



Appendix H

Response to the UT5 draft decision on the value of dividend imputation tax credits (gamma)

REPORT PREPARED FOR AURIZON NETWORK

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1	Executive summary	1
1.1	Key findings	1
1.2	Author of report	2
2	Assessment of the merits of the ATO tax statistics and equity ownership approaches	1
2.1	Context	1
2.2	Two approaches to estimating gamma under a utilisation rate interpretation	2
2.3	The QCA approach	3
2.4	The reliability of the ATO tax statistics	4
2.5	The reliability of the QCA approach	7
3	Conclusions and recommendations	17
4	Appendix: Estimation issues with the 20-firms approach	18
4.1	Overview	18
4.2	Issues with Franking Account Balance figures	19
4.3	Issues with dividend figures	23
4.4	Miscellaneous errors	25
4.5	Revised estimate of distribution rate	25

1 Executive summary

1 Frontier Economics has been retained to review and respond to the Queensland Competition Authority's (QCA's) estimate of the value of dividend imputation tax credits (gamma) in its Draft Decision¹ in relation to Aurizon Network's (Aurizon's) 2017 Draft Access Undertaking for the UT5 period.

1.1 Key findings

2 Our key conclusions in relation to the gamma estimate in the UT5 Draft Decision are set out below.

3 Our primary conclusions and recommendations are as follows:

- a. The best approach for estimating a "utilisation" interpretation of gamma is the ATO taxation statistics approach. That approach uses data items that are reliable and it provides a direct estimate of the proportion of created credits that are actually redeemed. The current best estimate using that approach is a gamma of 0.31.
- b. If the ATO taxation statistics approach is not to be relied on exclusively, it should be given material weight. We see no basis for affording reliable and relevant evidence zero weight.
- c. If the current QCA approach is to be used, regard should be given to the reliability issues documented in Section 2 of this report when determining the weight to be afforded to it. In particular, the QCA's estimate of the distribution rate:
 - i. Differs materially from other estimates of the distribution rate;
 - ii. Is based on 20 companies that generate an average of 40% of their revenue offshore, which can be used to increase the amount of credits that can be distributed to shareholders. The benchmark regulated entity has zero foreign earnings, by definition; and
 - iii. There are a number of questions about the reliability of the Lally 20 companies estimates that should be resolved before material weight is placed on them.
- d. If the above recommendations are rejected and the current QCA approach is to be maintained, an equity ownership estimate of 45%

¹ QCA, Aurizon Network's 2017 draft access undertaking, Draft Decision, December 2017 (Draft Decision).

should be used, consistent with the AER's cleaning of the ABS data to remove the effects of public sector equity. The resulting estimate of gamma would then be 0.37 (0.83×0.45).

1.2 Author of report

- 4 This report has been authored by Professor Stephen Gray, Professor of Finance at the UQ Business School, University of Queensland and Director of Frontier Economics, a specialist economics and corporate finance consultancy. I have Honours degrees in Commerce and Law from the University of Queensland and a PhD in Financial Economics from Stanford University. I teach graduate level courses with a focus on cost of capital issues, I have published widely in high-level academic journals, and I have more than 20 years' experience advising regulators, government agencies and regulated businesses on cost of capital issues. I have published a number of papers that specifically address beta estimation issues. A copy of my curriculum vitae is attached as an appendix to this report.
- 5 My opinions set out in this report are based on the specialist knowledge acquired from my training and experience set out above. I have been provided with a copy of the Federal Court's Expert Evidence Practice Note GPN-EXPT, which comprises the guidelines for expert witnesses in the Federal Court of Australia. I have read, understood and complied with the Practice Note and the Harmonised Expert Witness Code of Conduct that is attached to it and agree to be bound by them.
- 6 I have been assisted in the preparation of this report by Dinesh Kumareswaran and Simon Lang from Frontier Economics.

2 Assessment of the merits of the ATO tax statistics and equity ownership approaches

2.1 Context

7 We begin by noting that there is broad agreement between the QCA and experts that gamma (γ) should be estimated as the product of two parameters:

- a. The distribution rate (F), which represents the proportion of imputation credits created that are attached to dividends and distributed to shareholders; and
- b. A second parameter, theta (θ), which is variously defined as “the value of distributed imputation credits” or as “the utilisation rate.”

8 Most of the regulatory debate centres on the appropriate method for estimating theta and, in particular, whether theta should be interpreted as:

- a. *The market value of imputation tax credits.* If this interpretation is adopted, estimation methods that are designed to estimate the market value from the market prices of traded securities should be adopted to estimate theta; or
- b. *A utilisation rate.*² If this interpretation is adopted, estimation methods that are designed to estimate the proportion of credits that are redeemed should be adopted to estimate theta.

9 In a number of reports on gamma that have been submitted to the QCA, we explain why we consider that, within the QCA’s regulatory framework, theta should be interpreted as a market value concept, and we continue to hold to this view.

10 We hold that view because of the role that gamma plays within the QCA’s regulatory model. The QCA’s approach is to first determine the total return that shareholders would require. The QCA then deducts the estimated value of imputation credits, and allows the regulated firm to earn sufficient revenue to pay the balance to shareholders. Thus, shareholders receive part of their return from the firm (out of allowed revenues) and the balance in the form of imputation credits.

11 For this process to work, the regulator must estimate the fair market value of credits (the extent to which shareholders actually value the credits) rather than the number of credits that are redeemed. For example, suppose the regulator determines that a fair return to shareholders is \$100. If shareholders actually value

² Or ‘redemption proportion’.

the credits they will receive at \$25, the allowed revenue should be set such that the firm can provide \$75, and the shareholders will have received the \$100 that they are due. If instead of making a deduction of \$25 in relation to the market value of credits to the shareholders, the regulator makes a deduction of \$40 in relation to the number of credits that might be redeemed, shareholders will be systematically under-compensated.

- 12 If the regulator reduces the allowed return by more than the (market) value that shareholders ascribe to imputation credits, the shortfall will flow through to equity holders. However, rather than reduce the return provided to shareholders, a regulated firm may seek to offset the lower regulatory allowance. This might be done, for example, by reducing operating costs (e.g., by reducing maintenance expenses), by delaying new capital investment, or by leveraging beyond the efficient level.
- 13 It is because none of these outcomes is in the long-term interests of consumers that regulatory frameworks often require the regulator to ensure that the allowed return is *at least* sufficient to properly compensate investors.³
- 14 However, we note that the QCA has adopted a utilisation interpretation and in this report we have been asked to consider the best available estimate of gamma in the event that the QCA maintains its position that gamma should be estimated under a utilisation rate interpretation.

2.2 Two approaches to estimating gamma under a utilisation rate interpretation

- 15 In the regulatory context, two alternative approaches have been developed for the purposes of estimating gamma under a utilisation rate interpretation:
- a. *The ATO tax statistics approach.* This approach uses aggregate tax statistics data published by the ATO to calculate gamma as the proportion of created credits that are actually redeemed by investors in Australia. Under this approach, gamma is estimated directly as the ratio of total credits redeemed to total credits created, where each component is obtained from official ATO taxation statistics; and
 - b. *The equity ownership approach.* Recognising that only some investors in Australia are eligible to redeem imputation tax credits, the equity ownership approach estimates theta as the proportion of domestic investors in the Australian equity market. This requires the additional assumptions that:

³ See, for example, s 69E and s 168 of the QCA Act 1997 in this regard.

- i. Domestic and foreign investors hold identical portfolios of Australian stocks; and
- ii. Every credit distributed to a domestic investor will be redeemed by that investor. Thus, the 45-day Rule, and every other reason why a domestic investor may not redeem credits, is not reflected in the estimate.

The equity ownership estimate of theta must then be multiplied by an estimate of the distribution rate to obtain an estimate of gamma.

16 Where a utilisation rate interpretation of gamma is adopted, it is common to have some regard to estimates from both of these approaches.

2.3 The QCA approach

17 In its 2014 Market Parameters Decision, and in all subsequent decisions, the QCA has placed 100% weight on the equity ownership estimate and zero weight on the ATO tax statistics estimate.

18 The Market Parameters Decision⁴ estimates gamma as the product of two parameters:

- a. A distribution rate of 84%, obtained from an analysis of payouts from the 20 largest Australian listed firms; and
- b. An equity ownership estimate of 56% obtained as the average (over the most recent 4-5 years) of the domestic equity ownership proportion of Australian listed equity, based on data compiled by the Australian Bureau of Statistics.

19 The product of these two parameters produces a gamma of 0.47 (0.84×0.56).

20 The QCA has explained the rationale for its approach as:

The cost of capital is a forward-looking concept over the regulatory period. Therefore, an estimate of the expected share of foreign ownership over a 4-5 year regulatory period is required. For this reason, an estimate based on the recent 4–5 year period is considered to be a better estimate for regulatory purposes at this point in time. In addition, ownership of listed shares is considered to be more relevant when estimating the utilisation rate in applying the CAPM for regulatory purposes.⁵

⁴ QCA, 2014, Market Parameters Decision, p. 24.

⁵ QCA, 2014, Market Parameters Decision, p. 98.

- 21 In its recent decisions, the QCA has updated the distribution rate parameter to 83% and the equity ownership parameter to 55%, and consequently revised its gamma estimate to 0.46 (0.83×0.55).⁶
- 22 No weight at all is afforded to the ATO tax statistics approach to estimating gamma.

2.4 The reliability of the ATO tax statistics

- 23 In its 2014 Market Parameters Decision, the QCA questioned the reliability of the ATO tax statistics approach, stating that:

Researchers have recently raised some concerns with the Australian Tax Office data.⁷

- 24 The concerns with the ATO data were identified by Hathaway (2013),⁸ however they relate to a data item that is not needed for the estimate of gamma. Rather, gamma is estimated from data items that are not subject to any concerns at all.

- 25 The issue is as follows:

- a. Each year a certain amount of credits are *created*, some of those are *distributed* to shareholders, and some of those distributed credits are *redeemed* by shareholders.
- b. The ATO provides data on the quantum of credits that are *created* each year and on the quantum of credits that are *redeemed* each year. There has never been any dispute about either of these items. These are the only two items that are needed to estimate gamma.
- c. The ATO does not provide direct data on the number of credits that are *distributed* each year – so that quantity has to be derived. Two approaches have been proposed:
 - i. The franking account balance (FAB) approach – whereby the amount of distributed credits is derived as the sum of all credits created less those that are retained by firms as reported in the firms’ franking account balances;⁹ and
 - ii. The dividend approach – whereby the amount of distributed credits is estimated by tracking dividend

⁶ QCA, 2017, Aurizon Network UT5 Draft Decision, p. 162.

⁷ QCA, 2014, Market Parameters Decision, p. 91.

⁸ Hathaway, N., 2013, “Franking credit redemption ATO data 1988 to 2011,” Capital Research, September.

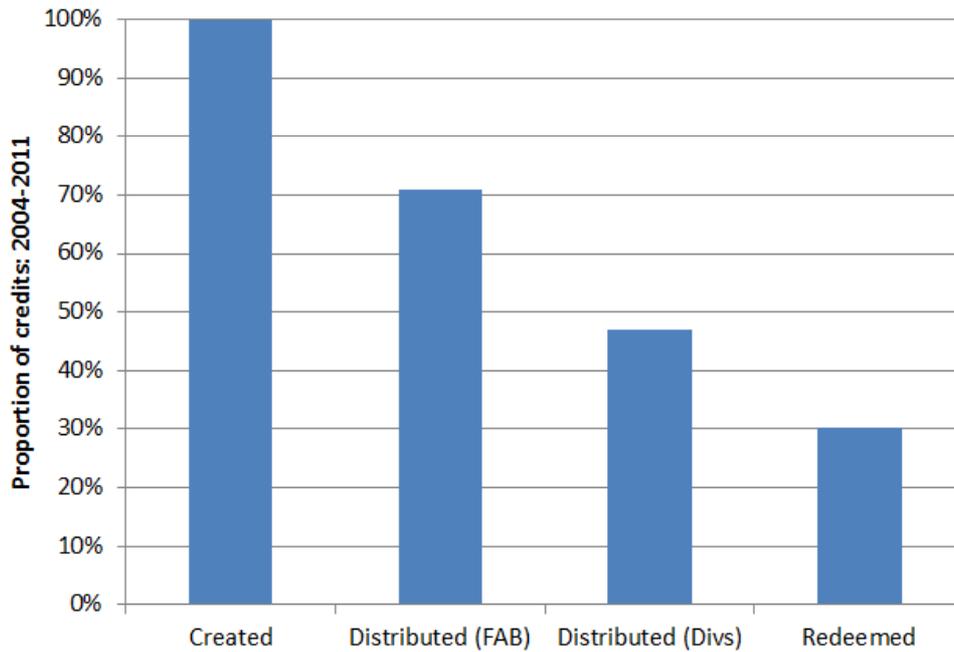
⁹ A firm’s ‘franking account balance’ is a record of the face amount of imputation credits the firm has available for distribution.

payments and making assumptions about the flow of dividends between companies, trusts and life offices.

d. The FAB and dividend approaches produce different estimates of the amount of credits that are *distributed* each year.

26 The difference between the FAB and dividend estimates of the amount of credits distributed was first identified by Hathaway (2013).¹⁰ His estimates are summarised in Figure 1 below.

Figure 1: Summary of ATO tax statistics



Source: Hathaway (2013), p. 9.

27 Figure 1 shows that the FAB method indicates that 71% of created credits are distributed, whereas the dividend method produces a distribution rate of 47%.

28 Under the “utilisation” interpretation of gamma, the ATO tax statistics can be used to estimate gamma as follows:

$$\gamma = F \times \theta = \frac{\text{Credits Distributed}}{\text{Credits Created}} \times \frac{\text{Credits Redeemed}}{\text{Credits Distributed}}$$

29 Note that the amount of credits distributed cancels out, so we are left with:

$$\gamma = \frac{\text{Credits Redeemed}}{\text{Credits Created}}$$

¹⁰ Hathaway, N., 2013, “Franking credit redemption ATO data 1988 to 2011,” Capital Research, September.

30 In this case, there is no issue with the measurement of either term, so no reason to consider the estimate to be unreliable. Hathaway (2013) recognises this point and reports that the proportion of credits redeemed to credits created is 30%.¹¹ He notes that Credits Redeemed is \$127.6 billion and that Company Tax Paid is \$421.5 billion, producing a ratio of 30%. He concludes that:

This overall approach is reasonable as the tax statistics are unlikely to be in major error for amounts of tax paid and the amounts of tax credits claimed.¹²

31 Moreover, it is clear from Figure 1 above that the same outcome would be obtained whether one adopted the FAB approach:

$$\gamma = F \times \theta = \frac{\text{Credits Distributed}}{\text{Credits Created}} \times \frac{\text{Credits Redeemed}}{\text{Credits Distributed}} = \frac{71}{100} \times \frac{30}{71} = 0.30$$

or whether one adopted the dividend approach:

$$\gamma = F \times \theta = \frac{\text{Credits Distributed}}{\text{Credits Created}} \times \frac{\text{Credits Redeemed}}{\text{Credits Distributed}} = \frac{47}{100} \times \frac{30}{47} = 0.30.$$

32 In an update to his 2013 report, Hathaway (2014)¹³ is very clear about the fact that any uncertainty about the quantum of credits distributed is irrelevant to the estimation of gamma – because it is not needed. Hathaway notes that gamma can be directly estimated as the ratio of credits redeemed to credits created:

From a net tax payment of \$486 billion, the net utilisation of \$148 billion represents an overall Australian average *gamma* of 31%.¹⁴

33 Hathaway (2014) concludes that:

This overall approach is robust as the tax statistics are unlikely to be in major error for amounts of tax paid and the amounts of franking credits claimed. This approach does not allow us to obtain any estimates for the two factors that comprise gamma but it does give us a solid estimate of gamma.¹⁵

34 The fact that it is generally accepted that there are two different estimates of the amount of credits distributed does not mean that the ATO data should be abandoned entirely. The 31% figure does not require any estimate of the amount

¹¹ Hathaway (2013), Paragraph 99.

¹² Hathaway (2013), Paragraph 100.

¹³ Hathaway, N., 2014, “Franking credit redemption ATO data 1988 to 2012,” Capital Research, October, cited at p. 553 of the UT5 Draft Decision.

¹⁴ Hathaway (2014), p. 46. Note that the effect of including an additional year of data into the analysis increased the estimate of gamma from 0.3 to 0.31.

¹⁵ Hathaway (2014), p. 46.

of credits distributed. It is a ratio of redeemed credits to created credits, and there has been no question raised about the reliability of either of these quantities.

35 Whereas the ATO has no direct reason to monitor the number of “Credits Distributed” in a given year, it would be extraordinary to suggest that either:

- a. The ATO does not know how much corporate tax was paid to them in a given year, this being the “Credits Created” figure; or that
- b. The ATO does not know how many credits were redeemed from them in a given year, this being the “Credits Redeemed” figure.

36 In a more recent report, Hathaway (2017)¹⁶ has been even more explicit, stating that:

The Company Tax item is the total company tax collected by the ATO during the relevant period and the Credits Redeemed item is the total amount of credits redeemed via the filing of personal tax returns. These two data items are 100% reliable as they are figures that relate directly to ATO tax collections. There is no reason to question the ATO’s records of the amount of corporate and personal tax it has collected.¹⁷

37 Hathaway (2017) goes on to conclude that the ATO tax statistics can “clearly”¹⁸ be used to provide a reliable utilisation estimate of gamma.

38 The 31% figure is relevant evidence that is unaffected by any concerns about the estimate of the quantum of distributed credits.

39 In our view, the ATO tax statistics approach produces a direct estimate of the proportion of created credits that are redeemed by shareholders. This is directly relevant evidence that should receive predominant, or at least some, weight if a utilisation approach to estimate gamma is adopted.

40 We have applied this direct estimate approach to the most recently available data and obtain a gamma of 0.31, which we consider to be the best available estimate. This figure is computed by averaging over the estimates from 2010 – 2015 (the most recent data available), commensurate with the approach adopted by the QCA when conducting its equity ownership calculations.

2.5 The reliability of the QCA approach

41 As noted above, the QCA approach is to estimate gamma as the product of two parameters:

¹⁶ Hathaway, N., 2017, Letter to Energy Networks Australia, December.

¹⁷ Hathaway (2017), p. 1.

¹⁸ Hathaway (2017), p. 2.

- a. A distribution rate estimated using the Lally-20-firms approach; and
- b. An estimate of the domestic ownership proportion of domestic listed equity.

2.5.1 Concerns about the QCA estimate of the distribution rate

QCA approach

42 The QCA's estimate of the distribution rate is set according to the Lally-20-firms approach. This estimate is constructed by selecting 20 large firms and, for each firm, estimating the total dividends paid over the 2000 to 2013 period, estimating the total credits attached to those dividends, and then estimating the increase in the firm's franking account balance over the period as an estimate of credits retained. The distribution rate is then estimated as the ratio of (a) credits distributed to (b) credits distributed plus credits retained.

Estimate is materially higher than other approaches and for other firms

43 The QCA approach produces an estimate of 84%, revised to 83% in the UT5 Draft Decision to reflect more recent data.

44 By contrast, the Hathaway estimates reported in Section 2.4 vary between 47% (if the FAB approach is used) and 71% (if the dividend approach is used). That is, the maximum distribution rate that can be derived from the ATO data is 71%.

45 The QCA also accepts that the Lally approach indicates that the distribution rate for the 20 firms examined is materially higher than for other firms:

...it is prima facie evident that firms in the top 20 distribute a higher proportion of credits on average in comparison to public firms not in the top 20.¹⁹

Assumption that all distributed credits immediately flow to end shareholders

46 The Lally approach implicitly assumes that all credits distributed by each of the 20 firms are immediately available for end shareholders to redeem. However, any credits distributed to other companies or trusts will be retained by those entities until they pay a dividend or make a distribution. We are unaware of any data on the extent to which credits are trapped, or delayed, in these intermediate entities.

¹⁹ QCA, 2017, UT5 Draft Decision, p. 171.

However, it would be unreasonable to assume that the figure is zero, in which case the Lally approach would produce an upper bound for the distribution rate.

47 We note that no such issue arises when using the ATO tax statistics approach, because a distribution rate never has to be estimated – one has direct data on credits created and credits redeemed for each year.

The objective – what is the QCA seeking to estimate

48 In its UT5 Draft Decision, the QCA responds to a previous submission from Frontier Economics on the relevance of the 20 largest firms to the task at hand.²⁰ The Frontier submission highlighted the fact that the majority of the 20 largest firms have material amounts of foreign-sourced income, whereas the benchmark regulated firm has no foreign income, by definition. Frontier stated that this is important because dividends paid out of foreign income can be used to increase the imputation credit distribution rate – credits can be attached to dividends that are paid out of foreign profits. Indeed, it is self-evident that any firm has the capacity to distribute more credits if it has access to foreign income that can be used to pay dividends. Frontier concluded that the Lally approach would overstate the distribution rate available to the benchmark firm, which has no access to any foreign income, by definition.

49 The UT5 Draft Decision makes two main points in response:

- a. The first point made in the Draft Decision is that Frontier has provided no evidence of the extent to which the 20 largest firms generate income offshore.²¹ However, if *any* of the firms have *any* foreign income, the Lally approach will produce an over-estimate, because the benchmark firm has zero foreign income, by definition.

In any event, we have computed the proportion of revenue generated in Australia for each of the 20 companies in the Lally sample. To do this we have obtained data from the Bloomberg FINANCIAL ANALYSIS tool under the SEGMENT-GEOGRAPHIC tab. For each of the 20 companies, we have computed the average proportion of Australian revenues over the last five years.²² The average proportion across the 20 companies is approximately 59% Australian revenue and 41% foreign revenue. By contrast, the benchmark efficient entity has 100% domestic revenue, by definition. To the extent that these 20 companies are

²⁰ QCA, 2017, UT5 Draft Decision, pp. 167-172.

²¹ QCA, 2017, UT5 Draft Decision, p. 171.

²² Some companies do not report Australian revenues exclusively, but a combination of Australian and New Zealand revenue. In such cases, we (conservatively) include all such revenue as being Australian.

able to use foreign revenues to assist in the distribution of imputation credits, the estimate of the distribution rate will be over-stated.

We have also computed the proportion of domestic revenue for the ASX 200 firms that are not included in the Lally sample.²³ The non-20 firms have an average proportion of Australian revenue of over 75%. That is, the proportion of foreign revenues is lower than for the firms in the Lally sample, but the proportion of foreign revenues is still higher than for the benchmark efficient firm, and so expanding the sample to include the entire ASX 200 firms would mitigate, but not eliminate the problem.

Further expanding the sample to include all listed companies, or indeed all listed and unlisted companies, would mitigate the problem further. But the resulting estimate would remain an upper bound as long as the sample includes firms that are able to use foreign revenues to assist in the distribution of credits.

- b. The second point made in the Draft Decision is that the 20 largest firms may have a dividend payout rate that differs from the benchmark entity.²⁴ Other things being equal, a firm that distributes a larger proportion of its income as a dividend will also be able to distribute a larger proportion of any credits it has created. However, this is not a reason to *rely* on the 20-firms approach, but rather it is *another* reason to *reject* that approach. There are now two potential reasons why the 20 firms may differ from the benchmark entity.

50 The UT5 Draft Decision indicates that the objective is to estimate the distribution rate for the average firm, rather than for the benchmark regulated firm:

As our objective is to determine a market-wide distribution rate, then we are seeking estimates of the distributed imputation credits and the company tax paid to the ATO, both on a market-level basis for listed firms. To obtain as reliable an estimate of these parameters as possible, we require as large a sample (in market value terms) as is practical.²⁵

51 This is opposite to the advice from the QCA's consultant, who advises that the objective is to estimate the distribution rate for the benchmark regulated firm:

²³ After removing those firms that are based offshore and which pay dividends in a foreign currency, but which are listed on the ASX nonetheless.

²⁴ QCA, 2017, UT5 Draft Decision, p. 171.

²⁵ QCA, 2017, UT5 Draft Decision, p. 169.

...within the Officer (1994) model, the distribution rate is a firm specific parameter rather than a market average parameter.²⁶

52 It is also opposite to the approach of other regulators. For example, the AER notes that:

...the distribution rate is a firm specific parameter.²⁷

53 The AER also notes that there is broad agreement that when estimating the distribution rate, we are seeking an estimate of the proportion of credits that would be distributed by the benchmark efficient entity:

There appears to be agreement between the service providers, SFG and us that the distribution rate is the proportion of imputation credits generated by the benchmark efficient entity that is distributed to investors.²⁸

- a. In my view, when estimating the distribution rate, one should have regard to the extent to which the benchmark regulated firm would be able to distribute credits. However, the approach adopted in the UT5 Draft Decision would produce the same estimate, regardless of whether the benchmark regulated firm was able to distribute many credits or few.

Conclusions on what the QCA should be seeking to estimate

54 When estimating the distribution rate, regard should be had to the role of gamma within the regulatory framework. The regulator first determines the total required return on equity, deducts the estimated value of imputation credits, and allows the regulated firm to recover the remainder. The deduction arises because shareholders in the regulated firm will receive imputation credits and extract value from them. It seems obvious that the deduction must be made in relation to the credits that would be received by the shareholders in the benchmark regulated firm. Thus, we agree with Lally and the AER that the task is to provide the best estimate of the distribution rate for the benchmark regulated firm.

Do the 20 largest companies differ from the benchmark regulated firm in characteristics that are relevant to the distribution rate?

55 There are two corporate characteristics that determine the firm's imputation credit distribution rate:

²⁶ Lally (2013 AER), p. 41.

²⁷ TransGrid Final Decision, Attachment 4, p. 20.

²⁸ TransGrid Final Decision, Attachment 4, p. 65.

- a. The dividend payout rate: Because credits can only be distributed by attaching them to dividends, a higher dividend payout rate will result in a higher credit distribution rate, other things being equal.
- b. Foreign profits: Because credits can be attached to dividends that are paid out of foreign profits, a higher proportion of foreign profits will result in a higher credit distribution rate, other things being equal.

56 Thus, firms that differ materially from the BEE in terms of either of these two characteristics will be inappropriate for the purpose of estimating the credit distribution rate.

57 As noted above, the 20 largest Australian companies have (on average) material foreign profits. These companies tend to be very large multinational corporations that earn a substantial proportion of their revenues offshore.

58 Also, the sample of 20 firms varies materially in terms of the dividend payout rate. For example, over the 2000-2013 period examined by Lally, the large mining firms had low dividend payout rates (as that period coincided with the mining investment boom) while Telstra had a very high payout rate.

59 Consequently, it is impossible for all 20 firms to be appropriate comparators on this dimension – as not all can have a dividend payout ratio that matches the benchmark regulated firm.

60 In summary, the sample of 20 firms has been selected on the basis of size. But size is not a characteristic that has any relevance to the credit distribution rate. The two characteristics that *are* relevant are the proportion of foreign profits and the dividend payout rate, and:

- a. The sample of 20 firms differs materially from the BEE in respect of foreign profits – because the 20 firms have material foreign profits and the BEE has zero foreign profits, by definition; and
- b. The sample of 20 firms has a wide range of dividend payout rates, so whatever the dividend payout rate for the BEE, it is not possible that all 20 firms would provide an appropriate match.

61 Consequently, it seems impossible for the sample of the 20 largest companies to provide an appropriate estimate of the credit distribution rate for the BEE.²⁹

²⁹ The 2017 DBP Final Decision observes that the low dividend payout ratios for the mining firms in the sample of 20 constrained their ability to distribute credits, even though those firms had substantial foreign profits (paragraphs 185-186). However, the relevant point is that *for any given dividend policy* more foreign profits will mean a higher credit distribution rate. The fact that different firms have different dividend policies is beside the point. Foreign profits will be of more benefit (in terms of inflating the credit distribution rate) for firms with relatively higher dividend payout rates. But the

Problems with the 20-firms figures

62 In addition to the conceptual problems set out above, we have identified a number of questions in relation to the estimates for the 20-firms sample that should be resolved before material weight is placed on them. Those issues, which are set out in the appendix to this report, include:

- a. Inconsistencies relating to the year being reported. It appears that for some firms the FAB values are taken from the 2013 annual report and for others they are taken from the 2012 annual report.
- b. Potential exchange rate differences. Some firms report in USD and we have been unable to replicate the AUD figures used in the table above. Lally (2004) does not explain how exchange rate conversions were performed.
- c. Change in definition of FAB. In some cases, the Lally figures appear to be based on parent FAB in one case and group FAB in another. In some cases, pre-dividend figures seem to have been used and in other cases post-dividend figures are used.
- d. Change in company structure: In some cases, the company has undergone a structural change over the 14-year period such that the 2013 firm is fundamentally different from the 2000 firm.
- e. Figures inconsistent with annual reports. In a number of cases, the Lally figure differs from the figure in the relevant annual report for no apparent reason.

2.5.2 Concerns about the QCA estimate of equity ownership

Equity ownership is an upper bound for the redemption rate

63 The equity ownership approach provides an upper bound for the proportion of credits that are redeemed. Whereas the ATO data provides a direct estimate of the proportion of credits that are actually redeemed from the Tax Office, the equity ownership approach (at best) captures the effect of non-residents, but no other reason why credits might not be redeemed. That is, if any credit is not redeemed for any reason other than it being distributed to a non-resident, the equity ownership estimate will be overstated. Consequently, it should be interpreted as an upper bound for the redemption rate.

64 One example is the 45-day rule, which prevents domestic resident investors from redeeming credits that are distributed to them unless they have owned the relevant shares for more than 45 days around the dividend event. The equity ownership

point is that, for *any* firm with *any* dividend payout rate, foreign profits will result in a higher credit distribution rate for that firm than would be possible without those foreign profits.

estimate implicitly assumes that every credit distributed to every domestic investor will be immediately redeemed, so must be interpreted as an upper bound to the actual redemption rate.

- 65 By contrast the ATO tax statistics provide a direct estimate of the amount of credits that are *actually* redeemed from the ATO.

The Australian Bureau of Statistics has expressed concerns about the quality of equity ownership data

- 66 The ABS has issued an express warning about the quality of the data that is used to construct the equity ownership estimates:

The estimated market value of equity issued by some sectors is considered to be of poor quality. In particular, estimates of the market value of the amount issued by private corporate trading enterprises are considered poor because they are largely built up from counterpart and other information obtained from ABS Surveys of Foreign Investment and Balance Sheet Information. This sector covers equity issued by both listed and unlisted private corporate trading enterprises, of which there are over half a million.

In terms of the analysis undertaken here, errors in the estimated market value of equity on issue will impact on the accuracy of estimates of the proportion of that equity owned by non-residents.

A further concern relates to valuation. While both financial accounts and international investment statistics (from which the rest of the world data are sourced) are on a market value basis in principle, collection and estimation methods differ between the two sets of statistics...Because of the differences in the methodologies used, it is possible that there could be more variability in the market value estimates of equity held by the rest of the world than in the estimated market value of the equity on issue, thus causing some variation in the foreign ownership series derived from these data.³⁰

- 67 Thus, even if the equity ownership estimate is to be used as an upper bound for the redemption rate, one would need to take into account the concerns that have been expressed about the quality of that data when determining the weight to be afforded to it.

The QCA's equity ownership estimate appears to be materially overstated

- 68 As noted above, the QCA's approach is to compute the proportion of domestic ownership of listed equity, averaged over the last 4-5 years. In its 2014 Market

³⁰ See the ABS feature article that first explains the foreign ownership calculations at <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Previousproducts/5306.0Feature%20Article150Jun%201992?opendocument&tabname=Summary&prodno=5306.0&issue=Jun%201992&num=&view=>.

Parameters Decision, the QCA estimated the average domestic ownership of listed equity to be 56%,³¹ which it has reduced to 55% in its more recent decisions.³²

69 The AER has also recently compiled this data, which is highlighted in Figure 2 below, reproduced from a recent AER determination. The AER reports that the average domestic ownership proportion over the relevant period is only 45%.

Figure 2: AER equity ownership estimates

Figure 4.3 Refined domestic ownership share of Australian equity



Source: TransGrid Draft Decision, 2017, Attachment 4, Figure 4.3, p. 177.

70 The discrepancy between the AER’s figure of 45% and the QCA’s figure of 55% apparently arises due to the QCA’s inclusion of equity owned by the public sector (e.g., equity in government owned corporations) which is entirely domestic by definition.

71 On this point, the AER has stated that it is necessary to:

Exclude from the calculation equity in entities that are wholly owned by the public sector. In the National Accounts, this is equity issued by the 'central bank', 'central borrowing authorities' and 'public non-financial corporations'.³³

But the QCA’s estimate has apparently not taken this step.

³¹ QCA, 2014, Market Parameters Decision, p. 98.

³² QCA, 2017, Aurizon Network UT5 Draft Decision, p. 163.

³³ AER, 2014, Attachment 4, Ausgrid Distribution Determination 2015-16 to 2018-19: Final Decision, p. 72.

- 72 The inclusion of public sector equity creates an upward bias in the equity ownership estimate. The objective is to make inferences about the domestic ownership proportion for the benchmark entity. Including public sector entities in the calculation artificially inflates the estimate because those companies are domestically owned by definition and because they have no relevance at all to the benchmark entity. Indeed, if the benchmark firm was considered to be a public sector entity, gamma would be set to zero because such companies cannot issue imputation credits.
- 73 For the reasons set out above, our recommendation is that the equity ownership estimate (to the extent that it is used at all) should be compiled after excluding public sector entities, as the AER has done. This produces an estimate of approximately 45% over the last 4-5 years.

3 Conclusions and recommendations

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Our conclusions and recommendations are as follows:

- a. The best approach for estimating a “utilisation” interpretation of gamma is the ATO taxation statistics approach. That approach uses data items that are reliable and it provides a direct estimate of the proportion of created credits that are actually redeemed. The current best estimate using that approach is a gamma of 0.31.
- b. If the ATO taxation statistics approach is not to be relied on exclusively, it should be given material weight. We see no basis for affording reliable and relevant evidence zero weight.
- c. If the current QCA approach is to be used, regard should be given to the reliability issues documented in Section 2 of this report when determining the weight to be afforded to it. In particular, the QCA’s estimate of the distribution rate:
 - i. Differs materially from other estimates of the distribution rate;
 - ii. Is based on 20 companies that generate an average of 40% of their revenue offshore, which can be used to increase the amount of credits that can be distributed to shareholders. The benchmark regulated entity has zero foreign earnings, by definition; and
 - iii. There are a number of questions about the reliability of the Lally 20 companies estimates that should be resolved before material weight is placed on them.
- d. If the above recommendations are rejected and the current QCA approach is to be maintained, an equity ownership estimate of 45% should be used, consistent with the AER’s cleaning of the ABS data to remove the effects of public sector equity. The resulting estimate of gamma would then be 0.37 (0.83×0.45).

4 Appendix: Estimation issues with the 20-firms approach

4.1 Overview

75 The 20-firms estimate that is used in the UT5 Draft Decision is taken from an appendix to Lally (2014),³⁴ which is reproduced below in Figure 3.

Figure 3: Table 2 from Lally (2014)

Company	E_{2000}	E_{2013}	DIV	$DIST$	TAX	$DIST RATE$
CBA (Parent)	450	742	35,496	15,212	15,504	0.98
BHP (Group)	0	11,308	46,794	20,054	31,362	0.64
Westpac (Parent)	257	1247	34,964	14,984	15,974	0.94
ANZ (Group)	0	265	29,750	12,750	13,015	0.98
NAB (Group)	0	1035	31,291	13,410	14,445	0.93
Telstra (Group)	74	0	45,255	19,395	19,321	1.00
Woolworths (Group)	417	1943	11,621	4,980	6,506	0.77
Wesfarmers (Group)	0	243	12,602	5,400	5,643	0.96
CSL (Group)	0	0	377	161	161	1.00
Woodside (Group)	173	3,260	8,034	3,443	6,530	0.53
Rio Tinto (Group)	2,215	7,434	4,388	1,880	5,219	0.36
Westfield (Group)	25	55	950	407	437	0.93
MacQuarie (Group)	133	297	1,915	821	985	0.83
Origin Energy (Group)	0	0	3,229	1,384	1,384	1.00
Suncorp (Group)	136	551	6,899	2,957	3,372	0.88
QBE Ins (Group)	-8	83	1,533	657	748	0.88
Brambles (Group)	188	78	2,946	1,263	1,153	1.10
Santos (Group)	360	993	3,082	1,321	1,954	0.68
AMP (Group)	80	191	4,248	1,821	1,932	0.94
Amcor (Group)	0	0	1,480	634	634	1.00
Total				122,934	146,279	0.84

Source: Lally (2014), Appendix, p. 40.

76 The approach that is adopted is as follows:

³⁴ Lally, M., 2014, *Review of submission to the QCA on the MRP, risk-free rate and gamma*, 12 March.

- a. The firm’s franking account balance (FAB) is observed in 2000 and 2013. Any increase in the FAB is due to credits that have been created over that period, but not distributed.
- b. Total dividends paid over the 2000 to 2013 period are collated, together with information about the proportion of those dividends that are franked. This information is used to produce an estimate of the quantum of credits distributed. For example, for every \$100 of fully-franked dividends paid, \$43 of credits will be distributed;³⁵
- c. The distribution rate is then computed as:³⁶

$$\frac{\text{Credits distributed}}{\text{Credits distributed} + \text{Credits retained}} = \frac{\text{Step b}}{\text{Step b} + \text{Step a}}$$

77 We have been unable to replicate the figures set out in the table above and have identified a number of questions in relation to those figures, as set out in the sections that follow. Our view is that these issues should be resolved before any material weight is applied to the figures above.

78 One general problem that we have had in seeking to replicate the above figures is the lack of detail about how those results were constructed. For example, it is not clear whether financial years or calendar years are used for franking account balances and/or dividends, there appear to be some inconsistencies between whether group or parent FABs are used, whether FABs are measured before or after dividends, what is done when dividends are paid in foreign currencies, and what is done when firms are fundamentally restructured such that the 2013 firm is materially different from the 2000 firm.

4.2 Issues with Franking Account Balance figures

79 In attempting to replicate the figures in the FAB columns above, we sourced information from the relevant annual reports for the 20 companies. This process identified a range of issues, which fall into the following categories:

- a. Inconsistencies relating to the year being reported. It appears that for some firms the FAB values are taken from the 2013 annual report and for others they are taken from the 2012 annual report.
- b. Potential exchange rate differences. Some firms report in USD and we have been unable to replicate the AUD figures used in the table

³⁵ In general, the amount of credits distributed will be given by $\text{Dividends Paid} \times \text{Proportion Franked} \times \frac{\text{Corporate tax rate}}{1 - \text{Corporate tax rate}}$, where the corporate tax rate is 30%.

³⁶ The denominator in the formula below is referred to as “Tax” in the Lally table.

above. Lally (2004) does not explain how exchange rate conversions were performed.

- c. Change in definition of FAB. In some cases, the Lally figures appear to be based on parent FAB in one case and group FAB in another. In some cases, pre-dividend figures seem to have been used and in other cases post-dividend figures are used.
- d. Change in company structure: In some cases, the company has undergone a structural change over the 14-year period such that the 2013 firm is fundamentally different from the 2000 firm.
- e. Figures inconsistent with annual reports. In a number of cases, the Lally figure differs from the figure in the relevant annual report for no apparent reason.

4.2.1 Inconsistencies relating to the year being reported

80 In our analysis, we have used the 2000 and 2013 annual reports for all firms, whether their financial year ends on June 30 or December 31, and we have paired that with whatever dividends have been paid between the 2000 and 2013 financial years. Table 1 documents cases where the 2013 Lally figures are inconsistent with the relevant 2013 annual report.

Table 1: Inconsistencies relating to the year being reported

Company	Lally value for 2013 (\$m)	FAB value found in 2013 annual report (\$m)	Reference
QBE Insurance	83	272	QBE Insurance Group (2013), page 165
National Australia Bank Limited	1,035	1,047	National Australia Bank Limited, (2013), page 94
Westfield Group	55	82	Westfield Group (2013), page 77
AMP	191	196	AMP Limited (2013), page 74

Source: Annual reports and Lally (2014).

4.2.2 Potential exchange rate differences

81 Several FABs were reported in their respective annual reports in USD, requiring a conversion to AUD. In all instances where we found an annual report which reported in USD, we were unable to reconcile the FAB figure with the Lally estimate. In these instances, we applied the approach of using the exchange rate set out in the annual report itself. These cases are summarised in Table 2 below.

Table 2: Potential exchange rate differences

Company	Lally (\$m)	USD value from annual report (\$m)	Exchange rate used (\$A1 = USD)	Frontier Economics' value in AUD (\$m)	Reference
BHP Billiton Limited	11,308	11,340	1.03	11,010	BHP Billiton Limited (2013), pages 222 and 209 for USD value and exchange rate respectively
Woodside	3,260	2,545	1.03 ³⁷	2,471	Woodside (2013), page 102
Brambles	78	71.8	1.0304	70	Brambles (2013), pages 81 and 43 for USD value and exchange rate respectively

Source: Annual reports and Lally (2014).

4.2.3 Change in definition of FAB

82 We have identified one case where the Lally figures appear to use a different definition of the FAB in 2000 and 2013, shown in Table 3 below. Westpac reports Adjusted and unadjusted FAB figures and the Lally calculations appear to be based on different definitions for 2000 and 2013. In addition, the Lally figures appear to have neglected to include the negative sign on the 2000 FAB figure.

³⁷ Woodside do not explicitly mention an exchange rate between AUD and USD. In lieu of them explicitly quoting an exchange rate, we have used the same exchange rate that BHP Billiton used.

Table 3: Instances where there has been a change in FAB definition

Company	Year	FAB definition used by Lally	Lally (\$m)	Frontier Economics (\$m)	Reference
Westpac	2000	Adjusted franking account balance at the end of financial year	257	-257	Westpac (2000), page 55
	2013	Adjusted franking account balance as at year end		585	Westpac Group (2013), page 149
Franking account balance as at year end		1,247			

Source: Annual reports and Lally (2014)

4.2.4 Change in company structure

83 We identified two instances where the companies being analysed had materially changed their structure over the 14 year period being considered. In these cases, the 2000 and 2013 companies are materially different such that it would be inappropriate to compare their FABs.

Table 4: Instances where there has been a company restructure

Company	Comment
Westfield Group	<p>On 25 June 2004 the members of the Parent Company, Westfield Trust (“WTF”) and Westfield America Trust (“WAT”) voted in favour of combining the three entities by way of stapling their securities (“the Merger”) to form the Westfield Group.” (Westfield, 2004 page 9).</p> <p>This is problematic in this context for two reasons: 1) Westfield Group as it existed in 2013 did not exist in 2000. 2) Because the Westfield Group did not exist in 2000, there is no explicit FAB data for 2000 for a “Westfield Group.” It is unclear what values Lally has used for the FAB value in 2000.</p>
Macquarie Group	<p>“The establishment of Macquarie Group Limited as a NOHC was completed on 13 November 2007.” Macquarie (2008, page 7).</p> <p>This is problematic because no FAB data exists prior to 2008 for Macquarie Group. It appears that Lally has used the FAB data from Macquarie’s 2008 report for the 2000 value.</p>

Source: Annual reports and Lally (2014)

4.2.5 Other inconsistencies with annual report figures

84 In a number of cases, the Lally figures appear to be inconsistent with the figures from the relevant annual report, as summarised in Table 5 below.

Table 5: Inconsistencies with annual report figures

Company	Year	Lally figure (\$m)	Annual report figure (\$m)	Reference
BHP Billiton	2000	0	24	BHP Billiton Limited (2000), page 130
CSL Limited	2000	0	64.9	CSL Limited (n.d), page 13
RIO Tinto	2000	2,215	0	Rio Tinto (2000), page 80
Brambles	2000	188	-11.6	Brambles Industries Limited (2000), page 39
AMP Limited	2000	80	82	AMP Limited (2000), page 15
AMC	2000	0	9.6	AMCOR (2000), page 10
CSL	2013	0	None reported	CSL Limited (2013)
Telstra	2013	0	-85	Telstra (2013), page 94
Rio Tinto	2013	7,434	14,740 ³⁸	Rio Tinto (2013), page 142

Source: Annual reports and Lally (2014)

4.3 Issues with dividend figures

85 We have obtained the relevant dividend data from Morningstar, which in turn sources it from annual reports. In general, the Morningstar dividend figures are materially different from those adopted by Lally (2014), as summarised in Table 6 below.

86 The material differences between the Lally and Morningstar figures led us to conduct an audit of the Morningstar figures whereby we have compared the Morningstar figures with the source data in the relevant annual report. We checked a random sample of 40 firm-year figures and found no discrepancies with any of them.

³⁸ This is the Australian dollar value of the FAB. Rio Tinto report on page 142 a value of US\$14,298. Rio Tinto provide a table on page 52 of the same report which details the average AUD to USD exchange rate for 2013, which is 1AUD = 0.97USD and we use this value to convert from USD to AUD.

Table 6: Comparison of dividend data over 2000 to 2013 financial years

Company	Lally	Morningstar	% Difference from Lally
CBA	35,496	34,064	-4%
BHP	46,794	47,602	2%
WBC	34,964	30,647	-12%
ANZ	29,750	21,506	-28%
NAB	31,291	31,615	1%
TLS	45,255	49,630	10%
WOW	11,621	8,979	-23%
WES	12,602	11,747	-7%
CSL	377	2,924	676%
WPL	8,034	8,487	6%
RIO	4,388	28,213	543%
ORG	3,229	3,233	0%
QBE	1,533	6,213	307%
SUN	6,899	5,937	-14%
BXB	2,946	4,867	65%
STO	3,082	3,016	-2%
AMP	4,248	6,131	44%
AMC	1,480	4,254	187%

Source: Lally (2014) and Morningstar. We have removed Macquarie Group and Westfield from the table as major corporate transactions mean that there is no single consistent entity over the whole period.

Table 6 makes it abundantly clear that there are marked differences between the values Lally presents and those that the Morningstar database suggest. The difference in results is counterintuitive, as Lally (2013) again indicates that he too has gathered dividend data from the respective annual reports. Frontier has spot checked several pieces of Morningstar data and believe that they too take their dividend data directly from the annual report – again raising the question as to why these results are so different.

4.4 Miscellaneous errors

87 Throughout the process of replicating the Lally table, we identified that the tax figure for Rio Tinto appears to be calculated incorrectly (using Lally’s own FAB and dividend data).

88 Given that tax is calculated as:

$$TAX = DIST + B_{2013} - B_{2000} \quad (1)$$

we insert the relevant figures from the Lally table as follows:

$$TAX = 1,880 + 7,434 - 2,215 = 7099 \quad (2)$$

89 However, the Lally table reports a *TAX* figure of 5,219. This has a material effect on the distribution rate for Rio, which changes from 36% to 26%.

4.5 Revised estimate of distribution rate

90 In Table 7 below, we set out our estimates after making the corrections set out above. We reiterate that we recommend against using this approach to estimate the distribution rate. However, if this approach is to be considered, the range of issues set out above should first be addressed.

Table 7: Frontier Economics' replication of Table 2 in Lally 2014

Company	B2000	B2013	DIV	DIST	TAX	DIST RATE
CBA	450	742	34,064	14,599	14,891	98%
BHP	24	11010	47,602	19,827	30,813	64%
WBC	-257	585	30,647	13,134	13,976	94%
ANZ	0	265	21,506	9,217	9,482	97%
NAB	0	1047	31,615	13,073	14,120	93%
TLS	74	-85	49,630	20,845	20,686	101%
WOW	418	1943	8,979	3,848	5,373	72%
WES	0	243	11,747	5,034	5,277	95%
WPL	173	2471	8,487	3,637	5,935	61%
RIO	0	14740	28,213	12,091	26,831	45%
ORG	0	0	3,233	1,227	1,227	100%
SUN	-8	272	6,213	850	1,130	75%
QBE	136	551	5,937	2,544	2,959	86%
BXB	-12	70	4,867	991	1,073	92%
STO	360	845	3,016	1,293	1,778	73%
AMP	82	196	6,131	1,719	1,833	94%
AMC	10	0	4,254	244	234	104%
Total				124,174	157,620	79%

Source: Frontier Economics calculations.

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