Debt and equity raising costs

A response to the AER 2008 draft decisions for electricity distribution and transmission

January 2009

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Key findings

The key findings of this report are as follows:

i. The recommendations from our previous April 2008 reports remain unchanged. Specifically:

   a. Based on robust estimates of the cost of raising equity in underwritten public issues, the cost of raising equity through an SEO should be set at 7.6% of the amount of equity to be raised;

   b. Based on robust evidence of the cost of raising debt through underwritten public issues should be set at 15.5bppa of the amount of debt to be raised

ii. We agree with the AER's view that option values are relevant to an assessment of the costs of raising equity. However, we regard this as testament to the need to include indirect costs (as estimated by CEG and embedded in the 7.6% recommended figure);

iii. We find that the other reasons provided by the AER for not accepting CEG's estimate of equity raising costs are not well founded. Specifically

   a. our recommendations are consistent with the CAPM and, in any event, the logic of the AER's view of consistency with the CAPM would require the disallowance all 'transaction costs'; and

   b. public placements of equity are the preferred way for firms to raise equity and should be used as the benchmark cost of raising equity. In any event, irrespective of the relative popularity of rights issues, the possibility of using a rights issue to avoid underpricing costs provides no basis for presuming zero indirect costs of raising equity.

iv. We find that the reasons provided by the AER for not accepting CEG's estimate of debt raising costs are similarly not well founded. Specifically:

   a. the NER requires that interest costs be estimated from public debt issues. It follows that the cost of raising debt should be related to the cost of issuing public debt - not private debt which has higher interest costs than public debt.

   b. Our estimate of the cost of raising debt is justified purely by the observed direct costs of public debt issues. This makes it superior to the AER's estimate based on private debt issues. Moreover, the basis for

the AER's use of private debt issue costs is a paper by Livingston and Zhou that estimated private and public debt raising costs to be similar. However, that same paper estimated the underwriting cost of public issues of senior 10 year debt by a utility with AAA rating to be 8.8bppa (9.6bppa for BBB rated debt). This is a direct estimate of the cost of underwriting and is to be preferred to the AER's indirect estimate of 6.1bppa.

c. Our recommendation of 15.5bppa is supported on the basis of direct costs alone. In addition, we consider that the AER is incorrect to assume zero indirect costs.

v. We also add to our previous recommendations in that we:

a. Recommend a change in the AER's cash flow modelling to:

i. ensure consistency with the NER specified gearing assumption; and

ii. link any dividend policy to economic profit rather than accounting profit.

b. Recommend that the AER does not treat retained earnings as coming at a zero cost to regulated businesses. In our view this is inconsistent with economic theory and finance empirical observation to assume that the cost of retained earnings jumps from zero immediately prior to an SEO becoming optimal to above the cost of the SEO at the point at wich an SEO becomes optimal.

1. Introduction and key findings

1.1. Terms of reference

1. The NSW, Tasmanian businesses[1] all relied on substantively the same report from the Competition Economists Group (CEG) when estimating debt and equity raising costs. The Australian Energy Regulator (AER) has since commented on these costs in separate draft decisions. The same businesses have engaged CEG to advise them on the AER's response. We have been provided with a copy of the Federal Court guidelines "Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia" dated 5 May 2008. We have reviewed those guidelines and our report has been prepared consistently with the form of expert evidence required by those guidelines. In preparing this report, we have made all the inquiries that we believe are desirable and appropriate and no matters of significance that we regard as relevant have, to our knowledge, been withheld.

2. For the purpose of this report we refer back to Integral Energy's specific position as a means of concretely illustrating particular issues. We also refer to AER's Draft Determination for NSW distribution businesses. However, the logic in this report applies with equal force to the other distribution businesses and the reasoning provided by the AER in its Draft Determination for the transmission businesses (eg, TransGrid, Transend and ActewAGL).

3. This report has been prepared by Dr Tom Hird, a Director of CEG and based in its Melbourne office.

1.2. Structure of report

4. The remaining structure of this report is as follows:

   - Section 2 addresses the AER's consideration of equity raising costs;
   - Section 3 addresses the AER's consideration of how to estimate the amount of equity to be raised externally;
   - Section 4 discusses the need to attribute a cost to retained earnings; and
   - Section 5 addresses the AER's consideration of debt raising costs.

[1], Country Energy, Energy Australia, Transend, TransGrid, Integral Energy.

2. Equity raising costs

2.1. AER decision

1. The AER primarily addresses CEG's advice on equity raising costs under the heading Indirect Cost of raising Equity beginning on page 190 of the draft decision. In the first paragraph and two dot points of the draft decision, the AER:

   - Agrees that underpricing of seasoned equity issues 'can occur'; and
   - States its opinion that no compensation is required for this underpricing because an efficient benchmark network service provider should be able to raise capital without incurring underpricing costs. The basis for this conclusion is not provided in this paragraph but follows in later paragraphs.

2. The AER provides three reasons for why underpricing costs need not be incurred by an efficient benchmark network service provider, namely:

   - That firms can raise equity through a rights issue to existing shareholders and in rights issues all underpricing accrues to existing shareholders and is therefore costless (see first paragraph on page 191 of the NSW electricity distribution decision).
   - That an allowance for underpricing is inconsistent with the requirement of the National Electricity Rules (NER) to apply the capital asset pricing model (CAPM) (see second paragraph on page 191 of the NSW electricity distribution decision). The logical basis for this claim is that:
     - the awarded weighted average costs of capital (WACC) already includes 'full compensation for all investor risk that requires compensation under the CAPM';
     - underpricing is an 'extra form of compensation for risk for new investors' above and beyond the 'awarded WACC'; and
     - that therefore: "*…further compensation is unnecessary and inconsistent with the assumptions of the benchmark regulatory framework, and the use of the CAPM. Importantly, the CAPM (a requirement of the NER) assumes all investors have the same required return. This also implies that there should be no allowance for underpricing for new investment*."
   - That proper recognition of CEG's arguments does require an adjustment to direct costs of underwriting but this is in the opposite direction. Specifically, that an adjustment is required to remove the value of the 'put option'

embedded in underwriting fees (see third and fourth paragraphs on page 191 of the NSW electricity distribution decision where it states "*[t]herefore if anything, CEG's argument appears to support the proposition that the current estimate of direct equity issuance costs should be reduced by the fair value of the option component of the underwriting fee.*"

3. We respond to each of these reasons, for convenience, in reverse order.

2.2. Adjusting underwriting fees for 'the fair value of the option component'

4. We agree with AER when they state:

> "*Therefore if anything, CEG's argument appears to support the proposition that the current estimate of direct equity issuance costs should be reduced by* ***the fair value of the option component of the underwriting fee****." [Emphasis added]*

5. In fact, this logic demonstrates the need to include underpricing and overpricing costs in the cost of raising equity. This can best be demonstrated with a simple example. Imagine a scenario where:

   - a company has shares trading at $1 per share but needs to raise $100 of new equity;
   - the company agrees to pay an underwriter $60 for a firm commitment to market 100 shares at $1.50 each and, if unsuccessful, to buy those shares from the company itself at a price of $1.50.

6. In this example it is obvious that the majority of the $60 fee paid to the underwriter reflects the fact that an unrealistically high price has been set on the equity raising. The underwriter will know that they will not be able to sell the shares (worth $1) to third parties at the agreed price of $1.50. Consequently, the underwriter will fully expect to be left with $100 worth of shares for which it has to pay $150 ($1.50 per share for 100 shares). As a result, it will demand the expected cost of this deficit ($50) in the underwriting fee – leaving only $10 in expected net revenue from the transaction.

7. Similarly, the company issuing the shares pays out $60 in cash to the underwriter but only has to provide $100 worth of shares in return for $150 in cash from the underwriter. The net cost to the company is only $10 ($60 in underwriting fees plus $50 ($150-$100) in over-pricing).

8. In the terminology of the AER the company has paid $60 to the underwriter but it receives back a 'put option' worth $50 – being the right to sell the underwriter $100 worth of shares for $150. Thus, the net cost of the transaction to the

company is only $10. The value of this put option is, of course, the amount of overpricing in the original contract with the underwriter.

9. This example precisely demonstrates why the value of over-pricing must be removed from the underwriting fee to accurately estimate the cost of raising equity. This is exactly as the AER says it should be. However, underpricing is just negative over-pricing and the same logic demonstrates why the value of underpricing must be added to the underwriting fee to accurately estimate the cost of equity.

10. This conclusion is sufficiently important to warrant a reworking of the above example. Instead of assuming the company and the underwriter agree a firm price of $1.50 imagine that they agreed a firm price of $0.95. In which case, the expected benefit of underpricing to the underwriter would be $5, that is, it would receive $100 worth of shares but only have to pay $95. In order to get the same net revenue of $10 now the underwriter would have to charge $5 in underwriting fees (that is, it receives $5 in direct fees plus $5 in indirect underpricing fees).

11. From the perspective of the company, the cost of raising the equity is still $10 except now it is comprised of a lower direct cost ($5 in fees instead of $60 in fees) and a higher indirect cost ($5 underpricing cost instead of $50 overpricing).

12. In the terminology of the AER the company has paid $5 to the underwriter but it has simultaneously provided a 'call option' worth $5 – being the right for the underwriter (or their clients) to buy $100 worth of shares for $95. Thus, the net cost of the transaction to the company is, once more, $10.

13. The problem with the position as expressed in the draft decision is that it :

    - correctly recognises that an underwriting contract results in the firm issuing equity receiving a valuable put option. This put option is the ability to sell the equity to the underwriter at a specified price even if the market value of the equity is lower than that price. That is, the put option creates the potential for the issuing firm to benefit from overpricing; but

    - fails to appreciate that fixing a fee with an underwriter also results in the firm issuing equity providing a costly 'call option' to the underwriter (or its clients). This call option is the ability of the underwriter (or its clients) to pay the fixed price for the equity even if the market price is above the fixed price. That is, the call option creates the potential for the issuing firm to lose as a result of underpricing.

14. It is perfectly correct and consistent with the finance literature cited in our previous reports for the AER to argue that '... *the current estimate of direct equity*

issuance costs should be reduced by ***the fair value of the option component of the underwriting fee'***.

15. However, the fair value of the option component is equal to the sum of the value of the put *and* call options. If the price is set such that underpricing is more likely than overpricing then 'the fair value of the option component of the underwriting fee' will be negative (ie, the call option will cost the firm more than the put option is worth). In which case, this amount will need to be added to the direct underwriting fees in order to estimate the total cost of raising equity.

16. Thus, when collecting data on actual equity raising costs in capital markets it is vital that:

    - the value of any overpricing in equity issues is removed from the direct underwriting costs; and

    - the value of underpricing in equity issues is added to the direct underwriting costs.

17. Of course, this is precisely what is done in the finance literature which, as noted in our April 2008 reports[2] includes under/overpricing in its calculation of the total costs of equity raising. As noted in those reports, underpricing is the norm and, on average across all issues, is material (between 2.5% and 6.5% depending on the study).[3]

18. Finally, it should be noted that in a non-firm ('best efforts') underwriting contract the underwriter does not commit to buy the equity at the agreed price but does retain the right to sell the equity at that price if it can find buyers. Thus, there is no put option retained by the issuing firm but there is still a 'call option' that can be exercised by the underwriter (or its clients). In this type of underwriting contract overpricing is impossible and '*the fair value of the option component of the underwriting fee*' must be zero or less.

[2] Eg, see section 3 of CEG, *Nominal risk free rate, debt risk premium and debt and equity raising costs for Integral Energy*, April 2008.

[3] Ibid, paragraph 77 and Table 1 at paragraph 81.

Key finding

The AER is correct to argue that options provided and received by firms when contracting with underwriters are relevant to assessing the cost of raising equity.

Further, these options are known in the finance literature as the indirect costs of under/over pricing.

The finance literature is clear that *the fair value of the option component* of the underwriting contracts is almost always *negative* (ie a cost). This cost needs to be included in any estimate of the costs of raising equity.

2.3. Inconsistency with the CAPM

19. The AER's also argues that an allowance for underpricing is inconsistent with the requirement of the NER to apply the capital asset pricing model (CAPM) (see second paragraph on page 191 of the NSW electricity distribution decision). The logical basis for this claim is that:

    - the awarded WACC already includes 'full compensation for all investor risk that requires compensation under the CAPM';
    - underpricing is an 'extra form of extra compensation for new investors' above and beyond the 'awarded WACC'; and
    - that therefore: *"…further compensation is unnecessary and inconsistent with the assumptions of the benchmark regulatory framework, and the use of the CAPM. Importantly, the CAPM (a requirement of the NER) assumes all investors have the same required return. This also implies that there should be no allowance for underpricing for new investment*." (page 191 of the NSW distribution draft decision)

20. Implicitly the AER is arguing that:

    - the CAPM assumes that all investors have homogenous expectations (ie, they all agree on the cost of equity); and
    - in such a world there would be no underpricing because all investors would agree on the value of equity and an unlimited amount of equity could be raised at prevailing market prices (without the need to underprice); and

- consequently, it is appropriate to assume in the 'real world' context of the regulatory decision that there would be no underpricing.

21. In our view it is inappropriate to argue that the stylised assumptions underlying the CAPM must be adopted in all aspects of the regulatory decision making process – even if they are known to be false.

22. Interestingly, this is precisely the basis of a Telstra appeal to the Federal Court of an ACCC decision earlier this year.[4] Dr Hird from CEG gave expert testimony to the Federal Court of Australia arguing that the ACCC did not make an error when adopting 'real world' assumptions even if those assumptions differed from the highly stylised assumptions underpinning the CAPM (namely that all investors had homogenous expectations (ie, agreed) about the cost of equity for a given firm).

23. Dr Hird argued that these assumptions were never intended to be realistic (as is the case with all economic models). Further, any attempt to regulate in a manner that 'assumed' that these assumptions were strictly true would lead to farcical results (as described below) and be bound to lead to serious error. In summary, Dr Hird argued one could adopt the predictions of the CAPM to set the WACC without rigidly assuming that all the CAPM assumptions held true in all aspects of the regulatory determination.

24. By contrast it was Telstra's position that the ACCC must treat all CAPM assumptions 'as if' they were true and that it followed that, in such a world, the regulator must accept the need to bias the WACC estimate upwards to take account of the risk that setting the WACC even a little 'too low' would lead to a complete strike of investment.

25. Notwithstanding that it was inconsistent with the assumption of homogenous expectations in the CAPM, the ACCC (correctly) responded that:

> *The conceptual argument presented by Telstra obviously does not allow for heterogeneity in terms of risk profiles, or requirements as to returns among investors or participants in capital markets. Put another way, the assumption made here is that all investors – and by extension financiers in capital markets – share a common view as to an appropriate WACC for an investment project. This implies that all investors have similar expected marginal costs and revenues (as this impacts the margin necessary for the project to be considered viable). In addition, it assumes that all potential investors have a homogenous risk profile.*

[4] TELSTRA CORPORATION LIMITED v ACCC and TPG INTERNET PTY LTD FEDERAL COURT PROCEEDING NSD 77/2008

In the Commission's view these assumptions are unlikely to reflect how investment decisions are actually made in practice. More generally, in the Commission's view, the decision as to whether or not to invest in a specific project can differ among different groups of investors, and over time, is dependant on factors such as the relative risk aversion and the expected returns required on different investments. As these are likely to differ among different investors and institutions, it is unlikely that there will always be a common view among investors and capital markets as to appropriateness of a particular return on capital. Rather investors will have different risk and return profiles for investment projects…" (Paragraph 461 to 462 of ACCC, LSS Access Dispute Telstra / TPG Internet Reasons for Final Determination December 2007.)

26. CEG continues to agree that the ACCC is correct in the above statement. In our view it not economically defensible to argue that the use of the Sharpe CAPM requires the consistent adoption of all of its (stylised) assumptions when addressing all issues. Taking a contrary view would require a radical change to regulatory practice as described below and would actually be prohibited by the NER. To understand the consequential changes that would be required it is useful to list the assumptions of the Sharpe CAPM. Jones (2002) provides the following list:[5]

    1. *All investors have identical probability distributions for future rates of return; they have identical (or homogeneous) expectations with respect to the three inputs of the portfolio model (expected returns, the variance of returns and the correlation matrix). Therefore, given a set of security prices and a risk-free rate, all investors use the same information to generate an efficient frontier;*

    2. *All investors have the same one-period time horizon;*

    3. *All investors can borrow or lend money at the exogenously given risk free rate of return and there are no restrictions on short sales of any asset;*

    4. *All assets are marketable (perfectly divisible and perfectly liquid) and there are no transaction costs;*

    5. *There are no personal income taxes - investors are indifferent between capital gains and dividends;*

    6. *There is no inflation;*

5 Jones, C. (2002) Investments: Analysis and Management, John Viley & Sons, Inc. USA.

7. *There are many investors and no single investor can affect the price of a stock through his or her buying and selling decisions. Investors are price takers and act as if prices are unaffected by their own trades; and*

8. *Capital markets are in equilibrium.*

27. Apart from the implications for arguments such as those put by Telstra (and currently under review by the Federal Court), some of the more obvious implications of adopting these assumptions in the regulatory proceedings are:

- the AER must disallow all transaction costs (see assumption 4 above). This would mean not only disallowing underpricing costs but also disallowing underwriting costs, roadshow costs and all other transaction costs in raising capital. It would also require disallowing stamp duty paid when purchasing land etc. The existence of all of these costs (and many more beside) are inconsistent with the assumptions of the CAPM;

- that the debt risk premium is zero as the CAPM assumes that all investors can borrow at the risk free rate (see assumption 3 above);

- that the expected rate of inflation is zero (see assumption 6 above); and

- there is no inflation (see assumption 6 above).

28. Such an approach would not only be inconsistent with the NER (which, for example, requires the debt risk premium be based on real world cost of debt not the cost of debt if CAPM assumptions held strictly true) but also, in CEG's view, with common sense.

29. In conclusion, the fact that the derivation of the CAPM formula employs the assumption that there are zero transaction costs does not mean the AER can reasonably ignore the real world existence of transaction costs that an efficient benchmark service provider would incur. If this conclusion did follow then, equally, the AER would have to use an inflation rate of 0% in the PTRM as inflation is equally abstracted from in the development of the CAPM.

Key finding

It is unsound to attempt to argue that the use of predictions of the CAPM when setting the cost of equity requires the regulator to act 'as if' the assumptions of the CAPM held true in reality.

This would be inconsistent with the stated views of the ACCC. It would also be inconsistent with the NER itself which, for example, positively requires the AER to estimate the debt risk premium based on reality of observed costs not based on the underlying stylised assumptions used to derive the CAPM.

2.4. Rights issues cannot eliminate underpricing costs

2.4.1. CEG's previous report

30. The evidence on the cost of raising equity that CEG presented in its April 2008 reports[6] was derived from published papers in the finance literature. In large part, these were the same papers that ACG had originally relied upon in its 2004[7] report to the ACCC which was the basis on which the AER's current position on the compensation for equity raising costs. In our paper for April 2008 reports, we pointed out that ACG had only reported on the direct costs of raising equity in the finance literature (underwriting costs and the like) and that the same papers relied on by ACG:

    - reported indirect (underpricing) costs; and
    - were clear that both sorts of costs should be summed when estimating the total cost of raising equity.

31. We also had regard to more recent academic studies on the total cost of raising equity which also confirm this approach in the academic finance literature. The studies that we reported were studies of the costs of raising equity directly from new shareholders through new share placements ('placements'). The costs reported in these studies involve the cost of fees to an underwriter for organising/marketing the sale plus the costs in terms of any discount to the prevailing share price necessary to the voluntary provision of new capital.

32. A discount to the existing share price is generally necessary to entice the provision of new equity because, just like the supply of almost all goods and services in the economy, the supply of equity is 'upward sloping'.[8] This reflects the fact that supplying equity is not a costless process. New investors must incur real costs in assessing whether to invest in a firm. These costs include the material costs of 'due diligence' information gathering and also any expected costs of buying from a better informed seller (ie, the company itself). Existing investors face similar costs associated with assessing a potential increase in their investment with the company.

33. In addition, existing investors face increased costs associated with putting 'more eggs' in the one 'basket'. That is, by increasing the amount of equity supplied to

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6 Eg, see section 3 of CEG, *Nominal risk free rate, debt risk premium and debt and equity raising costs for Integral Energy*, April 2008.

7 Allen Consulting Group, 2004, *Debt and Equity Raising Transaction Costs*

8 Implying a higher return must be offered to bring about higher supply.

a firm an existing shareholder will lose the risk reducing benefits of diversification which will impose real economic costs on them - even if those costs do not involve a monetary transfer that can be observed. This means that existing shareholders will be unwilling to supply additional equity unless they can expect to earn a higher return on that equity than they are already earning on their existing investment. This should be self evident because, if they wished to own more equity at current market prices then they would, by definition, have already bought this on the open market.

2.4.2. The AER's position

34. In the NSW draft determination the AER argues that, notwithstanding the above logic and the finance literature referred to by CEG, companies can costlessly acquire new equity at the prevailing market prices. One reason provided is that, under the CAPM, all of the real world costs we refer to can be ignored because these costs are 'assumed away' in the CAPM. We have addressed this argument above.

35. The other reason the AER relies on is provided in the first paragraph on page 191 of the NSW electricity distribution decision. In this paragraph the AER argues that firms can avoid all underpricing costs by raising equity in a particular way. Instead of raising capital directly from new shareholders (where underpricing is clearly required as demonstrated in the literature) the AER suggests that this cost may be able to be avoided simply by raising capital from existing shareholders through a rights issue.

> *"The efficient benchmark firm should be able to raise new capital with a seasoned equity offering. Where a firm can undertake a seasoned equity offering, it can use a rights issue where the firm offer shares at a discount to its existing shareholders. This is the most common practice for seasoned equity offerings. In a rights issue, even though the shares are offered at a discount, the firm's existing shareholders benefit from the entire discount and there should be no wealth transfer to new shareholders or loss by existing shareholders. If the existing shareholders do not wish to further invest in the firm they can usually sell their rights (as rights are normally tradable/renounceable and the issuing firm has the option of making them renounceable), or alternatively they can sell some of their existing shares to give them the funds to take up the rights. When viewed in this context, there should be no loss to the firm or its existing shareholders and therefore no requirement to compensate the firm for underpricing."*

36. To respond to this we must first be clear about how rights issues work.

2.4.3. How a rights issue works

37. In a rights issue a firm issues to existing shareholders the right to a new share that can be bought at a discount to the current market price. If the right is non-tradeable then the existence of a discount gives them a strong incentive to take up the right (provide equity) and that incentive increases with the level of the discount. This is because if they do not take up the offer then the value of their existing shareholding will be diluted by the take up of other shareholders. If the right is tradeable then investors have a strong incentive to either invest themselves or to find other investors who will invest and sell them the right.

38. Consider a stylised example with a company with two shareholders each owning one share each which are worth, say, $50 each (ie, the value of the company is $100 = 2*$50). Now let the company provide each shareholder with a right to buy two new shares at a price of $20 (a 60% discount to the current share value).

39. Now consider what would occur if one shareholder did participate and the other did not. In this case the shareholder who did not participate would have one share out of three in the company. The company would be worth $100 plus the $20 provided by the participating shareholder. The value of each share would be per share would be $40 ($120/3). The non-participating shareholder would have lost $10 in their investment as a result of not participating.

40. This loss to non- participating shareholders is why rights offers can be used to force existing shareholders to participate – even if they would prefer not to provide new equity other things equal. For example, the Financial Times has reported a rights issue by British Telecom as involving a 'gun to the head' of existing shareholders:

> *"The main question for BT is where to price a rights issue. Bankers agree it will need to be at a sizeable discount to yesterday's closing price of 550p.*
>
> *One head of equity capital markets at an investment bank suggested 300p-400p.*
>
> *"The deeper the discount the more of a gun is being held to shareholders' heads," he said. "It removes the choice. BT cannot possibly fail, there is no way they will put themselves in a position where a rights issue might not succeed. But it will be humiliating to do it at too big a discount."*[9]

[9] Institutions expect rights issue investor reaction: Barker, Thorold, Batchelor, Charles, Targett, Simon. Financial Times. London (UK): Apr 27, 2001. pg. 28

41. The ‘gun to the head’ element of a rights offer can be softened to the extent that the rights are tradeable. In this case, instead of not participating an investor has the ability to find other investors who value the right to buy shares at the prescribed discount and can sell their rights to those investors. In essence, the individual investors perform the same function that an underwriter would perform in a placement. In this context the ‘gun to the head’ of existing shareholders is a gun that requires them to:

    - provide equity themselves when they would prefer not to; or
    - act as an underwriter and find investors who are willing to provide equity.

42. With a deeply enough discounted rights issue a firm can avoid both underwriting and (direct) underpricing to new investors. That is, with a deeply enough discounted rights issue investors are compelled to either take up the shares themselves or to find someone else to. If they do neither then they will have the value of their existing shareholding diluted at material cost to themselves. However, this does not mean that it is costless to a shareholder to provide/raise equity in a rights issue.

43. As per the quote from the Financial Times, a deeply discounted rights issue is like a ‘gun to the head’ of existing shareholders. It can be used to force them to undertake the functions of an external underwriter – but it is not correct to argue that this eliminates the costs of this function. Rather, it simply shifts those costs onto existing shareholders. In doing so, there are good reasons to believe that it increases the costs of fulfilling these functions (as described in Appendix A). This is consistent with the fact that most equity raising in Australia utilises a placement method rather than a rights method.

Key finding

Discounted rights issues involve coercion by the company of existing shareholders to provide equity they otherwise would not. It cannot be presumed that such coercion is costless to the shareholders involved.

2.4.4. Errors of fact and logic

44. The above quote from the AER appears to involve two errors of fact and economic theory. First, it does not appear to be correct that rights issues are *the most common practice for seasoned equity offerings.* The draft decision provides no reference for this view. By contrast, for Australian companies in 2007/08 and

2006/07 the ASX figures suggest that placements accounted for more than double the amount of equity raised in rights offers.[10] Moreover, as described below, Brown and Chan (2004)[11] provide strong evidence that the level of rights issues that we actually do observe is artificially high due to ASX regulation limiting the amount of placements that companies can perform. That is, but for this regulation companies would prefer to rely even more heavily on placements to raise new equity than they already do. Brown and Chan also find that there are more external placements than rights issues in number as well as in dollar terms. They examine rights issues and external placements during the period July 1996 to March 2001. In that period there were 1,856 external placements of equity compared to 326 rights issues (see table 2 in their paper). Similarly, Bortolotti, Megginson and Smart[12] find that globally only 21% of new capital raisings are made using rights issues (17% by value of equity raised).

45. Second, irrespective of which method is more popular, it would be wrong as a matter of logic and economic theory to argue that by forcing existing shareholders to take on the functions of an underwriter the associated costs can be ignored. All a rights issue does is force existing shareholders to buy the newly offered equity or find someone else to do so. This is precisely the function an underwriter performs in a placement and there is no reason to believe that the costs disappear when a company requires its shareholders to take on that function.

46. It follows that the *a priori* presumption (ie, in the absence of any evidence to the contrary) should be that rights issues involve the same level of such costs as external placements. That is, the *a priori* presumption should be that the change in who bears the cost does not change its magnitude. While the costs that are borne by shareholders in a rights issue are less transparent (are not written down in an underwriting contract) it cannot be presumed that they are eliminated. In fact, there are sound reasons for believing pushing this function to individual shareholders will increase the magnitude of these costs borne by shareholders. This is because underwriters are expert at marketing to new investors and shareholders are not. Moreover, individual shareholders are atomised and unable to take advantage of the economies of scale that an underwriter can. These issues are discussed in more detail in Appendix A.

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[10] Australian Cash Equity Market, September 2008, Australian Securities Exchange, page 8. Figures for placements include share purchase plans where existing shareholders are given the option of purchasing shares at the same price that they are offered to new shareholders in the placement.

[11] Brown and Chan, Rights issues versus placements in Australia: Regulation or choice, Company and Securities Law Journal, (2004).

[12] Bortolotti, Bernardo, Smart, Scott B. and Megginson, William L., "The Rise of Accelerated Seasoned Equity Underwritings" (March 14, 2006). AFA 2007 Chicago Meetings Paper Available at SSRN: http://ssrn.com/abstract=890640. The data covers the period January 1, 1991 and December 31, 2004, from the Securities Data Corporation New Issue Database

47. This conclusion is borne out by observations of what firms actually do. The fact that firms generally prefer external placements over rights issues suggests that the costs of a rights issue are generally higher than the costs of a placement. In other words, the preference for placements suggests, assuming that companies act in the interests of their shareholders, that the cost of placements is, on average, perceived as being *lower than* the cost of rights issues.

48. The fact that the announcement of rights issue is almost always associated with a fall in the share price is consistent with the view that rights issues impose costs of shareholders – costs that are automatically reflected in a lower price for existing shares. In Australia, Balachandran, Faff and Theobald (2008) have found that there are significant negative price movements when a rights offer is announced.[13] Hansen (1988) [14] has examined the impact of a rights issue on the price of equity over the period of the rights issue.[15] Hansen finds that the depression in equity price is significant and sufficient on its own to explain why firms choose not use rights issues. Importantly, Hansen separately analyses both utilities and industrials and finds that:

> *"I conclude that firms avoid both types of rights offerings [underwritten and non-underwritten] because of their transaction costs."*

49. Similarly, Miles and Peterson (2002)[16] have confirmed Hansen's findings using different data and they conclude in relation to rights issues:

> *"These indirect costs account for a significant portion of total costs of raising additional equity capital, as the offering period abnormal returns average -4.5%. Because the returns are measured as a percentage of the total value of the fund and not the offering size the offering period abnormal returns are a conservative estimate of indirect costs."*

Key finding

Rights issues are not the preferred source of raising equity for Australian or international firms. Even if they were, this would not imply that rights issues have zero indirect costs.

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13 Balachandran, Faff and Theobald, "Rights offerings, takeup, renounceability, and underwriting status" *Journal of Financial Economics* (2008). The authors find that the average announcement effect is that share prices drop by 1.74% - see table 4 on page 337.

14 Hansen, The Demise of the Rights Issue, *The Review of Financial Studies Fall*, 1988.

15 This is more relevant than the announcement effect as it measures the level of discount that investors who sold the right to their share offering experienced.

16 Miles and Peterson, "An analysis of non-underwritten rights offers: the case of closed end funds", *The Journal of Financial Research*, 2002.

2.4.5. The AER must have regard to what firms actually do

50. The fact that firms prefer placements over rights issues in the raising of new equity has been extensively dealt with in the finance literature. Ultimately, it is recognised that unless one believes that firms are acting against the best interests of their shareholders, it must be accepted that the preference for placements over rights issues is compelling evidence that placements are generally lower cost – otherwise placements as a means for raising capital would not survive in a competitive capital market.

51. As already noted above, in the two years until June 2008 Australian firms relied almost twice as heavily on placements as they do rights issues. However, this is almost certainly an overestimate of what firms would prefer were they unencumbered by regulation. In Australia, companies are not allowed to issue more than a given percentage (currently 15%) of new equity via placements in any given 12 month period without seeking shareholder approval.[17] This effectively means that a company wishing to raise more than this amount must resort to:

    - another form of equity raising (such as a rights issue); or
    - wait until the next annual general meeting or call an extraordinary general meeting to gain shareholder approval for a new placement (with the latter option being a likely last resort given that it signals financial problems at the firm).[18]

52. Where a new equity raising will cause a firm to cross this regulatory threshold, this regulation imposes significant costs on placements relative to rights issues. Brown and Chan (2004)[19] have examined the impact of this regulation and they find very few rights issues are undertaken where company has the option of using a placement that would not cross this threshold.

53. Specifically, Brown and Chan compared placements versus rights and found that between July 1996 to March 2001 15% were rights issues and 85% were placements. However, of the 15% of rights issues only 1.3% were described by

[17] Under ASX Listing Rule 7.1 a company must not issue or agree to issue securities representing more than 15% of the number of fully paid ordinary securities on issue for the preceding 12 month period without shareholder approval.

[18] A firm that calls an extraordinary general meeting in order to facilitate the raising of new equity is effectively signalling that they have failed to anticipate their capital requirements and are unable to delay expenditure until after the next AGM or is unable to find bridging finance until such time.

[19] Brown and Chan, Rights issues versus placements in Australia: Regulation or choice, Company and Securities Law Journal, (2004).

Brown and Chan as 'voluntary' in the sense that the firm had the option of undertaking a placement under the ASX threshold.[20] In other words, firms almost universally prefer to issue a placement and only resort to undertaking a rights issue if they have already exceeded the regulatory limit on the use of placements without shareholder approval.

54. Brown and Chan state:

> *"Voluntary" rights issues – that is, those where the cumulative issue ratio was less than the ceiling – are rare. Only 29 of the 326 rights issues (8.9%) were voluntary and they represented only 1.3% of all issues. Whatever attractions rights issues may have, it seems that very few companies find them attractive enough to choose a rights issue when the listing rules do not encourage them to do so."* (page 307)

55. Moreover, the preference for placements over rights issues is not purely an Australian phenomenon. In the US it is well documented that there is practically no reliance on rights issues to raise new equity. Moreover, this is true in general as noted in Hansen in his paper *The Demise of the Rights Issue* (1988):

> *"…over the past quarter century corporate managers have almost always used the underwritten public offer, [placement] generally avoiding the seemingly cheaper rights methods."*

Key finding

The AER should have regard to what firms actually do when raising equity. It is not appropriate to assume that firms 'could' achieve lower costs using one method of equity raising (a rights issue) when firms commonly and voluntarily choose not to use this method.

2.4.6. Placements provide the best guide to the cost of equity raising

56. Placements provide the best guide to the cost of equity raisings because they are both:

- the most commonly used method for raising equity; and
- the method where the costs of raising equity can be most transparently measured.

[20] See Table 2 on page 306 of Chan and Brown (2004).

57. Even if, rights issues were more popular than external placements, it would constitute a serious error to conclude that the costs (direct and indirect) we observe in placements can be avoided by firms undertaking rights issues.

58. Such a position would be tantamount to arguing that business managers the world over are acting inefficiently every time they raise capital through a placement. For example, the National Australia Bank recently raised $2bn dollars in equity by selling it to new investors at a 9.7% discount to the prevailing share price last month (November 2008). If a rights issue can 'avoid' such underpricing then the NAB has clearly acted inefficiently and deputy chief executive Michael Ullmer is clearly mistaken when he states:

> *"Our capital raising plan was based around underwriting the shortfalls in our dividend reinvestment plan (DRP) for the final fiscal 2008 dividend and the first half for fiscal 2009 dividend.*
>
> *If at any time there was the opportunity to raise an equivalent amount of capital or more through a share placement we would do that, providing the discount required was modest and we were able to achieve equity between shareholders, So the price we went to the market today was a fixed price of $20 (a share), which is a 9.7 per cent discount. This discount is much lower than that applied to other share placements around the world"* [21]

59. However, we are unaware of any market commentary that the NAB acted inefficiently in using an external placement in preference to a rights issue – despite the external placement being at a 9.7% discount to market prices.

60. The same question applies to all the capital raisings in Australia and abroad that do not rely on rights issues. In our view, and as clearly documented in the finance literature, the reason is that the indirect costs associated with rights issues are not zero.

Key finding

Public share issues provide the most transparent estimate of the total cost of raising equity. While the costs of raising equity through a rights issue may be *different* to the costs of raising equity through placement, there is no basis to conclude that the costs are *lower*. Market evidence strongly suggests the opposite is true.

[21] Reported in the Age, www.theage.com.au , November 10, 2008 - 8:25AM

3. How to estimate the amount of equity to be raised

61. The AER has historically applied a cash flow analysis to determine whether there is sufficient internal cash flow to fund the equity portion of forecast capital expenditure based on the assumed gearing ratio. The AER describes this approach as being consistent with the 'pecking order' approach to capital raising.

62. In this section we make a number of relevant observations on the AER's approach. We observe that:

    - cash-flow modelling must take into account the repayment of debt;
    - it is not obvious that retained earnings are necessarily a cheaper source of funding than external equity raising;
    - even if retaining earnings come at a lower cost, it does not follow that it is costless. That is, even if it is reasonable to assume that retained earnings are the most efficient means to fund equity expansions, it does not follow that the AER should provide zero compensation for the costs of raising equity this way.

3.1. Properly constructed cash flow

63. On page 192 of the draft decision for NSW distributors the following description of cash flow analysis is provided:

> *"The AER has reviewed the DNSPs' proposed benchmark cash flow analysis to establish the requirement for equity raising costs associated with the equity component of its forecast capex over the next regulatory control period. The methodology applied to determine benchmark equity raising costs is summarised by the following steps:*
>
> - *revenues less expenses (including opex, interest payments and tax) provides the internal cash flow*
> - *internal cash flow less dividends to shareholders provides the retained cash flow*
> - *retained cash flow is used to fund the equity component of capex*
> - *unused retained cash flow, consistent with the pecking order theory, is carried over to the following year to fund the equity component of capex*
> - *equity component of capex less retained earnings (where it is insufficient) indicates the additional equity required*
> - *equity raising cost is then calculated by multiplying the additional equity required with the assumed benchmark transaction cost for subsequent equity issues (discussed below)."*

64. This is essentially the cash-flow analysis proposed by the Allen Consulting Group (ACG) and used by the AER in the Electranet and Powerlink decisions. We adopted this method in our April 2008 report where we stated at paragraph 87:

> *"The methodology for determining how much capital has to be raised follows ACG's methodology submitted on behalf of Electranet.*[22] *In describing this methodology the AER states:*
>
> > *"This cash flow approach to determining an allowance for equity raising costs was considered by the AER in its recent Powerlink determination to be reasonable and consistent with the principles of benchmark financing arrangements, subject to some adjustments."* (Page 181 of the ElectraNet draft decision).

65. However, on closer inspection there is an error in this methodology in that it assumes that the business is not paying down any principal on its debt and, therefore, it implicitly requires that the gearing of the business rise above 60%. If the business was repaying principal on its debt then outgoing cash-flow would include such a payment. However, there is no such line item in the above description of methodology.

66. If the business is not repaying principal on its debt then its outstanding debt clearly does not fall – despite the value of the underlying RAB (before new capex) falling by the amount of regulatory depreciation. That is, notwithstanding the explicit assumption being that 60% of new assets are debt financed, it is implicitly being assumed in the cash flow analysis that an increasing proportion of previously existing assets are debt financed. The reason is that none of the return of capital (depreciation) of the existing RAB is used to pay down existing debt.

67. In order to model cash flows consistently with a 60% gearing ratio it must be assumed that 60% of the return of capital is used to retire existing debt. That is, it must be assumed that the business retires existing debt at the same rate that the value of existing assets falls.

68. A numerical example can help illustrate this point. For simplicity, let the WACC equal zero, opex equal zero, dividends equal zero and the opening RAB equal $100, of which 60% is debt financed. Now imagine that return of capital in the period is $100 and that $200 of capex is required. Given that opex and the WACC are zero, revenues are equal to return of capital which is $100.

[22] Memorandum dated 29 May 2007 from ACG to ElectraNet entitled "Estimation of ElectraNet's equity raising transaction cost allowance"

69. Based on the cash flow methodology outlined above there is $100 retained cash flows (recall that opex, dividends and interest costs are zero and, critically, there is no repayment of existing debt principle). There is only $80 required equity investment (as 60%=$120 of the $200 capex is debt funded). Consequently, retained earnings exceed required new equity by $20 and there is no need for new equity to be raised.

70. The problem with this logic is that total debt is now $60 (existing at the beginning of the period and not paid down) plus $120 additional debt financing for the new $200 of capital expenditure. This adds up to $180 debt on a now $200 RAB – or a gearing ratio of 90%. If we instead impose the constraint that total debt be 60% of RAB we get the result that total debt must be $120. In order for this to be achieved it must be assumed that 60% of the $100 regulatory return of capital is used to pay back principal on existing debt.[23]

71. However, if this constraint is imposed then cash flows before capex becomes +$100 - $60 equals $40. This falls well short of the $80 required of new equity and the firm must resort to at least partial external financing of its new equity.

72. That is, maintaining a 60% gearing assumption for the total value of assets, requires PTRM cash flow modelling must consistently assume:

    - that debt is used to fund 60% of new capex; *and*
    - that the debt is used to fund 60% of the outstanding value of assets already in existence before new capex (which is always falling in real terms in the presence of real regulatory return of capital). This requires that debt funding of already existing assets falls (ie, debt is repayed) as the regulatory value of those assets falls.

Key finding

In order to maintain a consistent 60% gearing assumption, the benchmark cash-flow analysis must include the assumption that cash outflow of 60% of regulatory return of capital (that is depreciation of the RAB) is used to pay back principal on existing debt.

[23] It is worth noting that the AER's approach to cash-flow modelling 'works' when there is zero regulatory depreciation. In this case, free cash flows do not include any 'return of capital' and, consequently, are entirely comprised of the equity return element of the PTRM.

3.2. Appropriate dividend yield

3.2.1. Economic profits versus accounting profits

73. On page 194 of the NSW distribution draft decision the AER states:

> *It should also be noted that when CEG's recommended dividend yield assumption is applied to the cash flow analysis using the correct depreciation measure, the resultant payout ratio is unsustainable at well over 100 per cent of net profit after tax. This is clearly an unreasonable set of assumptions. Against this however, the AER acknowledges that ACG considered a dividend yield of 3.5 per cent to be inconsistent with the assumed gamma of 0.5, which is specified in the NER.*

74. For the purpose of clarity CEG did not recommend a specific dividend yield assumption. Rather CEG analysed cash flows on the basis of ACG's recommended dividend yield assumption. Specifically, at paragraph 89 we stated:

> *We note that the AER has not responded to ACG's above position on the basis that the ElectraNet draft decision did not require it to (as draft decision capex was lowered to a point where no incremental capital would have to be raised). Given that that AER is yet to respond on this issue we have retained ACG's methodology in whole.*

75. The distinction we are attempting to make clear here is a distinction between verifying and supporting ACG's assumption versus simply applying it. CEG did the latter rather than the former.

76. That said, we note that the AER's statement that a dividend yield of 8% gives rise to a "*payout ratio is unsustainable at well over 100 per cent of net profit after tax"* is wrong. In making this claim the AER appears to be confusing economic profits with accounting profits.

77. Economic profits represent the increase in value available to be distributed to shareholders without any diminution of the value of the shareholders existing assets (ie, without a reduction in the value of their investment in the company). Accounting profits generally represent an attempt to measure economic profits using standardised rules of thumb. The most likely source of differences between accounting profits and economic profits is when accounting rules do not accurately proxy for economic depreciation.

78. For example, if accounting depreciation is $1m higher than economic depreciation then, other things equal, accounting profit will be $1m lower than economic profit. This means that accounting profit will underestimate by $1m the

amount that can be paid out as dividends while retaining the existing value of shareholders' investment. Thus, if one is interested in estimating a sustainable dividend policy one should focus on the economic profits of a firm and not the accounting profits. One should only focus on accounting profits if this is the best estimate of a firm's economic profits.

79. In this context, there is no basis to focus on accounting profits when attempting to determine a sustainable dividend policy for a benchmark regulated firm. The reason is that one already knows what expected economic profits for a benchmark firm are because this is an input to the PTRM (which 'spits out' an estimate of accounting profit based on the input of a target economic profit). That is, the accounting profit estimated in the PTRM is *derived from* a known economic profit and provides no additional information on that level of economic profit.

80. In the context of the NSW distribution business draft decision, the AER adopts a target economic profit of 11.34% (this is the post tax nominal return on equity as per page 229). A dividend payout ratio[24] equal to this amount[25] must be sustainable as it is nothing more than a distribution of the profits that the PTRM modelling is targeting be delivered to shareholders. Any view that a firm cannot sustainably distribute the profits the PTRM attributes to them is inconsistent with the PTRM and the assumptions used in the regulatory process.

81. Again, using Integral Energy as a case study, the PTRM estimates accounting profits of only 3.28%.[26] The difference between 3.28% and 11.34% is primarily due to the fact that accounting depreciation is greater than economic depreciation. But, once more, lower accounting profits are irrelevant to an assessment of economically sustainable dividends when the AER already knows economic profits.

3.2.2. Adoption of benchmark pay-out ratio of accounting profits

82. Partly on the basis that a dividend yield assumption that is greater than accounting profits is unsustainable and partly on the basis that it is difficult to measure 'normal' dividend yields in the market, the AER determines:

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[24] Defined in the way CEG and ACG use to model dividends , ie, as the ratio of dividends to

[25] More precisely, if the dividend payout ratio is determined on a cash basis then an adjustment must be made to this 11.34% to remove the proportion of profits the PTRM assumes are delivered in the form of imputation credits. For Integral Energy we estimate that this would reduce this figure by 1.53% - giving a sustainable cash dividend yield of 9.81%. We estimate 1.53% as: 50% of total tax paid over the regulatory period (50% of $305.76m) divided by 40% of the average RAB pa multiplied by 5 ($24,903m) where 5 is the number of years in the period). Similarly, if sustainable' dividend policy was defined in real terms (ie, maintaining constant real dividends after adjusting for inflation) then the real cost of equity would need to be the relevant benchmark.

[26] Calculated as total net profit after tax from the PTRM ($327.2m) divided by the by 40% of the average RAB pa multiplied by 5 ($24,903m) where 5 is the number of years in the period).

"The AER considers that these problems with the use of the dividend yield outlined above can be overcome by altering the assumptions in the cash flow analysis. Specifically, it is possible to make an assumption with respect to the dividend payout ratio rather than the dividend yield. The dividend payout ratio is the result of an explicit management decision rather than a potentially volatile market measure. It is also a more direct method to establish the amount of retained earnings available for investment and therefore the remaining amount required to be raised as equity. The assumption on the appropriate dividend payout ratio can be made so that the dividend payout ratio is consistent with the gamma value required by the NER." (page 194)

83. By contrast, we conclude that the problems with a dividend yield method are overstated. Firstly, there is no problem measuring economic profit as this is an input into the PTRM.

84. Secondly, the AER is correct to observe that market dividend yields measured relative to equity market capitalisation fluctuate with variations in equity prices. This is because firms tend to stick to a specific dividend policy that reflects their view of their underlying rate of economic profit - irrespective of how their share price fluctuates in the short term.

85. This serves to illustrate the fact that, in order for the benchmark firm to behave in a benchmark manner, the firm should have a dividend yield policy that is linked to its underlying rate of economic profit (ie, a dividend yield policy based on economic profits). The AER's difficulty with estimating a 'normal' dividend yield can be resolved by estimating a long term average of observed dividend yields in the market rather than a 'snapshot'.

86. In our view this is a much preferred solution to the problems raised by the AER than the adoption of a pay-out ratio of accounting profits. As already discussed, measuring dividends relative to accounting profits can only ever be sensible if accounting profits are the best estimate of economic profits. Given the AER knows expected benchmark economic profits (and actually uses this to determine accounting profits) there is no basis to set a pay-out ratio relative to accounting profits.

87. Moreover, the fact that economic profits are relatively stable but accounting profits fluctuate significantly relative to economic profits means that imposing a pay-out ratio relative to accounting profits will cause dividends to fluctuate wildly (ie, much more than economic profits). The AER addresses these concerns on page 194 of the NSW distribution draft decision:

"One could argue that investors expect stable returns in the form of dividends and for that reason management choose an absolute dividend value rather than a portion of profits. Such a strategy could be used to smooth over

fluctuations in profit from year to year. However, regulated DNSPs typically earn very stable revenues which mitigate year to year fluctuations that may be observed by the broader market. In other words, there is likely to be little difference in the dividends of a regulated DNSP between specifying the dividend amount and specifying the dividend payout ratio."

88. We agree that management should (and do) choose a dividend policy that does not cause dividends to fluctuate wildly (at least not more wildly than economic profit). However, it is not correct to argue that stable *revenues* give rise to stable dividends under the AER's proposed approach. Under the AER's proposed approach dividends are based on a percentage of accounting profits. Therefore, it is only stable *accounting profits* that give rise to stable dividends.

89. However, as clearly demonstrated in the case of Integral Energy, accounting profits generated by the regulatory process are not stable. We estimate accounting profits to be around 3.28% compared to economic profits of 11.34%. This reflects faster accounting depreciation for relatively new assets than economic depreciation in those assets. But in the long run this must reverse as accounting depreciation goes through the 's-bend' (faster accounting depreciation today means lower accounting depreciation in the future when those assets are written down).[27] Taken over a long period, average accounting profit will tend to be equal to average economic profit.

90. This means that in the future accounting profit will be greater than economic profit by a similar amount. As a consequence, a fixed pay-out ratio measured relative to accounting profit must, at some stage, require a firm to pay in dividends in excess of its economic profit. That is, a pay-out ratio measured relative to accounting profit must, at some stage, result in 'unsustainable' dividends in the future.

91. To see this consider Integral Energy's accounting profit of 3.28% compared to its economic profit is 11.34%. Clearly, accounting profits in the PTRM can vary significantly from economic profits. Moreover, this must average out over time as accounting profits go through the 's-bend'. Consequently, at some stage accounting profits will be equally above economic profits. Using a dividend pay-out based on accounting profits will cause this (arbitrary) variation in accounting profits to be reflected in an equally wild variation in dividends.

92. In our view, the only sensible solution to this is to specify a minimum pay-out ratio relative to economic profits – which is ultimately the same thing as specifying a minimum dividend yield as a percentage of economic profits divided by the equity value of the RAB.

[27] The s-bend issue (in another context) is discussed in the ACCC's Draft Statement of Regulatory Principles for the Regulation of Transmission revenues (see page 7).

93. However, this does not mean that the AER is required to set this at 100%. That is, the AER is not required to assume that 100% of economic profit will be paid out to shareholders each year. Rather it just means that the only sensible measure of profit by which to establish a dividend policy is economic profit. Of course, there must be sufficient cash-flow to support the underpinnings of the relevant economic profit

Key finding

The appropriate dividend policy should be determined by reference to the level of economic profit. It cannot sensible be determined by reference to accounting profit (except where this is the best estimate of economic profit).

4. Cost of using retained earnings to fund equity expansions

94. The pecking order theory of capital financing provides a rationale for why a firm can prefer financing new investment via retained earnings in preference to paying a dividend and then raising new capital. This theory is based in large part on the potential for information asymmetry between insiders and outsiders to be such that it can be rational for outsiders to have a lower price at which they are willing to purchase newly issued securities than insiders. However, it does not state that retained earnings is a *costless* way to raise equity it just states that, up to some point, it is *lower* cost to raise equity internally than externally.

95. At its simplest, the pecking order theory is little more than a truism. That is, it states that a firm will minimise costs by always choosing the form of capital raising that is 'lowest cost'. However, it is a mistake to interpret 'lowest cost' too narrowly. Specifically, an efficiently run business will not make capital financing decisions based solely on which option minimises direct transaction costs (ie, payments to third parties) associated with raising capital. An efficient firm will also consider indirect costs that its decision places on existing shareholders.

96. There are a number of reasons why the use of retained earnings will involve costs for existing shareholders. The first is that by lowering dividends a firm reduces its ability to distribute imputation credits. While undistributed these credits retain a constant face value (ie, do not increase with either the time value of money or inflation). For these reasons, ACG has argued that a payout ratio of 80% to 90% is required in order to be consistent with a gamma of 0.5 (as currently assumed in the NER for transmission):

> *" ACG believes that a payout ratio in the order of 80% to 90% or more must be assumed for a regulated benchmark entity. If the payout ratio were assumed to be any lower, it would imply lower dividend yields and lower annual equity raisings than the ones calculated below. However, in that case it would be difficult for the AER to propose that a gamma of 0.50 is appropriate to apply in the WACC as an input to the revenue formula.* [28]

97. A second reason why retained earnings may not be reflected in higher equity prices is that failure to issue new equity will raise the cost of debt financing. Easterbrook (1984)[29] argues that this explains the commonly observed practice of the distribution of dividends to shareholders coupled with the simultaneous

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[28] Page 7 of memorandum dated 29 May 2007 from ACG to ElectraNet entitled "Estimation of ElectraNet's equity raising transaction cost allowance". Available at www.aer.gov.au

[29] Easterbrook, Frank H., 1984, "Two Agency-Cost Explanations of Dividends," The American Economic Review, 74, pp. 650-659.

issuance of additional shares. The reason provided is that the information provision and external review of the new investment by the new investors and the underwriters provides valuable monitoring of management that would be absent with the unchecked reinvestment of firm free-cash flows. By committing to distribute profits and raise new equity externally a firm exposes itself to this scrutiny and, by doing so, signals the quality of the firm to investors.

98. Put simply, few investors would be willing to provide capital to a firm that did not also distribute dividends. The distribution of dividends is a signal that the firm is prudently managed and able to pay a return on capital provided.

99. A third reason is that requiring a business to finance new equity out of retained earnings is equivalent to requiring investors to accept a more heavily backdated cash flow (ie, a cash flow with smaller near term returns and larger returns in the future). This exposes the stock to a greater degree of interest rate risk (ie, the risk that market discount rates will change over time in either direction). This increased risk will have a significant systematic (undiversifiable) component as all assets will be affected by movements in market discount rates. In short, it would be inconsistent to assume the use of retained earnings to raise equity without simultaneously raising the compensation for systematic risk (ie, the equity beta). In other words, by assuming that businesses retain earnings to finance capital expenditure the AER would be requiring businesses with large capital programs to take on higher systemic risk than businesses with small capital programs – higher systemic risk for which there is no compensation.

100. Finally, using retained earnings to finance capital growth forces shareholders to reinvest in the equity of the firm even if this is not their preference. Consequently, shareholders are forced to hold a greater weight of that firm in their portfolio or to sell some of their existing equity. A firm that forces investors to reinvest will, other things constant, be less desirable than a firm that allows investors to make their own decisions about how much of a stock to hold in their portfolio (ie, by paying dividends and allowing shareholders to use this to buy shares if they so wish). By forcing investors to reinvest the firm is essentially forcing them to sell equity if they wish to maintain a constant weight for that stock in their portfolio. This will itself impose costs on the shareholders in the form of transaction costs associated with trading (such as brokerage, the cost of crossing the bid-ask spread when selling stock or costs associated with triggering capital gains tax events).

Key finding

High levels of retained earnings impose cost of shareholders and this is why we commonly observe firms paying dividends while incurring the costs of raising new equity – because the later costs are lower than the costs of increasing retained earnings.

4.1. Pecking order theory does not imply retained earnings is costless

101. The AER has in its 2007 Powerlink decision[30] proposed assuming an season equity offer (SEO) would only be efficient once the dividend yield fell to 3.5% (ie, 3.5% is the 'minimum acceptable' yield before an SEO is to be preferred to internal equity raising). As noted by the AER in its recent WACC Review issues paper,[31] ACG has argued that:

- the benchmark businesses selected by the AER do not reflect the normal characteristics of regulated utility businesses;
- the AER's assumption regarding the dividend payout ratio and therefore its dividend yield under a large capex spend is unrealistic given the expectations of the clientele that invest in these businesses for high dividends;
- dividend policy is an important signalling mechanism and reducing the payout ratio may not be plausible or possible;
- there are transaction costs associated with other forms of raising equity such as dividend reinvestment plans;
- it is unlikely that funds to pay dividends were set aside in an earlier regulatory period; and
- the AER did not examine whether businesses faced with high capex reduced their payout ratios.

102. We do not express an opinion in this paper as to whether 3.5% is a reasonable minimum dividend yield or not. However, if 3.5% does represent the dividend yield at which it is more efficient (lower cost) for firms to raise equity using SEO's rather than retained earnings then it must follow that a dividend yield of 3.5% represents the point at which the marginal cost of raising an extra dollar of equity internally is equal to the marginal cost of raising that equity externally (through an SEO).

103. This is consistent with the description of the 'pecking order theory' of capital raising as described by the AER in the NSW distribution draft decision:

[30] AER, Powerlink Queensland Transmission Network Revenue Cap 2007-08 to 2011-12, Final Decision, 14 June 2007

[31] AER, Review of the weighted average cost of capital (WACC) parameters for electricity transmission and distribution, August 2008

According to the 2004 ACG report, firms finance subsequent capex in the least-cost manner.530 That is, financing is sourced from retained earnings when possible and that debt financing is preferred to equity financing (this relates to the 'pecking order theory' of capital structure). External equity financing for subsequent capex should be considered only when a case is made that the retained earnings and additional borrowings are insufficient provided that the gearing ratio and other assumptions about financing decisions are consistent with regulatory benchmarks. (Page 189)

104. In our view, this is a perfectly reasonable description of the pecking order theory. However, the AER's proposed implementation appears to be as follows:

- assume reinvestment of retained earnings is costless until dividend yield falls to a predetermined level (3.5% in the case of the AER's NSW draft determinations).

- at which point, assume retained earnings is more costly than an SEO and assume that all equity beyond this point is raised through an SEO.

105. In our view this is unlikely to reflect the real nature of the costs of raising equity internally. It is also inconsistent with the pecking order theory of capital financing which does not state that retained earnings is a costless source of equity financing – just that over a certain range it may be lower cost than alternatives.

106. In our view, a reasonable application of the pecking order theory would require:

- specification of a 'normal' dividend yield for a company (say the 8% dividend yield supported by ACG analysis);

- specification of a 'minimum' dividend yield for a company beyond which an SEO becomes lower cost than using retained earnings (which may be the 3.5% dividend yield that the AER believes firms will efficiently incur before resorting to an external equity raising through an SEO); and

- straight line interpolation between these two estimates in order to estimate the average cost of using retained earnings.

107. For example, let us adopt an estimate of the cost of SEOs at 10%. Now imagine a firm with zero retained earnings would have a 'normal' dividend yield of 8% but with $1bn of retained earnings this would fall to 3.5% - being the assumed point at which SEOs become lower cost than further reductions in the dividend yield. Now imagine that the firm needs $1bn in new equity.

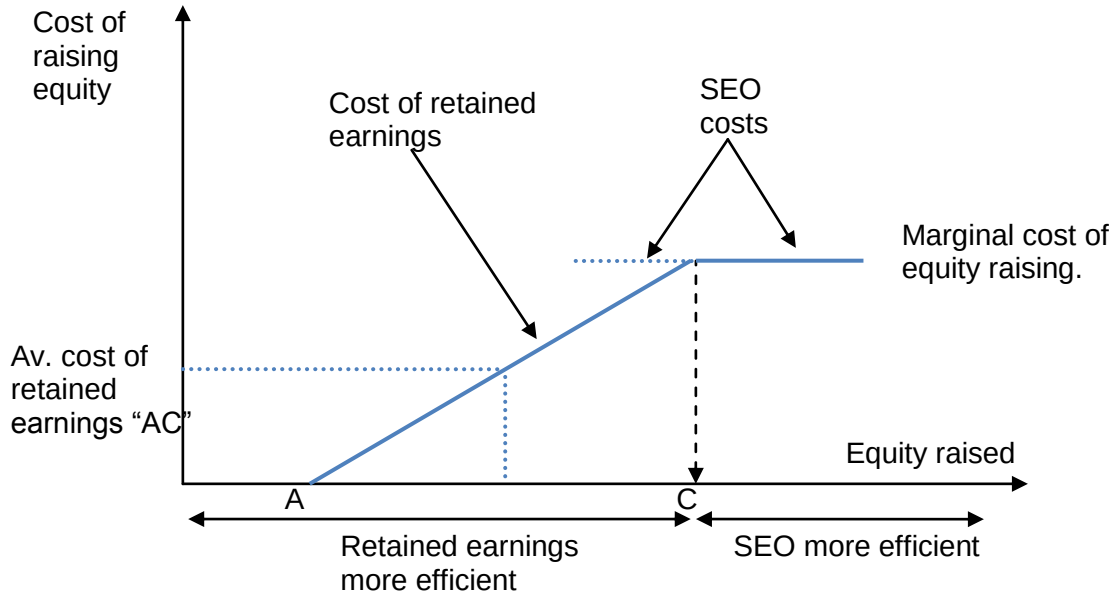
108. Under this hypothetical scenario the lowest cost option is to use retained earnings. That is, all of the required equity can be raised internally without

causing the dividend yield to fall below 3.5% (ie, below the point at which the marginal cost of retained earnings exceeds the marginal costs of an SEO). However, while using retained earnings is least cost, it is not a zero cost option. Lowering the dividend yield will still impose costs on shareholders that must be compensated (this must be true otherwise we would never observe the common practice of firms simultaneously paying dividends and raising capital through SEOs).

109. If we assume that this cost rises linearly with the amount of retained earnings then it is a simple matter to estimate this cost. The first dollar of retained earnings would have a cost of zero (by definition). The last dollar of retained earnings would have the same cost as an SEO. Assuming a linear relationship between marginal cost and amount of internal equity raising, the average cost of the $1bn internally raised equity would be one half of the cost of the SEO. If the cost of an SEO is 10% then the cost raising $1bn would be 5%. By the same logic, if only $500m of internal equity was to be raised the cost would be 2.5% (being the average of 0% cost for the first dollar and 5% cost for the last dollar).

110. This is illustrated graphically below. In this example, the firm can retain "A" dollars of earnings before pushing dividend yield below a normal level. At which point the marginal cost of raising additional equity internally rises until it is equal to the cost of raising equity through an SEO at point "C". If the firm needs to raise "C" dollars of equity then the most efficient way to do this is by retaining earnings (as the marginal cost of retained earnings is lower than for an SEO for all retained earnings less than C).

Figure 1: Illustration of the cost of retained earnings



111. However, this is not costless. The marginal cost of raising the last of the "C" dollars in retained earnings is equal to the cost of the SEO. The total cost is given by the area of the triangle above AC. This area is simply AC multiplied by one half of the height of the triangle (where the height of the triangle is given by the cost of the SEO).

112. In summary, it is inconsistent to use the pecking order theory to justify assuming an SEO will only be efficient at a dividend yield of 3.5% and not to recognise the marginal costs of retained earnings must approximate the costs of an SEO at that point (otherwise the SEO would not be efficient).

Key finding

In order to estimate the cost of retained earnings consistent with other modelling assumptions, one must have an increasing cost of retained earnings rising from zero (at some 'normal' dividend policy) to be equal to the cost of an SEO at some minimum dividend policy (ie, at the point at which one models an SEO as lower cost than incremental retained earnings).

113. We note that the current evidence before the AER could be summarized as:

- ACG providing evidence that an 8% dividend yield is normal; and
- the AER's providing evidence to the effect that a 3% dividend yield is what shareholders will accept for firms with large capex requirements.

114. Based on this interpretation the retained earnings that cause the dividend yield to fall below 8% will have increasing costs until an SEO becomes more efficient rather than setting a dividend yield below 3%. If the cost of retained earnings is increases linearly with the level of retained earnings then the average cost of retained earnings between an 8% and 3% dividend yield will be half of the cost of an SEO.

115. In terms of dollar estimates of the cost of equity raising this would be identical to simply assuming an SEO is adopted at a 5.5% dividend (half way between 3% and 8%) and that retained earnings between 3% and 5.5% have zero cost. Such a dividend yield assumption could also be justified on the basis that it provides an equal weight to the evidence provided by both the AER and ACG.

5. Debt raising costs

5.1. CEG's original report

116. In our April 2008 reports we argued that the AER's approach to estimating the cost of raising debt was imperfect. Specifically, we stated:

- The AER inconsistently derives its estimate for debt raising costs from the US private placement market (where interest rates are higher than for public debt issues) and combines this with an estimate of interest rate costs for public issues;
- The true costs of issuing debt in private placement markets rather than public issues must include the higher interest costs for private placements. Based on the research of Livingston and Zhou, when this is done the cost of issuing debt increases from 0.06%pa to between 0.25% pa and 0.42% pa. See paragraphs 67 and 68 of our April 2008 reports;
- Alternatively, the cost of raising debt by public issues can be estimated directly. Based on the work of Saunders Palia and Kim, the best estimate of direct US underwriting costs for debt issues is between 0.14% pa and 0.29% pa (where the larger figure is an average across time and the smaller figures is the most recent estimate for 2000). See paragraph 70 of our April 2008 reports.
- We concluded that an estimate of 0.125% pa (which is the estimate of direct debt raising costs in public issues used by used by other regulators)[32] would be conservative and that an estimate below this would not be reasonable. See paragraph 73 of our April 2008 reports.
- To this estimate of direct debt raising costs for a public issue we added 0.03% pa to reflect what we considered to be a reasonable estimate of indirect debt raising costs. See paragraph 74 of our April 2008 reports and note that a typographical error exists such that 12.5bppa has been written when the correct number (which can be derived from the logic set out in immediately preceding paragraphs) is 15.5bppa.

5.2. AER decision

117. The draft decision rejects all of our recommendations. The grounds for doing so are as follows:

[32] See ACG, Debt and Equity raising Costs, A report to the ACCC, 2004, table 4.1 and not that the Victorian ESCV value in that table should now be 12.5bppa based on its 2008 Gas Access Arrangement Review (see page 488)

- The AER sees no inconsistency in using underwriting costs from US private placements as a proxy for the cost of underwriting Australian public placements. The AER justifies this on the basis of a finding by Livingston and Zhou that underwriting costs in US private placements are not statistically significantly higher than underwriting costs in public placements. See the first paragraph on page 186 of the NSW distribution draft decision.

- The AER considers that the evidence that it has from private placement markets "*are the best estimates of the cost of raising public debt currently available*". See second paragraph on page 186 of the NSW distribution draft decision.

- The AER rejects the relevance of direct observations of the cost of underwriting US public placements provided in Saunders, Palia and Kim on the basis that:

  - The sample is for US not Australian debt issues. See dot point at the bottom of page 186 if the NSW distribution draft decision; and

  - The sample does not include regulated businesses whom the AER believes will have lower costs of raising debt. See dot points at the bottom of page 186 and top of 189 of the NSW distribution draft decision.

- The AER also rejects the relevance of all underpricing costs on the basis that, by definition, inclusion of underpricing costs would be inconsistent with the assumption of a BBB+ credit rating. See fourth paragraph on page 186 of the NSW distribution draft decision;

118. In our opinion there are problems with the AER response to the evidence in our original report. We deal with each of these below.

5.3. Data on public debt vs data on private debt issues

119. We have argued that the best estimate of the cost of a public debt issue is data on the costs of public debt issues – data which is summarised in Saunders, Palia and Kim (2003). The draft decision prefers to use a proxy for the cost of public debt issues by looking at private placements of debt. We do not consider that this is appropriate. If one is attempting to estimate the cost of something it is preferable to use data on the cost of that thing rather than data on the cost of something else.

120. In this case we are interested in the cost of a public debt issue and we should use the observed cost of public debt issue. One should not prefer to use the observed cost of private debt issues on the basis that these are a 'proxy' for public debt issue unless we do not have the data for public debt issues available.

As described below, we do have extensive data on the cost of public debt issues and, in our opinion, this is what should be used to estimate the cost of public debt issues.

Key finding

The best estimate of the cost of raising public debt is evidence from the public debt market – not the private debt market.

5.3.1. Reliance on Livingston and Zhou

121. The draft decision provides reasons why the AER does not believe the data from Saunders, Palia and Kim is useful. We consider that each of these reasons is problematic as we discuss below in following sections. However, the AER explains its preference to use estimates of underwriting costs for private debt based on the finding of Livingston and Zhou that these underwriting costs of private placements are not statistically different to underwriting for public placements as follows:

> *"The AER uses private debt raising (issuance) costs as a proxy to set an allowance for public debt issuance costs because these costs are not observable in the Australian market. The AER considers that private placements underwriting costs, which forms part of debt issuance costs, are a reasonable proxy for public issuance underwriting costs. This position is supported by the CEG report where it stated 'Livingston and Zhou (2002) find underwriter fees for private placements are not significantly different to public placements'. ACG in its 2004 report for the ACCC also argued that private underwriting costs are a fair proxy for public debt underwriting costs on the basis of the 2002 Livingston and Zhou study."* (Page 186)

122. It would appear from the draft decision that the finding by Livingston and Zhou is the sole basis for the AER's (and the ACG before them) use of costs from the private placement market as a proxy for costs in the public placement market.

123. This makes the conclusion of Livingston and Zhou critical. The conclusion of Livingston and Zhou is based on a regression reported in table VIII of their report. That regression estimated the cost of underwriting debt issues. The regression included data from both public and private debt issues – using a dummy variable for private placements. The authors found that the coefficient of the dummy variable was not statistically significant at the 1% or 5% confidence level. This regression result is the basis for the AER's conclusion that private placement underwriting is reasonable proxy for public placement underwriting.

124. However, we believe that the AER should have regard to the entirety of that regression by Livingston and Zhou. In the same regression result Livingston and Zhou also found that utilities have a statistically significantly (at the 1% level) lower cost of underwriting debt issues than non-utilities. They also found a statistically significant relationship between the maturity of the debt issued and the underwriting fee (at the 1% level again). Finally, they found that higher issue frequency had a statistically significant effect of lowering the cost of underwriting. The authors also find a non-statistically significant relationship between underwriting costs and other variables.[33]

125. The regression uses a dataset of 2,652 public debt issues (35% of which are utilities) and 1,418 private placements (27% of which are utilities). It enables one to *directly* estimate the cost to a utility of publicly issuing debt with a maturity of 10 years in the United States. The table below summarises the cost of such an issue based on Livingston and Zhou's regression.

Table 1: Livingston and Zhou regression – estimate of underwriting cost for public debt issued by a utility with a maturity of 10 years

	Intercept	Utility dummy	10 year maturity	Senior debt dummy	Issue frequency	Public firm dummy	BBB credit rating	DRP for BBB	Underwriting cost
Regression (significant variables only)	0.443%	-0.035%	0.389	-0.142%	NA	NA	NA	NA	**61.6bp**
Regression (all variables)	0.443%	-0.035%	0.389%	-0.142%	-0.039%	-0.031%	0.117%	-0.033%*	**67.2bp**

*Source: Livingston and Zhou, Table VIII. Assumes an issue frequency of one issue every 1.1 years. This is consistent with, in the case of Integral Energy, the AER's estimate of 11 issues required to finance its RAB with those issues spread out over 10 years. In terms of Livingston and Zhou's regression this would enter as the natural log of 3.3 as issue frequency is measured over their 3 year sample period. The DRP is set at 329bp based on the NSW draft decision page 229.

126. Based on this regression, the cost of underwriting a 10 year publicly issued bond issued by a utility would be 61.6bp (relying only on relationships found to be statistically significant). The best estimate of 10 year public debt issued by a publicly listed utility with BBB credit rating is 67.2bp (although this relies on relationships that are not found to be statistically significant).

127. If this cost is amortised over 10 years on the basis of the AER's draft decision post tax real WACC (6.99%)[34] it results in a 8.8bppa to 9.6bppa required nominal annual compensation (spread over the 10 year life of the bond) for underwriting the debt issue.

[33] They also found non-statistically significant relationships between the prevailing debt risk premium for BBB rated bonds, the rating of the debt and whether the firm issuing the debt was publicly listed.

[34] Calculated as the post tax nominal WACC (9.72%) deflated by 2.55% expected inflation using the Fisher equation.

128. These results derive directly from the Livingston and Zhou study relied on by ACG and the AER when determining to use private placement debt issues (made by non-utility firms and with terms to maturity not necessarily equal to 10 years) as a proxy for public placement debt issues by utilities. In our view, the best use of this study is to provide a *direct* estimate of the cost of publicly issued debt (by a utility with 10 year maturity).

129. We do not consider that it is appropriate to ignore these results and to take a single result from this study to justify using an *indirect* estimate of the same thing (ie, an estimate based on private debt issues, by non utilities with terms to maturity not necessarily equal to 10 years).

130. The range derived from the Livingston and Zhou study for 10 year senior debt issued by a utility with AAA credit rating is lower than, but consistent with, the estimate of 14bppa from the Saunders, Kim and Palia study cited in our previous report.[35] It must also be recalled that this is an estimate of underwriting fees only. Transaction costs of an additional approximately 3.5bppa (based on the AER's draft decision table 8.18 escalated for inflation and amortised as per discussion in sections 5.5 and 5.6 below) should be added to this to derive the total direct costs of raising equity. This gives the following range:

    - Livingston and Zhou (amortised at a real WACC plus 3.5bppa for non-underwriting transaction costs) – 12.3bppa to 13.1bppa;

    - Saunders, Kim and Palia – 17.5bppa;

131. This range does is almost exclusively above CEG's proposed 12.5bppa compensation for the direct cost of publicly issued debt. It is materially higher than the draft decision range for NSW distributors of 8.0bppa to 10.4bppa On this basis we consider that, rather than supporting the draft decision estimate, the work of Livingston and Zhou provides compelling support for our own estimate. In fact, based on the range of 12.3bppa to 15.5bppa for direct costs, we consider evidence of direct costs alone supports CEG's 15.5bppa estimate of the cost of the total cost (direct and indirect) of raising debt.

Key finding

If the AER should not use the Livingston and Zhou regression to justify using an indirect proxy for public debt issues. The preferable use of that regression is to directly estimate the cost of a BBB rated utility issuing senior public debt at 10 years maturity.

[35] The Saunders et al figure is an average across all firms. It was therefore amortised based on a 5 year life of the debt. The Livingston and Zhou estimate allows us to estimate underwriting fees on a10 year bond (which is higher but which must be amortised over ten years to give a lower bppa figure).

5.3.2. Livingston and Zhou higher interest rates for private placement

132. In any event, if the US private placement market is to be used to estimate the cost of raising debt for public issues the AER should include all costs of raising debt in the US private placement market – both direct and indirect costs. Equally, if the AER is to rely on Livingston and Zhou as providing a justification for this approach the AER should include Livingston and Zhou's estimate of indirect costs in the private placement market. That is, Livingston and Zhou find that interest rate costs in the private placement market were higher than interest rates for publicly issued debt. When this is done the appropriate estimate of debt raising costs in this market is at least 25bppa (as described in paragraph 67 of our of our April 2008 reports).

Key finding

Consistency requires that if private placement debt is used to estimate the direct costs of raising debt then the private placement market also be used to estimate the indirect costs of raising debt. This would result in a total cost estimate of 25bppa.

5.3.3. Current market conditions

133. The NSW distribution draft decision states that the latest update of estimates of underwriting fees for Australian businesses placing debt in the US private debt market remains at 6.0% (footnote 529 on page 187). However, the draft decision does not describe when this update occurred or what the underlying data for it is.

134. We understand that there have been little or no such issues in recent times – reflecting higher costs of raising debt associated with the global financial crisis. This is consistent with the views of Deloitte that in the past:

> "*Larger credit wrapped issuances in the US market were also possible, reflecting some of the long term debt positions held currently by regulated businesses. With the weakened state of the monocline insurers in the US market, such bond issuances are no longer possible:*"[36]

135. Consistent with this it is reasonable to assume that current costs of raising debt are likely to be higher than any historical estimate – for both public and private placement. On this basis alone (putting aside our concerns over the use of private placement costs as a proxy for public issue costs), we do not agree with the view expressed in the draft decision that its estimate reflects *"the best*

[36] Deloitte, Refinancing, Debt markets and Liquidity, 12 November 2008, a report to the AER.

estimates of the cost of raising public debt currently available" (as per the second paragraph on page 186).

136. In support of this view we note that at the time of writing (on 8th January 2009), National Australia Bank had just placed Australian Government Guaranteed debt in the US private placement market. This issue was reported in the Australian Newspaper under the heading 'Good response to government-backed bond'.[37] The salient features of this issue as reported in the Australian are that:

- the maturity of the bonds was 3 years;
- agents took a 20 basis points (presumably representing underwriting fees); and
- the interest rate on the issue price was 1.56% above US Treasury yields.

137. This represents a very high cost of issuing debt. Australian Government guaranteed debt is a much simpler commodity for underwriters to market than Australian BBB+ corporate debt. Despite this, a 20bp cost of a 3 year issue translates into a 7.6bppa real cost over the life of the issue (amortised at the draft decision real WACC). This compares with the AER's 'latest update' of its estimate at 6.0bppa. In our opinion a benchmark BBB+ utility could not issue debt in the US private placement market and incur lower underwriting fees than Australian Government Guaranteed debt.

138. The ACG methodology that the AER uses appears to be based on the same assumption. It excludes government business enterprises (GBEs) presumably on the basis that their implicit government guarantee makes the cost of underwriting these firms debt issues not comparable to a BBB+ corporate entity. The same methodology also excludes banks presumably for the same reason.[38] It is therefore relevant to note that the explicitly Government guaranteed debt of an Australian bank appears to have higher underwriting cost than the AER is currently allowing for a benchmark BBB+ rated utility.

139. In any event, even if they could do so it is certain that they would incur higher interest cost by pursuing such a strategy. This is consistent with the work of Livingston and Zhou referred to above. But it is also consistent with the recent issue by the NAB. On the assumption that the Australian Government has the same default probability as the US Government,[39] then, other things equal, US

[37] http://www.theaustralian.news.com.au/business/story/0,28124,24885293-36418,00.html

[38] See ACG, Debt and Equity raising Costs, A report to the ACCC, 2004, page 49.

[39] The Australian Government has the same credit rating but, unlike the US Government, has zero net debt and a much lower budget deficit as a percentage of GDP – suggesting that if anything the Australian Government should have lower probability of default.

dollar debt that is guaranteed by the Australian Government should have the same interest rate as US Government debt. However, other things are clearly not equal as indicated by the fact the yield was 1.56% higher for Australian Government guaranteed debt. At least part of the reason for this, consistent with the work of Livingston and Zhou, is that investors in the private placement market demand a higher interest rate (potentially for lower liquidity of bonds issued in that market).

140. We also understand that the cost of issuing public debt in Australia is likely to be at unusually high levels. In particular, Deloitte[40] has advised the AER that in relation to new issues of BBB+ bonds:

"The market for non-financial institution corporate bonds, similar to the assumed BBB+ grade used in the WACC model, effectively vanished from capital markets in the first half of 2008 against a total of $6.5 billion for the whole or 2007"

"The average maturity of corporate debt facilities has shortened, to around three years compared to 5 plus previously. In the past, 5 and 10 year bonds were widely used, but in the current market, the little volume that is being issues is primarily 3 year bank debt, with very little liquidity in 5 year facilities"

""Expectations are for the domestic corporate bond maket to remain illiquid, possibly into 2010 and beyond."

Key finding

The cost of issuing public debt is likely to be at historically high levels – suggesting an estimate from the top end of any historical range is appropriate.

5.3.4. Rejection of relevance of Saunders, Kim and Palia

141. The draft decision provides reasons why the AER does not believe the data from Saunders, Palia and Kim results. However, we regard each of these as problematic. First, the fact that Saunders, Kim and Palia's data is for the US does not appear to provide a basis to exclude this data. The private placement data that the AER relies on is for private placements in the US (albeit by Australian companies). Moreover, the depth of US financial markets is such that the costs of raising debt in the US is almost certainly lower than the cost of raising debt in Australia. This is consistent with the data on equity raising costs reported in Table 1 of our April 2008 reports which showed US equity raising

[40] Deloitte, Refinancing, Debt markets and Liquidity, 12 November 2008, a report to the AER, page 5.

costs were substantially lower than equity raising costs elsewhere in the world. Moreover, we are aware of no basis to believe that, *holding other factors constant*, Australian companies issuing in the US would have lower costs than US companies issuing in the US.

142. Second, as noted in our original report it is correct that the sample relied on by Saunders, Palia and Kim does not contain regulated utilities. However, neither does, as far as we know, the sample relied on by the AER in estimating private placement costs in the US.

143. By contrast we discuss above the fact that the study by Livingston and Zhou does have a substantial number of utilities in their database. Livingston and Zhou estimate that being a utility reduces underwriting fees by 3.5bp (or 0.5bppa when amortised over 10 years at the draft decision post tax real WACC). The Livingston and Zhou results can be used directly or can be used to adjust the Saunders, Kim and Palia results.

144. Thirdly, the view that regulated businesses, with stable cash-flows, are likely to have lower costs of raising debt than other firms may well be reasonable *holding other things constant*. However, it is not necessarily reasonable to hold other things equal. The NER requires that the AER estimate the cost of capital for a regulated business *with 60% debt gearing*. This is considerably higher than the average in the economy. It is on this basis that the NER sets a Standard and Poor's credit rating for regulated businesses of BBB+ that is at the *lowest* end of investment grade credit ratings. This means that while revenues for a regulated business may well be 'stable' their profits are not due to the high level of assumed gearing amplifying the effect on profits of small variations in revenues and costs. This is why the NER requires the adoption of low credit rating – precisely because lenders cannot be certain of being paid back in full the amount lent.

145. It would appear inconsistent with the NER's requirement that debt gearing be set at 60% and credit rating be set at BBB+ for the AER to argue as it does on page 186 of the NSW distribution draft decision that:

> "*Using a mean estimate of firms across an economy to estimate debt issuance costs for regulated firms does not appear to be reasonable, given regulated firms should have among the lowest costs of raising debt due to their stable, regulated cash flows."*

146. Nonetheless, this can be addressed by examining Saunders, Palia and Kim's estimates of the impact of different credit ratings on underwriting costs. In their econometric estimates Saunders, Palia and Kim include variables for gearing and credit rating. They find that a firm with investment grade credit rating (ie,

Standard and Poor's[41] credit rating of BBB or above) and zero gearing will have an underwriting cost of 0.86%.[42]. However, at a gearing of 60% this rises to 1.69%. This is substantially higher than the average 1.15% (29bppa) over their entire sample and much higher than the 0.56% (14bppa) reported in 2000.

147. CEG relied on the lower of these Saunders, Palia and Kim estimates (0.14% pa) to justify our still more conservative estimate of the cost of underwriting public debt. It would appear that any adjustment to this estimate based on the relative risk of a BBB+ rated and 60% geared company would result in the estimated cost of underwriting a public debt issue being higher not lower than the recommendation in our April 2008 reports.

Key finding

The basis for the AER not having regard to the empirical evidence from Saunders Palia and Kim is not sound. While a regulated utility may have low risk *other things equal*. This is not the case for a 60% geared utility with a BBB+ credit rating.

5.4. Underpricing is a cost a benchmark BBB+ rated firm will incur

148. Above we have responded to the AER's discussion of direct underwriting costs for debt issues. In this section we deal with the AER's treatment of indirect (underpricing) costs. On page 186 of the NSW distribution draft decision the AER states:

> *"The AER applies the benchmark BBB+ credit rating with 60:40 debt to equity ratio as specified in 6.5.2 of the transitional chapter 6 rules. It is implicit in the use of this benchmark that the firm can issue public corporate debt in the market at a BBB+ rating and at the average yield to maturity associated with BBB+ public bonds. If firms effectively issue at a higher yield than BBB+, for example due to underpricing the debt, the firms are effectively issuing higher yielding lower grade debt. The proposed underpricing premium is therefore inconsistent with the assumed BBB+ benchmark."*

149. We do not consider that this statement properly come to grips with what underpricing is and what the finance literature says about it. As described in the finance literature we refer to, both debt and equity tends to be issued at prices below the price that they subsequently trade at. In the case of debt, a lower price implies a higher interest rate. The AER sets the cost of debt based on the

[41] Although it should be noted that Saunders Palia and Kim use Moody's ratings

[42] See table 5 of Saunders Palia and Kim.

interest rate prevailing after debt is issued. However, businesses pay interest costs based on the price at which debt is actually issued. The difference is the cost of underpricing and is recognised as such in the finance literature we have identified. Clearly, if all businesses issue debt in the primary market at a lower price than it subsequently trades at in the secondary market then the AER will underestimate interest rate costs actually paid by businesses if it only examines the prices in the secondary market.

150. Underpricing is a cost to all businesses who, in order to ensure the success of a debt issue, need to issue debt at a discount to the price it subsequently trades. This is true for all firms irrespective of their credit rating. The above statement appears to claim that all firms should be able to issue debt in the primary market at the same price that the debt will subsequently trade at in the secondary market. However, this is an empirical issue not a conceptual one. The finance literature we have referred to has demonstrated that the answer to this empirical question is that underpricing does exist. **This empirical fact cannot be assumed away.**

151. The draft decision also states:

> *"CEG also argued that it is reasonable to assume BBB debt will be more underpriced than the average investment grade debt. CEG has, however, not provided any supporting evidence that BBB+ or even BBB debt is on average issued at a discount (underpriced)."*

152. By contrast we do believe we provided supporting evidence for this. At paragraph 56 of our of our April 2008 reports we stated:

> *"Livingston and Zhou report that the average debt margin (spread to Government bonds) at the time that private placement bonds are issued is over 200bp higher than for publicly issued bonds.*[43] *Livingston and Zhou note that this is likely explained by a greater proportion of riskier bonds being privately placed than publicly issued. However, even after accounting for this a significant difference remains. Specifically for BBB rated bonds, privately placed debt has a yield to maturity at the time of issue that is, on average, 42bp more than then publicly issued bonds."*[44]

153. Then at paragraph 66 of our original report:

[43] See Table 1 on page 12.

[44] See Table II, page 15, of M. Livingston and L Zhou (2002), "The impact of rule 144A debt offerings upon bond yields and underwriter fees," Financial Management, Vol. 31, Iss. 4, pp.5–28.

"We note that BBB rated bonds are on edge of investment grade and, based on the comparison between investment and non-investment grade, one can reasonably assume that BBB rated bonds will have higher underpricing than the average for investment grade. Cai, Helwege, Warga do not separately report the figure for BBB rated bonds, however, one can reasonably assume that it is between -0.01 and 14.9bp. This is broadly consistent with the findings of Datta, Datta, and Patel (referred to by Saunders et al) of first day returns on corporate debt averaging around 15bp."

154. In short, we have argued that there is evidence that underpricing costs increase as the level of a firm's credit rating decreases. This is consistent with a common sense expectation that the lower a firm's credit rating the harder it will be to market new debt issues because of the increasing uncertainty associated with the value of that debt. However, the available evidence we considered distinguishes between investment grade and non-investment grade debt. We believe that the only reasonable assumption is that BBB+ debt, which is on the edge of investment grade, will have a higher level of underpricing than the average for investment grade.

155. It was this logic that underpinned our recommendation for a 3bppa cost of underpricing.

156. Following the AER's response we have re-examined the results from Livingston and Zhou. Livingston and Zhou measure underpricing in private versus public issues (rather than public issues versus public secondary trades). Nonetheless, consistent with our position that underpricing will tend to increase as credit rating decreases within investment grade (rather than simply jumping from zero to a high number once credit rating slips below investment grade). Livingston and Zhou find that underpricing increases as credit rating deteriorated and that this result was statistically significant at the 1% level for credit ratings of A/BBB and lower.[45]

Key finding

If underpricing exists it is a cost that should be compensated – it cannot be assumed away.

We have provided evidence in support of a modest level of underpricing for BBB+ bonds.

[45] See Table III on page 18.

5.5. Amortisation of costs over the life of the bond

157. It appears to us that the methodology used by the AER for estimating the direct cost of debt issuance fails to adequately model the timing of costs. Specifically, the methodology spreads up-front costs over the life of the bond issue by performing the following calculations:

- Underwritting costs measured on a per annum basis are estimated by dividing total underwriting costs by the maturity of the issue;
- Legal and roadshow fees are similarly divided by maturity of the issue;
- Issue credit rating costs are similarly divided by the maturity of the issue.

158. The maturity of the issue is assumed to be 5 years (see last para on page 187). The other two cost estimates (company credit rating and registry fees) are annual costs rather than up-front costs incurred at the beginning of an issue. Consequently, the methodology correctly does not divide these costs by the maturity of the issue.

159. However, the treatment of up front costs does not provide any compensation for the time value of money. For example, the methodology estimates legal and road-show costs to be $100,000 per issue of $200m. The methodology then divides $100,000 by $200m to get a 0.05% (ie, 5bp) cost estimate. This is then divided by the assumed maturity of the bond to get a 5bppa cost estimate.

160. The PTRM then compensates the businesses 5bppa on the value of its outstanding debt. However, by spreading compensation over time in this fashion the PTRM fails to compensate for the time value of money. Specifically, in order for a business that spends $100,000 at the beginning of a bond's life to 'remain whole' the compensation provided over the life of that bond must have a present value equal to $100,000. The methodology currently employed only offers $20 per annum for five years – which has a present value of less than $100,000.

161. To properly provide compensation for the time value of money the amount inputted into the PTRM must be more than simply the up-front cost of issuing a bond divided by the maturity of the bond. Rather, it must be equal to the value of an annuity at the cost of capital "WACC" that recovers the up-front cost "C" over the period to maturity of the bond "n". The formula for such an annuity is:

$$Annuity = \frac{C * WACC}{1 - \frac{1}{(1 + WACC)^n}}$$

162. For up-front costs other than underwriting the value for C that goes into this formula is simply the value currently used in Table 8.18 of the draft decision (eg, $100,000 for roadshows).

163. For underwriting fees the required adjustment may be more complex. If the AER implements the ACG methodology then it would appear that its 6bppa estimate is based on dividing the gross underwriting fees by the time to maturity of the bond at the time of issue.[46] Thus, if the bond on which this 6bppa figure is derived had an average time to maturity of 10 years the 6bppa estimate would reflect a 60bp up-front underwriting fee (6bppa*10 years). In order to convert this to an annual (bppa) figure it would be necessary to use n=10 in the above formula rather than n=5. However, if the 6bppa figure is derived from bonds with a 5 year term then the up-front underwriting fee would be 30bp (6bppa*5 years). In order to convert this to an annual (bppa) figure it would be necessary to use n=5 in the above formula (and so on for other possible bond terms).

164. With a WACC of 7% the different estimated annuities would be:

- 6bppa for a ten year bond using the ACG methodology becomes 60bp up-front cost which converts to an annuity of 8.5bppa;
- 6bppa for a 5 year bond using the ACG methodology becomes 30bp up-front cost which converts to an annuity of 7.3bppa.

165. The difference between 6bppa and 7.3/8.5bppa reflects the extra compensation for the time value of money on the up-front cost of 30/60bp built into the above annuity formula.

166. We note that this may partly explain why the literature we refer to in earlier sections provides estimates of underwriting costs for debt that are so much higher than the estimates derived by the AER. When we report bppa from that literature it is always on an annualised basis capturing the time value of money. Clearly this has a significant effect for longer maturity bonds.

Key finding

Full compensation for up-front debt raising costs requires these are amortised over the life of the bond – not simply divided by the life of the bond.

[46] See ACG, Debt and Equity raising Costs, A report to the ACCC, 2004, page 49.

5.6. Inflation adjustment of non-underwriting costs

167. The draft decision adopts the same estimates of non-underwriting transaction costs as were in ACG's 2004 study. In the absence of any better information it would be appropriate to assume that these costs have grown in line with an appropriate measure of inflation.

168. Since it was first published in June 2005, the ABS index of inflation for financial and insurance services has increased by 15.9% to September 2008. Inflation in the total 'All groups' CPI in the year from June 2004 to June 2005 was 2.5%. If we use this as a proxy for the increase in financial costs from June 2004 to June 2005 we get an 18.8% increase in prices (18.8%=1.025*1.159-1).

169. We therefore recommend that, to the extent that the AER continue to use this methodology, these costs be escalated by a factor of 1.18 to bring them to September 2008 levels. Without any adjustments for annualisation, this would increase the costs of a single bond issue as estimated by the AER from 2.4bppa to 2.8bppa.

Key finding

The AER's 2004 estimates of the non-underwriting costs should be escalated for inflation since 2004.

Appendix A. Costs of a rights issue

170. With a deeply enough discounted rights issue a firm can avoid both underwriting and (direct) underpricing to new investors. That is, with a deeply enough discounted rights issue investors are compelled to either take up the shares themselves or to find someone else to. If they do neither then they will have the value of their existing shareholding diluted at material cost to themselves. However, this does not mean that it is costless to a shareholder to provide/raise equity in a rights issue.

171. As per the quote from the Financial Times in the main body of this report, a deeply discounted rights issue is like a 'gun to the head' of existing shareholders. It can be used to force them to take undertake the functions of an external underwriter – but it is nonsensical to argue that this eliminates the costs of this function. Rather, it simply shifts those costs onto existing shareholders. In doing so, there are good reasons to believe that it increases the costs of fulfilling these functions (as described below). This is consistent with the fact that most equity raising in Australia utilises a placement method rather than a rights method.

172. Existing shareholders are not a source of unlimited supply for new capital. Existing shareholders wealth is limited and they, consistent with modern finance theory (the CAPM included), want to manage risk by owning a balanced and diversified portfolio. It is costly for these shareholders to provide additional capital to one firm as this requires them to have 'more eggs in that basket' than they would voluntarily choose. If investors had wanted greater weight for that firm in their portfolio they would already have purchased their equity on the open market.

173. Moreover, in order to raise the funds to participate in the rights issue the shareholder must sell other assets or reduce the amount of cash in their portfolio. This will force shareholders to incur transaction costs (eg, triggering capital gains tax, brokerage fees, the costs associated with crossing 'bid-ask' spreads in the assets they are selling etc).

174. These factors mean that many investors will not want to take up the rights issue. If the rights issue is non-tradeable then these investors will have the value of their equity in the firm diluted (by virtue of the fact the company is selling equity at a discount to other shareholders who do participate). This is an obvious cost to them. If the right is tradeable then investors can attempt to sell this right to other investors. But in this case all the rights issue has done is push the transaction costs of marketing the equity down onto shareholders – it hasn't eliminated this cost. In doing so shareholders will be forced to find new investors for the new shares. To find those new investors they will need to accept a lower price for those shares for precisely the same reason that underwriters in a placement need to offer a lower price. Shifting the responsibility for finding a new investor from an

underwriter to a shareholder does not change the immutable logic of market supply and demand. All it does is change the legal entity incurring the cost of underpricing from the company (who must offer a discount to attract new equity) to shareholders (who must similarly offer a discount to attract new shareholders). This change in legal entity bearing the costs does not alter the fact that such a cost to existing shareholders exists. In other words, a rights issue is no 'magic bullet' for removing the cost of underpricing.

175. In addition, pushing this role onto shareholders will generally be *less* efficient than contracting with an underwriter. This reflects the fact that:

- unlike an underwriter in a placement, individual shareholders have less incentive to invest in marketing the rights issue to new investors by providing information to those investors;[47]
- individual shareholders are not expert marketers of equity capital and can not coordinate to find the best price for their equity in the way that an underwriter of a private placement can;
- transaction costs will inevitably be a higher proportion of total costs for individual shareholders attempting to sell their rights. This is because rights issues are of relatively low value for the majority of shareholders (causing transaction costs to be a large percentage of any sale proceeds). In addition, the secondary market for rights issues is generally less liquid than for shares (increasing the cost of trading in that market).
- taxation costs associated with a rights issue will exceed taxation costs associated with a placement. This is because the sale of a renounceable right will trigger the crystallisation of a capital gain for the purpose of capital gains tax (CGT). This means that shareholders on can lose up to 46.5%[48] of the value of the right in the form of higher tax liabilities. For most shareholders this is likely to form a very significant cost associated with a rights issue.

176. In summary, engaging in a discounted rights issue causes shareholders to either:

- incur all the direct and indirect costs that an underwriter would have incurred in the first place by finding buyers for those shares; or

[47] Unlike an underwriter in a placement who is responsible for placing the entirety of the equity raising, an individual shareholder in a rights issue is only responsible for a small fraction of the equity being raised. They therefore have limited incentive to engage in roadshows and other such marketing activities given that most of the benefit in the form of higher prices will go to other shareholders;

[48] Depending on the investors marginal tax rate and whether they qualify for the CGT 50% discount (ie, had whether they have held the underlying share upon which the right is based for more than 12 months).

- increase the amount they have invested in this firm above the level that they would voluntarily choose and less of other assets than they would voluntarily choose.[49] Moreover, they investors will be forced to incur transaction costs in selling those assets necessary to find the funds to participate in the rights issue.

177. For these reasons many investors will prefer to sell off the equity prior to the rights issue being made - depressing the market price during the rights issue and further reducing the capacity to capture the full value of any discount by those who try to sell their rights. Secondly, investors will tend to never buy equities in companies that have a reputation for resorting to large scale rights issues – permanently depressing the market price of equity.

178. The finance literature has dealt with this issue in depth. Smith (1977) noted that rights issues were becoming increasingly less popular and were being replaced by the seemingly more expensive underwritten public offers offerings open to new investors. There has since been a burgeoning field in the finance literature explaining why rights offers are, in reality, often more expensive than public offers. One of the classic papers in this field is Hansen's 1988 paper "the demise of the rights issue"[50] where he describes precisely the above kind of transaction costs.

179. In summary, rights issues do not allow firms to avoid the costs of raising equity (either direct or underpricing costs) they simply tend to obscure them or push them directly onto shareholders. This is consistent with the fact that firms, such as the NAB, do undertake other forms of equity raising (which would be irrational if rights issues were zero cost). It is also consistent with the finance literature.

    That is not to say that rights issues are not sometimes efficient – they clearly are as otherwise we would not observe them. However, it is clearly wrong to assume that, because a firm could undertake a deeply discounted rights issue and thereby avoid both underwriting fees and direct underpricing[51] to external shareholders this would be a costless means of raising equity. If this were true it would be the only form of capital raising ever undertaken.

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[49] By definition, if an investor wanted to hold more of that equity and less of other equity s/he would have already made these transactions on the open market.

[50] Hansen (1988,) The demise of the rights issue, *Review of Financial Studies,* 1 289-309.

[51] In a rights issue the company forces shareholders to sell any unwanted shares to new buyers – thereby forcing the shareholder to offer the lower price required to attract new equity rather than the company. Of course, the distinction between shareholders incurring underpricing costs and the company incurring underpricing costs is a matter of form and not economic substance.

Appendix B. Tom Hird

Tom Hird is a founding Director of CEG's Australian operations. Tom has a Ph.D. in Economics from Monash University. He is also an Honorary Fellow of the Faculty of Economics at Monash University and has 16 years professional experience in the economic analysis of markets.

Prior to forming CEG Tom was an Associate Director at NERA Economic Consulting and prior to that was a senior officer in the Australian Commonwealth Treasury.

Tom's clients include private businesses and government agencies, including the World Bank and national regulators. Tom has advised clients on matters pertaining to: valuation, cost of capital, competition policy issues and merger clearance processes.

Tom's industry experience spans the aviation, electricity and gas transport, electricity generation, finance, mining, ports, rail transport, retailing, industrial packaging, telecommunications and tourism sectors. In terms of geographical coverage, Tom's clients have included businesses and government agencies in Australia, Europe, New Zealand, Macau, Singapore and the Philippines.

Recent selected assignments include:

2008

Advising on appropriate forecasts for costs faced by Australian electricity businesses over the forthcoming regulatory period. Used as an input into their regulatory cost modelling.

Advising Optus and Terria on the regulatory framework for their bids to build a national broadband network

Advising on forecasts of inflation to be used by Australian electricity businesses as inputs to their regulatory submissions.

Advising the Energy Networks Association on cost of capital issues in the context of the AER five year review of the cost of capital in the NER.

Advising Queensland Rail on its cost of capital submission to the QCA.

Advising all of the eight electricity businesses making submissions in this period to the Australian Energy Regulator (AER) on cost of capital issues. These include businesses from NSW, South Australia, the ACT, Queensland and Tasmania.

2007

Advising the Victorian gas distributors in relation to their response the ESCV's draft decision on the cost of capital (four reports).

Advising the Energy Networks Association on the appropriate estimation technique for the risk free rate used in CAPM modelling.

Advising on the cost of capital for Victorian electricity distributors' metering operations.

2006

Advise the Macau regulator (GDSE) on efficient tariff reform for the vertically integrated generation and network provider.

Advising the Australian Energy Regulator on the cost capital issues in relation to the RBP pipeline access arrangement.

2005

Advised TransGrid on the development of a price index to reflect movements in the unit costs of inputs into its capital expenditure program.

Advised TransGrid on appropriate adjustments to forecast capital expenditure to take account of material increases in demand for investment in future Australian electricity infrastructure.

Advising on the relative merits of CBASpectrum and Bloomberg's methodology for estimating the appropriate debt margin for long dated low rated corporate bonds.

Advising Prime Infrastructure on the relative merits of the QCA's draft cost of capital decision for Queensland electricity distribution.

2004

Provided ESCOSA with a report on the appropriate mechanism to provide ETSA Utilities with an incentive to achieve cost reductions in operating and capital expenditure.

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