REVIEW OF FRONTIER'S GAMMA SUBMISSIONS

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EXECUTIVE SUMMARY

The ERAWA has recently received a submission from Frontier, which responds to the ERAWA's recently expressed views on Gamma in its Draft Rate of Return Guideline. Most of Frontier's current submission replicates an earlier submission by Frontier, which predated the ERAWA's draft Guideline, and which was reviewed by me. This report therefore reviews new material in the latest Frontier report. In respect of the principal new points, my conclusions are as follows.

Firstly, Frontier argues that the problems with use of the ATO franking balance data apply equally to the franking balance data drawn from the financial statements of the top 20 firms and used to estimate the distribution rates for those firms. However, the composition of companies in the ATO's data has changed over time, due for example to companies dropping out. The resulting estimate of the distribution rate for the BEE is flawed, but this problem does not afflict the estimate based on financial statement data because the set of companies used there is fixed over time.

Secondly, Frontier argues that use of financial statement data is subject to the problem that some credits are extinguished within corporate structures without being distributed to shareholders, and cites credits distributed by BHP Ltd to BHP Plc as an example. However the issue here is that the credits distributed to BHP Plc are wasted because the latter company's shareholders cannot use the credits, and this is an issue involving the utilisation rate for the credits rather than the distribution rate. Rio Tinto is in the same position. Furthermore, this issue involving both companies is a highly unusual one, and a possible response to it would be to delete both BHP and Rio Tinto from the set of companies used to estimate the distribution rate for the BEE. This is also favoured because both companies have substantial foreign assets and this could affect the distribution rate for credits. Doing so would raise the estimated distribution rate for the BEE from 88% to 95%.

Thirdly, Frontier argues that some firms have received large tax refunds that have decreased their franking balance, leading to an overestimate of the distribution rate. However, although tax refunds can lead to overestimation of the distribution rate as claimed by Frontier, they can also lead to underestimation. So, the estimated distribution rate may be wrong but there is no upward bias. Furthermore, most refund situations will not lead to errors in the estimate, and

neither of the examples of refunds given by Frontier (AGL and AusNet) would seem to be of the type that would give rise to estimation error.

Fourthly, Frontier critiques the earlier analysis by me relating to the distribution rates of three energy network businesses. Frontier does not identify any errors in my earlier analysis. The most that could be said of it is that the sample size of three is too small, and that was acknowledged in the earlier analysis.

1. Introduction

The ERAWA has recently received a submission from Frontier (2018b), which responds to the ERAWA's (2018) recently expressed views on Gamma in its Draft Rate of Return Guideline.[1] Most of Frontier's (2018b) submission replicate an earlier submission (Frontier, 2018a), which predated the ERAWA's (2018) Draft Guideline, and which was reviewed by me (Lally, 2018a). This report therefore seeks to review new material in the latest Frontier (2018b) report.

2. Review of Frontier Submission

Frontier (2018b, section 3.4) describes a recent conversation between the ATO and the AER, in which both Prof Stephen Gray (Frontier) and myself participated. Frontier claims that, during this conversation, the ATO expressed major concerns about the AER's use of ATO data on franking balances to estimate the market-wide distribution rate, that it did not express concerns about its data on credits redeemed, and that it expressed some relatively minor concerns about its company tax data. I agree with this description.

Frontier (2018b, sections 3.5 and 3.6) then argues that, since ATO data on credits redeemed are not in dispute and the problems with the company tax data are minor, these two data sets can be used to generate a reliable estimate of gamma, and that this estimate is 0.34. This argument was raised earlier by Frontier (2018a, section 3), and responded to by Lally (2018a, section 3) with two primary points. Firstly, in addition to the estimate of gamma appearing within the cash flows, the Officer model requires an estimate of the utilization rate in order to estimate the MRP, that estimate would presumably have to use the ATO data if gamma were estimated from the ATO data, and the unreliability of the ATO data in estimating the credits distributed (and hence the utilization rate) would then be problematic. Frontier (2018b, section 3.5) alludes to this argument indirectly, by asserting that the ATO's dividend data (which permits the credits distributed to be estimated) is reliable (unlike the franking balance data) and this implies that the utilisation rate can be reliably estimated from ATO data (using the tax paid and the credits distributed from dividend data). It is possible that the dividends data is correct and therefore that the large discrepancy between the dividends and franking

[1] This Frontier submission accompanies one from ATCO (2018), which summarises Frontier's arguments. Accordingly, I do not review ATCO's submission as well.

account data involving the credits distributed is due entirely to the franking balance data. However, this inconsistency was first identified by Hathaway (2013, 2014), he could reasonably be viewed as an expert on this matter, and even he is unsure as to which figure is correct: "I have trouble deciding which one of these two items is the culprit for this lack of reconciliation" (Hathaway, 2017, page 2).

The second problem raised by Lally (2018a, section 3) is that Frontier's proposed approach necessarily uses the same set of companies for estimating both the utilization and distribution rates, there is no necessity to do so, and good reason for not doing so (because one might not want to use all firms for estimating the distribution rate, which is firm-specific, whilst one would want to use all firms to estimate the utilization rate because it is a market-wide parameter). Lally argues that all firms are not suitable for estimating the distribution rate of the BEE, most particularly unlisted firms and firms that liquidated leaving substantial credits undistributed. Lally goes on to assess the implications of these points for the gamma estimate arising from the ATO data, and concludes that using ATO data without adjustment for these points could lead to gamma being underestimated by 50%. Frontier (2018b) does not respond to this point here even indirectly, but does later (ibid, section 8.2) and will be addressed later in this report.

Frontier (2018b, section 4.1) also argues that the problems with use of the ATO franking balance data apply equally to the franking balance data drawn from the financial statements of the top 20 firms, and used to estimate the distribution rates for those firms. In support of this claim, Frontier quotes from a note prepared by the ATO (2018). However the wording in this note is rather ambiguous and was clarified verbally by the AER during the subsequent discussion with the AER that both Prof Stephen Gray (Frontier) and myself participated in (and referred to above). In particular, ATO staff explained that the composition of companies in the ATO's data changed over time, and that this fact alone could explain the marked difference in estimates of the aggregate distribution rate using dividend data and franking account balance data.

To illustrate this point, suppose that one company was present throughout the data series with an initial Franking Balance (FBI) of 0, made tax payments of $100m, distributions of $90m, and a closing Franking Balance (FBC) of $10m. A second company was present at the beginning of the data series, with FBI of 0 and made tax payments of $60m and distributions

of $20m before liquidating prior to the end of the data series with a FBC of $40m. This data is shown in Table 1. The aggregate tax payments are then $160m and the aggregate distributions are $110m, implying a distribution rate of 11/16 = 0.70 using dividend data to obtain the distributions. By contrast, using franking balance data to deduce the distributions, the FBI is 0 (over both companies), the FBC is $10m (from only the first company because the second company is no longer present in the data at the terminal point), and the aggregate tax payments are $160m. This implies aggregate distributions of $150m (TAX plus the change in the franking balance), and therefore a distribution rate of 15/16 = 0.94. So, two different estimates of the distribution rate arise: 0.70 using dividend data and 0.94 using franking balance data. This occurs simply because the second firm contributes to the aggregate FBI, tax and distributions data but not to the FBC data. This clearly demonstrates a flaw in the ATO franking balance data when used for estimating the aggregate distribution rate. However, the problem does *no*t apply to estimates of the distribution rates from the top 20 companies because the source of the problem in the ATO data (companies that drop out) is not present in the top 20 companies because the selection process guarantees that there are no drop-outs. So, Frontier's claim is incorrect.

Table 1: ATO Data

	FBI	TAX	DIST	FBC
Coy 1	0	$100m	$90m	$10m
Coy 2	0	$60m	$20m	$40m
Aggregate	0	$160m	$110m	$10m

The example also reveals a problem with the ATO data even when dividend data is used to estimate the distribution rate, and noted earlier. This approach includes data from companies that liquidate and leave credits that would have been distributed had they not liquidated. Such companies necessarily have lower than normal distribution rates, and drag down the aggregate distribution rate, but they are not suitable firms to estimate the distribution rate of the Benchmark Efficient Entity (BEE), which has not liquidated.

In view of these problems with the dividend and franking balance data of the ATO, the best estimate of the distribution rate of the BEE is obtained from financial statement data for a set

of companies that have not liquidated. This approach is used by Lally (2018a, Appendix), and favoured by the ERAWA as well as the AER and the QCA.

Frontier (2018b, section 4.1) argues that use of financial statement data is subject to the problem that "some credits are extinguished within corporate structures without being distributed to shareholders". To illustrate this point, it refers to BHP Ltd, which distributes credits to BHP Plc, and these in turn are not distributed to shareholders, leading to an overestimation of the distribution rate. Frontier does not specify which BHP Ltd dividends it is referring to, but it appears to be the same point raised by Prof Gray during an Expert Evidence Session organised by the AER (2018a, pp. 103-104) in the course of its review of its Rate of Return Guidelines; Prof Gray described the credits distributed to BHP Plc as "completely wasted" presumably because the shareholders of BHP Plc are not Australian and therefore could not use the credits. If so, the issue is not that the distribution rate has been overestimated but that they can't be used and this is an issue involving the utilisation rate for the credits rather than the distribution rate. Rio Tinto is in the same position. Furthermore, this issue involving both companies is a highly unusual one, and a possible response to it would be to delete both BHP and Rio Tinto from the set of companies used to estimate the distribution rate for the BEE. This is also favoured because both companies have substantial foreign assets and this could affect the distribution rate for credits. As noted by Lally (2018a, pp. 11-12), this would raise the estimated distribution rate from 88% to 95%.

Frontier (2018b, section 4.1) also argues that some firms have received large tax refunds that have decreased their franking balance, leading to an overestimate of the distribution rate. Frontier (2018b, section 4.4) subsequently identifies these companies as AusNet Services and AGL. To examine this issue, I start by considering a firm whose dividends are insufficiently large to distribute all of its credits. For example, it has an initial franking balance (FBI) of \$20m, tax payments of \$100m, distributions of \$90m, and therefore a closing franking balance (FBC) of \$30m. Its true distribution rate would be \$90m/\$100m = 0.90, and the usual estimation process using financial statement data would correctly estimate this distribution rate as follows:

$$F = \frac{DIST}{DIST + \Delta FB} = \frac{\$90m}{\$90m + \$10m} = 0.9 \qquad (1)$$

Now suppose the firm mistakenly paid additional taxes of $10m during this period (raising its tax payments to $110m) and received a refund for this during the same period. Net of the refund, the taxes would still be $100m, and none of the other figures would change. So, its true distribution rate would still be $90m/$100m = 0.9, and equation (1) would still correctly estimate this rate. So the presence of a tax refund does not induce an overestimate in the distribution rate.

Now suppose that the overpayment of tax instead occurred prior to period examined here, whilst the refund occurred during this period examined. In this case, the FBI would rise to $20m. The true distribution rate in this period would still be $90m/$100m = 0.9, but application of the methodology in equation (1) would now lead to an estimate for the distribution rate of 1 as follows:

$$F = \frac{DIST}{DIST + \Delta FB} = \frac{\$90m}{\$90m + 0} = 1.0 \qquad (2)$$

So, the distribution rate would now have been overestimated. This analysis matches comments made by Prof Gray, during an Expert Evidence Session organised by the AER (2018a, pp. 103-104) in the course of its review of its Rate of Return Guidelines; Prof Gray stated there that overestimation of the distribution rate would require the refund to occur during the period in which the firm's distribution rate was being estimated whilst the tax payments giving rise to the refund had to predate that estimation period. The effect of this qualification by Prof Gray, supported by the examples above, is that the problem is unlikely to arise because the estimation period used by Lally (2018a, Appendix) was 2000-2017 and therefore any refunds paid during this period were unlikely to relate to overpayments prior to this period. Consistent with this, Frontier offers no examples of refunds that seem to be of this type.

Now suppose that the firm mistakenly paid additional taxes of $10m during this period (raising its tax payments to $110m) but did not receive the refund until after the end of this period. The 'true' taxes would still be $100m and the distributions would still be $90m, so the true distribution rate would still be $90m/$100m = 0.9. However, FBC would rise to $40m, and application of the methodology in equation (1) would now lead to an estimate for the distribution rate of 0.81 as follows, which is now too low rather than too high.

$$F = \frac{DIST}{DIST + \Delta FB} = \frac{\$90m}{\$90m + \$20m} = 0.81 \qquad (3)$$

These examples all assume that the firm's dividends are insufficiently large to distribute all of its credits, and therefore that the true distribution rate is less than 1. Now suppose that the firm's dividends are sufficiently high that all of its credits can be distributed, and therefore its true distribution rate is 1. Consistent with this, suppose that FBI is 0, taxes are $100m, distributions are $100m and FBC is 0. Application of the methodology in equation (1) will correctly estimate the rate at 1. If additional taxes are mistakenly paid and refunded during this period, the true distribution rate will still be 1 and the estimate using the methodology in equation (1) will be likewise.

Now suppose that the firm instead overpays tax of $10m just before the end of the period and receives the refund after the end of the estimation period. The true distribution rate will still be 1. However, FBC will rise to $10m and therefore application of the methodology in equation (1) would now produce an estimate of the distribution rate of 0.9, which is too low.

Now suppose that the firm instead overpays tax of $10m just before the beginning of the period and receives the refund just after the beginning of the period. The true distribution rate will still be 1. However, FBI will rise to $10m and therefore application of the methodology in equation (1) would now produce an estimate of the distribution rate of 1.11, which is too high.

In summary, tax refunds can lead to overestimation of the distribution rate as claimed by Frontier. However, they can also lead to underestimation. So, the estimated distribution rate may be wrong but there is no upward bias. Furthermore, most refund situations will not lead to errors in the estimate. Furthermore, neither of the examples of refunds given by Frontier (AGL and AusNet) would seem to be of the type that would give rise to estimation error.

Frontier (2018b, section 4.4) critiques the analysis in Lally (2018a, pp. 12-13) relating to the distribution rates of three energy network businesses. In particular, Frontier claims that Lally "assumes a closing FAB" for one of these firms (DUET). This claim is not correct. Instead, Lally states the following: "In respect of DUET, the Franking Account Balance for the latest

available financial statements (2016) is not disclosed but the dividends paid shortly after balance date were unfranked, implying a zero Franking Account Balance at that time. Accordingly, the distribution rate for all earlier credits generated from company tax payments must be 1." So, no assumption is made here. Instead, a reasonable conclusion is drawn based on the available evidence.

Frontier (2018b, section 4.4) also notes that Lally replaced the empirical estimate of the distribution rate for another of these businesses (APA) with what it would have been if this company "had adopted what he considers to be more efficient behaviour." Nothing in this comment seems to contest what was done by Lally (2018a, pp. 12-13): to observe that APA's Franking Account Balance was always positive over the 2007-2017 period examined, that most of its distributions are nevertheless unfranked, that this was inefficient behavior and therefore its distribution rate should be treated as 1. However, even if one used the empirical estimate of the firm's distribution rate of 0.84, this is still higher than Frontier supports.

Frontier (2018b, section 4.4) also notes that Lally (2018a, pp. 12-13) concludes that the distribution rate for the last of these three companies (AusNet) over the 2007-2017 period was 1 because the 2017 FAB was below that for 2007, and Frontier critiques this conclusion because the 2017 FAB (-$26.4m) was affected by a tax refund paid shortly after that point and impounded into the FAB figure provided. I do not agree. The refund must have been preceded by a tax overpayment of the same amount, and the net effect of these two events on the 2017 FAB figure is exactly zero.

Frontier (2018b, section 4.4) also claims that a materially different estimate of the distribution rate would have been obtained if the sample period had commenced one year earlier in 2006 or finished one year earlier in 2016. Frontier does not disclose the results of this alternative analysis. However, there is no case for using 2016 data when 2017 data are available. There is a case for using earlier data, but Frontier appears to be cherry picking 2006 rather than 2007. Even so, the effect is small. For APA Group, the 2006 FAB is -$7m and therefore the distribution rate for 2006-2017 is 0.66 rather than 0.84 for 2007-2017. For AusNet, the 2006 FAB is $10.4m and the franked dividends for 2007 are $14m, yielding a distribution rate for 2006-2017 of 1.08. Aggregating over the two companies, the result is 1.10. So, even using a start date of 2006 and disregarding DUET (with an apparent distribution rate of 1), the resulting estimate of the distribution rate for the BEE is still at least

1, and therefore continues to support the conclusion in Lally (2018a, page 13) that "the appropriate estimate for the distribution rate of the benchmark firm is at least 0.88."

A more appropriate critique of my earlier analysis on these three companies would be that the sample size of three is too small. I was entirely mindful of this and concluded this analysis with the following comment (Lally, 2018a, page 13): "This limited evidence supports my earlier conclusion that the appropriate estimate for the distribution rate of the benchmark firm is at least 0.88." Thus, nothing in Frontier's (2018b) critique of my earlier examination of these three energy businesses undercuts the merits of using financial statement data to estimate the distribution rate for the BEE, or of adopting of an estimate of at least 0.88.

Frontier (2018b, section 8.2) claims that estimating the distribution rate using data from the top 20 companies provides an upper bound because franking balances can be reduced for reasons other than the distribution of credits to shareholders. The reasons given earlier by Frontier (2018b, section 4.4) comprise tax refunds, the trapping or delaying arising from intermediate entities, and the peculiar circumstances of BHP. The first and last points have been addressed above, and they do not suggest that there is any upper bound here. In addition, the issue of credits being trapped or delayed by intermediate entities was addressed in Lally (2018a, section 3), and Frontier (2018b) has provided no response to that.

Frontier (2018b, section 8.2) also claims that the upper bound from this approach is 0.39. As noted in Frontier (2018b, para 6), this figure of 0.39 is the product of a distribution rate of 0.83 (from financial statement data) and a utilisation rate of 0.47 using listed equity local ownership of 0.47. Neither of the component figures is correct. The distribution rate should be at least 0.88 as per Lally (2018a, Appendix) and the utilisation rate should use all equity data (Lally, 2018b, page 18) for which recent results have been at least 0.60 (AER, 2018b, Table 2). The product is at least 0.50.

3. Conclusions

This paper has examined Frontier's recent submissions on gamma. Most of these submissions simply repeat material presented in earlier submissions by Frontier, mostly verbatim. In respect of the principal new points, my conclusions are as follows.

Firstly, Frontier argues that the problems with use of the ATO franking balance data apply equally to the franking balance data drawn from the financial statements of the top 20 firms and used to estimate the distribution rates for those firms. However, the composition of companies in the ATO's data has changed over time, due for example to companies dropping out. The resulting estimate of the distribution rate for the BEE is flawed, but this problem does not afflict the estimate based on financial statement data because the set of companies used there is fixed over time.

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