

# Evidence on the required return on equity from independent expert reports

*Report for the Energy Networks Association*

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## 1. Background and conclusions

### Instructions

1. SFG Consulting (**SFG**) has been retained by the Energy Networks Association (**ENA**) to provide advice in relation to the required return on equity used in independent expert reports. We have been asked to examine all Australian independent expert valuation reports since 2008 (with a particular focus on reports in the 2012-13 period) that employ a discounted cash flow (**DCF**) methodology and to consider:
  - a) The approach that independent experts take to estimating the required return on equity;
  - b) The usefulness of evidence from independent expert reports;
  - c) The values that independent experts use for the required return on the market/average firm, and to contrast those values with estimates from a mechanistic implementation of the Capital Asset Pricing Model (**CAPM**) (where the required return on the market is set to the contemporaneous 10-year government bond yield plus 6%);
  - d) The values that independent experts use for the required return on the asset being valued and to contrast those values with estimates from a mechanistic implementation of the Capital Asset Pricing Model (**CAPM**) (where the required return on the market is set to the contemporaneous 10-year government bond yield plus 6%);
  - e) The term of the risk-free rate of interest that is used by independent experts; and
  - f) The extent to which independent experts make adjustments in relation to dividend imputation tax credits.
2. This report has been prepared by Professor Stephen Gray with assistance from Mr Damien Cannavan. We acknowledge that we have read, understood and complied with the Federal Court of Australia's Practice Note CM 7, Expert Witnesses in Proceedings in the Federal Court of Australia. Professor Gray and Mr Cannavan provide advice on cost of capital issues for a number of entities but have no current or future potential conflicts.

### Summary of conclusions

#### Approach of independent experts

3. All of the expert assessments in the 2012/13 sample group use the CAPM as the starting point when estimating the cost of equity capital. In none of these reports is the CAPM implemented mechanistically by adopting the contemporaneous government bond yield as the estimate of the risk-free rate and adding a risk premium equal to the long-run historical average. The implementation of the CAPM varies across reports as follows:
  - a) Some use an estimate of the risk-free rate that is in excess of the contemporaneous government bond yield;
  - b) Some use an estimate of the required return on the market that implies a market risk premium in excess of the historical average of excess returns;



- c) Some apply a specific uplift factor to increase the estimate of the required return on equity.
4. Half of the reports use higher parameter estimates as in (a) and (b) above, and half apply an additional uplift factor as in (c) above. That is, this latter group in fact implement a model other than the CAPM to correct for perceived shortcomings in CAPM estimates – at least in the current market circumstances.

#### The required return on the market

5. For the 2012-13 period, and net of any assumed value of imputation credits, the estimates of the required return on the market are:
- a) 8.5% from the mechanistic approach (10-year government bond yield plus 6%);
  - b) 10.2% if *none* of any uplift factor is attributed to the required return on the market; and
  - c) 11.6% if *all* of the uplift factors are applied to the required return on the market.

#### The required return on equity

6. We compare (again net of any assumed value of imputation credits):
- a) The independent expert's estimate of the required return on equity for each firm; with
  - b) An estimate formed by inserting the following values into the Sharpe-Lintner CAPM:
    - i) Contemporaneous 10-year government bond yield for risk-free rate;
    - ii) 6% for market risk premium; and
    - iii) The equity beta estimate adopted by the independent expert.
7. The average estimate of the required return on equity from the former approach is 14.4%, and the average from the latter approach is 11.1%.
8. In every case the mechanistic estimate is below the figure that is adopted in the independent expert report. In almost every case, the difference is greater than 1% and the difference is greater than 2% in many cases. The results for the 2012-13 period are particularly striking. In almost every case the difference between the two estimates exceeds 2% and the average differential is substantially higher than for the earlier period.

#### Term of risk-free rate

9. The standard practice of independent experts is to adopt a 10 year term to maturity for the risk-free rate. 94% of the reports in our sample use a 10-year term and the few that do not explain that they have used a shorter term to match the life of the asset being valued.

#### Adjustment for imputation credits

10. None of the reports in our sample make any adjustment in relation to dividend imputation. No adjustments of any kind were made to any cash flows and no adjustments of any kind were made to any discount rates.



## 2. Method

### Independent expert reports

#### Statutory and regulatory requirements

11. Ernst & Young (2012, pp. 7-8) notes that the Corporations Act and ASX Listing Rules require the preparation of an independent expert report in the event of proposed corporate transactions including takeover bids, mergers and schemes of arrangement, acquisitions, divestitures, share buy-backs, and related party transactions.
12. An independent expert report provides the opinion of an independent capital market expert on whether a proposed transaction is “fair and reasonable” and/or “in the best interests of” affected shareholders. The Australian Securities and Investment Commission (**ASIC**) has provided guidance on the preparation of independent expert reports in its Regulatory Guide 111 and 112. The Corporations Act (2001) and ASX Listing Rules require that such reports must be prepared by “experts” that are truly “independent,” where those terms are further defined by the Act, Rules, and ASIC Guidance. ASIC Regulatory Guide 11 also notes that ASIC can take regulatory action if there are material concerns about the adequacy and completeness of an independent expert report or if ASIC has concerns about the independence of an expert.
13. In summary, independent experts operate within a strict statutory regime that is designed to ensure independence, expertise, rigour and transparency.
14. Ernst & Young (2012) note that:

these independent expert reports support numerous successful transactions (e.g. by providing a widely accepted valuation basis),<sup>1</sup>

and we agree with their conclusion that:

The cost of equity provided in independent expert reports is the evidence of expert capital market practitioners acting independently in accordance with defined standards of independence, and based on documented and explicitly justified analysis.<sup>2</sup>

#### Evidence about expert views on the Weighted Average Cost of Capital (WACC)

15. The ASIC Regulatory Guide 11 requires the expert to justify the choice of methodologies and describe the methods used in the report and to disclose all material assumptions. When the expert’s opinion involves the valuation of an asset, the expert often must derive a discount rate for use in the valuation exercise.<sup>3</sup> The discount rate used by the experts is invariably the Weighted Average Cost of Capital (**WACC**), which in is a blend of the asset’s cost of equity capital and cost of debt capital. The relative weights attached to these costs of finance depend on the mix of debt and equity capital (i.e.,

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<sup>1</sup> Ernst & Young (2012), Paragraph 49.

<sup>2</sup> Ernst & Young (2012), Paragraph 50.

<sup>3</sup> The experts often use the Discounted Cash Flow (DCF) method for corporate valuation purposes. This approach converts a stream of expected future cash flows to a present value using a suitable discount rate.

the gearing ratio). In some cases, the expert's assessment is that the investment will likely be funded entirely by equity, or the transaction involves the purchase of equity stock in a new or existing business. In such cases, the WACC associated with the investment is simply the cost of equity capital.<sup>4</sup> Usually, whenever the expert has been required to derive a discount rate, that expert sets out in some detail the methodology and reasoning it has used to estimate the relevant WACC.

16. However, many independent expert reports do not contain a detailed corporate valuation or any indication of the expert's assessment of the appropriate required return on equity. For example, independent experts are sometimes retained to consider a proposed change to a company's remuneration policy, or, as another example, a relatively small change to the capital structure such as a placement of shares. These cases do not require a full corporate valuation and provide no information on the WACC. In addition, some reports that do contain corporate valuations use methods that do not require an assessment of the WACC (e.g., a multiples based approach or a comparable sales approach is used instead of a Discounted Cash Flow (**DCF**) approach). Therefore, only a subset of the reports available set out the experts' views about the appropriate WACC.

### Sample groups

17. Ernst & Young (2012) (**EY**) has reviewed independent expert reports dated between 1 January 2008 and 10 October 2012.<sup>5</sup> They examine a total of 889 reports, 132 of which identify the expert's estimate of the required return on equity. Of the reports that identify the estimate of the required return on equity, 17 were issued in 2012 and EY took those reports as an indication of independent experts' current approach to WACC the time of its report.
18. We have updated the EY sample by examining all independent expert reports dated after 10 October 2012 and published in the CONNECT 4 Expert Reports database as at 26 April 2013. We find a total of 247 independent expert reports published over that period. Of these, 12 provide a detailed description of an estimation of the WACC for the purposes of discounting expected future cash flows. This relatively low proportion of reports is due to the facts that (a) a number of the reports do not require a corporate valuation (e.g., because they deal with remuneration policy), and (b) a number of companies in the sample that are deemed to lack a reliable future cash flow stream for the purposes of discounted cash flow valuation.
19. In order to assess how experts are approaching the estimation of WACC at present, we have pooled together the 17 reports identified by EY as having been published in 2012 with the 12 expert reports published to date in 2013. This resulted in a sample of 29 recent expert reports that set out detailed explanations about the methodologies for estimating WACC.
20. A number of the expert reports in our sample include valuations of multiple projects. For the purposes of this study, we have treated each valuation as an independent assessment. Consequently, our 2012/13 sub-sample of 29 reports yielded 34 separate assessments of WACC.
21. We use the Global Industry Classification Standard (**GICS**) to classify the different expert assessments into sectors. Figure 1 shows that a large majority of the assessments, in both sample

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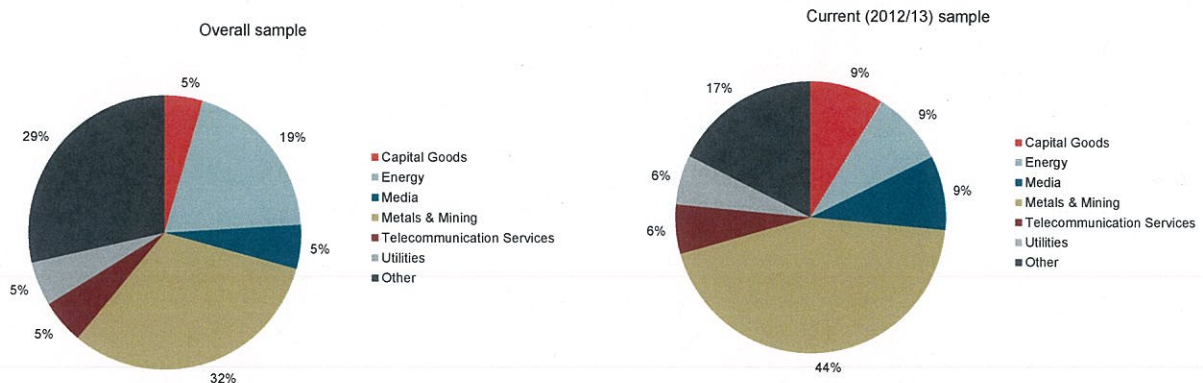
<sup>4</sup> See for example, BDO (2012), Pluton Resources Ltd – *Independent Expert's Report*, 17 October 2012.

<sup>5</sup> Ernst & Young (2012) were jointly commissioned by the owners of the Victorian gas distribution businesses – Envestra, Multinet, and SP AusNet.



groups, relate to the Metals & Mining sector. Very few of the reports relate to the Utilities sector (i.e., just eight assessments in the overall sample, and two assessments in the 2012/13 sample).

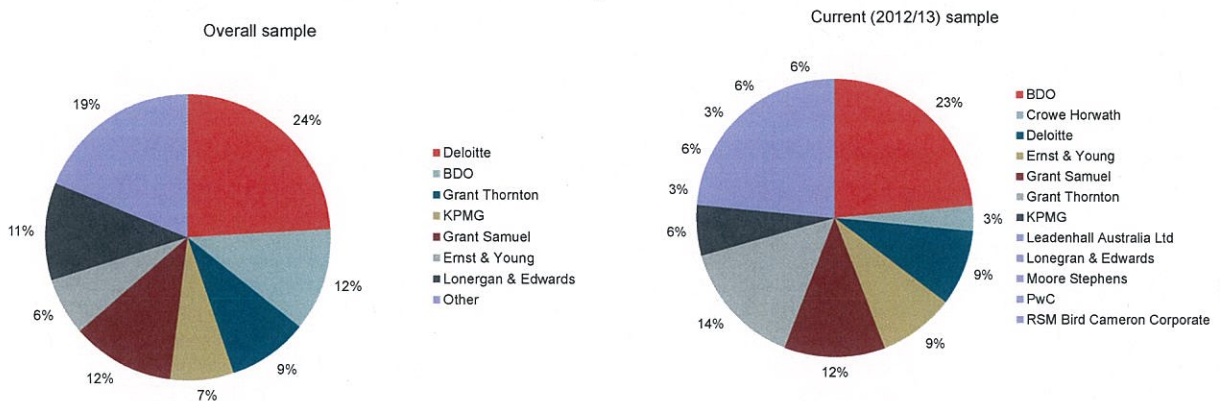
**Figure 1**  
Sectoral coverage in the overall sample and the 2012/13 group



Source: SFG analysis

22. Figure 2 below shows the mix of experts that have prepared the reports in our study. The experts consist of a range of accounting/corporate advisory firms.

**Figure 2**  
Mix of experts



Source: SFG analysis

### The weighted average cost of capital

23. Independent experts employ a range of techniques when performing corporate valuations. Different reports use different valuation methods and it is also common for multiple techniques to be used in a single valuation report. Valuation techniques employed regularly include market value analysis, comparable company analysis, multiples analysis (e.g. Value to EBITDA) and discounted cash flow (DCF) analysis.



24. DCF analysis estimates a present value of forecast net cash flows using an appropriate discount rate. Commonly, this discount rate is the Weighted Average Cost of Capital (**WACC**), which is calculated by weighting the cost of debt and the cost of equity capital using the gearing ratio.
25. The cost of equity capital is the minimum expected rate of return that equity investors require in order to commit equity capital to the firm. This rate cannot be observed and must be estimated from market data in the context of one or more economic (asset pricing) models.
26. The Capital Asset Pricing Model (**CAPM**) is one approach that is commonly used by practitioners to estimate the required return on equity. Every expert report in our two sample groups<sup>6</sup> used the CAPM as the starting point for measuring the cost of equity. This simple model requires the following parameter estimates:
- a) Risk-free rate;
  - b) Equity beta; and
  - c) Expected return on the broadly diversified market portfolio.

27. These parameter estimates combine to produce a required rate of return on equity:

$$r_e = r_f + \beta_e (E[r_m] - r_f)$$

28. The difference between the expected return on the market portfolio and the risk-free rate of interest is often defined to be the market risk premium (**MRP**):

$$MRP = E[r_m] - r_f$$

29. The risk free rate represents, conceptually, the return on a completely riskless asset. In practice, no asset is completely free from risk. However, certain assets (e.g. securities issued by very creditworthy governments) are considered so safe as to represent reasonable proxies for riskless assets. The equity beta estimates an investment's exposure to non-diversifiable (i.e., systematic) risk, for a given level of gearing. A key result from the CAPM is that investors ought to be compensated only for risks that cannot be eliminated through diversification. As such, a cost of equity estimated using a strict application of the CAPM provides no compensation to investors for diversifiable (i.e., non-systematic) risks.

30. As noted by Ernst & Young (2012):

Independent expert reports blend financial theory with day-to-day experience in capital markets in applying the CAPM. For example, independent expert reports often use the CAPM to estimate the cost of equity, but typically:

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<sup>6</sup> Our full sample includes all independent expert reports from January 2008 to April 2013. Our recent subsample includes independent expert reports from 2012 and 2013 only.

a. exercise discretion in the application of the CAPM and the interpretation of data (e.g. they vary how they may derive parameter estimates) in recognition of the limitations of the model; and

b. assess the valuation results obtained from the application of the CAPM with the values obtained from using other methods (or vice versa, depending on the respective quality of the relevant information). These other methods typically include capitalising earnings or (near term) prospective earnings using observed trading and / or transaction multiples, or estimating discount rates using the Dividend Growth Model.

Independent experts thereby corroborate the results obtained from the use of the CAPM to ensure the results accord with market expectations.<sup>7</sup>

31. Further, they observe that:

these independent expert reports support numerous successful transactions (e.g. by providing a widely accepted valuation basis)<sup>8</sup>

and that:

The cost of equity provided in independent expert reports is the evidence of expert capital market practitioners acting independently in accordance with defined standards of independence, and based on documented and explicitly justified analysis.<sup>9</sup>

32. Ernst & Young (2012) conclude that:

... it is the best market evidence publicly available to assess the prevailing cost of equity in the Australian market for funds.<sup>10</sup>

33. In summary, independent experts use the CAPM as a starting point in their analysis, but they do not apply it in a slavish or mechanistic manner. They apply judgment and consider other models and evidence in arriving at a final estimate of the required return on equity. It is this final estimate of the required return on equity that should be compared with the allowed regulatory return on equity in a like-with-like comparison.

### **Usefulness of independent expert reports**

#### **AER use of overall required return on equity**

34. It is important to emphasize that the usefulness of independent expert reports for providing information about the cost of equity capital in the market lies in their overall assessments. The usefulness lies in the adjustments that the experts make, the other evidence and models that they

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<sup>7</sup> Ernst & Young (2012), p. 9.

<sup>8</sup> Ernst & Young (2012), p. 9

<sup>9</sup> Ernst & Young (2012), p. 9.

<sup>10</sup> Ernst & Young (2012), p. 9.



consider, and the judgment that they apply in calibrating models to current market conditions. Put simply, the independent experts are useful, in this context, for establishing the level of equity returns that are required by market participants – who transact in the market based on these independent expert reports.

35. This point has been recognized by the AER in comments about the use of broker reports at the cost of equity level:

... A typical broker's report is unlikely to be useful at the parameter level—that is not its purpose—but it may be useful in regard to the return on equity. Considering such information at the return on equity level would require us to interpret the information having regard to the purpose for which it was compiled and whether the information generated was useful for establishing a regulatory rate of return for service providers. Put simply, the purpose will determine what role the information will play and how we will use it. It is the best market evidence publicly available to assess the prevailing cost of equity in the Australian market for funds.<sup>11</sup>

36. Accordingly, we focus our analysis on the outputs of the cost of equity capital models and the overall assessment of required rates of return in the market as established by the independent experts.

#### CEPA Discussion of Ernst & Young Independent Export Reports

37. CEPA (2013), in a report prepared for the AER, argue that the Ernst & Young (2012) evidence is “not compelling”<sup>12</sup> for supporting a case that the market cost of equity differs from that set by the AER. They conclude:

Overall, our analysis of the information presented by EY suggests that:

- the credibility of some sources is undermined by large unexplained swings in estimates over short time horizons;
- there is clearly a strong time trend, and arguably the more recent studies should have been given greater weight (rather than implicitly equal weight in a straight average);
- looking at the modal estimates of the individual parameters, the discrepancy between the brokers and the AER is less marked; and
- the analysis of the KPMG Consolidated Media Holdings report shows how important each report's idiosyncrasies are.<sup>13</sup>

38. Our view is that to compare the independent expert reports solely on the basis of mechanical inputs to the CAPM, completely misses the principal value provided by the reports in this context. It is the overall cost of equity capital estimated by the experts that is of interest. That is, it is precisely the market expert adjustments and judgment, and more importantly the *results (output)* of such adjustments and judgment, that provide market-based information. Nevertheless, we address each of the points raised by CEPA in turn.

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<sup>11</sup> AER (2013), p. 30.

<sup>12</sup> CEPA (2013), Advice on estimation of the risk-free rate and market risk premium, March, p. 50.

<sup>13</sup> CEPA (2013), Advice on estimation of the risk-free rate and market risk premium, March, p. 50.



39. In asserting that the credibility of some sources is undermined by large unexplained swings in estimates over short time horizons, CEPA cite an example of a change in the Grant Samuel estimation of the expected return on the market portfolio:

In a Grant Samuel report from December 2011 for AUSTAR, they use a spot yield on the ten year CGS for the risk free rate to get 4.5% and a 6.0% MRP, as they 'believe that particularly in view of the general uncertainty, this continues to be a reasonable estimate.' This is as it 'is not statistically significantly different to the premium suggested by long term historical data and is similar to that used by a wide variety of analysts and practitioners (typically in the range 5-7%).' This gave a figure of 10.5% for the market cost of equity and there was no further adjustment made, so it is difficult to understand an implied market cost of equity of 12.4% in August 2012 (nine months later), a time when the risk free rate itself had fallen to just 2.70% in the final week of July 2012.<sup>14</sup>

40. This quote explains why independent expert reports *do* provide highly relevant evidence. Between December 2011 and August 2012 the European debt crisis intensified and there was a strong flight-to-quality as investors flooded into safe-haven liquid assets such as Australian government bonds.<sup>15</sup> This had the effect of lowering yields, as noted in the quote above, from 4.5% to 2.7%.
41. A mechanistic implementation of the CAPM, whereby the required return on the market is estimated as the contemporaneous government bond yield plus 6%, would suggest that the required return on the market fell from 10.5% to 8.7% because government bond yields fell and investors always require the same 6% risk premium.
42. By contrast, the independent expert report suggests that required returns on equity *increased* over that same period, commensurate with increasing concerns about risk and the flight to quality associated with it.
43. Knowing that the practice of independent expert valuation professionals is materially different from the mechanistic approach and produces outcomes that are materially different from the mechanistic approach is useful and relevant evidence. If one only ever gave weight to evidence that was consistent with a predetermined notion of what is "correct" there would be no point examining the evidence.
44. We further note that the adjustment in the estimate was not unexplained as alleged. Rather, the adjustment was the outcome of a comparison (such as the use of the dividend growth model) and recognition of higher than average risk premiums and lower than average risk-free rates.<sup>16</sup> As Grant Samuel outline in the report in question:

In selecting the discount rate range, we utilised the capital asset pricing model ("CAPM") as the starting point in our analysis to determine a cost of equity. However, it is easy to credit the output of models with a precision it does not warrant. The reality is that any cost of capital estimate or model output should be treated as a broad guide rather than an

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<sup>14</sup> CEPA (2013), p. 44.

<sup>15</sup> See for example, Frontier Economics (2013), Assessing risk when determining the appropriate rate of return for regulated energy networks in Australia, p. 101.

<sup>16</sup> Grant Samuel (2012), *Hastings Diversified Utilities Fund – Independent Expert's report*, 3 August 2012, Appendix 2, p.1.

absolute truth. The cost of capital is fundamentally a matter of judgement, not merely a calculation. In this context, regard was also had to other methods such as the implied cost of equity based on the Gordon Growth Model (or perpetuity formula), market evidence that suggests that equity investors have substantially repriced risk since the global financial crisis and the fact that interest rates are at low levels by comparison with historical norms.<sup>17</sup>

45. Finally we note that in all subsequent reports in the sample Grant Samuel maintained the same judgement, supporting the conclusion that the expert had shifted its thinking on the matter, as opposed to the unexplained fluctuations suggested by CEPA.<sup>18</sup>
46. The second point raised by CEPA is that there is clearly a strong time trend, and that arguably the more recent studies should have been given greater weight (rather than implicitly equal weight in a straight average).
47. We agree that it is sensible to give more attention to the recent data. In this report we do exactly that, concentrating on the 2012-13 sample. The results show that the discrepancy between the allowed AER rates of return and that assessed by the independent experts is actually larger for the more recent period than for the sample as a whole.
48. The third contention in the CEPA report is that the discrepancy between the independent experts and the AER is less marked when looking at the estimates of the mode of individual parameters. However, this is not an appropriate like-with-like comparison. The whole point is to compare the cost of equity used by independent experts with the cost of equity used by the AER. The extent to which the two estimates differ is relevant evidence – it shows the extent to which the AER estimate is corroborated by, or inconsistent with, estimates that are being used by independent expert valuation professionals. The fact that independent experts tend to begin with a CAPM framework and then apply uplift adjustments would be lost if a siloed focus was applied to individual parameter estimates. To see this, suppose that all independent experts estimated the cost of equity by adopting the same parameter estimates as the AER, inserting them into the CAPM, and then doubling the result. In this case, the independent expert estimates would differ materially from the AER estimates of the cost of equity. However, a siloed focus on individual parameter estimates (without consideration of how they are used in a holistic sense) would lead to the opposite conclusion and would be in error. Our conclusion on this point would appear to be consistent with the AER's conclusion in relation to broker WACC estimates in Paragraph 35 above.
49. The fourth point in the CEPA report is that the analysis of the KPMG Consolidated Media Holdings report shows how important each report's idiosyncrasies are. On this point CEPA says:

KPMG in its report for Consolidated Media Holdings Group state that 'a degree of subjectivity is involved in estimating some of the inputs...these limitations mean that any estimate of the WACC must necessarily be regarded as indicative rather than as an absolute measure.' This would further support the view that there is no compelling

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<sup>17</sup> Grant Samuel (2012), *Hastings Diversified Utilities Fund – Independent Expert's report*, 3 August 2012, Appendix 2, p.1.

<sup>18</sup> Grant Samuel (2012), *Duet Group – Independent Expert's report*, 3 October 2012; *Australian Infrastructure Fund Ltd – Independent Expert's report*, 7 December 2012.



evidence presented in this report that would show that the market cost of equity should be adjusted.<sup>19</sup>

50. This is really the same point as the previous one. The expert's final estimate of the cost of equity is used in the valuation of the asset in question. We accept that in many cases it is difficult to use that final cost of equity figure to ascribe specific values to CAPM parameters. But we do not propose to do that and the AER has previously stated that it would be wrong to do that, at least in relation to broker WACC estimates. However, there is value in comparing cost of equity estimates with cost of equity estimates on a like-with-like basis – that is, comparing independent expert cost of equity estimates with regulatory cost of equity estimates.

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<sup>19</sup> CEPA (2013), p. 50.



### 3. Results

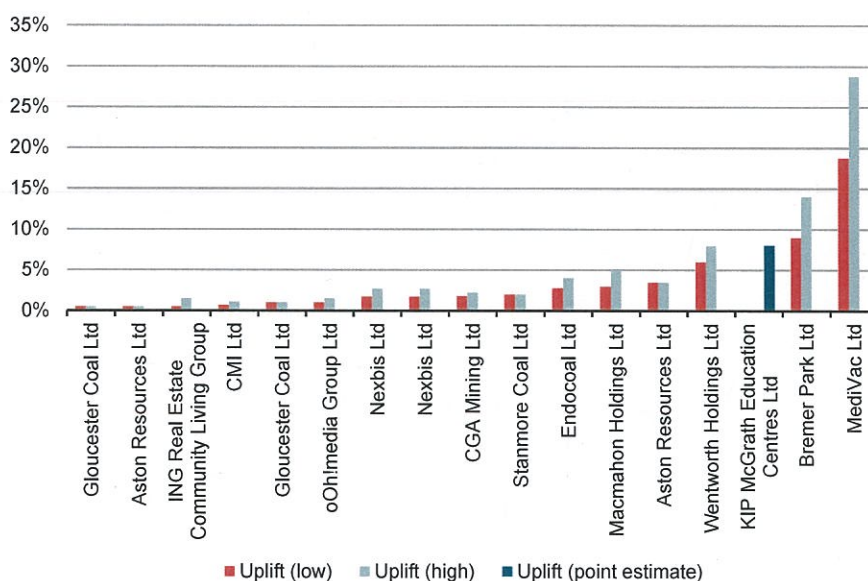
#### Cost of equity model

51. All of the expert assessments in the 2012/13 sample group use the CAPM as the starting point when estimating the cost of equity capital. In none of these reports is the CAPM implemented mechanistically by adopting the contemporaneous government bond yield as the estimate of the risk-free rate and adding a risk premium equal to the long-run historical average. The implementation of the CAPM varies across reports as follows:
  - a) Some use an estimate of the risk-free rate that is in excess of the contemporaneous government bond yield;
  - b) Some use an estimate of the required return on the market that implies a market risk premium in excess of the historical average of excess returns;
  - c) Some apply a specific uplift factor to increase the estimate of the required return on equity.
52. Half of the reports use higher parameter estimates as in (a) and (b) above, and half apply an additional uplift factor as in (c) above. That is, this latter group in fact implement a model other than the CAPM to correct for perceived shortcomings in CAPM estimates – at least in the current market circumstances.
53. The main reasons given by the experts for adjusting CAPM estimates of the cost of equity include the following:
  - a) Significant interest rate volatility and abnormally low government bond yields, which have a bearing on the assessment of the risk-free rate;
  - b) The likelihood that equity risk premiums have increased recently in response to greater market volatility, which has a bearing on the assessment of the required return on the market and consequently MRP;
  - c) Specific risks that are not reflected in the CAPM beta (i.e., the one-factor CAPM does not consider all relevant risk factors);
  - d) The need to include a size premium. The CAPM does not distinguish required rates of return based on the size of the enterprise. Other asset pricing models, such as the Fama-French three-factor model, do take size effects into account explicitly. Approximately a quarter (24%) of all the assessments in the 2012/13 sample group used small company size as a justification for an uplift to either the cost of equity or to the overall WACC.
54. In summary, there are a number of factors for which independent experts may make adjustments to a strict CAPM-based cost of equity. In many cases, the experts present a single upward adjustment to the cost of equity that encompasses a range of the factors listed above. In such instances, the experts' reports contain insufficient information to disaggregate the allowances made for different factors.
55. Notwithstanding the difficulties in disaggregating the individual adjustments applied by the experts, by comparing the cost of equity that would be implied by a mechanistic application of the CAPM

with the cost of equity actually determined by the experts, it is possible to quantify the size of any overall adjustments (explicit or implicit) made.

56. Using this method, Figure 3 below plots the size of the adjustments to the cost of equity applied by independent experts in the 2012/13 sample. The expert that conducted one of the assessments, for Medivac Ltd, applied an outlier adjustment (of 20% to 30%).<sup>20</sup> Leaving that assessment aside, the average adjustment to the CAPM-based cost of equity applied by the independent experts in the 2012/13 sample was approximately 3%.

**Figure 3**  
Upward adjustments to cost of equity applied in experts' assessments



Source: SFG analysis

#### Adjustments to short-run market data for volatile and abnormally low government bond yields

57. Although several of the independent experts used current yields as a starting point for their assessment of the risk-free rate, a number expressed concerns about relying on an 'on-the-day rate' approach, given the recent volatility in government bond yields and the observation that yields may have fallen to abnormally low levels following the onset of the GFC.
58. For example, in its report to Nexbis Ltd, Grant Thornton justified the use of one year averaging periods as a means of dealing with volatile government bond yields:

Given the current volatility in the global economy due to the uncertainty associated with European debt markets, we have observed the yield on the 10 year Australian

<sup>20</sup> RMS Bird Cameron (2012), *Financial Services Guide and Independent Experts Report*, 12 October 2012, p.57.



Commonwealth Government Bond over a longer period. Based on the average yield for the period 1 April 2011 to the 2 April 2012, we have adopted risk free rate of 4.5%.<sup>21</sup>

59. Grant Thornton took a similar approach in expert reports for Ludowici Ltd<sup>22</sup> and Norton Gold Fields Ltd.<sup>23</sup>

60. In its report to Consolidated Media Holdings Ltd, KPMG stated:

Recent market volatility and risk aversion by investors, driven by macro-economic uncertainty, particularly in Europe, has contributed to bond yields trading at historical lows. Further, market evidence indicates that bond yields and the MRP are strongly inversely correlated. In this context, it is important that any assessment of the risk-free rate should be made with respect to the position adopted in deriving the MRP, and there are two relevant options available when undertaking this exercise:

- adopt a historical MRP as a proxy for the expected MRP and adjust the spot risk-free rate to take into account the relationship highlighted above; or
- adopt the spot risk-free rate and adjust the MRP for the perceived additional risks attaching to equity investments implicit from historically low (or high as the case may be) risk-free rates to reflect the current investment environment and the inverse relationship between the two variables.

For the purposes of our analysis, we have adopted the former approach and applied a historical estimate of the MRP and adjusted the risk-free rate accordingly.<sup>24</sup>

61. In its valuation report for Stanmore Coal Lt, Lonergan & Edwards state:

The currently prevailing 10 year Commonwealth Government bond rate is well below historical levels and reflects, inter-alia, the weak outlook for global economic growth and its impact on the outlook for the Australian economy and the effect of quantitative easing measures by major overseas central banks. At the same time credit spreads have generally increased to offset the impact of the lower risk-free rate. Accordingly, in our view the application of current (low) government bond yields and long-term average market risk premiums is inappropriate in the context of determining long-term required equity rates of return (discount rates). As it is difficult to reliably measure short-term movements in the market risk premium we have therefore increased the risk-free rate for the purpose of estimating required equity rates of return only.<sup>25</sup>

62. Lonergan and Edwards state further that:

Had a higher risk-free rate not been adopted, in our view, it would be appropriate to adopt a correspondingly higher market risk premium.<sup>26</sup>

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<sup>21</sup> Grant Thornton (2012), *Nexbis Ltd – Independent Expert’s Report and Financial Services Guide*, 9 May 2012, p.74.

<sup>22</sup> Grant Thornton (2012), *Ludowici Ltd – Independent Expert’s Report and Financial Services Guide*, 3 April 2012, p.75.

<sup>23</sup> Grant Thornton (2012), *Norton Gold Fields Ltd – Independent Expert’s Report and Financial Services Guide*, 13 July 2012.

<sup>24</sup> KPMG (2012), *Consolidated Media Holdings Ltd – Independent Expert Report*, 24 September 2012, pp.91-92.

<sup>25</sup> Lonergan & Edwards (2012), *Funding Agreement with Greatgroup – Independent Expert Report*, 25 October 2012, p.46

<sup>26</sup> Lonergan & Edwards (2012), footnote 43.



63. In its valuation report for Macmahon Holdings Ltd, Ernst & Young state:

We believe that the current risk free rate (usually estimated with reference to the 10 year Government bond rate) is at historically low levels. Most market observers regard this as inconsistent with current share prices, the observed volatility in markets and general economic uncertainty. In response, many valuers have either used a normalised risk free rate, increased their estimates of the market risk premium or have included an additional risk factor in their calculations of the cost of equity. Our preference is to normalise the risk free rate to best reflect the longer term position.<sup>27</sup>

64. Ernst & Young made the same statement in its report to Integra Mining Ltd.<sup>28</sup> In both its Integra and Macmahon assessments, Ernst & Young applied an explicit uplift to the risk-free rate of 2%, when estimating the cost of equity and the cost of debt.

65. Figure 4 shows that 13 assessments (38%) from the 2012/13 sample group applied some direct upward adjustment to the risk-free rate (either as an explicit premium or via extended averaging periods) in recognition of recent volatile and abnormally low government bond yields.<sup>29</sup> The average adjustment was in the order of 1.24%.

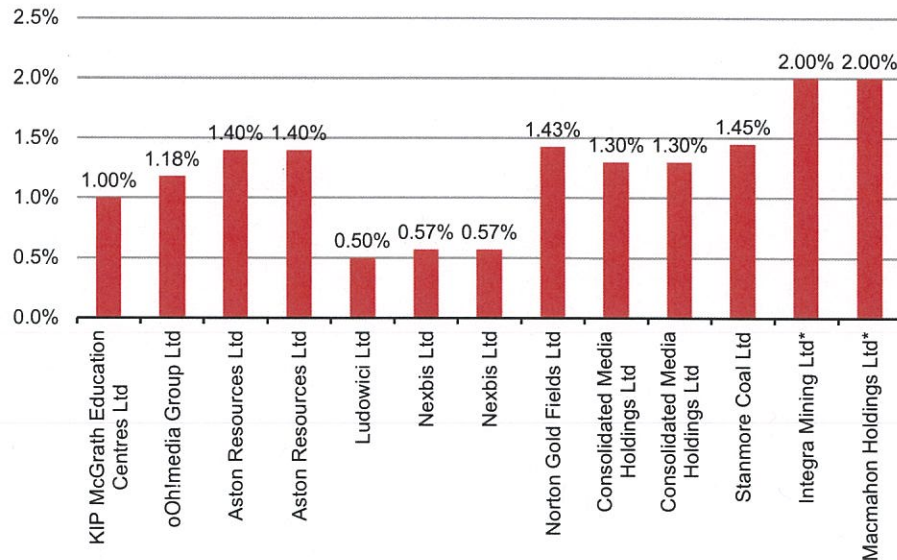
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<sup>27</sup> Ernst & Young (2013), *Independent Expert's Report and Financial Services Guide Macmahon Holdings Limited Sale of the Construction Assets*, 14 January 2013, p.82.

<sup>28</sup> Ernst & Young (2012), *Independent Expert's Report and Financial Services Guide Integra Mining Limited Proposed acquisition by Silver Lake Resources Limited*, p.84.

<sup>29</sup> Having indicated that an uplift had been made, the independent experts' reports did not always specify explicitly the size of the uplift. However, in all such cases we were able to infer the approximate size of the uplift by comparing the risk-free rate applied by the expert with the annualised CGS yield prevailing around the date of publication of the expert's report.

**Figure 4**  
**Upward adjustments to risk-free rate applied in experts' assessments**



Source: SFG analysis

Notes: \* Uplift applied to risk-free rate in the cost of equity and in the cost of debt

66. A number of experts cited abnormally low government bond yields<sup>30</sup> as one of a number of factors (such as business-specific risks,<sup>31</sup> or scepticism about the infallibility of the CAPM<sup>32</sup>) that warranted an upward adjustment to the overall WACC. Although we can quantify the overall uplift to the WACC in most of these cases, there is insufficient information in the experts' reports to calculate the proportion of the uplift that is specifically attributable to the risk-free rate component of the WACC.

### Expected return on the market

67. We begin by considering the unadjusted estimate of the required return on the market. This estimate is unadjusted in two senses:

- a) As set out below, none of the independent expert reports make any adjustment to any cash flows or any aspect of the discount rate in relation to dividend imputation tax credits. The estimates of the required return on the market have not been adjusted to include any assumed value of imputation credits – they are all ex-imputation required returns; and
- b) As set out above, a number of reports state an estimate for the required return on the market, but then make a subsequent upward adjustment to their estimate of the cost of equity or to their estimate of the WACC. It is likely that in many cases at least some of this

<sup>30</sup> See, for example, the report for Endocoal Ltd.

<sup>31</sup> See, for example, the report for Stanmore Coal Ltd.

<sup>32</sup> See, for example, the report for Medivac Ltd.

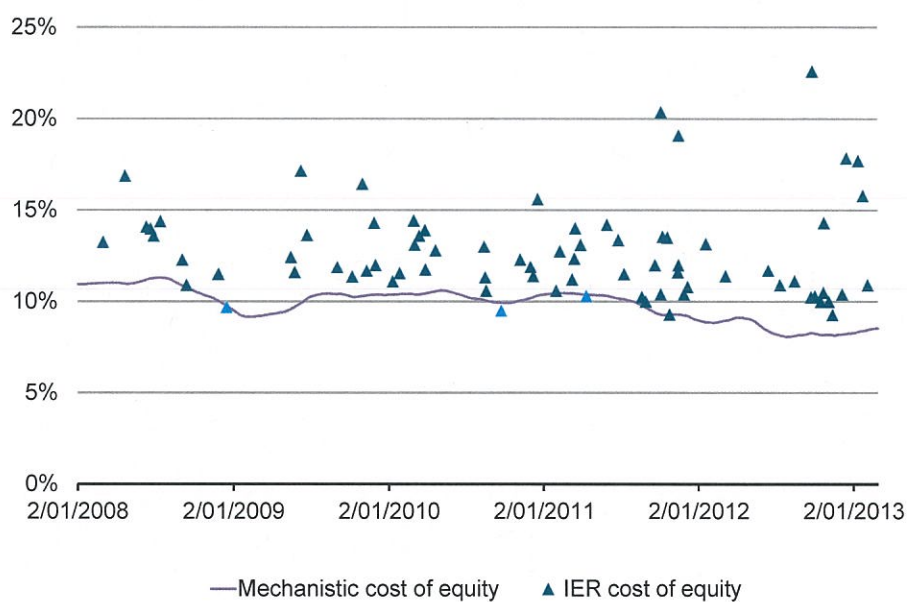


uplift would apply generally across firms. That is, it is unlikely that the entire uplift would be due to specific features of the firm being evaluated. However, most expert reports do not specifically state how much of any uplift factor would be attributable to general market conditions versus the specific features of the firm being examined. Our unadjusted estimates assign no part of any uplift factor to the estimate of the required return on the market and are consequently understated on average.

68. Across the entire sample (2008-2013) the average estimate of the unadjusted required return on the market (computed as the sum of the unadjusted risk-free rate and the unadjusted market risk premium) contained in the expert reports is 11.3%. (Again, this has not been increased for any assumed value of imputation credits or for any part of any uplift factor that has been applied). By contrast, if the required return on the market is estimated as the sum of the contemporaneous 10-year government bond yield and a fixed 6% market risk premium, less an assumed value of imputation credits based on a gamma of 0.25 (to ensure a like-with-like comparison), the average over the sample period is 9.8%. That is, the mechanistic approach produces estimates of the required return on the market that are materially below (difference of 1.5%) those being used by independent expert valuation professionals.
69. For the 2012-13 sample the average estimate of the unadjusted return on the market is 10.2% and the average from the mechanistic approach is 8.5%. The difference between the estimates from the two approaches is 1.7%, but this is likely to be understated because there are more reports applying larger uplift factors during the 2012-13 period.
70. To address the effect of uplift factors in the 2012-13 period, we also compute the implicit required return on the market by assuming that any uplift factor relates solely to the required return on the market. That is, we solve for the required return on the market that produces the final cost of equity estimate that is used in the expert report. This implicit estimate of the required return on the market is 11.6% (ex-imputation credits).
71. In summary, for the 2012-13 period and net of any assumed value of imputation credits, the estimates of the required return on the market are:
  - a) 8.5% from the mechanistic approach (10-year government bond yield plus 6%);
  - b) 10.2% if *none* of any uplift factor is attributed to the required return on the market; and
  - c) 11.6% if *all* of the uplift factors are applied to the required return on the market.
72. That is, the mechanistic approach produces estimates of the required return on the market that are materially below (difference of 1.7% to 3.1%) those being used by independent expert valuation professionals.
73. As another point of comparison, we consider (again net of any assumed value of imputation credits):
  - a) Mechanistic estimates of the required return on the market (10-year government bond yield plus 6%); and
  - b) Independent expert estimates of the final required return on equity for firms for which the independent expert adopted an equity beta estimate between 0.75 and 1.25. We restricted the sample to this set of firms with an equity beta estimate close to 1.0 to ensure a reasonable

basis of comparison with an estimate of the required return on the market (which also has a beta of 1.0). We present the results in Figure 5 below.

**Figure 5**  
**Expert report cost of equity estimates (for beta estimates between 0.75 and 1.25) compared to mechanistic market cost of equity (for beta of 1.0)**



Source: SFG analysis

74. The striking feature of this graph is that, with three exceptions, every one of the independent expert estimates of the required return on equity is higher than the mechanistic estimate. The three exceptions all have equity beta estimates between 0.75 and 0.80 – below the market beta of 1.0 – and all have cost of equity estimates that are only marginally below the mechanistic estimate of the market cost of equity.

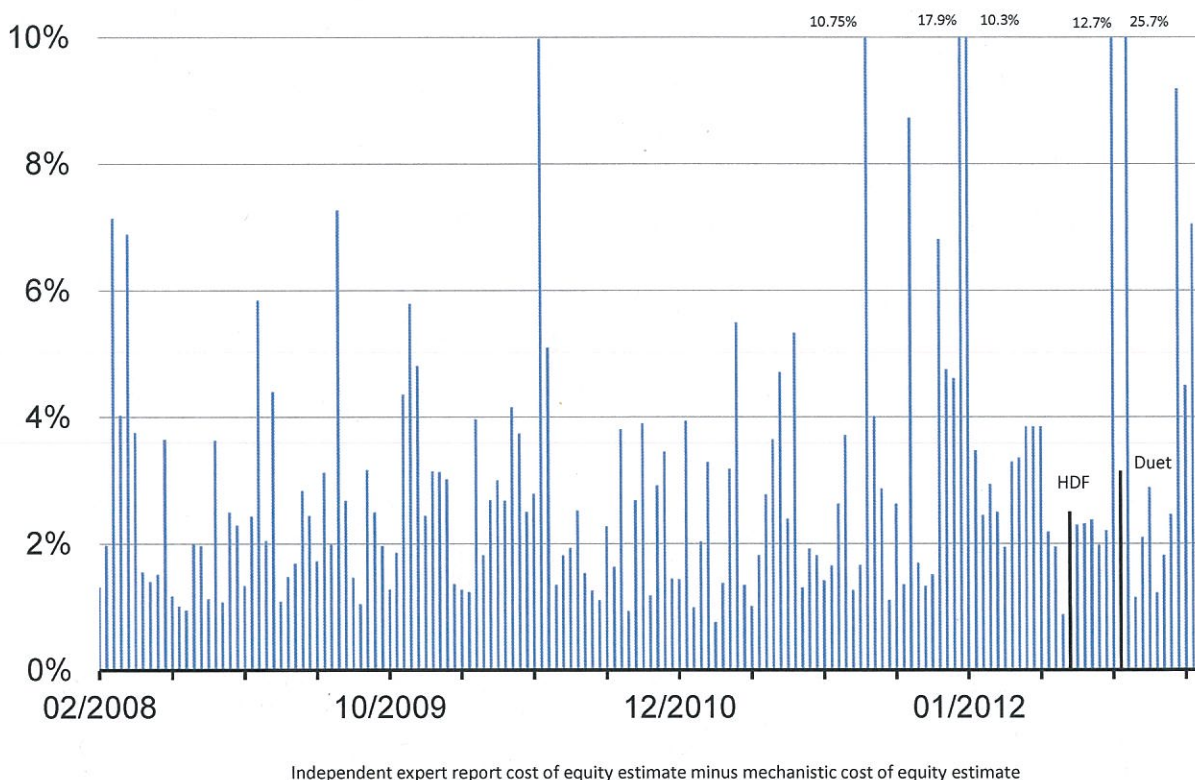
### Cost of equity capital

75. For each report in our sample we determine the overall cost of equity capital estimated by the independent expert. The average cost of equity capital calculated for the entire sample (2008-2013) is 14.4%, within a range of 9.3% to 35%.
76. We then compare (again net of any assumed value of imputation credits):
- a) The independent expert's estimate of the required return on equity for each firm; with
  - b) An estimate formed by inserting the following values into the Sharpe-Lintner CAPM:
    - i) Contemporaneous 10-year government bond yield for risk-free rate;
    - ii) 6% for market risk premium; and
    - iii) The equity beta estimate adopted by the independent expert.



77. The average estimate of the required return on equity from the former approach is 14.4%, and the average from the latter approach is 11.1%.
78. The pair-wise comparisons of the two estimates for each asset are set out in Figure 6 below, which shows that in every case the mechanistic estimate is below the figure that is adopted in the independent expert report. In that figure, the vertical scale is capped at 10% to show sufficient detail, but in a number of cases the difference is even greater than that. In almost every case, the difference is greater than 1% and the difference is greater than 2% in many cases.
79. The results for the 2012-13 period are particularly striking. In almost every case the difference between the two estimates exceeds 2% and the average differential is substantially higher than for the earlier period. The average differential for this period is 4.1% which is higher than the average of 2.9% for the earlier period
80. Highlighted in the graph are the differences between the expert estimate and the mechanistic estimate for the only two utilities companies in the data (Hastings Diversified Fund and the Duet Group) in the recent period sub-sample. Both show that the market-based assessment of the cost of equity is materially higher than the mechanistic approach would suggest. That is, the approach that the independent experts have taken in the Hastings and Duet cases has resulted in estimates of the required return on equity that are materially greater than the mechanistic approach would suggest – in line with all of the other expert reports in the sample.

**Figure 6**  
**Difference between expert report and adjusted mechanistic estimates of cost of equity**



Source: SFG analysis

**The term of the risk-free rate**

- 81. The overwhelming majority (94%) of expert assessments in the 2012/13 sample group employed a term assumption for the risk-free rate of ten years.
- 82. Several reports indicated that the use of a 10-year term assumption was standard practice amongst independent experts in Australia. For example, in its report to ING Real Estate Community Living Group, Deloitte stated that:

The 10-year bond rate is a widely used and accepted benchmark for the risk free rate in Australia.<sup>33</sup>

- 83. In its report for Hastings Diversified Utilities Fund, Grant Samuel noted that:

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<sup>33</sup> Deloitte (2012), *ING Real Estate Community Living Group – Independent expert’s report and Financial Services Guide*, 24 April 2012, p.93.



The ten year bond rate is a widely used and accepted benchmark for the risk free rate. Where the forecast period exceeds ten years, an issue arises as to the appropriate bond to use. While longer term bond rates are available, the ten year bond market is the deepest long term bond market in Australia and is a widely used and recognised benchmark. There is a limited market for bonds of more than ten years. In the United States, there are deeper markets for longer term bonds. The 30 year bond rate is a widely used benchmark. However, long term rates accentuate the distortions of the yield curve on cash flows in early years. In any event, a single long term bond rate matching the term of the cash flows is no more theoretically correct than using a ten year rate. More importantly, the ten year rate is the standard benchmark used in practice.<sup>34</sup>

84. In the 2012/13 sample group, two reports, both by BDO, assumed a term for the risk-free rate that was less than 10 years:

- a) In its report to Pluton Resources Ltd, BDO employed a term assumption of two years;<sup>35</sup> and
- b) In its report to Cortona Resources Ltd, BDO employed a term assumption of three years.<sup>36</sup>

85. In both instances, BDO chose the particular term assumption “[h]aving regard to the period of operations”. In other words, BDO selected the term of the risk-free rate to match the period over which cash was expected to flow from the asset being valued. For similar reasons, in its report to Genesis Resources Ltd, RSM Bird Cameron employed a 10-year term assumption:

We have used the 10 year bond rate as this is the period which most closely matches the timeframe over which the returns will be extracted from the Plavica Project.<sup>37</sup>

86. For the particular circumstances that BDO were faced with in respect of Pluton Resources Ltd and Cortona Resources Ltd, the economic rationale of matching the term of the discount rate to the term of the cash flows being valued led BDO to choose a term assumption that was less than 10 years. In a number of other valuation reports, BDO used a 10-year term assumption for long-lived assets.

87. In summary, the independent expert evidence supports the use of a ten year term to maturity when estimating the risk-free rate:

- a) 94% of the relevant reports adopted a 10-year term assumption; and
- b) The few reports that did not use a 10-year term assumption explained that the reason for not doing so was that they were adopting a term assumption that matched the lives of the assets being valued.

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<sup>34</sup> Grant Samuel (2012), *Hastings Diversified Utilities Fund – Independent Expert’s report*, 3 August 2012, p.4.

<sup>35</sup> BDO (2012), *Pluton Resources Ltd – Independent Expert’s Report*, 17 October 2012.

<sup>36</sup> BDO (2012), *Cortona Resources Ltd – Independent Expert’s Report*, 14 November 2012.

<sup>37</sup> RSM Bird Cameron (2012), *Genesis Resources Limited – Financial Services Guide and Independent Expert’s Report*, 13 June 2012, p.51.

## Gamma

88. For the entire sample over the period 2008 – 2013, we were unable to find any independent expert report that made any adjustment in relation to dividend imputation. No adjustments of any kind were made to any cash flows and no adjustments of any kind were made to any discount rates.
89. We identified nineteen independent expert reports in 2012/13 that made a specific reference to dividend imputation in relation to cost of capital. Every one of these reports concluded that no adjustment should be made to any cash flows or to any discount rates.
90. One of the reasons given for exclusion of the gamma parameter from the analysis was lack of convincing evidence on the utilisation rate of imputation credits by investors, and the value placed by investors in these credits. For example, in its reports for ING Real Estate Community Living Group and Gloucester Coal Ltd, Deloitte state that:

We have not adjusted the cost of capital or the projected cash flows for the impact of dividend imputation due to the diverse views as to the value of imputation credits and the appropriate method that should be employed to calculate this value. Determining the value of franking credits requires an understanding of shareholders' personal tax profiles to determine the ability of shareholders to use franking credits to offset personal income. Furthermore, the observed EMRP already includes the value that shareholders ascribe to franking credits in the market as a whole. In our view, the evidence relating to the value that the market ascribes to imputation credits is inconclusive.<sup>38</sup>

91. In its report to the Hastings Diversified Utility Funds, Grant Samuel considered that:

There is undoubtedly merit in the proposition that dividend imputation affects value. Over time dividend imputation will become factored into the determination of discount rates by corporations and investors. In Grant Samuel's view, however, the evidence gathered to date as to the value the market attributes to franking credits is insufficient to rely on for valuation purposes. More importantly, Grant Samuel does not believe that such adjustments are widely used by acquirers of assets at present. While acquirers are undoubtedly attracted by franking credits there is no clear evidence that they will actually pay extra for them or build it into values based on long term cash flows. The studies that measure the value attributed to franking credits are based on the immediate value of franking credits distributed and do not address the risk and other issues associated with the ability to utilise them over the longer term. Accordingly, it is Grant Samuel's opinion, that it is not appropriate to make any adjustment.<sup>39</sup>

92. We note that this is consistent with evidence that has been accumulated over the last decade or more. This evidence indicates that market professionals in practice do not adjust their cost of capital estimates for an assumed equilibrium value of imputation tax credits in any way.
93. Prior evidence also reports that the standard practice in independent expert valuation reports is to make no adjustment at all to either cash flows or discount rates to reflect any assumed value of

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<sup>38</sup> See, for example, Deloitte (2012), *Gloucester Coal Ltd Independent expert's report and Financial Services Guide*, April 2012, p.115.

<sup>39</sup> Grant Samuel (2012), *Hastings Diversified Utilities Fund – Independent Expert's report*, 3 August 2012, p.10.



imputation credits (Lonergan, 2001; KPMG, 2005). KPMG conclude that of the reports that adopt the CAPM for estimating the cost of equity:

...none made any adjustment for the value of imputation credits.<sup>40</sup>

94. They further conclude that:

... based on these results, KPMG considers that the standard market practice in relation to estimating the cost of capital in Australia, as evidenced by independent expert reports relating to takeovers, is to assume a zero value for imputation credits.<sup>41</sup>

95. Our results provide further evidence that this long-established standard market practice has not changed.

96. The established practice of the AER is to:

- a) Make an upward adjustment to its estimate of the required return on the market (and hence MRP) to include the assumed value of imputation credits. This is then used to provide an estimate of the required return on equity for the benchmark firm, inclusive of imputation credits; and then
- b) Make a downward adjustment to its estimate of the required return on equity for the benchmark firm to remove the assumed value of imputation credits. This results in an estimate of the required return on equity for the benchmark firm, exclusive of imputation credits.

97. By contrast, none of the independent expert valuation reports in the sample makes any adjustment for any assumed value of imputation credits:

- a) The independent expert estimates of the required return on the market (and consequently MRP) do not reflect any assumed value of imputation credits; and
- b) The independent experts make no adjustment to the required return on equity in relation to imputation credits.

98. That is, the practice of independent experts is to make no adjustment in relation to imputation credits to any step of the estimation process. The independent experts thus provide a direct estimate of the required return on equity for the relevant firm, exclusive of imputation credits.

99. To be consistent with the approach of independent experts, the AER would have to set gamma to zero in both steps of its approach in Paragraph 96 above. If the AER does not follow the practice of independent experts in this way, it should at least compare the market practice method of estimating the without imputation credit required return on equity (in Paragraph 97) above with its own estimate of the without imputation credit required return on equity (in Paragraph 96).

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<sup>40</sup> KPMG (2005).

<sup>41</sup> KPMG (2005).

### **Terms of reference and qualifications**

100. This report has been prepared by Professor Stephen Gray and Mr Damien Cannavan. We have made all the enquiries that we believe are desirable and appropriate and no matters of significance that we regard as relevant have, to our knowledge, been withheld. Copies of the curriculum vitae of each author are attached as Appendix C to this report.
101. Professor Gray and Mr Cannavan have been provided with a copy of the Federal Court of Australia's "Guidelines for Expert Witnesses in Proceeding in the Federal Court of Australia." The Report has been prepared in accordance with those Guidelines, which appear in the terms of reference that are attached as Appendix D to this report.



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Evidence on the required return on equity from independent expert reports

Lonergan & Edwards, 2012, Funding Agreement with Greatgroup – Independent Expert Report, 25 October.

PwC, 2012, Independent Expert's Report – Proposed Merger of Aston Resources Limited and Whitehaven Coal Limited, 6 March.

RMS Bird Cameron, 2012, MediVac Ltd – Financial Services Guide and Independent Experts Report, 12 October.



## Appendix A Method

102. For the purposes of this report we have followed Ernst & Young (2012) and have relied on the independent expert reports from the CONNECT 4 Expert Reports database. CONNECT 4 is a web-based system, operated and maintained by the Thomson Reuters company, which provides information on companies listed on the ASX.

103. As noted by Ernst & Young (2012):

The CONNECT 4 Expert Reports database contains specialist reports which have been produced on behalf of ASX Listed companies, dating back to 1992. The Expert Reports in this database deal with proposals including mergers/schemes, acquisitions, divestments, capital reductions, buybacks, reconstructions, de-mergers, takeovers, dual listings, spin-offs, and others.

CONNECT 4 specialises in providing information on companies listed on the ASX and, as advised by Thomson Reuters, makes the 'best efforts' to collect Expert Reports that were produced on behalf of ASX-listed companies. In cases where the relevant parties decided not to release the Expert Reports to public, the Reports might not be available in the CONNECT 4 databases.

104. We have updated the EY sample by examining all independent expert reports dated after 10 October 2012 and published in the CONNECT 4 Expert Reports database as at 26 April 2013. We find a total of 247 independent expert reports published over this period. Of these, 12 provide a detailed description of an estimation of the WACC for the purposes of discounting expected future cash flows. This relatively low proportion of reports is due to the large number of companies in the sample that are deemed to lack a reliable future cash flow stream for the purposes of discounted cash flow valuation.

105. In order to assess how experts are approaching the estimation of WACC at present, we have pooled together the 17 reports identified by EY as having been published in 2012 with the 12 expert reports published to date in 2013. This resulted in a sub-sample of 29 recent expert reports that set out in detail methodologies on WACC.

**Appendix B Reports Analysed**

Company Name	Independent Expert	Report Date
CMI Ltd	InterFinancial	20/02/2008
Anzon Energy Ltd	Deloitte	3/03/2008
Olympia Resources Ltd	BDO	26/03/2008
Austral Gold Ltd	InterFinancial	15/04/2008
CBD Energy Ltd	VMC Global	24/04/2008
DoloMatrix International Ltd	PKF	26/05/2008
Bemax Resources Ltd	Loneragan & Edwards	13/06/2008
Sydney Gas Ltd	Grant Thornton	23/06/2008
ARC Energy Ltd	Deloitte	30/06/2008
Macquarie Capital Alliance Group	Deloitte	16/07/2008
Anzon Australia Ltd	KPMG	5/09/2008
Origin Energy Ltd	Grant Samuel	15/09/2008
CMI Ltd	InterFinancial	17/09/2008
ERG Ltd	Ernst & Young	17/09/2008
Sunshine Gas Ltd	Deloitte	19/09/2008
Portman Ltd	KPMG	7/10/2008
Grange Resources Ltd	Loneragan & Edwards	28/10/2008
Mount Gibson Iron Ltd	KPMG	21/11/2008
Babcock & Brown Communities Group	Deloitte	28/11/2008
Australian Zircon NL	BDO	10/12/2008
Pacific Energy Ltd	BDO	16/12/2008
Gindalbie Metals Ltd	Deloitte	19/12/2008
Perilya Ltd	Ernst & Young	24/12/2008
Hutchison Telecommunications (Australia) Ltd	Loneragan & Edwards	26/02/2009
Macquarie Communications Infrastructure Group	Deloitte	29/04/2009
Gloucester Coal Ltd	PwC	18/05/2009
Consolidated Rutile Ltd	Ernst & Young	18/05/2009
Dioro Exploration NL	KPMG	27/05/2009
Olympia Resources Ltd	BDO	11/06/2009
Macquarie Leisure Trust Group	Loneragan & Edwards	25/06/2009
CBH Resources Ltd	Grant Thornton	31/07/2009
Macquarie Airports	KPMG	4/09/2009
CMI Ltd	InterFinancial	18/09/2009
Warwick Resources Ltd	BDO	25/09/2009
Felix Resources Ltd	Deloitte	30/09/2009
eBet Ltd	Grant Thornton	2/10/2009
WebSpy Ltd	BDO	9/10/2009
WestSide Corporation Ltd	Deloitte	20/10/2009
Fox Invest Ltd	BDO	1/11/2009
Lend Lease Primelife Group	Deloitte	2/11/2009
Macquarie Media Group	Ernst & Young	12/11/2009
Moly Mines Ltd	BDO	13/11/2009
United Minerals Corporation NL	Deloitte	19/11/2009
IOR Group Ltd	Deloitte	30/11/2009
Drummond Gold Ltd	InterFinancial	3/12/2009



## Evidence on the required return on equity from independent expert reports

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Company Name	Independent Expert	Report Date
Alinta Energy Group	Grant Samuel	12/01/2010
Dioro Exploration NL	KPMG	28/01/2010
CBH Resources Ltd	Grant Thornton	26/02/2010
Macarthur Coal Ltd	Lonergan & Edwards	26/02/2010
Gloucester Coal Ltd	Deloitte	3/03/2010
Victoria Petroleum NL	Deloitte	5/03/2010
Seven Network Ltd [The]	Deloitte	16/03/2010
CBH Resources Ltd	Grant Thornton	26/03/2010
KFM Diversified Infrastructure and Logistics Fund	Deloitte	29/03/2010
Entellect Solutions Ltd	RSM	30/03/2010
Consolidated Media Holdings Ltd	Deloitte	23/04/2010
CVC Property Fund	Haines Norton	14/05/2010
CBH Resources Ltd	Grant Thornton	17/05/2010
Arrow Energy Ltd	Deloitte	2/06/2010
Gloucester Coal Ltd	Deloitte	19/06/2010
Jupiter Mines Ltd	Ernst & Young	22/06/2010
Centennial Coal Company Ltd	Ernst & Young	16/08/2010
iiNet Ltd	Lonergan & Edwards	18/08/2010
Australian Power and Gas Company Ltd	Grant Thornton	19/08/2010
Healthscope Ltd	Grant Samuel	20/08/2010
Gloucester Coal Ltd	Deloitte	24/08/2010
Mosaic Oil NL	PwC	1/09/2010
Nullarbor Holdings Ltd	Hallchandwick	7/09/2010
Prime Infrastructure Group	Grant Samuel	24/09/2010
Mako Energy Ltd	RSM	8/10/2010
Intoll Group	Ernst & Young	14/10/2010
MAC Services Group Ltd [The]	Grant Samuel	9/11/2010
Copper Strike Ltd	RSM	11/11/2010
Northern Energy Corporation Ltd	Lonergan & Edwards	17/11/2010
Sigma Pharmaceuticals Ltd	Deloitte	3/12/2010
Dominion Mining Ltd	KPMG	9/12/2010
Engin Ltd	Lonergan & Edwards	20/12/2010
Alinta Energy Group	Grant Samuel	1/02/2011
ING Industrial Fund	Deloitte	10/02/2011
White Energy Company Ltd	Deloitte	22/02/2011
Tower Australia Group Ltd	Lonergan & Edwards	11/03/2011
RHG Ltd	Deloitte	16/03/2011
Rialto Energy Ltd	RSM	18/03/2011
Mintails Ltd	Hallchandwick	24/03/2011
Redflex Holdings Ltd	Lonergan & Edwards	31/03/2011
Spark Infrastructure Group	Lonergan & Edwards	13/04/2011
Gloucester Coal Ltd	Deloitte	1/05/2011
Copper Strike Ltd	RSM	13/05/2011
Engin Ltd	Lonergan & Edwards	1/06/2011
Cellestis Ltd	Deloitte	1/06/2011
Global Petroleum Ltd	BDO	28/06/2011

Evidence on the required return on equity from independent expert reports

Company Name	Independent Expert	Report Date
QMASTOR Ltd	BDO	1/07/2011
Centrebet International Ltd	Lonergan & Edwards	8/07/2011
Qube Logistics	Deloitte	11/07/2011
ConnectEast Group	Deloitte	22/08/2011
Telstra Corporation Ltd	Grant Samuel	31/08/2011
Mikoh Corporation Ltd	RSM	1/09/2011
Copper Strike Ltd	RSM	6/09/2011
Northern Energy Corporation Ltd	Deloitte	19/09/2011
Eastern Star Gas Ltd	Grant Samuel	22/09/2011
Centro Properties Group	Grant Samuel	5/10/2011
Bondi Mining Ltd	InterFinancial	7/10/2011
Oceania Capital Partners Ltd	Deloitte	10/10/2011
Coal & Allied Industries Ltd	Lonergan & Edwards	21/10/2011
Fosters Group Ltd	Grant Samuel	26/10/2011
Wentworth Holdings Ltd	Leadenhall	15/11/2011
Bow Energy Ltd	Grant Samuel	16/11/2011
Syngas Ltd	Grant Thornton	17/11/2011
Centro Retail Group	Grant Samuel	29/11/2011
AUSTAR United Communications Ltd	Grant Samuel	8/12/2011
Brockman Resources Ltd	Deloitte	14/12/2011
Living and Leisure Australia Group	Grant Thornton	20/12/2011
DoloMatrix International Ltd	Lonergan & Edwards	22/12/2011
Murchison Metals Ltd	KPMG	23/12/2011
My Net Fone Ltd	Leadenhall	23/12/2011
KIP McGrath Education Centres Ltd	Crowe Horwath	5/01/2012
oOhlmedia Group Ltd	Grant Thornton	20/01/2012
Aston Resources Ltd	PwC	6/03/2012
CMI Ltd	Lonergan & Edwards	29/03/2012
Ludowici Ltd	Grant Thornton	3/04/2012
ING Real Estate Community Living Group	Deloitte	24/04/2012
Gloucester Coal Ltd	Deloitte	26/04/2012
Nexbis Ltd	Grant Thornton	9/05/2012
Genesis Resources Ltd	RSM Bird Cameron Corporate	13/06/2012
Norton Gold Fields Ltd	Grant Thornton	13/07/2012
Spotless Group Ltd	Grant Samuel	15/06/2012
Hastings Diversified Utilities Fund	Grant Samuel	3/08/2012
Westgold Resources Ltd	BDO	16/08/2012
Arafura Resources Ltd	BDO	13/09/2012
Consolidated Media Holdings Ltd	KPMG	24/09/2012
Bremer Park Ltd	Moore Stephens	28/09/2012
Duet Group	Grant Samuel	3/10/2012
MediVac Ltd	RSM Bird Cameron Corporate	12/10/2012
Pluton Resources Ltd	BDO	17/10/2012
Focus Minerals Ltd	BDO	23/10/2012
Integra Mining Ltd	Ernst & Young	7/11/2012
Cortona Resources Ltd	BDO	14/11/2012
CGA Mining Ltd	BDO	5/11/2012
Australian Infrastructure Fund	Grant Samuel	7/12/2012
Wentworth Holdings Ltd	Leadenhall Australia Ltd	17/12/2012
Stanmore Coal Ltd	Lonergan & Edwards	25/10/2012
Macmahon Holdings Ltd	Ernst & Young	14/01/2013
Endocoal Ltd	Ernst & Young	25/01/2013
YTC Resources Ltd	BDO	5/02/2013

**Appendix C CVs**



## **Stephen F. Gray**

University of Queensland  
Business School  
Brisbane 4072  
AUSTRALIA  
Office: +61-7-3346 8032  
Email: s.gray@business.uq.edu.au

### **Academic Qualifications**

- 1995 Ph.D. (Finance), Graduate School of Business, Stanford University.  
Dissertation Title: Essays in Empirical Finance  
Committee Chairman: Ken Singleton
- 1989 LL.B. (Hons), Bachelor of Laws with Honours, University of Queensland.
- 1986 B.Com. (Hons), Bachelor of Commerce with Honours, University of Queensland.

### **Employment History**

- 2000-Present Professor of Finance, UQ Business School, University of Queensland.
- 1997-2000 Associate Professor of Finance, Department of Commerce, University of Queensland and Research Associate Professor of Finance, Fuqua School of Business, Duke University.
- 1994-1997 Assistant Professor of Finance, Fuqua School of Business, Duke University.
- 1990-1993 Research Assistant, Graduate School of Business, Stanford University.
- 1988-1990 Assistant Professor of Finance, Department of Commerce, University of Queensland.
- 1987 Specialist Tutor in Finance, Queensland University of Technology.
- 1986 Teaching Assistant in Finance, Department of Commerce, University of Queensland.

### **Academic Awards**

- 2006 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.
- 2002 Journal of Financial Economics, All-Star Paper Award, for Modeling the Conditional Distribution of Interest Rates as a Regime-Switching Process, JFE, 1996, 42, 27-62.
- 2002 Australian University Teaching Award – Business (a national award for all university instructors in all disciplines).
- 2000 University of Queensland Award for Excellence in Teaching (a University-wide award).
- 1999 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.
- 1999 KPMG Teaching Prize, Department of Commerce, University of Queensland.
- 1998 Faculty Teaching Prize (Business, Economics, and Law), University of Queensland.
- 1991 Jaedicke Fellow in Finance, Doctoral Program, Graduate School of Business, Stanford University.
- 1989 Touche Ross Teaching Prize, Department of Commerce, University of Queensland.
- 1986 University Medal in Commerce, University of Queensland.

### **Large Grants (over \$100, 000)**

- Australian Research Council Linkage Grant, 2008—2010, Managing Asymmetry Risk (\$320,000), with T. Brailsford, J.Alcock, and Tactical Global Management.
- Intelligent Grid Cluster, Distributed Energy – CSIRO Energy Transformed Flagship Collaboration Cluster Grant, 2008-2010 (\$552,000)
- Australian Research Council Research Infrastructure Block Grant, 2007—2008, Australian Financial Information Database (\$279,754).
- Australian Research Council Discovery Grant, 2006—2008, Capital Management in a Stochastic Earnings Environment (\$270,000).
- Australian Research Council Discovery Grant, 2005—2007, Australian Cost of Equity.
- Australian Research Council Discovery Grant, 2002—2004, Quantification Issues in Corporate Valuation, the Cost of Capital, and Optimal Capital Structure.

- Australian Research Council Strategic Partnership Grant, 1997—2000, Electricity Contracts and Securities in a Deregulated Market: Valuation and Risk Management for Market Participants.

### **Current Research Interests**

Benchmark returns and the cost of capital. Corporate Finance. Capital structure. Real and strategic options and corporate valuation. Financial and credit risk management. Empirical finance and asset pricing.

### **Publications**

- Faff, R., S. Gray and M. Poulsen, (2013), "Financial inflexibility and the value premium," *International Review of Finance*, forthcoming.
- Chen, E. T., S. Gray and J. Nowland, (2012), "Family representatives in family firms" *Corporate Governance: An International Review*, 21(3), 242-263.
- Gray, S. and J. Hall, (2012), "Unconstrained estimates of the equity risk premium" *Review of Accounting Studies*, forthcoming.
- Gray, S. and J. Nowland, (2012), "Is prior director experience valuable?" *Accounting and Finance*, forthcoming.
- Chan, K-F., R. Brooks, S. Treepongkaruna and S. Gray, (2012), "Do Trading Hours Affect Volatility Links in the Foreign Exchange Market?" *Australian Journal of Management*, forthcoming.
- Chen, E. T., S. Gray and J. Nowland, (2012), "Multiple founders and firm value" *Pacific Basin Finance Journal*, 20, 3, 398-415.
- Chan, K-F., R. Brooks, S. Treepongkaruna and S. Gray, (2011), "Asset market linkages: Evidence from financial, commodity and real estate assets," *Journal of Banking and Finance*, 35, 6, 1415-1426.
- Parmenter, B, A. Breckenridge, and S. Gray, (2010), 'Economic Analysis of the Government's Recent Mining Tax Proposals', *Economic Papers: A Journal of Economics and Policy*, 29(3), September, 279-91.
- Gray, S., C. Gaunt and Y. Wu, (2010), "A comparison of alternative bankruptcy prediction models," *Journal of Contemporary Accounting and Economics*, 6, 1, 34-45.
- Feuerherdt, C., S. Gray and J. Hall, (2010), "The Value of Imputation Tax Credits on Australian Hybrid Securities," *International Review of Finance*, 10, 3, 365-401.
- Gray, S., J. Hall, D. Klease and A. McCrystal, (2009), "Bias, stability and predictive ability in the measurement of systematic risk," *Accounting Research Journal*, 22, 3, 220-236.
- Treepongkaruna, S. and S. Gray, (2009), "Information volatility links in the foreign exchange market," *Accounting and Finance*, 49, 2, 385-405.
- Costello, D., S. Gray, and A. McCrystal, (2008), "The diversification benefits of Australian equities," *JASSA*, 2008, 4, 31-35.
- Gray, S. and J. Hall, (2008), "The Relationship Between Franking Credits and the Market Risk Premium: A Reply," *Accounting and Finance*, 48, 1, 133-142.
- Gray, S., A. Mirkovic and V. Ragunathan, (2006), "The Determinants of Credit Ratings: Australian Evidence," *Australian Journal of Management*, 31(2), 333-354.
- Choy, E., S. Gray and V. Ragunathan, (2006), "The Effect of Credit Rating Changes on Australian Stock Returns," *Accounting and Finance*, 46(5), 755-769.
- Gray, S. and J. Hall, (2006), "The Relationship Between Franking Credits and the Market Risk Premium," *Accounting and Finance*, 46(3), 405-428.
- Gray, S. and S. Treepongkaruna, (2006), "Are there non-linearities in short-term interest rates?" *Accounting and Finance*, 46(1), 149-167.
- Gray, P., S. Gray and T. Roche, (2005), "A Note on the Efficiency in Football Betting Markets: The Economic Significance of Trading Strategies," *Accounting and Finance*, 45(2) 269-281.

- Duffie, D., S. Gray and P. Hoang, (2004), "Volatility in Energy Prices. In V. Kaminski," (Ed.), *Managing Energy Price Risk: The New Challenges and Solutions* (3rd ed.). London: Risk Books.
- Cannavan, D., F. Finn and S. Gray, (2004), "The Value of Dividend Imputation Tax Credits in Australia," *Journal of Financial Economics*, 73, 167-197.
- Gray, S. and S. Treepongkaruna, (2003), "Valuing Interest Rate Derivatives Using a Monte-Carlo Approach," *Accounting and Finance*, 43(2), 231-259.
- Gray, S., T. Smith and R. Whaley, (2003), "Stock Splits: Implications for Investor Trading Costs," *Journal of Empirical Finance*, 10, 271-303.
- Gray, S. and S. Treepongkaruna, (2003), "On the Robustness of Short-term Interest Rate Models," *Accounting and Finance*, 43(1), 87-121.
- Gray, S. and S. Treepongkaruna, (2002), "How to Value Interest Rate Derivatives in a No-Arbitrage Setting," *Accounting Research Journal* (15), 1.
- Gray, P. and S. Gray, (2001), "A Framework for Valuing Derivative Securities," *Financial Markets Institutions & Instruments*, 10(5), 253-276.
- Gray, P. and S. Gray, (2001), "Option Pricing: A Synthesis of Alternate Approaches," *Accounting Research Journal*, 14(1), 75-83.
- Dahlquist, M. and S. Gray, (2000), "Regime-Switching and Interest Rates in the European Monetary System," *Journal of International Economics*, 50(2), 399-419.
- Bollen, N., S. Gray and R. Whaley, (2000), "Regime-Switching in Foreign Exchange Rates: Evidence from Currency Options," *Journal of Econometrics*, 94, 239-276.
- Duffie, D., S. Gray and P. Hoang, (1999), "Volatility in Energy Prices. In R. Jameson," (Ed.), *Managing Energy Price Risk* (2nd ed.). London: Risk Publications.
- Gray, S. and R. Whaley, (1999), "Reset Put Options: Valuation, Risk Characteristics, and an Example," *Australian Journal of Management*, 24(1), 1-21.
- Bekaert, G. and S. Gray, (1998), "Target Zones and Exchange Rates: An Empirical Investigation," *Journal of International Economics*, 45(1), 1-35.
- Gray, S. and R. Whaley, (1997), "Valuing S&P 500 Bear Market Warrants with a Periodic Reset," *Journal of Derivatives*, 5(1), 99-106.
- Gray, S. and P. Gray, (1997), "Testing Market Efficiency: Evidence from the NFL Sports Betting Market," *The Journal of Finance*, 52(4), 1725-1737.
- Gray, S. (1996), "Modeling the Conditional Distribution of Interest Rates as a Regime- Switching Process," *Journal of Financial Economics*, 42, 27-62.
- Gray, S. (1996), "Regime-Switching in Australian Interest Rates," *Accounting and Finance*, 36(1), 65-88.
- Brailsford, T., S. Easton, P. Gray and S. Gray, (1995), "The Efficiency of Australian Football Betting Markets," *Australian Journal of Management*, 20(2), 167-196.
- Duffie, D. and S. Gray, (1995), "Volatility in Energy Prices," In R. Jameson (Ed.), *Managing Energy Price Risk*, London: Risk Publications.
- Gray, S. and A. Lynch, (1990), "An Alternative Explanation of the January Anomaly," *Accounting Research Journal*, 3(1), 19-27.
- Gray, S. (1989), "Put Call Parity: An Extension of Boundary Conditions," *Australian Journal of Management*, 14(2), 151-170.
- Gray, S. (1988), "The Straddle and the Efficiency of the Australian Exchange Traded Options Market," *Accounting Research Journal*, 1(2), 15-27.

### **Teaching**

Fuqua School of Business, Duke University, Student Evaluations (0-7 scale):



- Financial Management (MBA Core): Average 6.5 over 7 years.
- Advanced Derivatives: Average 6.6 over 4 years.
- Empirical Issues in Asset Pricing: Ph.D. Class

1999, 2006 Outstanding Professor Award, Global Executive MBA, Fuqua School of Business, Duke University.

UQ Business School, University of Queensland, Student Evaluations (0-7 scale):

- Finance (MBA Core): Average 6.6 over 10 years.
- Corporate Finance Honours: Average 6.9 over 10 years.

2002 Australian University Teaching Award – Business (a national award for all university instructors in all disciplines).

2000 University of Queensland Award for Excellence in Teaching.

1999 Department of Commerce KPMG Teaching Prize, University of Queensland.

1998 Faculty Teaching Prize, Faculty of Business Economics and Law, University of Queensland.

1998 Commendation for Excellence in Teaching, University-wide Teaching Awards, University of Queensland.

1989 Touche Ross Teaching Prize, Department of Commerce, University of Queensland.

### **Board Positions**

2002 - Present: Director, Financial Management Association of Australia Ltd.

2003 - Present: Director, Moreton Bay Boys College Ltd. (Chairman since 2007).

2002 - 2007: External Risk Advisor to Board of Enertrade (Queensland Power Trading Corporation Ltd.)

### **Consulting**

Managing Director, Strategic Finance Group: [www.sfgconsulting.com.au](http://www.sfgconsulting.com.au).

Consulting interests and specialties, with recent examples, include:

- **Corporate finance**
  - ⇒ **Listed multi-business corporation:** Detailed financial modeling of each business unit, analysis of corporate strategy, estimation of effects of alternate strategies, development of capital allocation framework.
- **Capital management and optimal capital structure**
  - ⇒ **State-owned electricity generator:** Built detailed financial model to analyze effects of increased leverage on cost of capital, entity value, credit rating, and stability of dividends. Debt of \$500 million issued.
- **Cost of capital**
  - ⇒ **Cost of Capital in the Public Sector:** Provided advice to a government enterprise on how to estimate an appropriate cost of capital and benchmark return for Government-owned enterprises. Appearance as **expert witness** in legal proceedings that followed a regulatory determination.
  - ⇒ **Expert Witness:** Produced a written report and provided court testimony on issues relating to the cost of capital of a cable TV business.
  - ⇒ **Regulatory Cost of Capital:** Extensive work for regulators and regulated entities on all matters relating to estimation of weighted-average cost of capital.
- **Valuation**
  - ⇒ **Expert Witness:** Produced a written report and provided court testimony. The issue was whether, during a takeover offer, the shares of the bidding firm were affected by a liquidity premium due to its incorporation in the major stock market index.
  - ⇒ **Expert Witness:** Produced a written report and provided court testimony in relation to valuation issues involving an integrated mine and refinery.

- **Capital Raising**
  - ⇒ Produced comprehensive valuation models in the context of capital raisings for a range of businesses in a range of industries including manufacturing, film production, and biotechnology.
- **Asset pricing and empirical finance**
  - ⇒ **Expert Witness:** Produced a written report on whether the client's arbitrage-driven trading strategy caused undue movements in the prices of certain shares.
- **Application of econometric techniques to applied problems in finance**
  - ⇒ **Debt Structure Review:** Provided advice to a large City Council on restructuring their debt portfolio. The issues involved optimisation of a range of performance measures for each business unit in the Council while simultaneously minimizing the volatility of the Council's equity in each business unit.
  - ⇒ **Superannuation Fund Performance Benchmarking:** Conducted an analysis of the techniques used by a large superannuation fund to benchmark its performance against competing funds.
- **Valuation of derivative securities**
  - ⇒ **Stochastic Volatility Models in Interest Rate Futures Markets:** Estimated and implemented a number of models designed to predict volatility in interest rate futures markets.
- **Application of option-pricing techniques to real project evaluation**
  - ⇒ **Real Option Valuation:** Developed a framework for valuing an option on a large office building. Acted as arbitrator between the various parties involved and reached a consensus valuation.
  - ⇒ **Real Option Valuation:** Used real options framework in the valuation of a bio-tech company in the context of an M&A transaction.

# Damien Cannavan

PO Box 29 South Bank 4101 • (07) 3844 0684 • d.cannavan@sfgconsulting.com.au

## Professional Experience

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2008 – Present:

### Financial Consultant

SFG Consulting

Brisbane, Australia

- Provided corporate finance, valuation and modeling advice and conducted empirical research for corporate clients
- Provided in-house advice for the Australian Energy Market Commission
- Authored Comprehensive 166-page Report on the Investment Performance of Private Equity and Absolute Return Investments
- Research findings used in important cost-of-capital decisions in regulatory settings

2006 – 2007:

### Investment Bank Executive

Macquarie Securities (USA) Inc

New York, USA

- Advised Macquarie Bank, Macquarie Funds, third party Private Equity and Hedge Fund clients on \$2 Billion of acquisitions in the utilities, telecommunications and entertainment sectors
- Identified appropriate valuable investment opportunities for clients
- Analyzed target companies by creating valuation models and performing extensive research
- Managed Due Diligence processes including responsibility for engaging expert third party advisers
- Negotiated purchase agreements, debt financing and outside equity financing
- Conducted meetings and presentations with large company Boards of Directors

2000 – 2003:

### Financial Consultant

SFG Consulting

Brisbane, Australia

- Provided corporate finance, valuation and modelling advice and conducted empirical research for corporate clients
- Advised large Corporations and Government on cost-of-capital and capital structure issues
- Created Valuation and Capital Structure Models
- Negotiated and Implemented Capitalization Restructurings
- Research findings used in important cost-of-capital decisions in regulatory settings
- Transactions included a combined \$1 Billion debt issue for three Electricity Generators



1999 – 2000:

**Associate Analyst**

*Wilson HTM Investment Group*

*Brisbane, Australia*

- Analyzed equities outside of current sell-side coverage. Reported analyses and recommendations to the Director of Industrial Research for use in portfolio management and coverage-initiation decisions
- Developed and Marketed Research Publications

**Education**

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2008 – 2013:

**Doctor of Philosophy**

*University of Queensland Business School*

*Brisbane, Australia*

- Doctoral thesis topic: Market valuation of dividend imputation tax credits  
Supervisor: Professor Stephen Gray

2003 – 2006:

**Master of Arts (Finance)**

*The Fuqua School of Business at Duke University*

*Durham, USA*

- PhD level coursework includes: Asset Pricing, Corporate Finance, Econometrics, Statistics, Advanced Microeconomics, Advanced Macroeconomics
- Awarded Graduate School Scholarship

1995 – 2003:

**Bachelor of Laws**

*TC Beirne School of Law at the University of Queensland*

*Brisbane, Australia*

1995 – 1999:

**Bachelor of Commerce with First Class Honours**

*University of Queensland Business School*

*Brisbane, Australia*

**Academic Experience**

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2013:

**Teaching Fellow**

*Harvard Law School at Harvard University*

*Cambridge, MA, USA*

- Instructed students in Corporate Finance

2012-13:

**Visiting Scholar**

*Harvard Law School at Harvard University*

*Cambridge, MA, USA*

- Fellow of Program on Corporate Governance

2000 – 2003:

**Associate Lecturer**

University of Queensland Business School

Brisbane, Australia

- Lectured MBA and Undergraduate students in Investments, Corporate Finance and Financial Accounting
- Presented Research at International Finance and Banking Conferences
- Developed Finance Modules for the Institute of Chartered Accountants CA Program

1998 – 1999:

**Accounting and Finance Tutor**

University of Queensland Business School

Brisbane, Australia

- Presented tutorials for MBA and Undergraduate students in Financial Accounting and Finance

**Conference Presentations**

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14<sup>th</sup> Australasian Banking and Finance Conference, Sydney, Australia, December 2001;  
AAANZ Conference, Hamilton Island, Australia, July 2000

**Publications**

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Cannavan, D., Finn, F., Gray, S., 2004. The value of dividend imputation tax credits in Australia. *Journal of Financial Economics* 73, 167–197.

**Referees**

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Professor Stephen Gray  
University of Queensland Business School  
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Fax: (07) 3346 8166  
s.gray@business.uq.edu.au

Professor Philip Gray  
Department of Accounting and Finance, Monash University  
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Fax: (03) 9903 2422  
Philip.Gray@monash.edu

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**Appendix D    Terms of reference**



## TERMS OF REFERENCE – DATA COLLECTION OF INPUT PARAMETERS FOR THE COST OF CAPITAL

### Background

The Australian Energy Regulator (AER) is developing *Rate of Return Guidelines* that will form the basis of the regulated rate of return applied in energy network decisions. The AER published an issues paper in late December 2012 and a formal consultation paper in early May 2013 under the recently revised National Electricity Rules (NER) and National Gas Rules (NGR).

The AER undertook its last review of the weighted average cost of capital (WACC) in 2009 (under a previous version of the NER). The Energy Networks Association (ENA) established a Cost of Capital Subgroup (CoCS) and working groups – including, for instance, the overall WACC work stream – to actively engage in the *Rate of Return Guidelines* process.

The new NER and NGR require the AER, when determining the cost of capital, to consider:

- Relevant estimation methods, financial models, market data and other evidence for determining the rate of return<sup>1</sup>;
- Any interrelationships between financial parameters that are relevant to both the returns on equity on debt; and
- The prevailing conditions in the market for equity funds (when determining the cost of equity).

The first of these requirements places greater weight on market data and other evidence than under the previous NER and NGR. Independent expert reports are one source of evidence that could help improve industry understanding of how market practitioners estimate the costs of equity and debt for regulated and non-regulated network businesses.

As further detailed below, the ENA would like to engage you to provide your opinion on raw data from Australian independent expert reports contained within the Thomson Reuters Connect 4 database from January 2008 to March 2013 (and if appropriate, to extend the analysis to earlier years) including your findings on estimating the cost of capital under the new NER and NGR within the scope of the *allowed rate of return objective*:<sup>2</sup>

*“[t]he rate of return for a [Service Provider] is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applied to the [Service Provider] in respect of the provision of [services].”*

### Scope of work

The ENA requests your opinion on the use of Australian independent expert reports to estimate the cost of capital for energy regulatory purposes covering the following points:

- The approach that independent experts take to estimating the required return on equity;
- The usefulness of evidence from independent expert reports;
- The values that independent experts use for the required return on the market / average firm, and to contrast those values with estimates from a mechanistic implementation of the

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<sup>1</sup> NER 6.5.2 (e)(1) and 6A.6.2(e)(1) and NGR 87(5)(a).

<sup>2</sup> NER 6.5.2(c), 6A.6.2(c) and NGR 87 (3).

Capital Asset Pricing Model (where the required return on the market is set to the contemporaneous 10-year government bond yield plus 6%);

- The values that independent experts use for the required return on the asset being valued and to contrast those values with estimates from a mechanistic implementation of the CAPM (as above);
- The term of the risk-free rate of interest that is used by independent experts; and
- The extent to which independent experts make adjustments in relation to dividend imputation tax credits.

The analysis should consider qualitative and quantitative aspects of the data including statistical certainties, weaknesses and strengths with the findings. The analysis should also consider differences in treatment between regulated and non-regulated network businesses.

The consultant must:

- Provide an opinion on how this information can be used for the assessment of the overall rate of return and for specific work streams within the ENA's CoCS;
- If relevant, ensure consistency with other estimates of the cost of debt/equity developed using other models by the ENA; and
- Consider any comments raised by the AER and other regulators about the applicability and reliability of expert reports.

The ENA requests the consultant to provide a report which must:

- Attach these terms of reference and the qualifications (in the form of CV(s) of the person(s) preparing the report;
- Identify any current or potential future conflicts of interest;
- Comprehensively set out the bases for any conclusions made;
- Only rely on information or data that is fully referenced and could be made reasonably available to the AER or others;
- Document the methods, data, adjustments, equations, statistical package specifications/printouts and assumptions used in preparing your opinion;<sup>3</sup>
- Include specified wording at the beginning of the report stating that “[the person(s)] acknowledge(s) that [the person(s)] has read, understood and complied with the Federal Court of Australia’s Practice Note CM 7, Expert Witnesses in Proceedings in the Federal Court of Australia” as if your brief was in the context of litigation;
- Include specified wording at the end of the report to declare that “[the person(s)] has made all the inquiries that [the person(s)] believes are desirable and appropriate and that no matters of significance that [the person(s)] regards as relevant have, to [the person(s)] knowledge, been withheld”; and
- State that the person(s) have been provided with a copy of the Federal Court of Australia’s “Guidelines for Expert Witnesses in Proceeding in the Federal Court of Australia” and that the Report has been prepared in accordance with those Guidelines, refer to Annexure A to these Terms of Reference or alternatively online at <http://www.federalcourt.gov.au/law-and-practice/practice-documents/practice-notes/cm7>.

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<sup>3</sup> Note: this requires you to reveal information that you might otherwise regard as proprietary or confidential and if this causes you commercial concern, please consult us on a legal framework which can be put in place to protect your proprietary material while enabling your work to be adequately transparent and replicable.

## **Timeframe**

The following timeframe provides a guide in relation to what work is expected to be undertaken:

- The consultant should provide a draft report by 7 June 2013, which will be circulated to the CoCS for comment;
- Make amendments following feedback including addressing potential issues raised by the AER in its Consultation Paper; and
- Deliver a final report by 25 June 2013.

## **Fees**

The consultant is requested to propose:

- A fixed total cost of the project and hourly rates for the proposed project team should additional work be required;
- The staff who will provide the strategic analysis and opinion;
- Declare the absence of any relevant conflict of interest in undertaking the project; and
- Indicate preparedness to enter into a confidentiality agreement regarding research and findings.

Any changes to the scope of the consultancy must be agreed with the ENA before the quotation is submitted. Miscellaneous costs such as travel and accommodation will be reimbursed, provided that they are agreed with the ENA beforehand.

## **Contact**

Any questions regarding this terms of reference should be directed to:

Nick Taylor (**Jones Day**)

Email: [njtaylor@jonesday.com](mailto:njtaylor@jonesday.com)

Phone: 02 8272 0500.



## Annexure A

### FEDERAL COURT OF AUSTRALIA *Practice Note CM 7* EXPERT WITNESSES IN PROCEEDINGS IN THE FEDERAL COURT OF AUSTRALIA

1. Rule 23.12 of the Federal Court Rules 2011 requires a party to give a copy of the following guidelines to any witness they propose to retain for the purpose of preparing a report or giving evidence in a proceeding as to an opinion held by the witness that is wholly or substantially based on the specialised knowledge of the witness (see **Part 3.3 - Opinion** of the *Evidence Act 1995* (Cth)).
2. The guidelines are not intended to address all aspects of an expert witness's duties, but are intended to facilitate the admission of opinion evidence<sup>2</sup>, and to assist experts to understand in general terms what the Court expects of them. Additionally, it is hoped that the guidelines will assist individual expert witnesses to avoid the criticism that is sometimes made (whether rightly or wrongly) that expert witnesses lack objectivity, or have coloured their evidence in favour of the party calling them.

#### Guidelines

##### **1. General Duty to the Court<sup>3</sup>**

- 1.1 An expert witness has an overriding duty to assist the Court on matters relevant to the expert's area of expertise.
- 1.2 An expert witness is not an advocate for a party even when giving testimony that is necessarily evaluative rather than inferential.
- 1.3 An expert witness's paramount duty is to the Court and not to the person retaining the expert.

##### **2. The Form of the Expert's Report<sup>4</sup>**

- 2.1 An expert's written report must comply with Rule 23.13 and therefore must
  - (a) be signed by the expert who prepared the report; and
  - (b) contain an acknowledgement at the beginning of the report that the expert has read, understood and complied with the Practice Note; and
  - (c) contain particulars of the training, study or experience by which the expert has acquired specialised knowledge; and
  - (d) identify the questions that the expert was asked to address; and
  - (e) set out separately each of the factual findings or assumptions on which the expert's opinion is based; and

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<sup>2</sup> As to the distinction between expert opinion evidence and expert assistance see *Evans Deakin Pty Ltd v Sebel Furniture Ltd* [2003] FCA 171 per Allsop J at [676].

<sup>3</sup>The "*Ikarian Reefer*" (1993) 20 FSR 563 at 565-566.

<sup>4</sup> Rule 23.13.

- (f) set out separately from the factual findings or assumptions each of the expert's opinions; and
  - (g) set out the reasons for each of the expert's opinions; and
  - (h) comply with the Practice Note.
- 2.2 The expert must also state that each of the expert's opinions is wholly or substantially based upon the expert's specialised knowledge<sup>5</sup>.
- 2.3 At the end of the report the expert should declare that "[the expert] has *made all the inquiries that [the expert] believes are desirable and appropriate and that no matters of significance that [the expert] regards as relevant have, to [the expert's] knowledge, been withheld from the Court.*"
- 2.4 There should be included in or attached to the report the documents and other materials that the expert has been instructed to consider.
- 2.5 If, after exchange of reports or at any other stage, an expert witness changes the expert's opinion, having read another expert's report or for any other reason, the change should be communicated as soon as practicable (through the party's lawyers) to each party to whom the expert witness's report has been provided and, when appropriate, to the Court<sup>6</sup>.
- 2.6 If an expert's opinion is not fully researched because the expert considers that insufficient data are available, or for any other reason, this must be stated with an indication that the opinion is no more than a provisional one. Where an expert witness who has prepared a report believes that it may be incomplete or inaccurate without some qualification, that qualification must be stated in the report.
- 2.7 The expert should make it clear if a particular question or issue falls outside the relevant field of expertise.
- 2.8 Where an expert's report refers to photographs, plans, calculations, analyses, measurements, survey reports or other extrinsic matter, these must be provided to the opposite party at the same time as the exchange of reports<sup>7</sup>.
- 3. Experts' Conference**
- 3.1 If experts retained by the parties meet at the direction of the Court, it would be improper for an expert to be given, or to accept, instructions not to reach agreement. If, at a meeting directed by the Court, the experts cannot reach agreement about matters of expert opinion, they should specify their reasons for being unable to do so.

PA KEANE  
Chief Justice  
1 August 2011

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<sup>5</sup> *Dasreef Pty Limited v Navaf Hawchar* [2011] HCA 21.

<sup>6</sup> The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565

<sup>7</sup> The "*Ikarian Reefer*" [1993] 20 FSR 563 at 565-566. See also Ormrod "*Scientific Evidence in Court*" [1968] Crim LR 240