COMPETITION ECONOMISTS GROUP

REVIEW OF Lally and Chairmont Reports

October 2013

Project team:

Tom Hird

CEG Asia Pacific
Suite 201, 111 Harrington Street
Sydney NSW 2000
Australia
T: +61 2 9881 5754
www.ceg-ap.com

[Status]

COMPETITION ECONOMISTS GROUP

Table of Contents

COMPETITION ECONOMISTS GROUP

List of Figures

COMPETITION ECONOMISTS GROUP

1 Introduction

1. The ENA has asked CEG to provide a brief overview of the analysis contained in reports by Professor Lally[1] and Chairmont Consulting[2] published by the AER at the same time as the Draft Rate of Return Guideline (Draft Guideline). The ENA has also asked me to provide any views that may be relevant on how the AER has interpreted these reports in developing its Draft Guideline– including specifically in respect of the adoption of 7 year term for the cost of debt.

[1] Lally, Estimating The Cost of Debt of The Benchmark Efficient Regulated Energy Network Business, August 2013.

[2] Chairmont Consulting, Debt Risk Premium Expert Report, February 2012.

COMPETITION ECONOMISTS GROUP

2 Analysis

2.1 Relevance of swap contracts to effective term of debt

2. The Draft Explanatory Statement justifies adopting a trailing average of 7 year debt despite acknowledging evidence that suggests that the average term of debt issued is in excess of 7 years. The justification for doing so is the assumption that businesses shorten their 'average effective term of debt' by entering into swap contracts. The AER estimated in 2009 that, despite the average term of debt issuance being 10.14 years for a sample of businesses, the 'average effective term of debt' was 7.37 years.[3]

3. This lower estimate of the 'average effective term of debt' was based on the fact that businesses used swap contracts to shorten their exposure to base interest rates in order that that interest costs would be reset at the beginning of each regulatory period. This strategy was, in turn, employed in an attempt to hedge against revenue volatility that resulted from the AER's use of the 'on the day' approach to estimating the cost of debt allowance – which also reset 100% of the cost of debt allowance based on prevailing interest rates at that time.

4. The logic underpinning this position is in my view problematic on a number of levels. First, the hedging strategy that the AER relied on to lower the 'average effective term of debt' estimate from 10.14 to 7.00 years is clearly a creature of the old 'on the day' regime. Businesses will not rationally pursue this swap strategy under a trailing average. To do so would actually increase their risk rather than hedge their risk.

5. Lally makes effectively this point when he states:

> *Furthermore, the relevant firms to observe for these purposes are the firms that it regulates sans regulation, which is impossible. Observation of the swap contract behaviour of the firms in the presence of regulation will not be a satisfactory substitute because this swap contract behaviour will be influenced by the nature of the regulation. For example, if the regulatory cycle is five years, regulated firms can be expected to convert the risk free rate component of their cost of debt into five year debt and the evidence presented (AER, 2009, pp. 152-153) indicates that they do this. This tells us nothing about how they would behave if they were not regulated. [Emphasis added]*

6. In the above quote Lally makes the point that the use of swaps under the 'on the day' regime is irrelevant to an assessment about the efficient use of swaps under a

[3] AER, Review of Electricity Distribution and Transmission WACC Parameters, 2009. See Tables 6.1 and 6.3.

COMPETITION ECONOMISTS GROUP

scenario of 'no regulation'. However, the same logic also implies that it is irrelevant to an assessment about the efficient use of swaps under a radically different way of compensating for the cost of debt such as the trailing average.

7. It is a serious error for the AER to infer that the efficient term of debt issued by businesses will, under a trailing average approach, be to issue 7 year debt on the basis that, under the 'on the day' approach, businesses:

   - issued 10 year debt; and
   - swapped the risk free component of that debt portfolio to 5 year terms coinciding with the firm's regulatory period (i.e., coinciding with the term at which the regulator reset cost of debt allowances).

8. Indeed, it is impossible to issue 10 year debt and then convert that exposure, using interest rate swaps, to hedge to a 7 year trailing average of 7 year debt. A 7 year trailing average benchmark is simply unhedgeable for a firm that issues 10 year debt. Firstly, a firm that issues 10 year debt will pay a trailing average 10 year DRP. This cannot be altered with swap contracts. The AER's proposed benchmark will compensate for a trailing average 7 year DRP. Clearly, a trailing average 10 year DRP will not be hedged to a trailing average 7 year DRP because:

   - the number of years in the two trailing averages are different; and
   - the term of the two DRP estimates will be different.

9. Even if there is no term structure to DRP (such that a 7 and 10 year DRP are always the same) the first dot point means that volatility in DRP will affect the actual cost of debt (based on a 10 year trailing average) differently to the AER's proposed trailing average. Of course, the DRP term premium is, in reality, consistently positive.[4] Thus, the second dot point means that a 7 year benchmark will undercompensate a business issuing 10 year debt.

10. A business could attempt to respond to this under-compensation by entering into swaps to shorten their base rate exposure to even less than 7 years and, assuming a positive term premium,[5] pay base rates of less than embodied in the AER benchmark. It appears that this is something like what the AER envisages by calculating an 'effective average term' of 7.37 years associated with issuing 10.14 year debt and using 5 year swaps to hedge to the regulatory period.

11. However, a business that attempts this strategy exposes themselves to volatility in base rates that is not matched by the volatility in their allowances. This means that if base rates rise then their costs rise faster than their allowance. Moreover, if DRP's rise at the same time then the effect is compounded.

4 See CEG, Mechanistic cost of debt extrapolation from 7 to 10 years, October 2011.

5 And abstracting from the transaction costs associated with those swap contracts.

COMPETITION ECONOMISTS GROUP

12. Ultimately, the concept of an 'average effective term' for the cost of debt is meaningless in the context of a trailing average. If the it is determined that it is efficient to use swaps to reduce the term of base rate interest exposure then the AER must spell out exactly what this swap strategy is an build it into the benchmark explicitly. Only then would the benchmark be hedgeable.

2.1.1 Shorter term of debt does not lower the cost of capital

13. The previous quote from the AER, and the advice from Lally on which it is based, presumes that the cost of debt can be reduced by issuing shorter term debt. It is true that, holding all other things constant, a business is likely to pay a lower yield on a single bond if that bond has a shorter maturity. However, this conclusion relies heavily on the assumption that all other things have been held constant – including the average term of debt for the issuer. This conclusion does not imply that if a business issued all of its debt at a short maturity it would pay a lower interest rate.

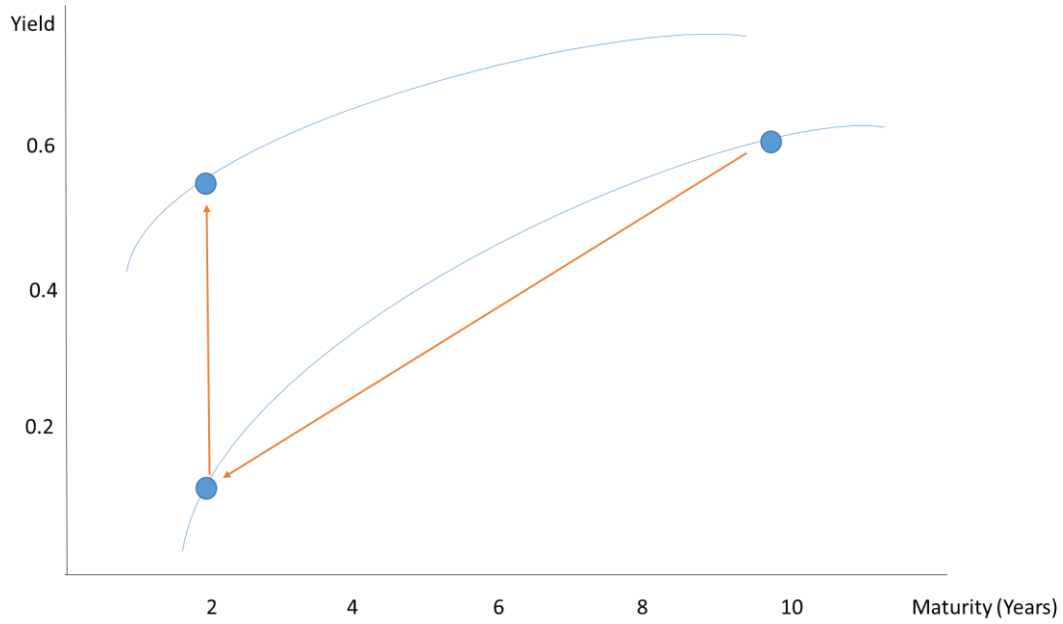
14. This is because a firm that is predominantly financed with short term debt faces greater risks if debt market conditions turn against it. By contrast, an otherwise identical firm that funds itself with long term debt will be able to issue short term debt at lower yields – because its use of long term debt shields it from short run variability in market conditions .

15. The net effect on the cost of debt associate with shortening the average term of debt on issue is a combination of two effects:

    - moving down an upward sloping issuer yield curve; and
    - the issuer yield curve shifting up as lending to the issuer at any given maturity becomes more risky.

16. Whether the net effect is an increase or reduction in the cost of debt is an empirical question – it is not theoretically obvious that the effect would be a lower cost of debt as has been assumed by the AER. This is illustrated in the below graphic.

Figure 1: Hypothetical example



17. Even if issuing a shorter average term of debt (say 7 years instead of 10 years) did lower the cost of debt it does not follow that it lowers the cost of capital. This is implicitly acknowledged in the above quote from the Draft Explanatory Statement which states that there is a trade-off between lower interest rates and higher refinancing risks. Implicitly, this statement suggests that higher refinancing risks raise the cost of equity (if this is not the case then there is no trade off against which to optimise).

18. As noted by in a separate report[6], the Modigliani-Miller theorem states that, in a world with zero transaction costs, the cost of capital is invariant to the type of debt funding used. Issuing shorter term debt, even if it has lower interest costs, will not lower the WACC because there will be an offsetting increase in the cost of equity. Consequently, even if it was correct that a 7 year term assumption (properly implemented with a lower credit rating than a 10 year term assumption) lowered the cost of debt there would need to be a consequential and fully offsetting increase in the cost of equity.

19. The Modigliani-Miller theorem does, in the presence of transaction costs, allow for the cost of capital to depend on the debt management strategy employed by a business. However, because businesses can be assumed to have already adopted the strategy that lowers transaction costs, any assumption that departs from what businesses actually do (such as assuming a 7 year term) would raise (not lower) the cost of capital.

6 CEG, Efficiency of staggered debt issuance, February 2013.

2.2 Other issues raised in these reports

20. The Lally and Chairmont reports express the following views in relation to the selection of a sample of bonds from which to estimate the cost of debt (or cross check the accuracy of a fair value estimate from third party provider such as Bloomberg):

- should be restricted to Australian regulated energy utilities or similar 'natural monopoly' Australian firms;[7]
- should exclude subordinated bonds;[8]
- should exclude callable debt;[9]
- should exclude foreign issued bonds (even by Australian utilities); [10]

21. On other issues the following views are also relevant:

- that the benchmark term for the risk free component of the cost of debt under a trailing average is 'indeterminable';[11]
- reliance on simple sample averages rather than curve fitting is appropriate. [12]

22. I deal with each of these in turn. First, the recommendation that sampling of bonds should be restricted to Australian regulated energy businesses or other 'natural monopoly' issuers with the benchmark credit rating (even if other issuers have the benchmark credit rating) is simply untenable for the foreseeable future given the small number of issuers. This is highlighted by the Chairmont conclusion on page 46 where they identify the 'relevant sample' as having just four bonds – all but one of them issued by Australian airports. Using data for just 4 bonds will not provide a robust estimate of the cost of debt.

23. The Chairmont and Lally position is based on an assumption that the yield on BBB rated energy utilities (or other natural monopoly firms such as airports) might be systematically different to the average yield on BBB rated debt. While this is possible, no statistical evidence is presented to support such a view and, as such, the view is simply conjecture. Such conjecture does not form a reasonable basis to

7 Lally Estimating The Cost of Debt of The Benchmark Efficient Regulated Energy Network Business, August 2013, page 3. Chairmont Consulting Debt Risk Premium Expert Report, 2011, pages 8 to 17.

8 Ibid Lally, section 6.5, Ibid Chairmont, section 3.4.

9 Ibid Lally, section 6.4, Ibid Chairmont, section 3.3.

10 Ibid Lally, section 6.2.

11 Lally, Estimating The Cost of Debt of The Benchmark Efficient Regulated Energy Network Business, August 2013, page 3.

12 Ibid Chairmont, page 46.

'throw out' large numbers of bonds with the benchmark credit rating in order to rely on, as in the case of the Chairmont report, just four bonds.

24. Of course, if there were many hundreds of bonds issued by regulated energy utilities of the relevant credit rating then it would be uncontroversial to focus the analysis on these bonds. If there was a systematic difference between these bonds and other bonds with the same credit rating this would show up in the analysis. If there was no systematic difference there would still be enough bonds to reliably estimate a fair value curve even without other issuers (although not as reliably as if all issuers were included).

25. However, this is simply not the state of the world in which the AER operates. As has been noted in several Tribunal decisions to date the small amount of data available from the Australian bond market means that the AER should not restrict the number of bonds it uses to assess the cost of debt – at least not without strong empirical grounds. It is certainly true that credit rating is an imperfect predictor of yield (i.e., bonds with the same credit rating have different yields). Nonetheless, credit rating is the best means available for identifying a sufficiently large number of bonds that are sufficiently similar in nature to the bond that would be issued by an energy utility with the benchmark credit rating.

26. Second, both Chairmont and Lally (referencing Chairmont) argue that the differential credit rating between subordinated and senior debt does not adequately reflect the difference in credit risk as perceived by investors. Once more, no statistical evidence is presented to support such a view and, as such, the view is simply conjecture. Such conjecture does not form a reasonable basis to 'throw out' large numbers of bonds with the benchmark credit rating in order to rely on, as in the case of the Chairmont report, just four bonds.

27. Third, Chairmont argues that it is difficult to convert yield to call on callable debt into non-callable equivalent yields to maturity. Lally argues that, given this, callable debt should be excluded from any sample because its yield is increased by the value of the call option. However, as documented by CEG,[13] regulated businesses commonly do issue callable debt. Given this fact, a strong rationale for exclusion of callable bonds must be provided. This rationale cannot simply be that these bonds have higher yields – because benchmark businesses have to pay those higher interest rates on their callable debt. No other rationale is provided by Lally.

28. Fourthly, Lally argues that foreign issued debt (even when issued by Australian regulated utilities) should be excluded from any sample. As documented by CEG,[14] regulated Australian businesses, especially Australian regulated energy businesses, commonly issue debt overseas. Clearly, in this context a strong rationale for

13 CEG, Debt strategies of utility businesses, June 2013.

14 CEG, Debt strategies of utility businesses, June 2013.

exclusion of these bonds must be provided. Lally does supply a rationale for exclusion but it is weak and its consistent application would lead to the exclusion of domestically issued bonds as well – leaving an empty set from which to sample.

29. Specifically, Lally argues that the US secondary market may be illiquid therefore yield estimates from the US are unreliable.[15] But there is no suggestion by Lally that domestically issued bonds have a more liquid secondary market. Lally then states an 'understanding' (without any reference to the source of this understanding) that "the rate differential between local bonds and otherwise identical foreign denominated bonds fluctuates considerably over time, with the differential typically up to 1%".[16] Such assertion is not a reliable basis for excluding foreign bond issuance. Indeed, to the extent that the fluctuation is due to measurement problems in the domestic market it would be an argument for excluding domestic bonds not foreign bonds. Finally, Lally argues that because buyers in secondary markets might differ from the original lenders then the yield on the secondary market might be different to the yield in the primary market. [17] Putting aside the fact that this assumes away the laws of arbitrage,[18] any such issues would apply equally to domestic bond issues. That is, this is an argument for excluding secondary market yields – not an argument for excluding foreign secondary market yields.

30. Fifthly, Lally argues that the benchmark term for the risk free component of the cost of debt under a trailing average is 'indeterminable'. [19] Lally argues this because he argues that the correct benchmark term is the term that would exist without regulation and, because businesses are regulated, this is unobservable. This conclusion is extreme. It is true that debt management strategies are influenced by the form of regulation. However, we know that Australian businesses subject to 'on the day' approach to compensating for the cost of debt issued long term debt (of at least 10 years on average). This is despite the fact that the 'on the day' approach created an incentive to align the term of debt with the term of the regulatory period.

---

15 Lally, op cit, first paragraph in section 6.2.

16 Ibid, second paragraph in section 6.2.

17 Ibid, third paragraph in section 6.2.

18 If secondary market bond yields were materially and systematically below yields paid on primary borrowings then borrowers would have a strong incentive to find and lend directly to the holders of bonds on the secondary market. In the opposite situation, primary lenders would have a strong incentive to simply invest in pre-existing bonds on the secondary market rather than lending to the borrower. Of course, the latter is likely to be the case in that firms issuing new debt are likely to have to pay a new issue premium – a premium that is larger the larger the bond sale. However, market forces constrain the size of such a premium to reflect the costs, including transaction costs, to lenders of absorbing new issues into their portfolios.

19 Lally, Estimating The Cost of Debt of The Benchmark Efficient Regulated Energy Network Business, August 2013, page 3.

Under a 'trailing average' approach this incentive is removed. Therefore, the best estimate of the efficient term under a trailing average approach is best described as "greater than the term observed under an 'on the day approach'" rather than "indeterminable". I note that the cost of debt allowances in the US and the UK are more consistent with trailing averages and the average term debt issued by regulated energy businesses in those jurisdictions is well above 15 years.[20]

31. Finally, Lally[21] and Chairmont[22] both argue that the simple average of a sample can be used to estimate the benchmark cost of debt. Chairmont does not consider curve fitting as an alternative (no doubt influenced by the fact that he only has a sample of 4 relevant bonds) while Lally considers both a simple average and a fitted curve and concludes that neither approach is clearly superior.[23] I disagree. A curve fitting regression exercise is a superior approach to arriving at an estimate of the cost of debt because it can properly account for differences in the data due to term and credit rating (asset out by CEG).[24]

[20] CEG, Debt strategies of utility businesses, June 2013. See Table 1.

[21] ibid, page 34.

[22] Op cit, Chairmont, page 46.

[23] Lally, op cit, page 4.

[24] CEG, Estimating the debt risk premium, June 2013. See sections 5.2 and 5.3.