Jemena Gas Networks (NSW) Ltd - Initial response to the draft decision

Appendix 6.3K

Synergies (May 2009) Gamma - New Analysis Using Tax Statistics

19 March 2010

Synergies
ECONOMIC CONSULTING

Memorandum

ENERGEX and ERGON ENERGY

Gamma

New Analysis Using Tax Statistics
May 2009

Background

Clause 6.5.4(e)(4) of the National Electricity Rules requires that where the value of a particular rate of return parameter cannot be determined with certainty, the AER must have regard to:

> (i) the need to achieve an outcome that is consistent with the national electricity objective; and
>
> (ii) the need for persuasive evidence before adopting a credit rating level or a value for, or a method of calculating, that parameter that differs from the credit rating level, value or the method of calculation that has previously been adopted for it.

Regard must also be given to the higher order revenue and pricing principles contained in the National Electricity Law (section 7A), which provide that:

> (2) A regulated network service provider should be provided with a reasonable opportunity to recover at least the efficient costs the operator incurs in—
>
> a) providing direct control network services; and
>
> b) complying with a regulatory obligation or requirement or making a regulatory payment.

Amongst other things, section 7A(3) provides that the regulated network service provider (NSP) needs to be provided with sufficient incentive to ensure efficient investment in the regulated services.

The valuation of gamma has been the subject of ongoing debate in regulatory reviews in recent years. While established precedent has been to apply a value of 0.5, evidence has emerged from a number of reputable Australian studies to show that the value of gamma has fallen considerably (and may in fact be zero).

The AER's Statement of Regulatory Intent (SoRI) was therefore considered contentious by many market participants and stakeholders, given it proposed an increase in the value of gamma to 0.65. This is the first time a gamma above 0.5 has ever been applied by an Australian regulator to an electricity network business (or any other regulated business). In addition, the justification for a higher gamma was founded largely on the results of a piece of analysis which relies on a methodology considered by many experts to be sub-optimal. In our view, the AER's proposal to apply a gamma of 0.65 does not provide NSPs with the opportunity to recover the efficient costs of providing their regulated services in accordance with section 7A of the National Electricity Law.

There are a number of fundamental issues with the approach that has been taken by the AER in arriving at its value, including its dismissal of a number of key market-based studies that show that the value of gamma is less than 0.5 (and indeed may be close to zero). These issues have been addressed in detail by the Joint Industry Associations (JIA) and their consultants in their submission prepared in response to the proposed SoRI. We therefore do not propose to revisit these arguments in detail here. That analysis showed that there is not only persuasive evidence that has been discarded by the AER, but some of the key assumptions and evidence underpinning its own conclusions are flawed.

Overview of Gamma

Corporate tax is effectively a prepayment of personal tax withheld at a company level. Gamma (γ) is that proportion of the corporate tax which can be claimed as a tax credit against personal tax, that is, it is the value of personal tax credits distributed.

Gamma is the product of two inputs which must be estimated being:

- the proportion of tax paid that has been distributed to shareholders as franking credits (the distribution rate); and
- the value the marginal investor places on $1 of franking credits, referred to as the value of franking credits (theta).

Distribution Rate

Based on statistics supplied by the Australian Taxation Office, Hathaway and Officer estimate that approximately 71% of franking credits are distributed to shareholders.[1]

[1] Hathaway, N. & Officer, R. (2004), The Value of Imputation Tax Credits: Update 2004, Unpublished Working Paper, Capital Research Pty Ltd.

However, only 32% of the distributed franking credits were redeemed.[2] This suggests that a significant number of shareholders chose either not to utilise, or were unable to utilise, their franking credits.

The AER has assumed a distribution rate of 100%. In arriving at its conclusions the AER has relied on a further paper by Handley, "Further Comments on the Valuation of Imputation Credits"[3]. We have a number of fundamental concerns with this report, including issues of fact. For example, in relation to the distribution rate of 100%, Handley assumes that:

- Officer's (1994) framework assumes a perpetuity and hence a 100% distribution rate. It is true that the framework is a perpetuity model however we dispute that this implies a 100% distribution rate – instead it implies a constant payout rate (that we observe is around 70%); and
- the assumption of 100% is also consistent with the Miller and Modigliani framework. While Miller and Modigliani allowed the payout ratio to vary to illustrate the irrelevance of dividends this is not an explicit assumption of their model.

As there has not been sufficient time since the release of the SoRI to explore these issues in detail we have not sought to do so here. However, in our view there are potentially significant issues with the evidence the AER has relied upon in coming up with this assumption.

Theta

While the distribution rate can be generally observed from taxation statistics, the value of franking credits cannot be directly observed. The value of franking credits is determined at the level of the investor and is influenced by the investor's tax circumstances. The value of gamma is between zero (no value from franking credits) and one (full value of franking credits).

Imputation credits are only available in respect of company tax paid on income subject to Australian taxation. For gamma to equal one all income must be domestically taxable. What is clear is that different shareholders value franking credits differently, as their tax status determines whether their credits are able to be redeemed. While some regulators have sought to exclude the impact of foreign investors when evaluating gamma (which in turn assumes that the domestic market is fully segmented

[2] Australian Taxation Office (2005), Taxation Statistics 2002-03, Australian Government.

[3] Handley, J. (2009), Further Comments on the Valuation of Imputation Credits, Report Prepared by the Australian Energy Regulator, 15 April.

from world markets), the AER assumed that the definition of the market is a domestic market with foreign investors recognised.[4]

The AER has employed two key approaches to estimate the value of theta, being an analysis of:

- market prices – this has been used to determine the lower bound; and
- tax statistics – this has been used to determine the upper bound.

The AER has relied on a study by Beggs and Skeels (2006) in coming up with its lower bound of 0.57. Its upper bound of 0.74 is based on an analysis of tax statistics by Handley and Mahesaran (2008).

> In arriving at its final estimate the AER acknowledges the considerable complexities associated with valuing gamma that have been recognised by market practitioners (and have also been the source of contention in previous regulatory debates). However, it is now of the view that…it is indeed possible to arrive at a reasonable empirical estimate of the value of imputation credits taking into account all the available evidence.[5]

However, we also observe that Handley's most recent report concludes that a reasonable estimate for gamma is within the range of "0.3 to 0.7".[6] This clearly does not support the notion that a definitive value for gamma can now be determined.

We believe that analysis involving market prices is the only method that can be used to estimate the *value* of imputation credits. Tax statistics analysis cannot determine the value of imputation credits. However, the AER has used this methodology to determine the upper bound.

Synergies has therefore undertaken its own analysis of taxation statistics and has arrived at a very different outcome to Handley and Maheswaren's 2008 study. More importantly, as outlined above, the results do not provide a value for gamma and will still overstate the observed upper bound derived from ATO publicly available tax statistics when properly interpreted. The results of this analysis are presented below.

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4 Australian Energy Regulator (2009), Final Decision: Electricity Transmission and Distribution Network Service Providers - Review of the Weighted Average Cost of Capital (WACC) Parameters, May, p XIX.

5 ibid., p.410.

6 Handley, J. (2009), op.cit., p.41.

Tax statistics analysis

As noted upfront, an examination of taxation statistics will not ascribe a value for gamma. Taxation statistics measure the quantum of corporate taxation, the amount of credits distributed and the amount of credits claimed. The amount of credits claimed is not the value of those credits. It does not take into consideration the risk that shareholders bear in earning the dividends and credits. Therefore it merely establishes a hypothetical upper bound for theta (as the value must then be $1 per $1 of credits) which is higher than the 'true' upper bound.

Table 1 below presents data available from the Australian Taxation Office. It illustrates corporate tax paid, dividend information, and imputation credits claimed. The data is for financial years from 2003 to 2007[7], a period reflective of the current taxation regime as it affects dividends. The corporate taxation rate has also been constant over this period.

Table 1 Australian Taxation Statistics: 2003 to 2007

Year	2007	2006	2005	2004	2003
	$ mil	$ mil	$ mil	$ mil	$ mil
Company					
Net Tax Payable	58,189	47,551	40,455	35,375	31,379
Dividends					
Franked	79,224	71,406	62,209	51,630	56,453
Unfranked	9,918	7,655	7,184	6,235	18,963
Total	89,142	79,061	69,393	57,865	75,416
Distributed Credits	33,953	30,603	26,661	22,127	24,194
Personal					
Dividends	18,936	15,331	13,449	11,512	9,923
Credits	10,526	8,357	7,305	6,199	5,246
Funds					
Dividends	8,766	7,029	6,299	4,044	4,127
Credits	3,474	2,667	2,471	1,559	1,149
Total Claimed	14,000	11,024	9,776	7,758	6,395
Proportion	24%	23%	24%	22%	20%

[7] Note that 2008 data was not available at the time of this report. All data was sourced from the ATO web site and table references can be supplied. For example corporate tax was obtained from http://www.ato.gov.au/corporate/content.asp?doc=/Content/00177078.htm, company tax table 3.

Year	2007	2006	2005	2004	2003
Claimed					
Possible Credits	58,189	47,551	40,455	35,375	31,379
Distributed Credits	33,953	30,603	26,661	22,127	24,194
Proportion Distributed (1)	58%	64%	66%	63%	77%
Reclaimed Credits	14,000	11,024	9,776	7,758	6,395
Proportion Claimed	24%	23%	24%	22%	20%

Note: (1) the average proportion distributed between 2003 and 2007 was 66%

Source: Australian Taxation Office Statistics

The data is similar to that presented by Handley and Maheswaran[8] but extends their statistical analysis and provides evidence that questions their conclusion. We believe that when properly interpreted, the 'upper bound' that the AER has sought to rely on based on tax statistics is materially lower.

The net tax payable is the corporate tax that has been paid in each year. It is the dollar amount of the maximum credits that could be claimed by taxpayers if sufficient dividends were paid each year and all shareholders had the ability to claim the imputation credits. The corporate tax paid in 2007 was $58,189 million.

Dividends paid in 2007 were $89,142 million. Of these dividends some were franked and some unfranked. The franked dividends which had attached imputation credits were $79,224 million in 2007. The available imputation credits in 2007 were $33,953 million.

In 2007, of the total credits created, being the total amount of corporate tax paid of $58,189 million, only 58% was actually distributed and the balance was retained within the companies. Between 2003 and 2007, the proportion distributed varied between 58% and 77% with the average proportion distributed was 66%. This is broadly consistent with the findings of Hathaway and Officer (which was a distribution rate of around 71%). Obviously the payout was not 100% as asserted by Handley. The payout was consistent over time supporting the notion that credits are lost in perpetuity. The estimate of the payout of 66% is close to 71% and materially different from 100%.

It is important to note that companies consistently only distribute a proportion of available credits. On average 34% of credits are retained by the company. Given the consistent nature of the payout, it appears that the credits retained are indefinite. The

[8] J. Handley & K. Maheswaran (2008), op.cit. Note that the personal imputation credits in 2004 were $6,199 million which is the same as the figure reported in their study. 2004 is the latest year they examined.

present value of the credits retained indefinitely must be zero. In other words, 34% of available credits have no value to shareholders.

Not all of the possible credits are distributed. In addition, not all dividends distributed are claimed as credits as only Australian residents for taxation purposes can claim the credits. As shown in the table above, the credits claimed by personal taxpayers in 2007 were $10,526 million. The credits claimed by funds were $3,474 million.

In 2007, of the corporate tax paid, 58% was distributed and 24% was claimed as credits. For the period 2003 to 2007, the maximum proportion of corporate tax that could be considered to be a prepayment of personal tax is 24%. That proportion varied marginally between 20% and 24% with an average of 23%.

Therefore, based on actual payout practices, the maximum possible amount that gamma could be on average is 23%. Even if the AER's assumed payout ratio of 100% is applied (although this is not accepted), the maximum possible upper amount for gamma would be 35%.

These results are materially different to the results arrived at by Handley and Maheswaran. We have not been able to clearly reconcile the difference. Handley's data source is not suitably referenced, nor is it transparent or verifiable. Synergies is therefore not able to confirm the validity of Handley's data.

However, our interpretation of what has occurred is that they have only examined the amount of credits distributed to shareholders. Our analysis looks at the amount of credits that have been created, distributed, and redeemed by taxpayers. In our view, this difference is of fundamental importance as not all credits created are distributed and not all distributed credits are redeemed by shareholders.

As previously emphasised, to determine the value of gamma, an examination of market data is required. Value can only be measured in this case in terms of price reaction, i.e. how shareholders price or value imputation credits. Taxation statistics only provide the maximum possible amount of imputation credits that have been claimed by taxpayers.

Conclusion

Corporate tax is effectively a prepayment of personal tax withheld at a company level. Gamma is that proportion of the corporate tax which can be claimed as a tax credit against personal tax, that is, it is the value of personal tax credits.

This note measured the maximum possible amount that could be ascribed to gamma (but not the value of gamma) by examining taxation statistics. It was shown that not

all credits created are distributed and of those distributed, not all are claimed by the individual shareholders. Based on the actual payout ratios observed from the statistics, the maximum possible amount of credits claimed is 23%. If this is adjusted to reflect the AER's assumed payout ratio, the maximum is 35%.

The taxation statistics do not reflect the risk that is borne by shareholders in holding shares to derive imputation credits. An examination of market data is required to correctly value gamma.

The AER has used the tax statistics analysis in setting the upper bound of its range for gamma (0.74) and in so doing has arrived at a point estimate for gamma of 0.65. In setting this upper bound the AER has solely relied on a study by Handley and Maheswaran. While the data has not been published to enable the results of this study to be replicated, our own analysis arrived at a significantly lower figure.

In our view, if the AER's methodology is properly interpreted and applied, the value for gamma must be somewhere between:

- 0 and 0.23 (if actual observed payout ratios are adopted); or
- 0 and 0.35 (if a 100% payout ratio is adopted).

We note that the JIA's recommended estimate of 0.2 lies within this range. While we have not sought to re-examine evidence from market prices in this report, in our view a range of between 0 and 0.2 is a more reasonable and plausible value for gamma.