# Market practice in relation to franking credits and WACC: Response to AER proposed revision of WACC parameters

Report prepared for ENA, APIA, and Grid Australia

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EXECUTIVE SUMMARY AND CONCLUSIONS	2
Context	2
Summary and Conclusions	2
1. MARKET PRACTICE IS TO SET GAMMA TO ZERO	4
Market practice	4
Surveys of expert valuation reports	4
Survey of corporate practice	5
Government Treasury principles	6
2. THE AER'S EXPLANATIONS FOR THE OBSERVED MARKET PRACTICE	7
Overview	7
Do market professionals know about gamma?	8
Do Australian firms use a framework that does not require an estimate of gamma?	9
Consistency between discount rate and cash flows	11
3. CONCLUSIONS	13
REFERENCES	14

#### **Executive summary and conclusions**

## Context

- 1. This report has been prepared by Professor Stephen Gray, Professor of Finance at the University of Queensland Business School and Managing Director of Strategic Finance Group (SFG Consulting), a corporate finance consultancy specialising in valuation, regulatory and litigation support advice.
- 2. I have previously prepared a report dated 16 September 2008 and titled *The effect of franking credits* on the cost of capital of Australian firms in relation to this decision-making process. Some elements of that report were considered by the AER in its *Review of WACC parameters: Explanatory statement* (the *Explanatory Statement*).<sup>1</sup> I have now been engaged by the ENA, APIA, and Grid Australia to review the available research and other material available that demonstrates what is the practice of valuation professionals in Australia concerning whether and how they estimate and use gamma when applying the Sharpe CAPM.
- 3. For the purposes of preparing this report I was 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. I have reviewed those guidelines and this report has been prepared consistently with the form of expert evidence required by those guidelines. In preparing this report, I have made all the inquiries that I believe are desirable and appropriate and no matters of significance that I regard as relevant have, to my knowledge, been withheld.

## **Summary and Conclusions**

- 4. My earlier report pointed out an inconsistency between the approach adopted by regulators and market practice in relation to the estimate of gamma.
- 5. The dominant practice of expert valuation professionals and Australian firms is to set gamma to zero, but the *Explanatory Statement* proposes an estimate of 0.65. Under the Officer CAPM-WACC framework, setting gamma to 0.65 reduces the estimated cost of equity by 22%.<sup>2</sup>
- 6. The *Explanatory Statement* argues that there is not necessarily an inconsistency between the AER approach and market practice.
- 7. In this report I explore this issue in more detail and consider the possible ways of reconciling the AER approach with market practice that are set out in the *Explanatory Statement*. I conclude that:
  - a. There is substantial evidence that the dominant market practice is to make no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise;
  - b. This is a conscious choice of market professionals and is not based on an unawareness of the relevant issue;
  - c. There is no alternative valuation framework being used by market practitioners that enables them to directly estimate the required return on equity net of the assumed value of

<sup>&</sup>lt;sup>1</sup> Australian Energy Regulator (2008), Electricity transmission and distribution network service providers -- Review of the weighted-average cost of capital (WACC) parameters: Explanatory statement, December.

<sup>&</sup>lt;sup>2</sup> For a derivation, see Paragraph 25 below.

franking credits, such that this alternative valuation framework circumvents the necessity to estimate of gamma at all; and

- d. The issue at hand is not about whether cash flows and discount rates should be defined in a consistent manner there is uniform agreement that they must be defined consistently. The issue is about what value of gamma should be used in those consistent definitions. Market practice is to use a value of 0. The AER has adopted a value of 0.65.
- 8. In my view, the arguments set out in the *Explanatory Statement* do not reconcile the inconsistency between the AER's estimate of gamma and market practice. In my view, the AER approach is inconsistent with market practice and results in materially lower rates of return being available to shareholders. Consistency with market practice would require gamma to be set to zero.

Stephen Gray

Professor Stephen Gray 1 February 2009

#### 1. Market practice is to set gamma to zero

## **Market practice**

9. My earlier report notes that:

The conventional approach in the Australian market is to estimate the required return on equity using the CAPM and to make no adjustment for the assumed effect of franking credits when estimating cost of capital. This is borne out by survey evidence from Australian CFOs and the practice adopted in expert valuation reports.<sup>3</sup>

10.	That is, the dominant market practice in Australia is to set gamma to zero when estimating the
	cost of capital and when conducting valuation exercises.

11. In support of this conclusion, I cited a number of pieces of evidence, which I describe in more detail below.

## Surveys of expert valuation reports

- 12. The first survey of Australian corporate practice in relation to the valuation of franking credits is that of Lonergan (2001), who surveys expert valuation reports prepared in relation to takeovers. Lonergan reviews 122 reports. Of those that provide detail about how they had arrived at the WACC used in their reports, 88% used the CAPM to estimate the cost of equity capital and made no adjustment for dividend imputation.<sup>4</sup> Only six reports made any sort of adjustment to reflect dividend imputation. Moreover, of the few reports that did make an adjustment for the value of franking credits, for all but one the ultimate effect on the value of the company was negligible or zero.
- 13. Importantly, nearly half of Lonergan's sample is from after the 1997 introduction of the 45-day rule that was introduced to prevent trading in franking credits, and only one expert report from this period made any mention of the value of franking credits.
- 14. Lonergan (2001) also provides a list of conceptual grounds cited in reports for not adjusting for imputation credits, including:
  - a. The value of franking credits is dependent on the tax position of each individual shareholder;
  - b. There is no evidence that acquirers of businesses will pay additional value for surplus franking credits;
  - c. There is little evidence that the value effects of dividend imputation are being included in valuations being undertaken by companies and investors or the broader market;
  - d. Foreign shareholders are the marginal price-setters of the Australian market yet many such shareholders cannot avail themselves of the benefit of franking credits; and

<sup>&</sup>lt;sup>3</sup> Gray (2008, p. 13).

<sup>&</sup>lt;sup>4</sup> See Table 5, page 13.

- e. There is a lack of certainty about future dividend policies, the timing of taxation and dividend payments and consequently about franking credits.
- 15. An updated analysis of expert valuation reports has more recently been conducted as part of the Victorian Essential Service Commission's Electricity Distribution Price Review. A submission by KPMG, on behalf of the regulated distribution businesses<sup>5</sup>, examines a sample of 118 independent expert reports on takeovers occurring between 1 January 2000 and 30 June 2005.
- 16. KPMG conclude that of the reports that adopt the CAPM for estimating the cost of equity:

...none made any adjustment for the value of imputation credits.<sup>6</sup>

They further conclude that:

based on these results, KPMG considers that the standard market practice in relation to estimating the cost of capital in Australia, as evidenced by independent expert reports relating to takeovers, is to assume a zero value for imputation credits.<sup>7</sup>

17. In summary, the evidence is clear that expert valuation professionals set gamma equal to zero when estimating the cost of capital as part of a valuation exercise.

# Survey of corporate practice

- 18. Truong, Partington and Peat (2008) surveyed 356 listed-Australian firms about various corporate finance practices. All firms were included in the All Ordinaries Index in August 2004, were Australian, and were not in the finance sector. On the question of whether the company makes an adjustment for imputation credits in project evaluation, 83% indicated that they made no adjustment whatsoever, setting gamma to zero. A further 13% of firms use a value of 0.5 or less, and 4% of firms use a value above 0.5<sup>8</sup>.
- 19. The authors conclude that:

in general the companies surveyed have ignored the impact of imputation tax credits in the capital budgeting process. The majority of respondent companies said they did not adjust for imputation credits when estimating beta, or the market risk premium, or when they carry out project evaluations.<sup>9</sup>

20. Moreover, for those companies who did not make any adjustments, various reasons were given, the most frequently cited reasons were either, "it is difficult to set an appropriate tax credit value for all investors" or "it should have a very small impact on the evaluation result.<sup>10</sup>" Few firms indicated that, "the value of imputation credits was zero" for all investors. Thus, Australian

 $<sup>^{5}</sup>$  KPMG. (August 2005). The Victorian Electricity Distribution Businesses Cost of Capital - Market practice in relation to imputation credits Victorian Electricity Distribution Price Review 2006 – 10.

<sup>&</sup>lt;sup>6</sup> ibid., p. 16.

<sup>&</sup>lt;sup>7</sup> ibid., p. 17.

<sup>&</sup>lt;sup>8</sup> Truong, Partington, and Peat (2005), Table 10, p. 27.

<sup>&</sup>lt;sup>9</sup> ibid., pp. 12 – 13.

<sup>&</sup>lt;sup>10</sup> ibid., p. 13.

corporate practice is entirely consistent with the view that franking credits are certainly of value to some investors (i.e., residents) but that they do not affect the corporate cost of capital.

21. Truong, Partington and Peat (2008) conclude that:

With regard to the impact of imputation tax credits, the uniform view of Australian regulators has been that there was a significant market value for imputation credits. Accordingly, the value of imputation credits and their impact was taken into account when estimating a regulated firm's cost of capital. This is in contrast to the practice of the Australian firms surveyed.<sup>11</sup>

22. In summary, the evidence is clear that the dominant practice of Australian listed companies is to set gamma equal to zero when estimating the cost of capital as part of a valuation exercise.

# Government Treasury principles

23. An additional indication of the dominant market practice can be found in the policies of government treasuries in relation to their government-owned corporations (GOCs). It is standard for these GOCs to have separate boards and to be charged with running the firm on a commercial basis. By way of example, the Queensland Treasury's Office of Government-Owned Corporations (OGOC) sets out the commercial principles that should be applied by all of its GOCs. One of those principles is in relation to the effect that dividend imputation has on estimates of WACC and on valuation generally. The OGOC principles state that:

When assessing investment proposals, independent commercial advice provided to OGOC is that a value of zero should be used for dividend imputation as dividend imputation is not generally taken into account by the private sector and GOC competitors when determining a WACC. Accordingly, for non-regulated assets and assets not subject to monopoly prices oversight, it is proposed all GOCs adopt a value of zero for gamma in calculating WACC.<sup>12</sup>

24. That is, the OGOC principles note that market practice is to make no adjustment for franking credits in a cost of capital setting. The principles also recognise that the practice of regulators differs from the practice of the private sector and GOC competitors – gamma is set to zero for all businesses other than those for which regulators impose a different value.

<sup>&</sup>lt;sup>11</sup> Truong, Partington and Peat (2008, p.116).

<sup>&</sup>lt;sup>12</sup> Queensland Treasury (2006, p. 7).

## 2. The AER's explanations for the observed market practice

## Overview

- 25. The *Explanatory Statement* does not dispute the evidence that the dominant market practice is to make no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise. However, the AER concludes that this is not necessarily inconsistent with its own proposal to set gamma to 0.65 and thus reduce the estimated cost of equity by 22%.<sup>13</sup>
- 26. In my view, the AER approach is demonstrably inconsistent with market practice. The AER and market practitioners both use the same CAPM to estimate the required return on equity  $(k_e)$  as the risk free rate plus the product of estimates of the equity beta and market risk premium.<sup>14</sup> Market practice is to use that estimate of  $k_e$ , unadjusted, as the cost of equity when estimating WACC. The AER approach is to reduce the estimate of  $k_e$  by 22% and to use the reduced value as the cost of equity when estimating WACC. In my view, these approaches are clearly inconsistent with one another and inevitably produce substantially different results.
- 27. The AER concludes that:

...the omission of imputation credits from a valuation analysis is not necessarily indicative of negligible monetary value. Rather, as Handley points out, it is possible that for practical reasons market practitioners elect to exclude the value of imputation credits from both the cash flow and discount rate analyses.<sup>15</sup>

28. In reaching its conclusion, the AER has clearly based its view on the conclusions of its consultant. Handley (2008) concludes that a possible explanation of the observed market practice is that:

 $\dots$  imputation credits are not assumed to have zero value but rather they are simply not explicitly taken into account.<sup>16</sup>

29. That is, the AER and Handley accept that the dominant market practice is to make no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise. However, the implication is that Australian firms and expert

<sup>&</sup>lt;sup>13</sup> If gamma is assumed to be greater than zero, a part of the shareholders' total required return on equity is assumed to come in the form of franking credits. The firm's cost of equity capital is consequently assumed to fall by the proportion of the total required return that is assumed to come in the form of franking credits. Officer (1994) shows that the reduction in the estimated

cost of equity is  $k_e \frac{1-T}{1-T(1-\gamma)}$ . Where the corporate tax rate is 30% and gamma is set to 0.65, the cost of equity is reduced

by 22% relative to the CAPM estimate. Handley (2008, p.17) notes that there are various ways of incorporating the assumed value of franking credits into the estimated cost of capital or the expected cash flows, but that all are perfectly equivalent and lead to identical estimated asset values.

<sup>&</sup>lt;sup>14</sup> Of course it is possible that market practitioners may use CAPM parameter estimates that differ from those adopted by the AER. For example, the dominant market practice is to use the yield on 10-year government bonds as a proxy for the risk-free rate, whereas the AER proposes the use of 5-year bonds. Here, however, I focus exclusively on gamma – I take the CAPM parameters as given and explore the effects of the assumed value of gamma. I note that the AER is consistent with market practice in using the CAPM framework to estimate the required return on equity.

<sup>&</sup>lt;sup>15</sup> Explanatory Statement, p. 298.

<sup>&</sup>lt;sup>16</sup> Handley (2008, p. 16).

valuation professionals have not so much chosen to set gamma to zero, but have ignored it or not considered it.

- 30. The possible reasons for this view are that:
  - a. Australian firms and expert valuation professionals are unaware that the cost of capital (or expected cash flows) should be adjusted to reflect the assumed value of gamma; or
  - b. Market practice adopts a valuation framework in which it is unnecessary to estimate gamma.
- 31. In the following section, I present reasons for my conclusion that market practitioners are well aware of the potential relevance of franking credits to cost of capital and valuation estimates. Consequently, I reject the potential reason set out in (a) above.
- 32. In the subsequent section, I present reasons for my conclusion that there is no valuation framework in which it is unnecessary to estimate gamma. Every valuation approach requires an estimate of gamma; they only differ in terms of where gamma is used (discount rate or cash flows). To ignore gamma is to set it to zero. Consequently, I reject the potential reason set out in (b) above.
- 33. This leads me to conclude that when market professionals set gamma to zero, they do so deliberately and after proper consideration. They are not unaware of the issue and they are not using a different valuation approach that somehow circumvents having to estimate gamma.

## Do market professionals know about gamma?

- 34. The first potential reconciliation of the AER approach with the observed market practice is that Australian firms and expert valuation professionals are unaware that the cost of capital (or expected cash flows) should be adjusted to reflect the assumed value of gamma. Under this view, market professionals have not consciously set gamma to zero, but they have simply not considered gamma as they are unaware that it should be taken into account in valuation exercises.
- 35. My view is that market professionals are aware of the potential for franking credits to affect the cost of capital and the valuation of corporate assets, and that when gamma is set to zero this is a conscious choice and not due to an unawareness of the issue. This view is based on several reasons as set out below:
  - a. Officer (1994) was published 15 years ago and was circulating as a working paper for some time before that;
  - b. Dividend imputation and the Officer CAPM-WACC framework are routinely taught in corporate finance courses throughout Australia;
  - c. There is evidence, such as the OGOC Guidelines referred to above, that it is common knowledge in corporate and government circles that gamma is one of the parameters for which a value must be selected when estimating WACC;
  - d. Truong, Partington and Peat (2008) report that the corporate finance professionals they surveyed provided a range of reasons for making no adjustment for franking credits. This is inconsistent with those professionals not being aware of the issue;

- e. In my corporate finance advisory practice I have advised a number of large Australian firms and found that all have explicitly considered the issue of franking credits and the great majority have explicitly set gamma to zero.
- 36. In summary, there is substantial evidence that the dominant market practice is to make no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise. In my view, this is a conscious choice of market professionals and is not based on an unawareness of the relevant issue.

## Do Australian firms use a framework that does not require an estimate of gamma?

37. Handley (2008) suggests that:

...a possible alternative explanation of market practice is that (at least some) Australian firms and independent expert valuation practitioners recognise that, the conventional approach to valuation – meaning there is no explicit recognition of the value of imputation credits in either the cash flows or in the discount rate – remains valid under the imputation tax system (subject to certain implicit assumptions). In other words, imputation credits are not assumed to have zero value but rather they are simply not explicitly taken into account.<sup>17</sup>

38. The AER adopts a similar view in the *Explanatory Statement*:

The AER reiterates its view from the issues paper that the omission of imputation credits from a valuation analysis is not necessarily indicative of negligible monetary value. Rather, as Handley points out, it is possible that for practical reasons market practitioners elect to exclude the value of imputation credits from both the cash flow and discount rate analyses.<sup>18</sup>

- 39. That is, the suggestion is that there is a valuation framework that is valid and produces the correct results, but which does not require the estimation of gamma. It is my view that no such valuation framework exists and I explain the reasons for this below. However, if such a valuation framework can be identified, it would seem that it should be used in the regulatory setting to avoid the costly debate about the appropriate value of gamma.
- 40. In making this point, Handley (2008, p.17) summarises the various definitions of WACC and cash flows that were set out by Officer (1994). I note that in every case, either the WACC or cash flow definition (or both) require an estimate of gamma. That is, whatever specification is selected, an estimate of gamma is required.
- 41. Handley (2008) then focuses on what he calls "the after tax case (i)." In this case, the cash flows are defined in the simplest and most standard way according to what Handley calls the "conventional approach to valuation." He suggests that the relevant issue is best examined in this way, and I agree with that assessment.
- 42. Handley (2008, p.18) then correctly notes that the cost of equity capital can be specified as:

<sup>&</sup>lt;sup>17</sup> Handley (2008, p. 16).

<sup>&</sup>lt;sup>18</sup> Explanatory Statement, p. 298.

$$k_E^* = k_E \frac{1 - T}{1 - T(1 - \gamma)}$$

where  $k_E$  is the total return required by shareholders in order to commit equity capital to the firm and  $k_E^*$  is the return that is required from dividends and capital gains only. That is,  $k_E^*$  excludes that part of the required return that is assumed to come in the form of franking credits.

43. In summary, when cash flows are defined in the simple standard way,<sup>19</sup> one either needs to:

a. Estimate 
$$k_E$$
 and then adjust by a factor of  $\frac{1-T}{1-T(1-\gamma)}$ ; or

- b. Estimate  $k_E^*$  directly.
- 44. The Sharpe CAPM used by the AER produces an estimate of  $k_E$  the total required return on equity. This can then be adjusted downward according to the formula set out above. Of course this requires an estimate of gamma.
- 45. The alternative is to directly estimate  $k_E^*$ . This requires a direct estimate of the return that would be required by shareholders, net of that component of the return that is assumed to come in the form of franking credits. But there is no way of doing this. There is no model or framework for directly estimating the return that shareholders require net of the assumed value of franking credits. Moreover, it is not clear how this could be possible without having to estimate gamma at some point in the process. Moreover, if it were possible to estimate  $k_E^*$  directly, it could be compared with the Sharpe CAPM estimate of  $k_E$  to imply an estimate of gamma. It is highly unlikely that all of this is possible and is the standard practice of Australian firms and expert valuation professionals, yet none of it has appeared in the relevant literature.
- 46. In summary, the Sharpe CAPM provides an estimate of the total return required by shareholders  $(k_E)$ . It is standard practice to then estimate gamma and to use that estimate to adjust the discount rate or cash flows as set out by Officer (1994). There is no known way of directly estimating the required return on equity net of the assumed value of franking credits  $(k_E^*)$ .
- 47. Given that practitioners are aware of the potential relevance of gamma, there are two possible explanations for the observed market practice of making no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise:
  - a. Market practitioners work within known valuation frameworks, consider the issue, and choose to set gamma to zero; or
  - b. Market practitioners use an approach other than the Sharpe CAPM that enables them to directly estimate the required return on equity net of the assumed value of franking credits  $(k_E^*)$ , and this approach is valid and produces correct results and does not require any estimate of gamma.

For the reasons set out above, it is my view that the former explanation is correct and the latter is implausible.

<sup>&</sup>lt;sup>19</sup> What Handley (2008) calls the "after tax case (i)."

48. That is, I consider the view expressed in the *Explanatory Statement* to be implausible. I am of the view that market practitioners do not use an approach other than the Sharpe CAPM that enables them to directly estimate the required return on equity net of the assumed value of franking credits  $(k_E^*)$ , circumventing the need to estimate gamma. Rather, it is my view that market practitioners work within known valuation frameworks, consider the issue, and choose to set gamma to zero.

## Consistency between discount rate and cash flows

49. On the issue of consistency with market practice, the *Explanatory Statement* notes that there must be a consistency between the definition of cash flows and the discount rate:

As the JIA's consultants NERA and Wheatley note, the value for gamma will not affect company values as long as it is included (excluded) consistently in the firm's cash flows as well as the discount rate: 'If correctly executed, the adjustments to the required return to equity and to the way in which the cash flows are measured should exactly offset one another.' This is supported by Handley, who explains in the context of the Officer WACC framework that imputation credits will not affect overall firm values as long as they are consistently recognised. Accordingly the AER considers that recognition of a positive value for imputation credits as part of this review is entirely consistent with market practice, provided that the principle of consistency between cash flows and the discount rate is adhered to.<sup>20</sup>

- 50. I agree that there must be a consistency between the definitions of the cash flows and the discount rate. This point was made clearly by Officer (1994). Handley (2008, p. 17) sets out the various definitions of cash flows and the corresponding definitions of the discount rate. He also notes that within the Officer CAPM-WACC framework the valuation result will be the same regardless of which pair of definitions is used so long as consistency is maintained between the definitions of cash flows and discount rate. I agree with all of this and do not consider any of it to be controversial.
- 51. But in no way does this imply that the *Explanatory Statement*, in setting gamma to 0.65, is somehow consistent with the market practice of setting gamma to 0. Different cash flow/discount rate definitions within the Officer framework will only produce the same valuation outcomes if the same set of parameters, including gamma, is used. One cannot expect the same valuation outcome if different values of gamma (or any other parameter) are used.
- 52. Handley (2008, p.17) summarises the various definitions of WACC and cash flows that were set out by Officer (1994). I note that in every case, either the WACC or cash flow definition (or both) require an estimate of gamma. That is, whatever specification is selected, an estimate of gamma is required.
- 53. Market practice is to use one of the consistently defined valuation specifications summarised by Handley (2008) and to insert a value of zero wherever gamma appears. The *Explanatory Statement* also uses one of the consistently defined valuation specifications summarised by Handley (2008) but inserts a value of 0.65 wherever gamma appears. The use of two very different values for gamma inevitably leads to two very different valuation outcomes.

<sup>&</sup>lt;sup>20</sup> Explanatory Statement, pp. 298-299.

54. The issue at hand is not about whether cash flows and discount rates should be defined in a consistent manner – there is uniform agreement that they must be defined consistently. The issue is about what value of gamma should be used in those consistent definitions. Market practice is to use a value of 0. The AER has adopted a value of 0.65.

# 3. Conclusions

- 55. My earlier report pointed out an inconsistency between the approach adopted by regulators and market practice in relation to the estimate of gamma.
- 56. The dominant practice of expert valuation professionals and Australian firms is to set gamma to zero, but the *Explanatory Statement* proposes an estimate of 0.65. Under the Officer CAPM-WACC framework, setting gamma to 0.65 reduces the estimated cost of equity by 22%.<sup>21</sup>
- 57. The *Explanatory Statement* argues that there is not necessarily an inconsistency between the AER approach and market practice.
- 58. In this report I explore this issue in more detail and consider the possible ways of reconciling the AER approach with market practice that are set out in the *Explanatory Statement*. I conclude that:
  - a. There is substantial evidence that the dominant market practice is to make no adjustment for any assumed value of franking credits when estimating the cost of capital or performing any valuation exercise;
  - b. This is a conscious choice of market professionals and is not based on an unawareness of the relevant issue;
  - c. There is no alternative valuation framework being used by market practitioners that enables them to directly estimate the required return on equity net of the assumed value of franking credits, such that this alternative valuation framework circumvents the necessity to estimate of gamma at all; and
  - d. The issue at hand is not about whether cash flows and discount rates should be defined in a consistent manner there is uniform agreement that they must be defined consistently. The issue is about what value of gamma should be used in those consistent definitions. Market practice is to use a value of 0. The AER has adopted a value of 0.65.
- 59. In my view, the arguments set out in the *Explanatory Statement* do not reconcile the inconsistency between the AER's estimate of gamma and market practice. In my view, the AER approach is inconsistent with market practice and results in materially lower rates of return being available to shareholders. Consistency with market practice would require gamma to be set to zero.

<sup>&</sup>lt;sup>21</sup> For a derivation, see Paragraph 25 above.

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