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ERA approaches to beta

Nothing to fear but fear itself

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Dampier Bunbury Pipeline | Multinet Gas Networks | Australian Gas Networks

Introduction

Seek to answer 4 questions today:

- Should the ERA use international firms for beta?
- Where should it choose the firms from?
- How should it use the information?
- Should it adjust the beta estimates or re-weight the foreign markets?

Our views in brief:

- We think the ERA has a sensible, pragmatic response to the domestic small sample problem.
- We think the issues raised by some stakeholders in respect of international data are overblown, untested and fail to consider the counterfactual.
- We think any "adjustments" of international data will be arbitrary and needlessly complex, and that judicious regulatory judgement would work better to address any issues

International data on beta – purported issues?

- The markets have a different composition.
- There are different economic conditions in different markets
- Geography is different
- Tax rules are different
- The firms are very different
  - Vertical integration and firm structure
- The regulatory rules are very different
- Some of these places have too many sheep, some don't speak proper English and, crikey, some of them drink their beer warm!

Lists of problems are easy to make, has anyone bothered to test any of these to see how significant they are compared to the counterfactual of insufficient data?

The ERA should avoid making the perfect the enemy of the good

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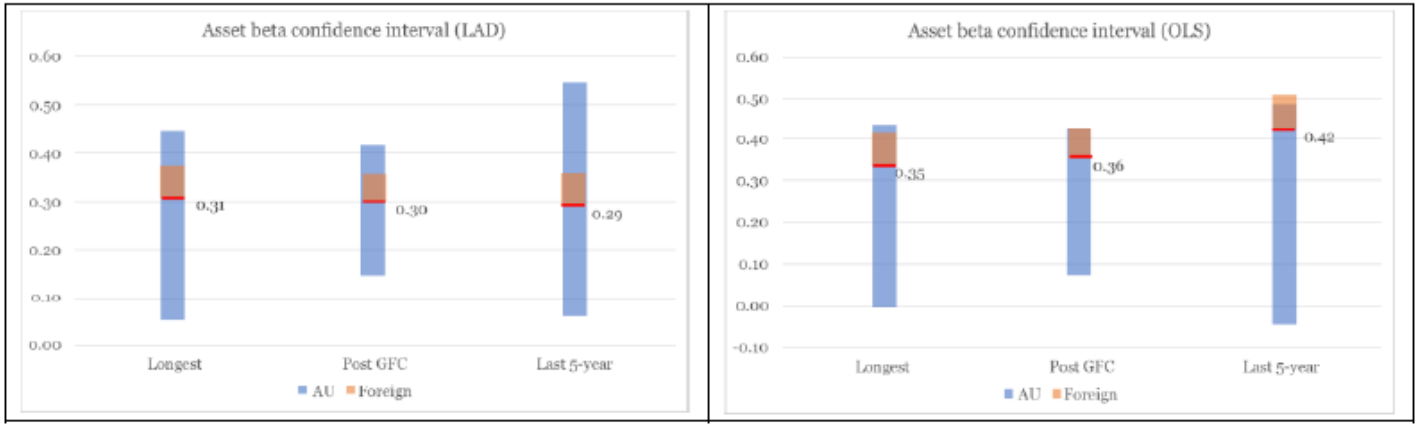
Are foreign betas really different?

- CEG undertook analysis comparing international sample set similar to ERA's for APGA in AER process:
  - CEG control for degree of regulation
  - Estimates of Australian energy betas are extremely imprecise
  - This imprecision swamps any of the likely impacts of supposed differences
  - Differences between Australian and international betas are due to sampling error in Australian estimates, not "intrinsic" differences in risk
  - There is no statistically significant difference between Australian and overseas energy betas
- If foreign betas are not different, why not use them?



Note – red bars are the bottom end of the international asset beta estimates, which CEG suggests regulators might prefer to use

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Is there evidence for the reasons why foreign betas might be different?

Potential source of bias	How it affects: $\beta = \rho(r_M, r_U) \times \frac{SD_U}{SD_M}$
i. Differences in regulation (and/or other aspects of the operating environment) cause foreign utility equity returns to respond more vigorously to systemic shocks to the wider economy/market.	This potential source of bias should show up in higher standard deviation of foreign utilities' returns relative to standard deviation of Australian utilities returns.
ii. The foreign equity market is less risky than the Australian equity market. Thus, even if foreign and Australian utilities have the same absolute risk, foreign utilities will have lower risk relative to their own equity market (lower beta risk).	This potential source of bias should show up in lower standard deviation of foreign market returns relative to standard deviation of the Australian market returns.
iii. There is higher correlation between foreign utility returns and their home market than in Australia because:	
a) Different sets of systematic shocks hit the foreign economy/market and these include stronger/more of the types of systematic shocks that affect utilities; or	This will tend to show up in both higher $\rho(r_M, r_U)$ and higher SD_U. That is, if foreign economies are being hit by more frequent/stronger shocks of the kind that also affect utilities then we expect this to raise both $\rho(r_M, r_U)$ and SD_U in foreign markets.
b) The same sets of systematic shocks hit foreign/Australian markets but differences in the composition of those markets mean that the foreign market responds in a way that engenders greater correlation with utility returns than in Australia.	This will show up in higher $\rho(r_M, r_U)$ and will have an increasing effect on SD_M but no effect on SD_U

From CEG analysis

Table 7: Average utility and market standard deviation (SD_U and SD_M)

	SD_U		SD_M	
	Australia	Foreign	Australia	Foreign
1 Jan 2006 to 30 June 2021	3.1%	3.0%	2.2%	2.4%
Post GFC	2.8%	2.8%	2.0%	2.2%
5-years ending 30 June 2021	2.8%	3.3%	2.0%	2.5%

Volatility differences are small, suggesting little reason to suspect difference a-priori

Could foreign markets still be different....

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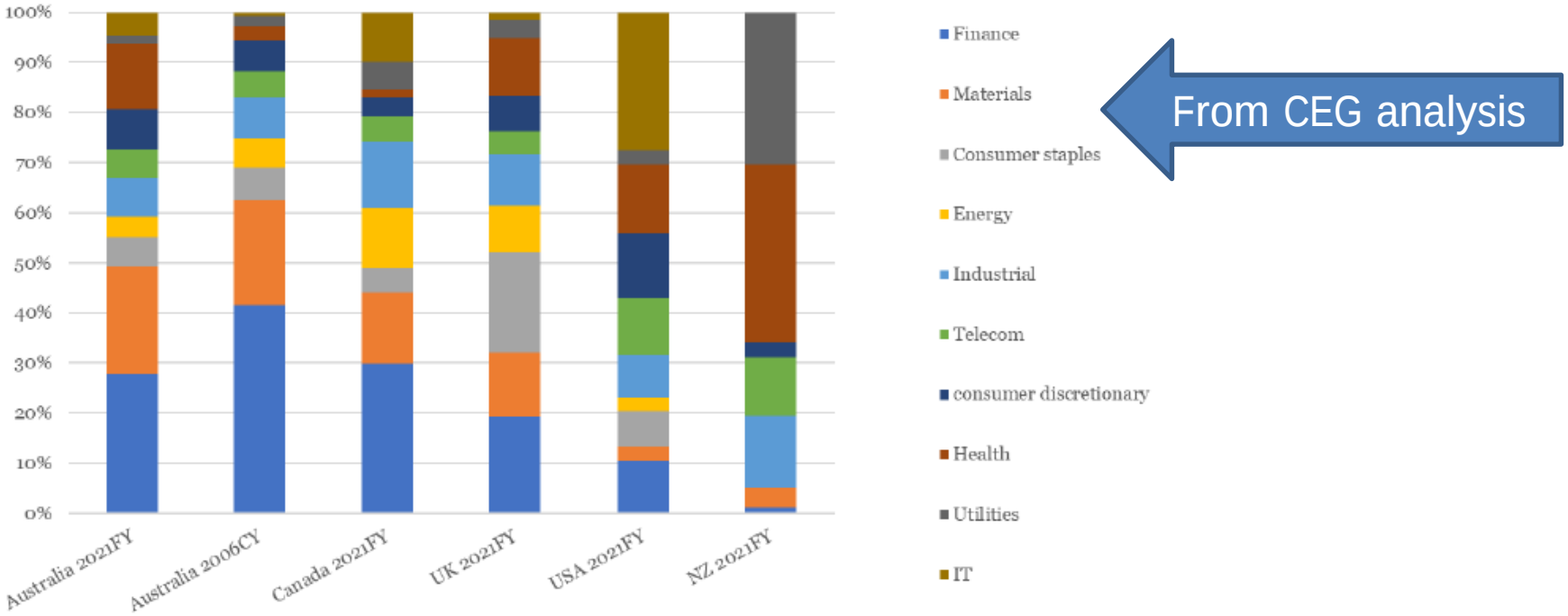
Are foreign markets really all that different?



- Australia's market changes quite significantly over time; the past is just as much of a different country as the US etc.
- If it is logical to adjust for different market structure overseas, it is logical to adjust for market structure in Australia through time.

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Choosing jurisdictions and firms

- Jurisdictions – the ERA is about right
  - Choice of jurisdictions has closest similarity in terms of regulatory, legal and economic structure
  - Consider filtering as per NZCC, Alberta Utilities Commission and QCA
  - Consider CEG “highly regulate” filter (see report for APGA)
  - Consider whether European jurisdictions could add useful information
- No adjustment of indices
- No adjustment of beta for assumed risks
  - “Regulation” is not a systematic risk.
- No use of complex models like international CAPM (agree with Lally)
- No real need to look at electricity betas is there?
  - RoRI deals with gas businesses
  - Past consideration of electricity and gas was driven by small sample problems, and assumption that they were the same.
  - No need to make the assumption if the sample size isn’t small

Estimating beta

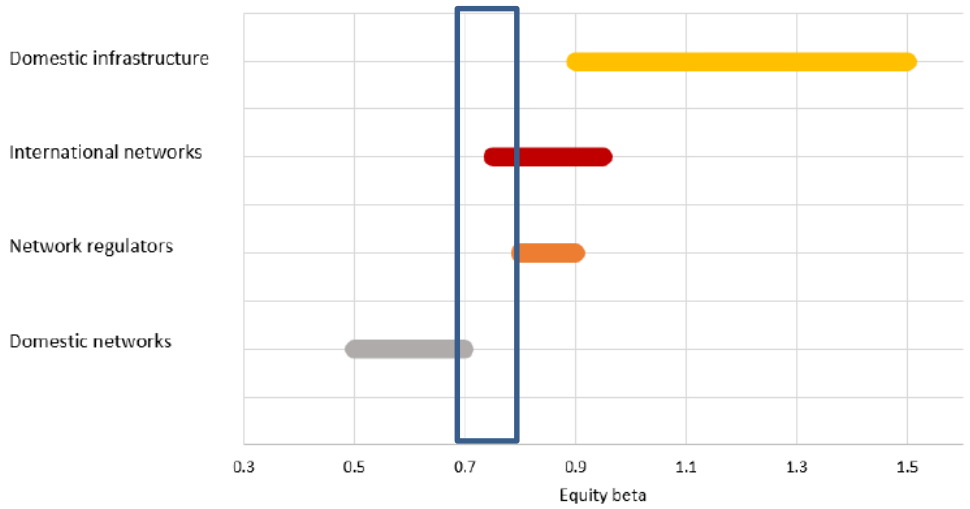
- ERA asks if it should use:
  - Full pooling
  - Country pooling
  - Domestic anchoring
- Two different options – ENA and CEG
  - CEG – lowest point on foreign beta CI consistent with Australian data (see slide 5)
  - ENA – Choose from overlapping ranges
    - Consider some extra info
    - Better with confidence intervals

Simplest, but ends up with a US beta

Are all the countries equal in terms of estimate robustness?

What reason for the weight?

Use regulatory discretion to choose point in range



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Summary

- We support the ERA using international comparators to estimate beta.
- We support a simple approach which does not seek arbitrary adjustments too either markets or betas, and uses the standard domestic CAPM for each market.
- We think the filtering mechanisms that other regulators use could be useful.
- We think that CEG's approach to choosing regulated firms could allay many concerns about the representativeness of firms.
- We think that the ERA could just use gas firms to estimate beta now that the sample size is large.
- We think that regulatory judgement will need to inform the choice of the estimate of beta, and we think that considering ranges of different estimates (CEG and ENA) could help inform that judgement.

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