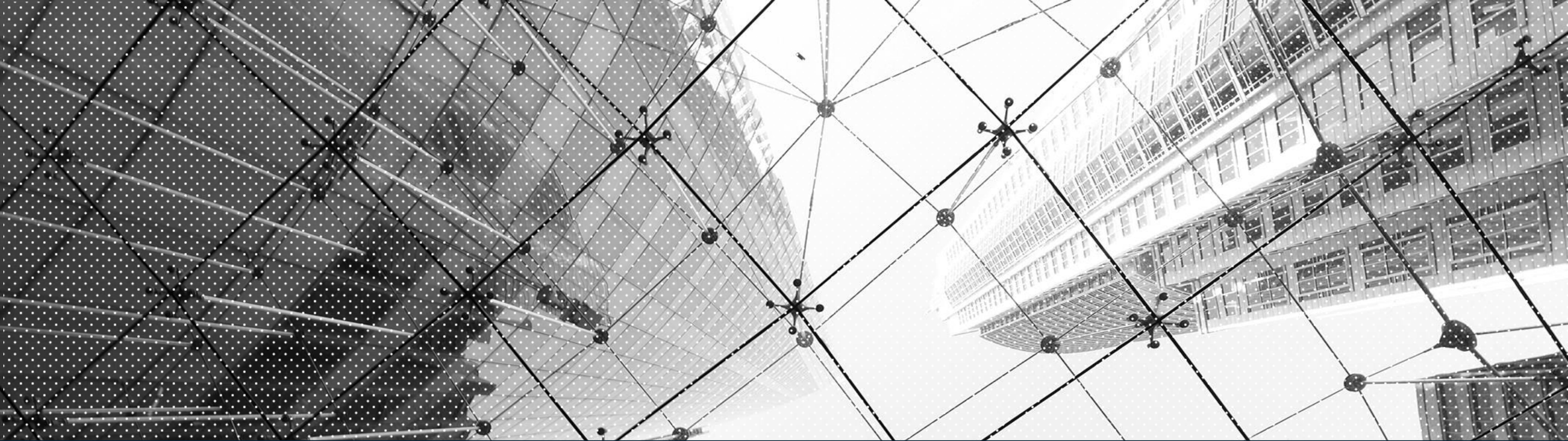


Estimating the MRP

ERA focussed consultation session | 27 April 2022

frontier economics

Two primary approaches being considered by the ERA

Historical excess returns	Dividend growth models
Method • *The average of observed excess returns over a long historical period.* ***Interpretation*** • *An unconditional estimate of the average MRP.* • *Reflects the average market conditions over the historical period that was examined.* ***Assumption*** • *Assumes that investors form required returns by adding an historical average MRP to the prevailing risk-free rate.*	***Method*** • *Derive the implied required return on equity from current stock prices and forecasted dividends.* ***Interpretation*** • *A conditional estimate of the forward-looking MRP – conditional on the prevailing market conditions.* • *Reflects the prevailing market conditions at the time of the determination.* ***Assumption*** • *No implicit assumption, other than that investors value assets as the present value of the expected cash flows.*

The best possible HER estimate

Arithmetic vs. geometric means

Arithmetic mean is consistent with the role of the MRP in the CAPM – an expected return.

Arithmetic mean is recommended by:
- Leading textbooks
- Harvard case study
- Independent experts and finance practitioners
- AER consultants (Lally, CEPA)

- The economic expert retained by the AER-CRG (Boyle) has submitted that geometric means should only receive weight if there is evidence of serial correlation in returns. But:
    - Preliminary analysis for APGA indicates that there is no evidence of serial correlation; and
    - If there was, the MRP allowance would need to have regard to recent observed returns – because future expected returns would differ depending on recent observed returns.

The best possible DGM estimate

Theoretical basis

In efficient capital markets, the current share price is equal to the NPV of the expected stream of future dividends.

Two major concerns raised by AER and ERA

No single objective means for determining the long-run (perpetuity) growth rate.

Potential for DGM to produce estimates that are systematically upwardly biased.

The calibrated DGM

Addresses both regulatory concerns

Solves for the unique long-run growth rate that equates:
- The average DGM estimate; with
- The HER estimate over the same historical period.

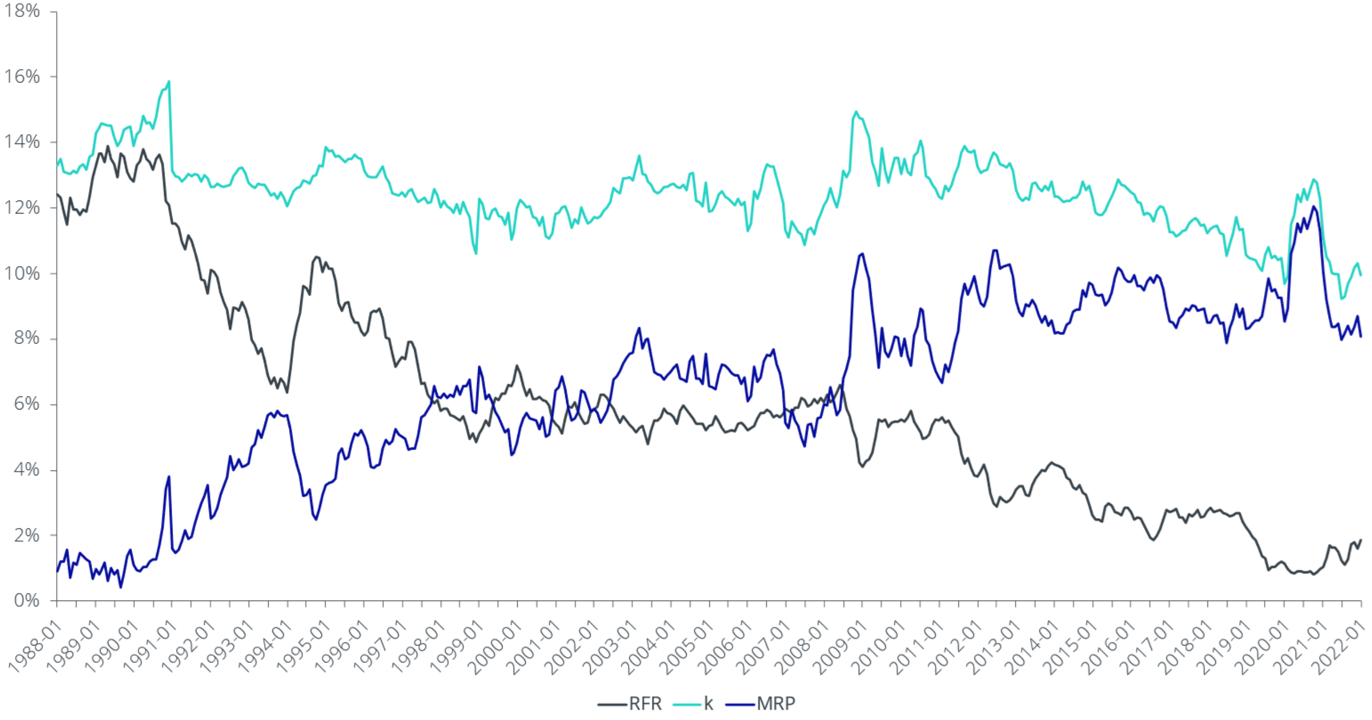
The long-run (perpetuity) growth rate is determined endogenously as part of the estimation process.

Any bias is removed via the calibration process.

The calibrated DGM steps

- Select an historical period (e.g., 1988-2021).
- Compute the HER estimate over that period (e.g., 6.51%).
- Compute the DGM estimate for each month of the historical period:
  - We use the AER's 3-stage specification.
  - Start with the AER's base case perpetuity growth rate of 4.6%.
- Compute the average of the DGM estimates:
  - If the average DGM estimate is below the HER estimate, increase g;
  - Otherwise decrease g.
- Iterate until equality is achieved.

The calibrated DGM – results



How could the ERA use DGM evidence?

frontier economics

First best approach

- At the time of each determination, ERA has regard to all relevant evidence and applies judgment as it deems appropriate.
- For reasons best known to others, this approach is no longer permitted under Australian (binding RoRI) law.

Option 1

- Use DGM (and other relevant evidence such as HER) to inform RoRI estimate of MRP, and hold fixed for four years.
- To the extent that DGM evidence is relevant, it should be used to inform the allowed MRP at the time of the RoRI.

Option 2

- Use DGM (and other relevant evidence such as HER) to revise the allowed MRP at the time of each determination.
- RoRI would have to specify (step by step) how the DGM (and other relevant approaches) would be estimated at the time of each determination:
    - For example, the AER already does this in its annual WACC updates.
    - Really no different from annual updates of allowed return on debt / debt risk premium.
- RoRI would also have to specify how each piece of evidence would be weighted and distilled into a single allowance.

Melbourne, Australia

Ground Floor
395 Collins Street
Melbourne VIC 3000
+61 (0)3 9620 4488

Sydney, Australia

Level 13,
50 Margaret Street
Sydney NSW 2000
+61 (0)2 8224 9700

Singapore, Singapore

24 Raffles Place
Clifford Centre #16-04
Singapore 048621
+65 9730 7380

Brisbane, Australia

Level 1, Southbank House
Corner, Ernest & Little Stanley Street
South Bank QLD 4101
+61 (0)7 3844 0684