



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



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)



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's & I's) – *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



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

What has changed for the MRP?



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?

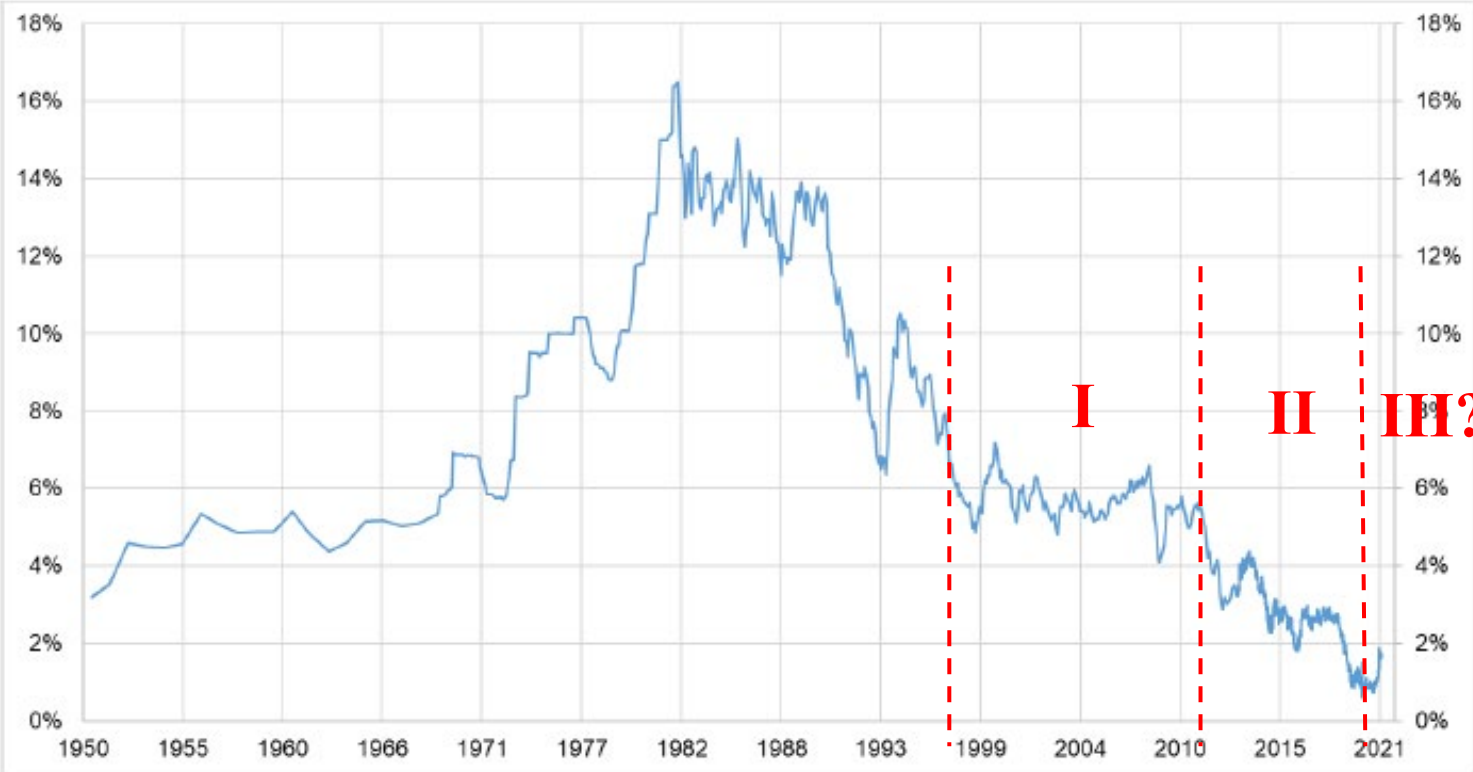
RFR = 10 year bond rate: Comparatively stable (1997-2011), Generally declining (2012-2020), Some uptick (2021?) – next slide

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

Lower ARoR => networks & investors seeking revisions to MRP

Four arguments.

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



Source: RBA

(i) Wright Approach + DGM

CAPM:

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



Fix RoE

“Wright Approach”



Use DGM

to estimate R_m

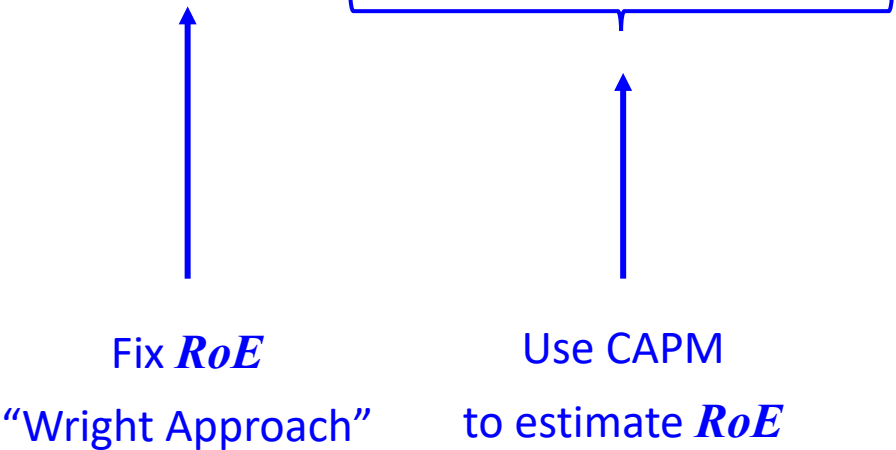


Incompatible arguments

(ii) Wright Approach vs CAPM

CAPM:

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



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

CAPM:

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



$$R_m = F_1(R_f)$$



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



$$RoE = F_2(R_f)$$

} \neq CAPM

(iv) DGM



AER 2013, 2018 (WPs 2021) – Repeatedly sceptical

Brattle Report 2020 – Opinion only

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

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

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



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* <i>* excluding 1883-2017 estimates</i>	4.2 – 4.6	4.1 – 4.3	4.2 – 4.5
HER – Geometric mean** <i>** all estimated ranges</i>	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?

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...



...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 $E(\pi)$ 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

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: $r_f = R_f - E(\pi)$ if $R_f < E(\pi)$
[ie. when real interest rates are negative]

$r_f = 0$ if $R_f \geq E(\pi)$
[ie. when real interest rates are non-negative]

* See Appendix for algebraic derivation

Benefits of the adjusted CAPM

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

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

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

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



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

$$\begin{aligned}\text{Std CAPM: } RoE &= R_f + \beta(R_m - R_f) \\ &= (1 - \beta)R_f + \beta R_m\end{aligned}$$

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

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

some algebraic manipulation

$$= (1 - \beta)E(\pi) - [(1 - \beta)R_f - (1 - \beta)R_f] + \beta R_m$$

and rearranging gives:

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

where

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

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