

Attachment 7.06

NERA: Memo on Revised MRP estimates to 2013

January 2015



MEMO

TO: Iftexhar Omar
DATE: 14 November 2014
FROM: Simon Wheatley
SUBJECT: Revised Estimates of the Market Risk Premium

This brief memo describes how we have updated the estimates of the market risk premium (*MRP*) that we produced for the Energy Networks Association (ENA) in 2013. NERA (June 2013, October 2013) describe in detail how the estimates produced for the ENA were constructed.

1. Data

We extract daily data (for days on which the market was open) for the All Ordinaries Index (AS30) and the All Ordinaries Accumulation Index (ASA30) from Bloomberg.

Like Brailsford, Handley and Maheswaran (2008, 2012), we extract imputation credit yields for December of each year from the Australian Taxation Office (https://www.ato.gov.au/rates/company-tax---imputation--average-franking-credit---rebate-yields/?page=2#List_of_yields).

Like Brailsford, Handley and Maheswaran (2008, 2012), we take 90-day bank accepted bill rates, the yields on three-month Treasury notes and the yields on 10-year Commonwealth Government bonds from the Reserve Bank of Australia (<http://www.rba.gov.au/statistics/index.html>).

Finally, like Brailsford, Handley and Maheswaran (2008, 2012), we use the percentage change in the All Groups CPI for Australia from the last quarter of one year to the last quarter of the next year, provided by the Australian Bureau of Statistics, as a measure of inflation (<http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Sep%202014?OpenDocument>).

2. Calculations

Like Brailsford, Handley and Maheswaran (2008, 2012), we compute the annual with-dividend return to the market portfolio in data from 1981 onwards as the percentage change from one year to the next in the average December level of the All Ordinaries Accumulation Index.

To produce gross returns, we add to the with-dividend return 35 per cent of the credit return – that is, the ratio of the credits provided by the All Ordinaries within a year to the level of the index at the start of the year. We choose to add 35 per cent of the credit return because companies in the recent past have chosen to set the value of a one-dollar imputation credit distributed at 35 cents. It is straightforward matter, however, to compute gross returns under alternative assumptions.

Like Brailsford, Handley and Maheswaran (2008, 2012), we compute an estimate of the *MRP* by averaging the difference between each year’s gross return and the yield on a 10-year Commonwealth Government bond at the end of each year. We follow Brailsford, Handley and Maheswaran and use yields quoted on a semi-annual basis rather than yields expressed on an annual effective basis.

3. Estimates

The gross return to the All Ordinaries from December 2012 to December 2013 was 18.66 per cent while the yield on a 10-year Commonwealth Government bond at the end of 2013 was 4.23 per cent. Thus the excess return to the market portfolio computed in the same way that Brailsford, Handley and Maheswaran (2008, 2012) compute the return was 14.43 per cent – considerably above its long-run average. As a result, estimates of the *MRP* rise with the addition of 2013’s data. The table below shows how estimates of the *MRP* have been affected by the addition of 2013’s data for a variety of sub-periods that the Australian Energy Regulator (AER) has in the past used.

Table 1
Estimates of the *MRP*

Period	MRP estimate	Standard error	Period	MRP estimate	Standard error
1883-2012	6.50	1.45	1883-2013	6.56	1.44
1937-2012	5.67	2.26	1937-2013	5.79	2.23
1958-2012	6.16	3.02	1958-2013	6.31	2.97
1980-2012	5.84	3.90	1980-2013	6.09	3.79
1988-2012	5.12	3.68	1988-2013	5.48	3.55

There are three points that are worth making about this table and these estimates.

First, as the table above makes clear, estimates of the *MRP* are imprecise and estimates that use shorter time series are less precise than estimates that use longer time series.

Second, the AER’s habit of using overlapping sample periods like those that appear in the table above amounts to placing a larger weight on more recent data than on older data. While this may appear sensible, the impact of weighting more recent data more heavily than older data is to reduce the precision of the estimates (see section 5 of NERA (June 2013)). So we do not endorse this way of summarising the data.

Thirdly, our estimates are based on arithmetic means. While compounding these means would produce estimates that are biased, there is no evidence that the AER compounds the estimates (see section 4 of NERA (June 2013)).

References

Brailsford, T., J. Handley and K. Maheswaran, *Re-examination of the historical equity risk premium in Australia*, Accounting and Finance 48, 2008, pages 73-97.

Brailsford, T., J. Handley and K. Maheswaran, *The historical equity risk premium in Australia: Post-GFC and 128 years of data*, Accounting and Finance, 2012, pages 237-247.

NERA, *The market, size and value premiums: A report for the Energy Networks Association*, June 2013.

NERA, *The market risk premium: Analysis in response to the AER's Draft Rate of Return Guidelines: A report for the Energy Networks Association*, October 2013.