

The **Allen Consulting** Group

Credit rating for a benchmark electricity transmission business

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Report to Electricity Transmission Network Owners Forum

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Executive summary

Introduction

Professor Martin Lally has provided a report to the Australian Energy Regulator (AER) that concludes that the available statistical evidence supports the AER's view that a regulated Australian transmission business with a gearing level of 60 per cent debt-to-assets would be able to maintain a credit rating of 'A' (using the Standard & Poor's rating nomenclature).¹ The purpose of this credit rating assumption, in turn, is to derive the benchmark cost of debt for the entity when deriving the allowed return on its regulated assets.

Lally used regression analysis to estimate the relationship between the credit rating for a regulated electricity business, controlling for several other factors (namely, whether the entity is government owned and whether the entity is transmission or distribution), using as a sample set the credit ratings and other relevant characteristics of Australian electricity transmission and distribution entities. Lally (and the AER's) conclusions that a regulated transmission business would be able to maintain an A rating contrasts with the view taken by the Australian Energy Market Commission (AEMC) in its Rule Proposal that a BBB rating would be the more appropriate assumption.

The Electricity Transmission Network Owners Forum has engaged the Allen Consulting Group to investigate whether Professor Lally's conclusions can be supported by the available evidence. We have also been asked to provide our own view on the appropriate credit rating to be assumed for a 60 per cent geared electricity transmission business.

Our view is that the available empirical evidence implies that an Australian regulated electricity transmission business would be expected to have the capacity to maintain a credit rating of BBB+. We therefore recommend that the Rules require that a BBB+ rating be assumed when estimating the benchmark interest rate that a TNSP would pay on its debt. A summary of the reasons for this conclusion follows.

Analysis of Professor Lally's Statistical Analysis

First, Professor Lally's results demonstrated that the 90 per cent confidence interval for the credit rating for the transmission business with benchmark gearing spanned the border of A+/A to the border of BBB+/BBB and from this concluded that the AER's preferred credit rating of A was wholly within the set, whereas the AEMC's preferred credit rating was outside. However, we note that the best estimate of the credit rating for a 60 per cent gearing transmission business is not A as proposed by the AER, but rather a rating of A-.

¹ Lally, M. (2006), The Appropriate Credit Rating for Australian Electricity Transmission Businesses, Report to the Australian Energy Regulator, March.

We also note that if Professor Lally's method was accepted, a credit rating of A- would be the unbiased estimate of the credit rating for a 60 per cent geared transmission business, whereas Professor Lally considers it appropriate to adopt a conservative assumption in favour of the businesses (albeit preferring that this conservatism be undertaken by adding a single margin to the unbiased estimate of the weighted average cost of capital). As there is no scope within the Rule Proposal for a conservatism margin to be added at the end of the process, a plausible interpretation of Lally's results in light of the Rule Proposal is that a credit rating of somewhere below A- would follow.

In addition, there are three empirical decisions that were made by Professor Lally with which we disagree. In addition, we consider there to be superior measures of the financial indicators that are most relevant to credit ratings that should also be tested. Making these adjustments has a material effect on the empirical results and hence the conclusions that may be drawn from the available statistical evidence.

First, Professor Lally rejected ElectraNet as an observation on the basis that it was an outlier. However, we have been unable to find any reason in the public report of Standard & Poor's on the rating of ElectraNet that would suggest that it would be treated as an outlier, and so we consider that it should be included in the sample (we note that even with ElectraNet added to the sample that Lally considered, there would only be 11 observations).

That said, we note that Lally considered that ElectraNet should be treated as if it was half government owned (government ownership was one of the factors that Lally proposed controlling for, and with which we agree). However, we note that Standard & Poors did not appear to apply a higher rating to ElectraNet on the basis of its part ownership by the Queensland Government,² and so consider it appropriate to treat ElectraNet as wholly privately owned for the purpose of the statistical analysis.

Adding ElectraNet to the dataset (but treating it as not being government owned) would lead to the best estimate of the credit rating for an Australian electricity transmission entity being on the cusp of A- and BBB+ (albeit closer to A-).

Secondly, one of the factors that Professor Lally controlled for when estimating the relationship between the gearing level of an entity and its credit rating was whether the relevant regulated electricity business was distribution or transmission. We do not consider that Lally's discussion provides a strong *a priori* case for believing that the credit rating of a transmission and distribution that were otherwise identical would be different, and in any event note that there is insufficient data to permit a robust estimate of the size of the difference (the parameters in Lally's regression equations that estimate the difference in ratings between transmission and distribution never achieve any degree of statistical significance). Accordingly, we conclude that it is inappropriate to attempt to distinguish between transmission and distribution when deriving the benchmark credit rating for a regulated entity with benchmark gearing.

² ElectraNet advises that it is rated by Standard & Poor's on a stand-alone basis, which supports the treatment noted in the text. In contrast, we support Professor Lally's categorisation of the two SPI entities as part government owned given that Standard & Poor's has noted in public rating reports that it has applied a higher rating to these entities on the basis the degree of support expected from the parent. This is discussed further in Chapter 3.

If the ratings of identical transmission and distribution entities are accepted as being approximately the same, then the best estimate of the credit rating for an Australian electricity transmission entity is still on the cusp of A- and BBB+.

Thirdly, in a similar vein to the previous point, we also consider it a reasonable assumption that the credit rating for otherwise identical regulated electricity and gas businesses would not be materially different, so that it is appropriate also to include gas businesses in the sample set. We note that it is common for Australian regulators to assume (implicitly) that equity betas are the same for regulated electricity and gas transmission and distribution entities and hence to ‘pool’ data from all of these entities to obtain a more robust beta estimate. Similarly, we also consider it appropriate to ‘pool’ all regulated electricity and gas, transmission and distribution entities in order to obtain a better estimate of the appropriate credit rating for an entity with the benchmark level of gearing. The gas businesses that we consider appropriate in this regard are Envestra and GasNet (as regulated activities dominate each of their businesses).

The inclusion of these two regulated gas businesses into the sample set again leads to the best estimate of the credit rating for an Australian electricity transmission entity being on the cusp of A- and BBB+ (albeit closer to BBB+).

Professor Lally’s measure of gearing – the ratio of total debt to total capital – is a measure that is based upon accounting measures of the value of the business, rather than market values (the latter of which Lally notes is the correct concept). Depending upon the accounting principles adopted by the relevant entity, accounting measures of gearing may depart significantly from those based upon market values. In addition, we note that rating agencies seldom place substantial weight on total debt to total capital when assigning ratings – preferring to focus on a cash based measure of gearing (namely, the ratio of funds from operations to total debt) or directly on measure of the level of security that the entity has to meet its interest payments from cash flow (i.e. interest cover).

Accordingly, we have repeated the analysis presented by Professor Lally, but with the gearing variable that Lally used replaced with the cash measure of gearing (i.e. the ratio of funds from operations to total debt) and then with gearing being replaced by interest cover. We have then estimated the cash measure of gearing and interest cover that a regulated Australian transmission business would have if it had the stock and cost of debt implied by the regulatory benchmarks, using the revenue and expenditure forecasts from the recent regulatory determination for TransGrid to derive these estimates.³

The use of the cash measure of gearing or interest cover as the factor that explains the credit rating of the entity leads to the predicted credit rating for an Australian electricity transmission entity being precisely BBB+. We note that these financial ratios are accorded more weight by ratings agencies when assigning credit ratings, which justifies commensurately greater weight for this latter empirical result.

³ TransGrid was used given that its revenue cap review was the most recent out of the main Australian electricity TNSPs.

Direct Comparison with Comparable Entities

We would not recommend placing sole reliance on regression analysis to predict the credit rating for a benchmark Australian regulated transmission business. Amongst other things, the use of regression analysis has a number of methodological shortcomings – in particular, the inability to measure all of the relevant factors that may explain credit ratings, and insufficient data points to permit the effects of inappropriate factors to be removed in any event. Accordingly, we recommend supplementing the statistical analysis discussed above with direct comparisons of the relevant financial indicators for an Australian regulated TNSP with those of entities that are considered to be sufficiently similar to the regulated TNSP. A judgement may then be made about the appropriate credit rating assumption for the regulated benchmark TNSP, having regard to (amongst other things) the differences between the regulated TNSP and the relevant entity.

We consider that the most appropriate comparator entities for a benchmark transmission business are SPI PowerNet, ElectraNet, Envestra and GasNet. Our comparison of the financial indicators for the benchmark TNSP (again based upon an analysis of the revenue and expenditure forecasts for TransGrid in the latest ACCC/AER determination) and consideration of other relevant factors (such as the support that SPI PowerNet receives from its parent entity) suggests that a rating of between A- and BBB+ would be maintained.

Conclusion

We consider that statistical analysis of the type undertaken by Professor Lally does offer valuable information for the purpose of determining the credit rating that a regulated TNSP with benchmark gearing would be able to maintain. However, we disagree with several of Lally's methodological choices, namely that we:

- do not think it is appropriate to discard ElectraNet as an outlier (although we do think that it should not be treated as receiving substantial support from its government part-share holder);
- do not think there is compelling *a priori* reason nor statistical evidence to distinguish between transmission and distribution companies; and
- similarly consider it appropriate to 'pool' all regulated energy businesses – that is, to include the gas entities for which regulated activities comprise the vast majority of their activities – in a similar way that Australian energy regulators do when deriving equity beta estimates.

Making these adjustments leads to a predicted credit rating for the benchmark TNSP that is on the cusp of A- and BBB+.

In addition, we consider it appropriate also to have regard to financial indicators other than the accounting based measure of gearing used by Professor Lally, namely a cash measure of gearing (the ratio of funds from operations to total debt) and interest cover. Rating agencies place more weight upon these financial indicators than gearing.

The use of these more relevant financial indicators leads to a predicted credit rating for a benchmark TNSP of almost precisely BBB+.

Lastly, we also consider that it is appropriate also to have regard to direct comparisons of the financial indicators of a regulated TNSP with benchmark gearing and actual entities that are considered to be the most similar.

Our direct comparison in this regard suggests that a credit rating for the benchmark TNSP of between A- and BBB+.

On the basis of the evidence summarised above, we consider that the weight of evidence supports the use of a BBB+ credit rating for a benchmark Australian electricity transmission business.

Moreover, we also note that, in all cases where we have advised regulators, we have recommended that a conservative assumption be adopted for the benchmark credit rating. Accordingly, even if the evidence summarised above was considered to support a conclusion that was equally divided between A- and BBB+ (which is not our view, as noted above), we consider that the appropriate decision in such a case would be to adopt a BBB+ credit rating.

Chapter 1

Introduction

1.1 The Brief

Professor Martin Lally has provided a report to the Australian Energy Regulator (AER), which applies regression analysis and proposes that the statistical evidence supports the AER's view that an Australian transmission network service provider (TNSP) that has the benchmark level of gearing of 60 per cent debt-to-assets would be able to maintain a rating of A (using the Standard & Poor's nomenclature), rather than BBB as assumed by the AEMC in its Rule Proposal.

The Electricity Transmission Network Owners Forum has engaged the Allen Consulting Group to investigate whether Professor Lally's conclusions can be supported by the available evidence and provide a reliable prediction of the appropriate credit rating for a 60 per cent geared electricity transmission business. In the alternative, we have been asked for our views on the appropriate credit rating for this exercise.

1.2 Outline of Report

The remainder of the report is structured as follows:

- In Chapter 2 we describe the methodology and results that were obtained by Professor Lally, and also set out our views on where we disagree with several of Lally's methodological decisions (namely, excluding ElectraNet as an outlier, attempting to distinguish between transmission and distribution entities, and not also having regard to regulated gas entities). This analysis finds that a rating that is on the border A-/BBB+ or BBB+ is appropriate for a benchmark transmission business.
- In Chapter 3 we apply an approach that relies on the examination of credit metrics and factors used in the Standard & Poor's decision on the best comparators for the benchmark transmission company. Taking the AER's recent decision for TransGrid to identify the characteristics of the benchmark Australian transmission business, we predict its rating based on comparisons with the most similar entities (namely, ElectraNet, SPI PowerNet, GasNet and Envestra). The conclusion is that a rating on the border of A-/BBB+ is indicated.

First, however, it is appropriate to make several remarks on the context for this advice and the overall objective to be pursued.

1.3 Context and Objective

It is important upfront to establish clearly the objective of determining the credit rating for a benchmark Australian transmission business.

In Australia it is standard practice for benchmark assumptions to be used for regulated entities' finance-related decisions when deriving regulated prices and revenues for those entities. Thus, in electricity transmission regulation, the prices that regulated entities may have been sold and purchased for have been ignored when 'deeming' the value of capital invested in the regulated activities, and rather a value that reflects an estimate of the market value of the assets in a competitive market in long run equilibrium has been used (i.e. ODRC). Similarly, when determining regulated entities' revenue requirements, the actual interest liabilities of regulated entities are universally ignored, and instead a benchmark allowance provided.

The objective behind the use of benchmark assumptions about financing assumptions is to provide firms with an incentive to make efficient finance-related decisions, and simultaneously to protect customers from imprudent decisions. An important constraint that applies to the use of any set of benchmarks, however, is that it must not be excessively difficult for a firm to reach the standard implied by those benchmarks. This is necessary to ensure that firms have a reasonable opportunity (although not a guarantee) to recover the actual costs they incur, and hence the incentive and capability for regulated entities to continue to make the required investments in regulated assets.

An important ingredient, in turn, in ensuring that firms have a reasonable opportunity to meet the standards implied by a set of benchmarks is that those benchmarks be internally consistent. Consistency ensures that it is possible (at least in theory) for a firm to make decisions that replicate all of the benchmark assumptions, in which case it would recover its actual costs.

The matter that is the subject of this report is the credit rating that a regulated Australian transmission business would be able to maintain if it had a level of gearing that is consistent with the regulatory benchmark of 60 per cent debt-to-assets. The purpose of the assumed credit rating, in turn, is to provide an input into the estimation of the cost of debt (interest rate) for the entity, which in turn is an input into the estimate of its cost of capital. With the task described in this way, the most important factor for consistency is achieved – namely, ensuring that the benchmark credit rating is consistent with the assumed level of gearing. However, there are also more subtle consistency constraints that we consider relevant to this exercise, which include the following.

- *Stand alone business* – it is important when determining the benchmark credit rating for a regulated Australian TNSP that any positive effect on the credit rating of an entity that it may receive as a result of having a large 'parent' that is considered supportive is eliminated. The most obvious case of a supportive parent is of a government owned business where there may be an expectation that the government may never permit the entity to go into default. However, private firms may also receive support from a large parent.⁴

⁴ Equally, however, if an entity has a large, cash-strapped parent its credit rating may be lower than implied by the strength of its cash flows, which should also be excluded from the analysis.

- *High and stable yields* – estimates of the cost of equity capital into regulated entities assume, implicitly, that the form of the equity offered by regulated businesses is similar to that observed in private firms (and, most notably, the listed entities). A characteristic of these firms is that high and stable yields (i.e. distributions to shareholders) are provided. Accordingly, consistency requires that a similar assumption be adopted for the benchmark Australian TNSP, where such an assumption may be relevant.

Chapter 2

Statistical Prediction of the Credit Rating for a Benchmark TNSP

2.1 Introduction

We begin our analysis of Professor Lally's report by considering the approach, and findings that are reported. Next we set out our views on where we disagree with Lally's methodological choices and where we consider that improvements to Lally's approach could be made.

2.2 Professor Lally's methodology

Professor Lally applies regression analysis in which the dependent variable is rating (RAT) ranged from AA+ (=1) to BBB (=8), as follows:

1 = AA+

2 = AA

3 = AA-

4 = A+

5 = A

6 = A-

7 = BBB+

8 = BBB

We note that a regression equation will predict results that may be between the rating bands, which raises the issue about how such results should be interpreted. We consider it appropriate to break these categories down further to indicate where the statistical analysis does not result in a clear prediction for one credit rating category over another. The part of this the rating spectrum that is most relevant to the credit rating for a benchmark transmission business is between A and BBB+, and over this range, we have adopted the following convention:

4.25 – 4.75 = cusp of A+/A

4.75 – 5.25 = A

5.25 – 5.75 = cusp of A/A-

5.75 – 6.25 = A-

6.25 – 6.75 = cusp of A-/BBB+

6.75 – 7.25 = BBB+

7.27 – 7.75 = cusp of BBB+/BBB

There were three independent (explanatory) variables in Professor Lally's estimated equation:

OWN (=0 for private ownership, =1 for government ownership, = 0.5 for private/govt ownership)

BUS (=0 for transmission, =1 for distribution, =0.5 for transmission/distribution)

LEV (= gearing given by S&P less 60%).

This means that in a regression, the intercept term becomes the predicted rating for a privately owned transmission company that has a level of gearing of 60 per cent debt-to-assets.

Regarding the data set that is analysed, Professor Lally begins with a sample of 11 Australian distribution and transmission companies (being all such companies that are rated by Standard and Poor's), but discards ElectraNet on the basis that it is an 'outlier'. The final sample of 10 companies results in the following equation being estimated:

$$\text{RAT} = 5.99 - 4.56\text{OWN} + 0.47\text{BUS} + 0.35\text{LEV}$$

Professor Lally states that 'the first two coefficients [are] statistically significant and that on LEV [is] close to being so'. The key result is the intercept value of 5.99, which predicts an almost precisely a rating of A-.

However, rather than focus on his best (point) estimate for the predicted rating, Professor Lally notes that the 95 per cent confidence interval for the predicted rating coefficient 4.40 to 7.58, which corresponds to a range from the A+/A border to the border of BBB+/BBB. Lally therefore concludes that:⁵

This range includes the A rating favoured by the AER and excludes the BBB rating favoured by the AEMC.

2.3 Comment on Professor Lally's analysis

Professor Lally's results

We have replicated Professor Lally's base result from data included in publicly available Standard & Poor's reports, and so consider his findings robust in this regard. Lally's base results are set out in Column 1 of Table 2.1. Since Lally released his report, a more recent publication from Standards & Poor's has become available. We have used this latest information in the alternative regression equations that we have estimated and, for completeness, have also reported in Column 2 of Table 2.1 the results obtained from Lally's regression equation using this latest information.

⁵ Lally, Op. Cit., p.13.

However, as noted above, rather than drawing attention to the best estimate that provided by his analysis, Professor Lally has drawn attention to the ‘95 per cent confidence interval’ for the predicted result,⁶ which we have interpreted as spanning the range from the cusp of A+/A to the cusp of BBB+/BBB. He has then noted that the AER’s preferred credit rating of A falls within this range, whereas the AEMC’s preferred credit rating of BBB does not.

We consider that the more appropriate interpretation to place upon Professor Lally’s results is that his best prediction of the credit rating for a benchmark Australian transmission business is A-. We note that the confidence interval that he has constructed is quite wide – wholly including all rating bands between BBB+ and A, as well as the cusp with the next rating band on either side – and so do not consider it particularly informative that the AER’s preferred rating falls within this range whereas the AEMC’s preferred rating (just) falls outside. With such a wide range, the potential error associated with adopting an estimate that is at either end of that range, is large.

In addition, we consider that Professor Lally made three methodological decisions that are inappropriate, which were as follows:

- excluding ElectraNet as an outlier;
- distinguishing between transmission and distribution businesses; and
- excluding gas businesses for whom their regulated activities comprise the vast majority of their activities (namely, GasNet and Envestra).

Our views on these matters, and the implications thereof, are discussed in turn below.

Treatment of ElectraNet

As noted above, Professor Lally has discarded ElectraNet as an observation on the basis that it is an outlier. However, Lally has not provided any additional analysis to support this decision.

We have analysed the public ratings reports of Standard & Poor’s on ElectraNet and have not discovered any reason in principle for ElectraNet’s rating to be considered an outlier. We consider it likely that the reason that Professor Lally formed the view that it was a statistical outlier was because he also considered that it would receive substantial support (i.e. a higher rating) arising from the part ownership of the entity by the Queensland Government. As discussed further in Chapter 3, the public ratings reports of Standard & Poor’s on ElectraNet suggest that the part Government ownership of ElectraNet has not led to a rise in its ratings. Accordingly, we consider that ElectraNet should be included in the sample – noting that even with ElectraNet, there are only 11 observations – but that it should not be treated as receiving support from its parent entity.

⁶ The 95 per cent confidence interval for a parameter estimate means that if many independent random samples were taken and the parameter estimated, each parameter estimate would fall within this range 95 per cent of the time. The wider the confidence interval, the greater the statistical error (or lower the precision) associated with the relevant estimate.

The effect of adding ElectraNet to the dataset (but treating it as not being government owned) is shown in Column 3 of Table 2.1, and leads to the best estimate of the credit rating for an Australian electricity transmission entity being on the cusp of A- and BBB+.

Differences between electricity transmission and distribution

A key driver of Professor Lally's statistical results is the inclusion of a variable in his analysis to reflect the purported differences between electricity transmission and distribution. We note that Lally's estimate of the difference between transmission and distribution is not significantly different to zero (and has an even poorer level of significance once the second transmission business – ElectraNet – is added to the sample). Lally nonetheless argues that the parameter should remain in his regression equation as he considers it to have theoretical justification.

As a matter of principle, we consider that, as it is not possible statistically to distinguish the credit rating for a transmission and distribution entity that are otherwise identical, then it is more appropriate to treat these entities as being approximately similar and to 'pool' all observations to obtain a better estimate of the appropriate credit rating for the 'pool'. We note that, at a high level, the main cash flow characteristics of electricity transmission and distribution are similar – namely that both receive revenues that are calibrated to cost and then recalibrated at periodic intervals, and both are very capital intensive operations.

The assumption that transmission and distribution entities are sufficiently similar to permit observations from both types of entities to be 'pooled' – and hence to provide a more robust estimate of the relevant parameter for the pool of entities – is consistent with the approach that Australian regulators typically adopt when deriving equity betas for regulated electricity transmission and distribution entities. Similarly, we also note that regulators have rejected proposals that fine distinctions should be made to the equity beta for different regulated entities in circumstances where a robust theoretical and empirical case for that distinction does not exist – the Victorian Essential Service Commission's decision not to adopt a higher equity beta for the rural electricity distributors being a case in point.⁷

Moreover, we do not consider the 'in principle' case for assuming that transmission entities would have a higher credit rating than distribution businesses (all else constant) to be not convincing.

First, the main argument made is that the revenue caps that apply to transmission provide a greater degree of cash flow certainty. However, while revenue caps provide a guaranteed revenue amount in respect of a year, we note that they do not necessarily provide a stable level of revenue from one year to the next. Rather, transmission businesses set prices for their services for each year in advance, and the amount of revenue that is received in any year will depend upon the quantities of the relevant quantities of service that are sold in that year. Shortfalls or surpluses from any year are carried forward to be recovered in future years; however, whether a particular shortfall or surplus is recovered in any year is then itself subject to the quantities of the relevant units of service that are sold in the subsequent year(s). We note in this regard that much of a TNSP's revenue is received through energy-based charges, and hence that annual variation in revenue could be expected to occur.

⁷ Essential Services Commission of Victoria, 2005, Electricity Distribution Price Review 2006-2010: Final Decision, October, Vol. 1, pp.383-398.

Secondly, we also note that, for the same level of gearing, it is not uncommon for the financial indicators that are most relevant to rating agencies – most notably, a cash measure of gearing and interest cover⁸ – to be poorer for transmission businesses than for distribution businesses, which may offset advantages they may otherwise enjoy. By way of example, Appendix 1 sets out our calculation of financial indicators for a benchmark TNSP and benchmark distributor, based upon the relevant regulatory decision.⁹ As Appendix A shows, while the benchmark TNSP has an interest cover (measured on the basis of funds from operations, FFO) of 2.3 times, the benchmark distributor is estimated to have an interest cover of around 3.1 times. Similarly, the ‘cash’ measure of gearing for the TNSP is higher (FFO as a proportion of debt being 9.3 per cent compared to 13.4 per cent) and the proportion of capital expenditure that may be financed from internal funds is also lower for the benchmark TNSP (59.4 per cent compared to 64.1 per cent).

Accordingly, we consider that it is inappropriate to attempt to distinguish between transmission and distribution when deriving the benchmark credit rating for a regulated entity with benchmark gearing. In particular, we do not consider it appropriate to assert that the transmission business would have a materially higher credit rating than distributors where there is no statistical evidence for this belief and which is not well supported by first principles analysis.

The effect of treating otherwise identical transmission and distribution entities as having approximately the same credit rating is shown in Column 4 of Table 2.1, and a best estimate of the credit rating for an Australian electricity transmission entity is on the cusp of A- and BBB+.¹⁰

Differences between regulated electricity and gas entities

In a similar vein to the previous point, we also consider it a reasonable assumption that the credit rating for otherwise identical regulated electricity and gas businesses would not be materially different, so that it is appropriate also to include gas businesses in the sample set. We note that it is common for Australian regulators to assume (implicitly) that equity betas are the same for regulated electricity and gas transmission and distribution entities and hence to ‘pool’ data from all of these entities to obtain a more robust beta estimate of the pooled estimate. The rationale for this pooling is that, given the data available on such matters in Australia, the priority should be to obtain the best estimate of the relevant parameter for the ‘pool’ of entities. We consider that a similar imperative is relevant for the derivation of a benchmark credit rating for regulated energy entities.

⁸ These concepts are defined in section 2.4

⁹ The calculation of the financial ratios for a benchmark TNSP is based upon TransGrid, and is explained further in section 2.4. The financial ratios for a benchmark distributor is based upon AGL Victoria, from the Victorian Essential Services Commission’s recent determination of distribution prices (being the most recent of the regulatory determinations for a distributor).

¹⁰ A second implication of including ElectraNet in the sample and not distinguishing between transmission and distribution entities is that the degree of statistical error in the predicted credit rating falls. While Professor Lally reported that the 95 per cent confidence interval for the predicted rating score was between 4.4 and 7.6 (cusp of A+/A to cusp of BBB+/BBB), the two modifications noted above narrow the range of the 95 per cent confidence interval for the rating score to between 5.9 and 7.0 (A- to BBB+). It is notable that both the AER’s and AEMC’s positions (A and BBB) are statistically rejected after these modifications.

Accordingly, we consider it appropriate to ‘pool’ all regulated electricity and gas, transmission and distribution entities in order to obtain a better estimate of the appropriate credit rating for an entity with the benchmark level of gearing. The gas businesses that we consider appropriate in this regard are Envestra and GasNet (as regulated activities dominate each of their businesses).

The inclusion of Envestra and GasNet in the sample set is shown in Column 5 of Table 2.1. Again, this leads to the best estimate of the credit rating for an Australian electricity transmission entity being on the cusp of A- and BBB+.

Table 2.1

LALLY BASE RESULT AND ACG CORRECTIONS

	(1) Lally Base Result	(2) Lally Base Result (latest data)	(3) Including ElectraNet	(4) No Trans / Dist Distinction	(5) Including Gas Entities
Obs.	10	10	11	11	13
Adj. R ²	0.94	0.93	0.94	0.96	0.96
F ratio	45.16***	43.83***	54.65***	92.82***	111.98***
Intercept	5.99***	6.00***	6.33***	6.42***	6.58***
OWN	-4.56***	-4.50***	-4.61***	-4.61***	-4.76***
BUS	0.47	0.40	0.12	n/a	n/a
LEV	3.54*	3.60*	3.52*	3.37**	4.42***
Rating Score	5.99 A-	6.00 A-	6.33 A-/BBB+	6.42 A-/BBB+	6.58 A-/BBB+

Source: Lally (2006) and ACG analysis. Note: * denotes statistical significance at the 10% level, ** denotes statistical significance at the 5% level and *** denotes statistical significance at the 1% level. The data used are provided and sourced in Appendix A.

2.4 Use of Different Financial Indicators

Professor Lally’s measure of gearing – the ratio of total debt to total capital – is a measure that is based upon accounting measures of the value of the business, rather than market values (the latter of which Lally notes is the correct concept).¹¹ Depending upon the accounting principles adopted by the relevant entity, accounting measures of gearing may depart significantly from those based upon market values.

In addition, however, we note that rating agencies seldom place substantial weight on total debt to total capital when assigning ratings – but prefer to focus on more direct and cash based measures of the capacity for firms to meet their interest payments and to repay their debts. The two financial indicators upon which Standard & Poor’s places substantial weight are:

¹¹ Lally, Op. Cit., p.11, footnote 4.

- *FFO to total debt* – which can be interpreted as a cash measure of gearing (and is referred to as such in the discussion below). FFO – which stands for funds from operations – refers (in essence) to the cash flow remaining after meeting operating expense and taxation payments.
- *FFO interest cover* – which is the degree of security that a firm has to meet its interest payments from its funds from operations.

Accordingly, we have repeated the analysis undertaken by Professor Lally – and modified as per the discussion in section 2.3 – but with gearing variable that Lally used replaced with the two cash-based measures of gearing as described above. The use of the cash measure of gearing and FFO interest cover as the financial indicator that explains the credit rating for a firm requires these financial indicators to be derived for a benchmark TNSP. To undertake this task, we have used TransGrid as the representative TNSP, given that it was subject to the most recent revenue determination by the ACCC/AER. The implied cash measure of gearing and FFO interest cover can be calculated simply from the revenue requirement calculation, and the underlying regulatory asset base, cost of capital inputs and forecasts of expenditure – which is set out in Appendix A.

The new regression coefficients that are derived from using the cash measure of gearing and interest cover as the financial indicator that explains the credit rating (rather than gearing) is shown in Columns 2 and 3 of Table 2.2, with Professor Lally's results again repeated in Column 1.

Table 2.2

LALLY BASE RESULT AND DIFFERENT FINANCIAL INDICATORS

	(1) Lally Base Result	(2) FFO / Total Debt	(3) Interest Cover
Obs.	10	13	13
Adjusted R ²	0.94	0.92	0.93
F ratio	45.16***	73.24***	82.28***
Intercept	5.99***	7.75***	8.53***
OWN	-4.56***	-4.87***	-4.75***
BUS	0.47	n/a	n/a
Financial Indicator.	3.54* (Gearing)	-0.08* (FF/TD)	-0.66** (Interest Cov.)
Rating Score	5.99 A-	7.00 BBB+	6.97 BBB+

Source: Lally (2006), and ACG analysis. Note: * denotes statistical significance at the 10% level, ** denotes statistical significance at the 5% level and *** denotes statistical significance at the 1% level. The data used are provided and sourced in Appendix A.

The last row in Table 2.2 shows that, when the estimated cash measure of gearing and FFO interest cover for the benchmark TNSP is substituted into the estimated equations, the predicted credit rating for the regulated TNSP is almost precisely BBB+. We note that the financial indicators used in the analysis presented in Table 2.2 are superior measures (from the point of view of ratings agencies). Accordingly, we consider it appropriate to apply commensurately greater weight to the results set out in Table 2.2 than those presented earlier.

Chapter 3

Best Comparators Approach

3.1 Introduction

In this section we present the results of a best comparators analysis of a benchmark electricity transmission company as depicted in its recent determination by the AER. This approach is applied to overcome the methodological difficulties associated with regression analysis.

3.2 Methodological Problems of the Regression Approach

Using econometric techniques such as those applied by Professor Lally to determine the benchmark credit rating for a regulated transmission business suffers from a number of challenges. The key shortcoming is that a myriad of factors may affect credit ratings, and many of these cannot be measured. Moreover, even if the relevant variable could be measured, there are insufficient credit-rated Australian firms to establish a reliable empirical relationship between the relevant inputs.

As the equation that Lally has estimated implies, the existence of government ownership can have a significant effect on the rating of a business, which is a factor that must be removed in order to estimate the credit rating for a stand-alone transmission business. However, even allowing for the effect of government ownership is not straightforward. This is because the effect of government ownership is likely to differ across entities – that is, government ownership is likely to raise the credit ratings of individual firms to the government’s rating, and as a result the effect for any individual firm is likely to differ. In contrast, the use of a single variable as Lally has used assumes that government ownership has an identical effect on the ratings of each of the government owned entities.

Governments are not the only parent that can affect credit rating of an entity (and hence lead to its rating departing from the rating that would have been assigned on a stand alone basis). Where firms have a large parent owner (or part owner), and that parent is considered to be supportive, then that may lift its rating, albeit by a magnitude that is a matter of judgement by the rating agency. Similarly, where a parent company is considered not to be supportive (i.e., those that are expected to take large distributions from the entity) it may reduce the entity’s credit rating to below that which would exist on a stand-alone basis.

In addition, the credit rating assessments are an inherently forward looking exercise, taking account of expected changes in financial circumstances. Standard & Poor’s forecasts future cash flows and expected strategies, and looks at the level of dividend taking by the firm’s owners, which might put pressure on the future cash flow position. Only by examining all these issues will it be possible to determine the expected rating of a benchmark business.

Although it does not benefit from the full input of Standard & Poor’s reasons for making a credit rating decision, an examination of relatively close comparators, combined with the stated reasons for the decision and the credit metrics of the comparators will substantially inform the estimate of the credit rating that a benchmark TNSP could maintain.

3.3 Selecting Comparators

As noted earlier, a very informative methodology for predicting the credit rating for an entity is to undertake a comparison of the credit metrics and characteristics of companies that are most comparable. In order to do this, it is first necessary to select those companies that are most similar to the benchmark business. We have reviewed a list of energy companies appearing in Standard & Poor's most current *Industry Report Card: Australian Utilities*.¹² From this list were excluded:

- Wholly government owned businesses;
- Businesses with significant non-regulated activities;
- Businesses where Standard & Poor's has stated that the rating follows the rating of a parent company; and
- Businesses currently undergoing restructuring or rapid expansion.

This resulted in the following businesses being selected:

- SPI PowerNet (electricity transmission)
- ElectraNet (electricity transmission)
- Envestra (predominately gas distribution with some transmission, vast majority is regulated)
- GasNet (gas transmission, vast majority is regulated)

3.4 Best Comparator Analysis

Table 3.1 below sets out a number of the key ratings indicators used by Standard & Poor's when assessing a credit rating. Standard & Poor's places considerable weight on cash flow measures, as these are not subject to the vagaries of accounting presentation. In particular, Standard & Poor's places more weight on the cash flow debt coverage ratios, than on Total Debt/Total Capital (TD/TC).

SPI PowerNet comparator

With respect to SPI PowerNet, it is worth noting the underlying reasons for its A rating:¹³

The ratings on SPI PowerNet Pty. Ltd reflect the insulation from competitive pressures afforded by the company's natural monopoly status; the stability and predictability of the supportive regulatory regime under which the utility operates; its strong operational performance; and the support of its 51% majority shareholder, Singapore Power Ltd (SP; AA/Stable/--). These strengths are offset by the company's aggressive financial structure.

In other words, the key strengths of SPI PowerNet are:

- Monopoly over electricity over electricity transmission in Victoria
- Predictable and stable regulated revenues and operating expenditures; and
- Support of its 51% majority shareholder, Singapore Power Ltd.

¹² Standard & Poor's, 2006, *Industry Report Card: Australian Utilities*, May.

¹³ Standard & Poor's, 2006, *Summary: SPI PowerNet Pty Ltd*, April.

Offsetting these strengths is the following disadvantage:

- An aggressive financial structure.

Relative to the benchmark 60% geared and privately owned transmission company, the support of the 51% owner should increase the rating, while the application of a more aggressive financial structure should reduce the rating.

ElectraNet comparator

Professor Lally dismissed the rating of BBB+ given to ElectraNet as an ‘outlier’, without discussion of what factors may cause it to be an outlier. We have seen above that the exclusion of this observation is important to Lally’s results. Standard & Poor’s provides the following summary for the BBB+ rating it assigned to ElectraNet:¹⁴

The ratings on ElectraNet Pty. Ltd. reflect its monopoly electricity transmission business, the strength of its direct customer base, and the predictability and stability of regulated revenues and expenditures. These strengths are offset by the company’s very aggressive capital structure and distribution policy as well as the company’s strategy to grow the unregulated business, although this weakness is mitigated somewhat by the company’s policy of using shareholder capital to fund unregulated capital expenditure.

Thus, the strengths of ElectraNet are:

- Monopoly over electricity transmission in South Australia;
- Predictable and stable regulated revenues and operating expenditures; and
- Credit strength of its direct customer base.

The weaknesses of ElectraNet are:

- Aggressive capital structure and distribution policy; and,
- Strategy to grow unregulated business albeit within policy grounds.

It is noteworthy that Standard & Poor’s does not mention partial government ownership as a strength of ElectraNet, which suggests a view that the company is not perceived to enjoy such support.

Comparison of credit metrics

Table 3.1 sets out the credit metrics of a benchmark electricity transmission company, based on the benchmarks established in the AER’s recent review of Transgrid, compared with current metrics for the closest comparators, SPI PowerNet, ElectraNet, Envestra and GasNet.

¹⁴ Again, using Lally’s regression coefficients, taking ElectraNet as BBB+ (=7) would predict a rating of BBB- if ownership were considered relevant and on the border of A- and BBB+ if it were not.

Table 3.1

BENCHMARK ELECTRICITY TRANSMISSION BUSINESS: COMPARISON OF S&P CREDIT RATING METRICS

Company	Rating	FFO/Int	FFO/TD	FFO/TC	NCF/Capex
SPI PowerNet	A+	2.5	9.4%	74.0%	129.8%
TNSP benchmark	N.R.	2.3x	9.3%	60.0%	59.4%
ElectraNet	BBB+	2.3	9.8%	70.7%	57.7%
GasNet	BBB	1.9	5.7%	75.8%	30.5%
Envestra	BBB	1.5	3.8%	83.9%	(3.6)%

Source: Standard & Poor's (1 May, 2006), *Industry Report Card: Australian Utilities*, Transgrid benchmark based on AER (2 April, 2005), *NSW & ACT Transmission Network Revenue Cap: Transgrid, 2004-5 – 2008-09*.

In Table 3.1 it is apparent that even without the benefit of support from its majority shareholder, SPI PowerNet has superior credit metrics to the benchmark TNSP under the benchmark assumptions of the AER, whereas the most relevant credit metrics for ElectraNet and very similar to that of the benchmark entity:

- **FFO/Int** – The FFO/Interest Cover (where FFO is Funds from Operations) for SPI PowerNet of 2.5 times is superior to the benchmark TNSP, whereas the benchmark entity is the same as ElectraNet on this metric (2.3 times).
- **FFO/TD** – In terms of cash flow to total debt (FFO/TD) both SPI PowerNet and ElectraNet appear stronger than the benchmark TNSP. As a cash flow measure of the ability to meet debt commitments, FFO/TD is seen by Standard & Poor's to be a better indicator of financial strength than the total debt/total capital (TD/TC) measure used by Lally.
- **NCF/Capex** – The final metric shown is the ratio of cash flow after payment of dividends relative to the capital expenditure requirement. We have applied a dividend yield of 6.5% for the utilities sector as a whole to the benchmark TNSP's RAB in order to infer its benchmark level of distributions to equity providers. The NCF/Capex ratio of the benchmark TNSP is 59.4%, which is close to ElectraNet, and considerably weaker than SPI PowerNet. This measure is used to indicate internal financial strength relative to capital expenditure requirements, and therefore the need for future debt or equity raising.

Turning to the independent gas transmission and distribution businesses, we find that their lower rating of BBB reflects weaker credit metrics. The FFO/Int and FFO/TD ratios of the gas businesses are weaker than the benchmark TNSP as a result of relatively higher gearing levels. On the basis of these comparators we would not expect the benchmark TNSP business to have a rating as low as BBB.

3.5 Conclusion

In summary, a review of the relative credit metrics of the benchmarked TNSP indicates that it is weaker than SPI PowerNet, which itself is obtaining benefit from its parent's stronger rating. We also have evidence from the independent gas businesses indicating that the benchmark TNSP would not be rated as low as BBB. This suggests that the benchmark TNSP would be rated well below A based on the fact that SPI PowerNet is rated A+, its rating receives support from its parent and it has superior credit metrics to the benchmark TNSP. The comparison with ElectraNet is supportive of this conclusion. Only on the basis of TD/TC does the benchmark TNSP provide more security to debt holders compared with ElectraNet, and we have seen that this measure is discounted by Standard & Poor's, who rely on cash flow measures such as FFO/Interest Cover and FFO/TD. Accordingly, we consider that, based upon direct comparison with the most relevant entities, a credit rating for a benchmark TNSP of between A- and BBB+ would be maintained.

Appendix A

Table A.1

S&P RATIOS FOR BENCHMARK TNSP (2004/05) AND DISTRIBUTOR (2006)

	\$ million	\$ million
Total Revenue	432.75	134.82
Operating Expenses	119.85	54.29
Tax	13.83	4.97
Capital Expenditure	153.57	55.16
Regulatory Asset Value	3,012.76	578.40
Gearing (D/A)	60%	60%
Interest Rate	6.88%	6.73%
Dividend Yield	6.5%	6.5%
Debt ¹⁵	1,853.73	363.59
Equity	1,235.82	242.39
Interest	127.54	24.47
Dividends	80.33	15.76
FFO	171.53	51.09
FFO Interest Cover	2.3 times	3.1 times
FFO/Debt	9.3%	13.4%
NCF/Capex (Internal Fin.)	59.4%	64.1%

Source: ACCC (27 April, 2005), Final Decision – NSW and ACT Transmission Network Revenue cap Transgrid 2004-05 to 2008-09, pp.17-21; ESC Final Decision Financial Model for AGLE (<http://www.esc.vic.gov.au/attachmentviewer4231.html>, downloaded 16 May 2006). The dividend yield of 6.5 per cent is an assumption by ACG, based upon observed yields for listed infrastructure assets.

¹⁵ The stock of debt and equity have been calculated using the method that is consistent with the ACCC/AER's standard approach for deriving the revenue benchmarks, which is to include half of the forecast capital expenditure for the particular year, and the same approach has been used to derive the financial ratios for the benchmark distributor for consistency. Using the ESC's standard approach to derive the stock of debt and equity does not result in a material change to the financial ratios.

TABLE A.2
DATA USED IN REGRESSIONS

Company	Rating	Ownership	Business	TD/TC #	RAT #	OWN ##	BUS ##	LEV #	FFO Int. Cov. #	FFO/TD #
Ergon Energy	AA+	Govt	Distribution	0.426	1	1	1	-0.174	4.2	19.7
Country Energy	AA	Govt	Distribution	0.68	2	1	1	0.08	2.3	9.1
Energy Australia	AA	Govt	Dist./Trans.	0.54	2	1	0.5	-0.06	3.1	14.7
Integral Energy	AA	Govt	Distribution	0.554	2	1	1	-0.046	3.3	18.1
SPI PowerNet	A+	Priv/Govt	Transmission	0.74	4	0.5	0	0.14	2.5	9.4
SPI Australia	A+	Priv/Govt	Distribution	0.654	4	0.5	1	0.54	2.6	11.6
Citipower Trust	A-	Private	Distribution	0.538	6	0	1	-0.062	2.4	9.0
ETSA Utilities	A-	Private	Distribution	0.69	6	0	1	0.09	2.3	9.3
Powercor Aust.	A-	Private	Distribution	0.409	6	0	1	-0.191	4	22.6
United Energy	BBB	Private	Distribution	0.786	8	0	1	0.186	2.4	10.4
ElectraNet	BBB+	Private/Govt	Transmission	0.707	7	0 *	0	0.107	2.3	9.8
Envestra	BBB	Private	Distribution	0.839	8	0	n/a	0.239	1.5	3.8
GasNet	BBB+	Private	Distribution	0.758	8	0	n/a	0.158	1.9	5.7

Notes: * Lally assumed part ownership of ElectraNet (0.5), whereas we have assumed no benefit from its part ownership by a government.

Source: # = Standard & Poor's (1 May, 2006), *Industry Report Card: Australian Utilities*; ## = Lally, M. (2006), *The Appropriate Credit Rating for Australian Electricity Transmission Businesses*, Report to the Australian Energy Regulator, March.