+k)^{m/2}} + \sum_{t=1}^{N} \frac{E(D_t)}{(1+k)^{m+t-0.5}} + \frac{\frac{E(D_N)(1+g)}{k-g}}{(1+k)^{m+N-0.5}}$$

Incongruous with simplicity of CAPM

Data – No new evidence of substance

"change is not to be adopted lightly in the absence of compelling evidence"

– AER 2021, Overall RoR WP, p.22

Estimates – Highly sensitive to assumptions

See next slide

Future – Regulatory processes in future

Marked by endless disputes over inputs

HER & DGM estimates

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HER = Historical Excess Return
DGM = Dividend Growth Model

Method	2018	2019	2020
HER – Arithmetic mean	6.0 – 6.6	5.8 – 6.4	6.0 – 6.5
HER – Geometric mean* ** excluding 1883-2017 estimates*	4.2 – 4.6	4.1 – 4.3	4.2 –4.5
HER – Geometric mean** *** all estimated ranges*	4.2 – 5.0	4.1 – 4.9	4.2 –4.9
DGM	5.96 – 8.59	6.42 – 9.83	7.07 – 10.79

DGM estimates much higher & much more variable

** The HER geometric estimates for the longest estimation period (1883-2017) are consistently outliers*

Source: AER (2020) *Rate of return, Annual Update*, December. pp.14-15

WHAT'S THE *REAL* PROBLEM?

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It's the RFR that has led to lower allowed rates of the return – not the MRP (MRP has been stable).

So let's talk about the RFR.

Exposure to low interest rates (via the RFR in the CAPM) was/is a known risk to investors and so does not need to be compensated.

While low nominal interest rates are ***not*** a problem, negative real interest rates may present a problem when determining a regulated RoR.

If negative real interest rates are the problem, then fiddling with the MRP is not the relevant response.

If the problem is negative real interest rates then…

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…the solution involves dealing with negative real interest rates in the CAPM.

This can be done simply and most efficiently by putting a floor under the risk free rate, R_f.

Such a floor would ensure the R_f does not fall below the rate of expected inflation $\mathrm{E}(\pi)$ in the CAPM.

There's no need to continue entertaining confected debates about estimating the market risk premium (MRP).

CAPM adjusted for negative real interest rates

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Standard CAPM: $RoE = R_f + \beta(R_m - R_f)$

Adjusted CAPM: $RoE = R_f + \beta(R_m - R_f) - (1-\beta)r_f$

where: $r_f = R_f - \mathrm{E}(\pi)$ if $R_f < \mathrm{E}(\pi)$

[ie. when real interest rates are negative]

$r_f = 0$ if $R_f \geq \mathrm{E}(\pi)$

[ie. when real interest rates are non-negative]

** See Appendix for algebraic derivation*

Benefits of the adjusted CAPM

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Adjusted CAPM: $$RoE = R_f + \beta (R_m - R_f) - (1 - \beta) r_f$$

where: $r_f = R_f - \mathrm{E}(\pi)$ if $R_f < \mathrm{E}(\pi)$

$r_f = 0$ if $R_f \geq \mathrm{E}(\pi)$

Benefits

- It addresses a problem, not a complaint.
- It's a fixed formula.
- Can be readily written into the RORI.
- Would apply over life of RORI.
- Kicks-in automatically, and only, when circumstances dictate.
- Uses existing variables (ie. already used in the regulatory model)
- No discretion required, so no new debates about methodology.
- It's incentive-neutral.

CONCLUSION

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RFR is the source of volatility in the RoR, not the MRP.

It's time *once-and-for-all* for the AER to stop entertaining specious arguments for changing how it estimates the MRP.

Exposure to low interest rates (via the CAPM) was/is a known risk to investors and so does not need to be compensated.

Negative real interest rates may be more of a problem when determining a regulated RoE.

If negative real interest rates are a problem, then fiddling with the MRP is not the relevant solution.

The 'adjusted CAPM' proposed above directly targets the problem of negative real interest rates in a way that:

- is principled and non-arbitrary
- involves the simplest, non-arbitrary adjustment to the model
- can be applied simply and transparently.

We would welcome the opportunity to discuss implementation of an amended CAPM.

Appendix: Algebraic derivation

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Std CAPM: $RoE = R_f + \beta(R_m - R_f)$

$= (1-\beta)R_f + \beta R_m$

If real interests rates are negative, $R_f < \mathrm{E}(\pi)$, then replace R_f with $\mathrm{E}(\pi)$

$= (1-\beta)\mathrm{E}(\pi) + \beta R_m$

some algebraic manipulation

$= (1-\beta)\mathrm{E}(\pi) - [\,(1-\beta)R_f - (1-\beta)R_f\,] + \beta R_m$

and rearranging gives:

Adj CAPM: $\boldsymbol{RoE = R_f + \beta(R_m - R_f) - (1-\beta)r_f}$

where

$r_f = R_f - \mathrm{E}(\pi)$ if $R_f < \mathrm{E}(\pi)$

$r_f = 0$ if $R_f \geq \mathrm{E}(\pi)$