The required return on equity commensurate with prevailing conditions in the market for funds: Response to Draft Decision

Report prepared for Envestra

23 March 2011

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Executive summary and conclusions

Instructions and overview

1. The Strategic Finance Group: SFG Consulting (SFG) has been engaged by Envestra Ltd. to examine the return on equity that is commensurate with the prevailing conditions in the market for funds. This is in the context of National Gas Rule 87(1) which requires that the allowed regulatory return must be commensurate with prevailing conditions in the market for funds.

2. We have previously prepared a report on this matter:

   SFG, 2010, "The required return on equity commensurate with current conditions in the market for funds," 27 September. (**Previous report**).

3. A response to that report appears in the recent Draft Decision:

   Australian Energy Regulator (2011), "Draft Decision: Envestra Ltd: Access arrangement proposal for the SA gas network: 1 July 2011 – 30 June 2016," February, www.aer.gov.au. (**Draft Decision**).

Conclusions

Cross-check 1: Comparison with returns available from comparable firms

4. Our earlier report concluded that an important consideration when determining whether a proposed regulatory return on equity, r_e, is consistent with the National Gas Rules is a comparison between that allowed regulatory return on equity and the return on equity that investors might reasonably expect to receive from comparable firms. If the reasonably expected return on equity in the comparable firms is materially higher than the allowed return on equity for the regulated firm, there must be questions about the reasonableness of the regulatory estimate (and the individual parameter estimates that led to it) and whether that regulatory estimate is commensurate with prevailing conditions in the market.

5. The recent Draft Decision[1] identifies four key points in rejecting the use of equity research analyst reports as a cross-check for whether the regulator's estimate of the required return on equity (which is based on the regulator's estimates of input parameters) is commensurate with the prevailing conditions in the market for funds, and consequently whether it passes the 87(1) test. Our conclusions on these four points are summarised in the following table.

[1] Draft Decision, pp. 258-263.

Draft Decision Conclusion	SFG Response
SFG analysis should be afforded no weight as it relies on equity analyst price forecasts, which are unreliable and potentially biased.	SFG report does *not* rely on price forecasts; only uses dividend yields. SFG report uses the same conservative approach to price forecasts as the Draft Decision uses in producing "the most appropriate return on equity that can be derived from analyst reports.
Stapled security structure of comparable firms means that equity analyst forecasts should be adjusted by halving the forecasted dividend.	No analyst for any of the comparable firms has forecasted any decline in dividends. The annual reports for the comparable firms state the objective of dividend increases and the means by which that will be delivered. No evidence of any expectation of any comparable firm slashing future dividends.
The firms that are analysed are not perfectly comparable to the benchmark firm.	The set of firms used is the same set of comparables that the AER uses to estimate beta, gearing , and credit rating.
Updated research reports should be used.	Agreed. The latest available data should always be used to estimate parameters. Updated estimates do not change the conclusions from our previous report.

6. The most up-to-date equity analyst forecasts of dividend yields for comparable firms suggest that the forward-looking yield is approximately 9%. We add to this a conservative estimate of future capital gains of 2.5% - 3.5%. This suggests that share prices maintain their current real value and experience real growth of 0% – 1%, and so is quite conservative. The Draft Decision also uses this conservative estimate of share price growth in its calculations of "the most appropriate return on equity that can be derived from analyst reports."[2] This produces a forecasted return on equity of 11.5% - 12.5% for the set of comparable firms.

Cross-check 2: Comparison of equity and debt returns

The "cross-over" period in 2009

7. The Draft Decision notes that the process that the AER uses to estimate the required return on equity and debt, together with the techniques the AER uses to estimate the relevant input parameters, results in the estimated required return on equity being lower than the estimated required return on debt for the first half of 2009. The Draft Decision refers to this period as a "cross-over" and notes that such a cross-over occurred.[3]

8. The Draft Decision then provides certain explanations for why this cross-over may have occurred. But irrespective of whether these explanations are reasonable or true, the point remains that the AER's process would have concluded that equity holders require a lower return than debt holders in the same benchmark firm, which is impossible.

9. In our view, this should lead to a review of the estimation process used to determine the cost of equity input parameters that have generated this unreasonable outcome.

[2] Draft Decision, p. 260.
[3] Draft Decision, p. 264.

1. Legal and economic context

10. Our previous report, sets out the legal and economic context of the sorts of comparisons and checks for economic reasonableness and consistency with commercial common sense that were advocated in that report.[4]

11. In particular, our earlier report noted that the regulatory estimate of the required return on equity, r_e, is an estimate of the expected return that is required by potential equity investors before they will commit the required amount of equity funding to the benchmark regulated firm. We also noted that the National Gas Rule (NGR) 87(1) requires that:

> The rate of return on capital is to be commensurate with prevailing conditions in the market for funds and the risk involved in providing reference services.[5]

12. Consequently, under the Rules, the allowed return must be commensurate with the return that is required to attract funds, given the prevailing conditions in the market.

13. An important consideration when determining whether a proposed return on equity, r_e, is consistent with the Rules is a comparison between the allowed regulatory return on equity and the return on equity that is available to investors in other comparable firms. For example, if the allowed return on equity were materially lower than the return on equity available from other comparable firms, that allowed return would not be commensurate with prevailing conditions in the market for funds as required by Rule 87(1). Consequently, it is important to estimate the expected return on equity that is presently available to investors in firms that are comparable to the benchmark firm that is the subject of regulation.

14. Another check that should be performed to determine whether a particular estimated return on equity is consistent with current conditions in the market is to compare that estimated return to equity with the estimated return to debt in the same firm. As the Draft Decision recognises,[6] it is not possible for the required return on residual equity to be lower than the required return on prior-ranking debt in the same firm. Consequently, an estimated return to equity that was lower than the estimated return to debt in the same firm would not be commensurate with prevailing conditions in the market for funds.

[4] SFG (2010), pp. 4-6.
[5] National Gas Rules Version 7, Rule 87(1).
[6] Draft Decision, p. 264.

2. Estimates of the required return on equity for comparable firms

Overview and context

15. The recent Draft Decision[7] identifies four key points in rejecting the use of equity research analyst reports as a cross-check for whether the regulator's estimate of the required return on equity (which is based on the regulator's estimates of input parameters) is commensurate with the prevailing conditions in the market for funds, and consequently whether it passes the 87(1) test. This section addresses each of those points in turn.

Use of broker research forecasted price targets

16. Our previous report notes that equity research analysts from broking houses produce research reports on individual firms on a regular basis. These research reports contain many pieces of information including a forecast of the dividend yield of the particular firm for each of the following three to four years, and a 12-month forecast of the firm's stock price. We stated that the forecasted dividend yields provide a useful estimate of market expectations, but that for various reasons one should *not* rely on the 12-month price forecasts, except to note that no analysts were expecting a price decline in any of the set of comparable firms.[8] We concluded that:

> …we place little weight on the forecasts of price appreciation other than to note that they are uniformly positive on average. That is, the equity research analysts are of the view that the stock prices of the comparable firms will be increasing over time. This implies that the return in the form of dividends (i.e., the dividend yield forecasts above) must be considered to be an absolute lower bound for the return available to shareholders in the comparable firms – shareholders will receive the dividend yield and there is expected to be some stock price appreciation in addition to that.

17. Our previous report goes on to propose that, rather than adopt the price forecasts set out in broker research reports, we use a conservative estimate of stock price appreciation. This is in keeping with the purpose of the analysis – to determine whether the return on equity allowed by the AER is reasonable in light of conservative estimates of the returns available to equity investors in other comparable assets. In this regard, we concluded that:

> Rather than extrapolating the forecasted one-year stock price appreciation forward through time, we consider a very conservative range of 0-1% for real stock price appreciation. Note that under standard long-term equity valuation models, the growth rate in stock prices is the same as the growth rate in dividends. Consequently, the range of 0-1% real can be thought of as a growth rate in stock prices or dividend payments. The lower end of this range reflects no real growth in which case stock prices and dividends would only increase to keep pace with inflation. The upper end of the range reflects growth of only 1% real, which can be compared with forecasted real growth of 2.5 to 3.5% across the broad economy. [OECD Economic Outlook, http://www.oecd.org/dataoecd/7/0/20209193.pdf, GDP growth forecasts for 2010 and 2011 are 2.5% and 3.5% respectively.]

[7] Draft Decision, pp. 258-263.

[8] See paragraph 41 of our earlier report.

18. In its Draft Decision (pp. 258-259), the AER also sets out some reasons why broker price forecasts should not be relied upon for the purpose of testing the allowed return on equity against returns available on comparable investments. These reasons largely mirror those set out in our own earlier report. However, the Draft Decision then concludes that the previous SFG report has erred in its reliance on broker price forecasts, concluding that:

> Overlooking this mispricing component is a further shortcoming of SFG's analysis.[9]

19. However, the previous SFG report clearly does *not* rely on broker price forecasts, but rather substitutes very conservative estimates of future price appreciation.

20. Moreover, the AER itself uses the SFG conservative estimates of future price appreciation (2.5% to 3.5% nominal) in determining what it considers to be:

> …the most appropriate return on equity that can be derived from analyst reports…[10]

21. In summary, the AER Draft Decision and the previous SFG report are in perfect harmony in adopting a conservative estimate of 2.5% to 3.5% nominal stock price appreciation for the set of comparable firms.

22. The previous SFG Report does *not* rely on broker price appreciation forecasts, so there can be no "shortcoming" in that regard, notwithstanding any suggestion to the contrary.

Impact of stapled security structure

Background and context

23. The Draft Decision notes that some of the securities in the set of comparable firms are stapled securities rather than ordinary shares and that the estimated dividend yield requires some adjustment:

> …the AER notes that the 10.5 per cent dividend is upward biased due to it being partially composed of a return of capital (depreciation) component.[11]

24. In this regard, the Draft Decision quotes a passage from Davis (2010):

> To the extent that this is the case, the capital component of those payments should be deducted from the "dividend" in performing the calculation… it is not apparent that for many such entities these are estimates of dividends *per se* as opposed to estimates of distributions which encompass dividends, interest payments on loan and returns of capital.[12]

[9] Draft Decision, p. 259.
[10] Draft Decision, p. 259.
[11] Draft Decision, p. 259.
[12] Draft Decision, p. 260.

25. The particular passage from Davis (2010) is in the context of the use of the dividend discount model rather than the SFG comparables analysis, but the point is potentially relevant to both. However, the returns of capital within a stapled structure have no bearing on any of our conclusions – what is relevant is the total distribution to equity holders, and the likely maintenance of that distribution into the future, as set out below.

26. The details of the securities in the set of comparable firms are as follows:

    a. Envestra securities now trade as ordinary shares. The loan notes that were previously part of a stapled structure have been repaid. Consequently any forecasted dividends are standard dividends paid on ordinary shares;

    b. A number of firms in the set of comparables trade as stapled securities whereby a number of units in different companies and trusts are stapled together. For example, a security in SP Ausnet consists of one share in SP Ausnet Transmission Limited, one share in SP Ausnet Distribution Limited and one unit in SP Ausnet Finance Trust. This kind of security is a collection of equity investments in a number of different business units and should consequently be considered to be an equity investment. Indeed one could think of any shares in a multi-divisional firm to be effectively the same as such a stapled equity security. For example, a share in Wesfarmers is effectively a stapled security consisting of equity in Coles, equity in Bunnings, equity in Office Works, and so on. Securities in APA Group, DUET and HDF have a similar structure. One difference between a stapled security/trust structure and ordinary shares is the technical form of payments in excess of profits in a particular year. Dividends can be paid to shareholders out of profits generated in the current financial year and out of retained profits generated in earlier years. For a trust structure, a "dividend" can only be paid out of current year trust income. Any distribution of non-assessable income, such as a distribution of free cash flow in excess of accounting profit is treated as a return of capital under CGT event E4.[13] The key point here is that all of the trust structures in the set of comparable firms intend the aggregate distribution to equity holders to be maintained or increased for the foreseeable future. There is no intention, suggestion, or need for a decline in distributions in the future; and

    c. Spark Infrastructure trades as a stapled security consisting of a unit in the Spark Infrastructure Trust and a loan note. For this firm also there is no suggestion that the aggregate distribution to equity holders would not be maintained or increased for the foreseeable future. Also, the removal of this firm from the set of comparables would not change any of our conclusions.

27. In summary, a number of the comparable firms are structured as trusts rather than companies, but this does not affect the fact that equity holders can reasonably expect that the current level of distributions will be maintained or increased over the foreseeable future.

Maintenance or growth of future distributions to equity holders

28. Even for those companies that do have stapled securities that include loan notes, it is unlikely that any adjustment would be required for the purpose at hand. What is required here is an estimate of the future dividends that an owner of the security could reasonably expect to receive. Over time, the capital of the loan note will be repaid. But this does not imply that the annual distribution to owners will fall materially when the loan note is repaid. Consider, for example, a

[13] Income Tax Assessment Act 1997 (Cth), s 104-70(1).

stapled security that consists of one share and a 10% loan note with capital balance of 20 cents. Suppose the firm generates distributable cash flows of 25 cents per year. Also suppose that in one year it pays a dividend of 12 cents, interest of 2 cents and a capital return of 10 cents. In the next year the firm pays a dividend of 13 cents, interest of 1 cent and a capital return of 10 cents. At this point the loan note is fully repaid. The following year, the company may pay all of its distributable cash flows as a dividend of 25 cents. Over this period, the assets of the firm have stayed the same and have generated the same cash flows. Also, the security holder continues to receive the same total distribution.

29. The important issue for the purpose at hand is whether equity investors in the comparable firms might reasonably expect distributions to be maintained, increased or materially decreased sometime in the future. The firms in the set of comparables are well known to be high-yielding companies with stable dividends that appeal to "yield investors" such as retired individuals and some superannuation funds. The management of these companies are acutely aware of their investor bases and seek to provide stable and growing distribution streams into the future. For example:

a. For many years APA group has articulated its goal of increasing dividends by at least the level of inflation. In 2006, APA defined this to be their primary strategic goal:

> Our growing asset base further underpins our strong cash flows, enabling us to deliver on our primary strategic goal, to increase distributions to unit holders by at least CPI annually.[14]

b. By 2009, APA had adopted a higher and more specific growth target:

> The board has adopted financial goals which closely reflect APA's strategic goals, the foundation of which is increasing security holder distributions annually by at least 5% over the cycle.[15]

c. APA re-affirmed this growth target, and noted its past success in achieving it, in its 2010 Annual Report:

> We declared a final distribution for the year of 17.0 cents per security taking the total distribution for the year to 32.75 cents, an increase of 5.6% on last year. This represents APA's sixth consecutive year of increasing distributions…Since listing in 2000, APA has delivered a 5% compound annual growth rate on its distribution…APA's ongoing distribution policy balances the group's need to retain equity in the business to support the funding of its growth prospects whilst also increasing returns to security holders by, on average, at least 5% per annum over the medium term. Barring unforeseen circumstances, APA expects that this distribution increase will be maintained for the 2011 financial year. [16]

d. Similarly, DUET's annual report for at least the last four years has stated that its objective is:

[14] APA 2006 Annual Report, Chairman's Report, p. 2.
[15] APA 2009 Annual Report, p. 46.
[16] APA 2006 Annual Report, Chairman's Report, pp. 8-9.

> to provide stable and predictable distributions for security holders and fund these distributions from operating cash flows. [17]

e. HDUF is also clear about its intention and ability to maintain a stable flow of distributions to investors:

> The ability of the Fund to provide stable ongoing distributions to Security Holders is supported to a significant extent by long term gas haulage contracts entered into with customers. [18]

f. In its most recent annual report, Envestra is also clear in relation to the returns that its investors should expect, in stating its objective of:

> achieving long-term (pre-tax) annual returns to…shareholders (including distributions and capital gains) of at least 12.5%.[19]

30. In summary, it is clear that the firms in the set of comparables have every intention of maintaining or increasing the flow of distributions to equity holders.

Proposed adjustment in Draft Decision

31. The Draft Decision proposes that an adjustment should be made to deduct from the forecasted dividend yield the amount that relates to any return of capital so that the balance "reflects pure return expectations." [20] The Draft Decision concludes that a downward adjustment of 5.5% should be applied to the forecasted dividend yield of 10.5% to produce a pure return expectation of 5%. The Draft Decision provides no details of the AER's calculation of the 5.5% downward adjustment other than to note that it is the outcome of "AER analysis" and is said to be an estimate of "the difference in yield forecast and the maximum yield attributed to profits." [21] There are a number of problems with this calculation:

a. The details of the calculation have not been provided, so it is impossible to verify;

b. It appears as though the calculation uses data from firms that have either no return of capital or no loan note interest as part of their distributions, in which case it cannot represent an estimate of an adjustment in relation to the payment of a return of capital and loan note interest;

c. In any event, the difference between forecasted dividends and profits does not provide an estimate of the future distributions that equity holders in the six comparable companies should reasonably expect. If it did, the statements made by the firms in their annual reports (as set out above) must be grossly misleading; and

d. The economic implications of the proposed adjustment are implausible. The draft Decision's conclusion is that the most appropriate way to interpret a set of analyst reports that forecast dividend yields of 10.5% is that the forecasted dividend yield is 5%. In our

[17] DUET Annual Reports, 2007-2010, p. 1.
[18] Hastings Diversified Utilities Fund, Annual Report, 2009, p. 5.
[19] Envestra Annual Report, 2010, p. 12.
[20] Draft Decision, p. 260.
[21] Draft Decision, p. 260, Footnote 10.

view, no reasonable person could interpret the set of analyst reports as indicating that a reasonable expectation of the dividend yield on these comparable firms is 5%.

32. For the reasons set out above, we conclude that the adjustment technique proposed in the Draft Decision[22] should be given no weight.

Purpose of analysis

33. At this point it is useful to reconsider the purpose of this analysis. It is clear that the CAPM (or any other well accepted financial model) is unable to correct poorly estimated parameter inputs. Consequently, it is important to test the output of the model (i.e., the estimated required return on equity) for economic reasonableness – not as a test of the model, but as a check of whether a particular set of input parameter estimates produces an output that is reasonable. If the output is considered to be unreasonable, one should be led to re-examine one or more of the parameter input estimates, especially those parameters that are known to be estimated with a high degree of statistical imprecision.

34. One key test of whether the output estimate of the required return on equity is economically reasonable is a comparison with the return on equity that investors might reasonably expect to earn from other comparable firms. That is, a potential investor can either contribute equity capital to the benchmark firm or buy shares in a comparable listed firm. If the reasonably expected return on equity in the comparable firms is materially higher than the allowed return on equity for the regulated firm, there must be questions about the reasonableness of the regulatory estimate (and the individual parameter estimates that led to it) and whether the regulatory estimate is commensurate with prevailing conditions in the market.

35. This then leads to the question of what return a reasonable investor might reasonably expect to receive from an investment in a comparable firm. In this regard, our previous report shows that the evidence from a range of research reports from equity analysts is that:

a. Investors can reasonably expect to receive a return of 10.5% p.a. by way of dividends;

b. There is no suggestion of any expected future decline in the amount of dividends paid on each share; and

c. There is no suggestion of any expected future decline in the share price.

36. In summary, if an investor were to buy shares in one of the comparable firms, and if that firm simply maintained its current dividend (no growth at all) and maintained the real value of its shares (no real growth), the expected return would be 10.5% + 2.5% = 13%. This should lead one to question whether the 10.48% regulatory return on equity would really be sufficient to attract the required amount of equity capital in the current conditions of the market for funds.

37. Moreover, a potential equity investor can buy shares in one of the benchmark firms and if the firm simply continues to pay its current dividend with no growth, and if the share price never goes up at all, the investor would still earn a higher return on equity (10.5% from dividends alone) than would be available from the benchmark firm (10.48% from dividends and capital gains and imputation credits). This should lead one to re-examine the CAPM input parameter estimates, especially those that are known to be statistically imprecise.

[22] Draft Decision, p. 260.

38. Rather, the AER has effectively argued that the set of comparable firms *in toto* will be unable to maintain their current level of dividends into the future. But there is no evidence of this:

a. The forecasts for all firms from all equity analysts are for maintained or increasing dividends; and

b. The comparable firms themselves have clear statements in their annual reports about their objective and intention to maintain or increase distributions to equity holders, and about the means by which they intend to do this.

Conclusion

39. In summary, our earlier report showed that the allowed regulatory return is materially lower than the return available on comparable investments, unless one assumes that those comparable investments will be unable to maintain their current level of dividends into the future. That is, the allowed return is not commensurate with prevailing conditions in the market for funds, unless one assumes (as the Draft Decision does) that comparable firms will have to halve their dividends in future. Consequently, whether or not the Rule 87(1) test is satisfied appears to hinge on the reasonableness of this assumption. Our view is that it is wrong to make the assumption that comparable firms will have to halve their dividends into the future as such an assumption is unsupported by any evidence and contradicted by the available evidence.

Comparability of companies selected

40. Our earlier report uses the same six comparable firms that the AER has used as the basis for its beta estimation and for other purposes including considerations of capital structure and credit ratings. In relation to forecasts of dividend yields, the Draft Decision concludes that at least one of the firms in this set of firms is not comparable and consequently that the forecasts of equity analysts cannot be relied upon:

> The AER further considers that broker report forecasts can not be relied upon as the firms analysed are not reflective of the benchmark service provider. For instance, the broker reports suggest that Envestra's gearing ratio is approximately 71 per cent, which is well above 60 per cent assumed for the benchmark service provider. The higher actual gearing of Envestra would be expected to move the equity return upward relative to an equity return based on a benchmark 60 per cent gearing. [23]

41. In response to the Draft Decision's conclusion on this issue, we note that:

a. Our report uses the same set of comparable firms as the AER uses as the basis for estimates of other parameters, such as equity beta;

b. The results and conclusions are unchanged if Envestra, which is the only firm that is mentioned in this regard in the Draft Decision, is removed from the sample; and

c. It is unclear that higher gearing does lead to higher dividend yields. The Draft Decision correctly notes that higher gearing results in a higher expected return on equity. But that gearing itself constrains the firm's ability to pay dividends. In the extreme, equity in a firm that continued to increase gearing to the point that cash inflows were only just sufficient to

[23] Draft Decision, p. 263.

meet interest payments would be very risky and require a high return (other things equal), but none of this return could be paid in the form of dividends.

Updated broker research reports

42. The Draft Decision states that the most recently available data should be used for the purpose of determining the allowed return:

> Further, the AER considers the majority of the broker reports provided are outdated and maybe of limited use in estimating the cost of equity for the 2011-2016 access arrangement period. Given that broker reports usually provide 3 year forecasts, Envestra latest broker report (28 April 2008) would be of limited use in determining capital appreciation and dividend yield forecasts that are expected to prevail over the 2011-16 period. The AER questions why SFG did not use more up to date broker reports in its analysis when assessing the cost of capital.[24]

43. We agree that the most up-to-date data should be used for the estimation of all parameters and have now obtained a set of the most recently available broker research reports, all of which are available as an attachment to this report. Table 1 below summarises the dividend yield forecasts by firm and year. Each cell contains the average dividend yield forecast across brokers.

Table 1. Average dividend yield by firm and year

	2011	2012	2013	Average
APA	8.46	8.87	9.30	8.88
DUE	11.94	12.01	12.03	12.00
ENV	9.56	9.56	9.63	9.59
HDF	6.36	6.48	6.39	6.41
SKI	8.02	8.16	8.35	8.18
SPN	9.00	9.20	9.40	9.20
Average	8.87	9.02	9.14	9.01

Source: Various broker research reports.

44. From Table 1 we conclude that 9% is a reasonable estimate of the dividend yield available from this set of comparable firms.

45. We have also obtained consensus (average) analyst forecasts of distributions (expressed in cents per unit) compiled by Morningstar. These estimates are set out in Table 2 below, which indicates that distributions are expected to increase for all companies in the set of comparable firms.

Table 2. Consensus distribution payments by firm and year

	2011 (cents per unit)	2012 (cents per unit)	2013 (cents per unit)
APA	34.3	36	37.6
DUE	20	20.5	21.2
ENV	5.5	5.5	5.7
HDF	12	13.5	
SKI	9.1	9.6	
SPN	8.1	8.1	8.6

Source: Morningstar, 25/02/2011

[24] Draft Decision, p. 262.

46. In summary, we conclude that the best currently available estimate of the dividend yield available on comparable firms is 9% p.a. and that there is no indication of an expected decline in dividends for any of the comparable firms.

Reasonable expectation of return on equity from comparable firms

47. If investors expect a dividend yield of 9% (on average) from comparable firms, and if the expected return in the form of capital gains is considered to be in the range of 2.5% to 3.5% p.a., this amounts to a combined return on equity in the range of 11.5% to 12.5% from comparable firms. We note that the 2.5% to 3.5% nominal capital gain is consistent with share prices just maintaining their real value, and was used in the Draft Decision as part of the AER's calculation of "the most appropriate return on equity that can be derived from analyst reports." [25] Consequently, when determining whether a proposed allowed return on equity is commensurate with current conditions in the market for funds, one important consideration is the 11.5% to 12.5% return on equity that investors might reasonably expect to able to obtain on equity investments in comparable firms.

Adjustment for assumed value of franking credits

48. When comparing the allowed return on equity from the Draft Decision with the return on equity that can reasonably be expected from comparable firms, it is important to ensure that the comparison is performed on a like-with-like basis. In particular, the 11.5% to 12.5% range consists of dividends and capital gains only, whereas the regulatory allowed return also includes an assumed value of franking credits. Specifically, the component of the regulatory return on equity that is due to dividends and capital gains only, using parameter estimates from the Draft Decision, is:

$$r_e \frac{1-T}{1-T(1-\gamma)} = 10.48\% \frac{1-0.3}{1-0.3(1-0.45)} = 8.78\%.$$

49. The derivation of this formula appears in Officer (1994). The Appendix to this report demonstrates that it is perfectly consistent with the way that the assumed value of franking credits is used to adjust the return to equity holders under the National Electricity Rules, National Gas Rules and the AER's Post-tax Revenue Model.

Conclusions

50. The allowed return on equity in the Draft Decision provides equity holders in the benchmark firm with a return of 8.78% from dividends and capital gains. This can be compared with an allowed return from dividends and capital gains, from comparable firms, of 11.5% to 12.5%.

We do not suggest that the CAPM (or other well accepted financial models) should be abandoned in favour of the technique set out above. Our view is that the CAPM or other well accepted financial model must be used, consistent with Rule 87(2). However, the estimate of the required return on equity should be compared with the returns that are apparently available from other comparable firms. Given the substantial divergence between the regulatory estimate and the returns available on comparable firms, one should be led to re-examine the estimates of the input parameters that form the basis of the regulatory estimate.

[25] Draft Decision, p. 260.

3. A comparison of the allowed return on equity and the allowed return on debt

Overview and context

51. Another comparison that should be performed as a test of whether a particular set of parameter estimates has produced output that is economically reasonable is a comparison of:

    a. The allowed return on equity in the benchmark firm; and

    b. The allowed return on debt in the same benchmark firm.

52. The Draft Decision considers this point and notes that the process that the AER uses to estimate the required return on equity and debt, together with the techniques the AER uses to estimate the relevant input parameters, results in the estimated required return on equity being lower than the estimated required return on debt for the first half of 2009. The Draft Decision refers to this period as a "cross-over" and notes that such a cross-over occurred.[26]

53. In our view, it is impossible for the required return on equity to be lower than the required return on debt in the same benchmark firm. This is because debt-holders receive a fixed-rate investment-grade stream of known cash flows that will be received as promised, but for a financial default by the firm. By contrast, the equity holders have a residual claim that is, by definition, riskier than a prior-ranking debt investment in the same firm.

54. In summary, the AER uses a particular process for estimating input parameters and converting them into estimates of the required return on equity and debt. That process produces output that suggests that the required return on equity can be (and was for a substantial portion of 2009) below the required return on debt in the same benchmark firm, which is impossible. Our view is that great caution should be exercised before relying on any process that produces, or can produce, such unreasonable outcomes.

Response in Draft Decision

55. The Draft Decision states that:

> It is valid to assume that the return on equity would be higher than the return on debt. [27]

but then proposes a number of reasons why an estimate of the return to equity lower than the return to debt, such as would have occurred during the first half of 2009, is actually *not* unreasonable.

Different default risk for bonds with the same rating

56. The Draft Decision states that:

[26] Draft Decision, p. 264.
[27] Draft Decision, p. 264.

> At the time of cross-over the risk of default on long term bonds seemed real to most investors leading to a short term beta escalation for such securities (the data is not limited to bonds issued by regulated firms). Regulated entities did not present the same risk so the cross-over relative to their cost of capital was perfectly reasonable in the circumstances.[28]

57. This seems to indicate a view that the risk of default on BBB+ debt in non-regulated firms was higher, or was perceived to be higher, than the risk of default on BBB+ debt in regulated firms. However:

a. No evidence is provided in support of this speculation; and

b. Even if it were true, the point remains that the AER's process would have concluded that equity holders require a lower return than debt holders in the same benchmark firm, which is impossible.

Normal market risk criteria did not apply

58. The Draft Decision states that:

> No companies were actually issuing long term corporate bonds at this time. In particular, there were no actual Australian issued BBB+ 10 year corporate bonds in existence at the time. Therefore, the rates quoted are constructed from other data and subject to the distortions in the market where risk of default was a dominating influence, and the normal market risk criteria associated with corporate bonds of a particular credit rating no longer applied. This means the comparison is based on data constructed for regulatory purposes and should be discounted.[29]

This seems to indicate that it is permissible for the required return on equity to be lower than the required return on debt in the same firm during periods when "the normal market risk criteria" does not apply. However, there is no definition or discussion of what is meant by the "the normal market risk criteria," so it is impossible to determine whether they applied or not. Moreover, no evidence is provided in support of the claim that the normal criteria did not apply and there is no indication of what effect a breakdown in the normal criteria would have on debt and equity risk premiums. Presumably, the point is that the normal *debt* market risk criteria did not apply but the normal *equity* market risk criteria did apply, which is also not supported by evidence. Finally, even if it were true that the normal market risk criteria did not apply, the point remains that the AER's process would have concluded that equity holders require a lower return than debt holders in the same benchmark firm, which is impossible.

Higher cost of debt

59. The Draft Decision further states that:

> Had the AER issued a decision at this time, the AER's WACC estimates would have reflected higher debt costs.[30]

[28] Draft Decision, p. 264.
[29] Draft Decision, p. 264.
[30] Draft Decision, p. 264.

60. The higher debt costs during the first half of 2009 would have been consistent with the fact that the cost of debt actually *was* substantially higher during this period. But the key point is that the AER's estimate of the required return on *equity* would have been substantially *lower* than at any other time in the last 40 years, and lower than its own estimate of the required return on debt. In particular, the risk-free rate used in the CAPM fell to historical lows during that period, which had the effect of reducing the CAPM estimate of the required return on equity also to historical lows. The 50 basis point increase in the AER's estimate of MRP during this period had a negligible effect relative to the reduction in the estimate of the risk-free rate. The result is that the AER's process would have concluded that equity holders require a lower return than debt holders in the same benchmark firm, which is impossible.

Declaration

61. In preparing this report, I have made all the enquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld from the Court.

Professor Stephen Gray
23 March, 2010.

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Officer, R. R., 1994, "The cost of capital of a company under an imputation system," *Accounting and Finance*, 34, 1-17.

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Appendix: Consistency between cash flow and discount rate adjustments for gamma

1. The following calculations set out the AER's implementation of the building block approach under the National Electricity Rules (**Rules**). The point of this exercise is to show that the adjustment in relation to franking credits that is required under the Rules is equivalent to the adjustment to the discount rate in Paragraph 48 above. The National Gas Rules are less prescriptive, so this appendix cites references to the National Electricity Rules and the AER's Post-tax Revenue Model (PTRM).

2. Rule 6.5.2(b) requires the use of the CAPM to estimate the required return on equity. In the Envestra Draft Decision, the AER implemented the CAPM as follows:

$$\begin{aligned} k_e &= r_f + \beta \times MRP \\ &= 5.68\% + 0.8 \times 6.0\% = 10.48\%. \end{aligned}$$

3. Rule 6.5.2(b) also requires that the required return on debt is to be calculated by adding a debt risk premium to the risk-free rate. In the Envestra Draft Decision, the AER's implementation of this step was as follows:

$$\begin{aligned} k_d &= r_f + DRP \\ &= 5.68\% + 3.93\% = 9.61\%. \end{aligned}$$

4. Rule 6.5.2(b) also requires the rate of return to be computed according to the nominal post-tax WACC formula that is usually called the "vanilla" WACC. In the Envestra Draft Decision, the AER's implementation of this step was as follows:

$$\begin{aligned} WACC &= k_e \frac{E}{V} + k_e \frac{D}{V} \\ &= 10.48\% \times 0.4 + 9.61\% \times 0.6 = 9.96\%. \end{aligned}$$

5. Consider a generic benchmark firm with initial RAB of 1,000. Consequently, the cash flow that must be available to provide a return to investors over the first year of the regulatory control period is:

$$9.96\%. \times 1{,}000 = 99.6.$$

6. The amount of equity financing is 40% of the RAB, or 400. The return to equity holders is computed by multiplying the amount of equity by the required return on equity:[31]

$$10.48\%. \times 400 = 41.9.$$

7. Rule 6.5.3 requires the estimated cost of corporate tax to be computed as a function of the pre-tax income, the corporate tax rate (30%), and the AERs assumed value of gamma (0.45) from the Draft Decision.

8. In the absence of certain firm-specific complexities,[32] the firm's pre-tax income is computed as:

[31] The amount of debt financing is 60% of the RAB, or 600. The return to debt holders is computed by multiplying the amount of debt by the required return on debt: $9.61\%. \times 600 = 57.7.$ Note that the return to equity plus the return to debt is equal to the total required return from applying the aggregated WACC to the RAB, as above: $41.9 + 57.7 = 99.6$.

$$ETI = \frac{\text{Total Return to Equity}}{(1 - r(1-\gamma))} = \frac{41.9}{(1 - 0.3(1-0.45))} = 50.2.$$

9. Rule 6.5.3 is then implemented as follows:[33]

$$\begin{aligned} ETC_t &= (ETI_t \times r_t)(1-\gamma) \\ &= (50.2 \times 0.3)(1-0.45) = 8.3. \end{aligned}$$

10. Rule 6.4.3 provides that the annual revenue requirement is to be computed as the sum of a number of "building block" components. For this illustration, we assume that regulatory depreciation is 50 and operating expenses are 100. We note that the choice of values for these two elements is irrelevant to the calculations being performed below as they simply wash out of the analysis – whatever these costs are, the revenue requirement is simply increased to accommodate them and the pre-tax profit, tax paid, and assumed value of franking credits is unchanged. The implementation of Rule 6.4.3 is then as follows:[34]

Return on Equity		41.9
Return on Debt		57.7
Regulatory Depreciation		50
Operating Expenses		100
Tax Payable	15.1	
Less Value of Imputation Credits	-6.8	8.3
Annual Revenue Requirement		**257.9**

11. Note that the estimated cost of corporate tax (8.3 in the last two rows of the table above) is *added* here and has the effect of *increasing* the annual revenue requirement. That is, annual revenues must be sufficient to pay the expected tax cost.

12. Now consider the equity holders, who are entitled to the residual cash flow, after all expenses have been met. The cash flow to equity holders is set out in the following table:

Total revenue	257.9
-Interest to debt holders	57.7
-Regulatory Depreciation	50
-Operating Expenses	100
-Corporate tax	15.1
Cash flow to equity	**35.1**

13. That is, the equity holders receive the residual cash flow of 35.1. In addition, the firm pays corporate tax of 15.1, which creates franking credits with a face value of 15.1. Each of these franking credits is assumed to be worth 45% of its face value, giving a total value of $0.45 \times 15.1 = 6.8$. The total return to equity holders is then:

[32] Such as a difference between tax and regulatory depreciation, and customer contributions that are outside the regulatory framework except for the effect they have on tax paid.

[33] The PTRM sets this out as the difference between corporate tax payable and the assumed value of franking credits. In this case, corporate tax payable is pre-tax income multiplied by the corporate tax rate $50.2 \times 0.3 = 15.1$ and the assumed value of franking credits is equal to the amount of tax paid (which is also the amount of franking credits created) multiplied by the assumed value of gamma $15.1 \times 0.45 = 6.8$ in which case the expected tax cost is $15.1 - 6.8 = 8.3$.

[34] Note that some items may not add exactly due to rounding.

$$\text{Return to Equity} = \text{Residual Cash Flow} + \text{Assumed Value of Franking Credits}$$
$$= 35.1 + 6.8 = 41.9.$$

14. Consequently the proportion of the total return to equity that is assumed to be delivered in the form of franking credits is:

$$\frac{\text{Assumed Value of Franking Credits}}{\text{Return to Equity}} = \frac{6.8}{41.9} = 16.2\%.$$

15. Non-resident investors do not benefit from franking credits. Consequently, they receive only the 84% of the return to equity that is provided by means other than franking credits. This means that the return on equity available to non-resident investors is:

$$0.838 \times 10.48\% = 8.78\%.$$

16. Note that the return available to non-resident investors here is:

$$k_e \frac{1-T}{1-T(1-\gamma)} = 0.1048 \times \frac{1-0.3}{1-0.3(1-0.45)} = 8.78\%,$$

exactly as set out in Paragraph 48 above.