

Asset Beta for Notional Processor: Response to the Cambridge Report dated 4 June 2018 and the Commerce Commission's Emerging Views on Asset Beta dated 14 June 2018



The University of Auckland

Report prepared for:

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In preparing this report we have also relied on information supplied by Fonterra, EY New Zealand and other parties. Our duties, while involving an assessment of information provided and commenting as necessary, do not extend to verifying the accuracy of the information, and we have assumed its authenticity and completeness. We have not audited the information provided, nor have we been required to do so.

The analysis assumes that Fonterra has no information or knowledge of any facts or material information not specifically noted in our report that would reasonably be expected to affect its conclusions.

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Asset Beta for Notional Processor: Response to the Cambridge Report dated 4 June 2018 and the Commerce Commission’s Emerging Views on Asset Beta dated 14 June 2018.

1 Introduction

- 1.1 Fonterra Co-operative Group Limited (“**Fonterra**” or “**Company**”) has requested The University of Auckland (“**UOA**” or “**we**” or “**our**”)¹ to review the reports titled:
- (a) “Dairy Notional Processors’ Asset Beta - Response to Submissions: New Zealand Commerce Commission” written by Cambridge Economic Policy Associates Pty Ltd (“**CEPA**”) in association with Freshagenda Pty Ltd dated 4 June 2018 (“**Cambridge Report No. 2**” or “**Report**”); and
 - (b) The New Zealand Commerce Commission (“**Commerce Commission**” or “**Commission**”) “Review of Fonterra’s 2017/18 base milk price calculation: Emerging views on asset beta” dated 14 June 2018 (“**CC Report**”).
- 1.2 We have also been asked to consider whether or not this changes our view on the asset beta for Fonterra’s New Zealand-based commodity milk powders manufacturing business (hereafter also “**Notional Processor**”). For the Notional Processor, the raw input “cost of milk” or the farmgate milk price is set in accordance with Fonterra’s Farmgate Milk Price Manual (“**Milk Price Manual**” or “**Manual**”).
- 1.3 The Cambridge Report No. 2 follows the issuance of a report “Dairy Notional Processors’ Asset Beta: New Zealand Commerce Commission” written by Cambridge Economic Policy Associates Pty Ltd in association with Freshagenda Pty Ltd dated 28 March 2018 (“**Cambridge Report No. 1**”). Both the Cambridge Reports No. 1 and No. 2 support the Commission’s emerging view that the asset beta of the comparator entities as set out in the Cambridge Reports No. 1 and No. 2 (“**CB Sample**”) provide more appropriate “comparators” to draw upon as an estimate of the asset beta of the Notional Processor compared to asset betas drawn from regulated Electricity Line Businesses (“**ELBs**”).

¹ This report is written by Dr Alastair Marsden on behalf of UOA. References in this report to “we” or “our” refer to the opinions of Dr Alastair Marsden.

2 Executive Summary

Nature of the Notional Processor

- 2.1 UOA’s assessment of the Notional Processor’s systematic risk profile is not based upon the assumption that the Notional Processor “*benefits from its position of market power and lack of competition*” (see Cambridge Report No. 2, page 6). Rather our assessment of the Notional Processor’s systematic risk assumes the allocation of risks between Fonterra’s Notional Business and suppliers in accordance with the Milk Price Manual is “practically feasible” and consistent with the Dairy Industry Restructuring Act 2001 (“**DIRA**”).

Price (and Volume) pass-through risk

- 2.2 In UOA’s view, the importance of the dairy industry to the wider NZ economy suggests exposure to dairy commodity price risk and volume will have some systematic risk component. This is where shocks to dairy prices and volumes may have a wide macro-economic impact across the whole NZ economy.
- 2.3 In UOA’s view, it is *not* possible to conclude, by comparing betas for commodity and cost-pass through companies with other companies in the CB Sample, that commodity exposure and price pass-through abilities do not materially impact on companies’ asset betas. A plausible explanation is that both “commodity” exposure and “price-pass through” abilities are still systematic risk factors.
- 2.4 The Notional Processor is not exposed to commodity or price / revenue risk to the extent it can pass on both price and volume risk of sales of Reference Commodity Products (“**RCPs**”).

Inclusion of Fonterra’s asset beta in the sample

- 2.5 In UOA’s view, there is no strong reason to exclude Fonterra from the CB Sample based upon liquidity concerns. A report by ANZ (2018) (“**ANZ Report**”) quoted in the CC Report on seasonality in Fonterra’s share price is inconclusive and also not a reason to exclude Fonterra from the CB Sample (see our analysis in Section 4 of this report under the heading the “*ANZ Report*”).
- 2.6 The CC report (para 89.1) also considers that Fonterra should be excluded from the sample as farmer–suppliers decisions to buy or sell Fonterra shares in the Fonterra Shareholders’ Market may not be linked to Fonterra’s earnings outlook. The decision to buy or sell shares by farmers may, however, be linked to Fonterra’s earnings outlook if farmers are contemplating joining or leaving Fonterra. Even if the decision by farmers to buy or sell shares in Fonterra Shareholders’ Market is not linked to the earnings outlook, there is no strong reason why the share price will not still reflect Fonterra’s earnings outlook (particularly where the price is aligned with the price at which Fonterra Shareholders’ Fund Units trade on the NZX).

Asset beta estimation

Stranding risk

- 2.7 The Cambridge Report No. 2 (page 12) states that they are “*confident*” the Notional Processor is more likely to have a similar asset stranding risk profile to the CB Sample compared to the asset stranding to valuation relationship for ELBs. Also, it is not clear why the rule under the Manual, whereby the oldest assets are first removed from the Notional Processor’s asset base, reduces asset stranding risks.
- 2.8 In UOA’s view, the Milk Price Manual, which provides for the removal of oldest assets first from the asset base, lowers the downside risk of asset stranding faced by the Notional Processor. This is because these oldest assets will likely have the lowest book (“regulatory”) value in the Notional Processor’s financial accounts. The removal of these low value assets will have a smaller impact on the Notional Processor’s remaining asset base compared to the removal or asset stranding of higher value (younger) assets.
- 2.9 In UOA’s view, the systematic exposure to asset stranding risk for the Notional Processor is lower than the asset stranding risk faced by other companies in the CB Sample.

Decomposition of asset beta into short-term cash flow risk and longer-term risk and growth options

- 2.10 The Cambridge Report No. 2 (page 14) considers that it is implausible that observed asset betas for revenue capped regulated businesses entirely reflect short-term cash flow risk. The impact of growth opportunities is highly relevant based upon Lally’s (2016a) decomposition of asset betas into terms reflecting short term cash flow risk and longer-term risk.
- 2.11 The CC Report (para 58) also notes that CEPA consider the long-term growth opportunities of the Notional Processor are likely to be similar in scale to those of other dairy businesses.
- 2.12 The Cambridge Reports No. 1 and No. 2 do not clarify or clearly state what they mean by the term “growth option”.
- 2.13 UOA disagrees with the Cambridge Reports that “growth options” of the Notional Processor mean the asset beta for the Notional Processor is more similar to the CB Sample compared to ELBs. Unlike the firms in the CB Sample, which will have a diverse range of growth options, the Notional Processor has only one potential “growth option”, relating to investment in new plant to process an increased supply of milk.
- 2.14 However, even where the Notional Processor invests in new plant to process an increased supply of milk, this does not represent a growth opportunity that is likely to significantly impact (increase) the asset beta of the Notional Processor. This is because under the building blocks approach methodology in the Milk Price Manual, the returns to the Notional Processor’s capital providers are targeted to provide a fair rate of return only (i.e., close to Net Present Value (“NPV”) = 0 outcome) and not provide for excess profits or abnormal returns. In contrast, it appears reasonable to assume all the comparators in the CB Sample will target growth opportunities that have expected NPVs that materially exceed zero.

- 2.15 In our view, the Commerce Commission in its Input Methodologies (2016, Chapter 4, para 344 and 346.5) paper concurs that “regulation” will significantly limit the value of growth options. As noted, in UOA’s view, under the rules in the Milk Price Manual the value of growth option to the Notional Processor are similarly restricted. Our detailed reasons are set out in section 5 of our report under sub-heading “*Impact of growth options*”.
- 2.16 UOA agrees with Lally (2016a) that potentially the biggest source of error in setting the “cost of capital” is the market risk premium (“MRP”) and the beta. This creates uncertainty into the value of V_e (value of the business at the end of the regulatory period in the Lally (2016a) decomposition formula) and this uncertainty in value is due to the impact on the longer-term (i.e., not short-term) cash flows. See section 5 of our report under sub-heading “*Errors in setting the cost of capital*” for a more detailed explanation of our reasons.
- 2.17 Overall, UOA strongly disagrees with the assertions in the Cambridge Report No. 2 (page 15) that UOA’s hypothesis is a theoretical one, where the results of our analysis rely entirely on short-term cash flow risk.

Further analysis on asset beta adjustments if the CB Sample is used to derive the asset beta for the Notional Processor

- 2.18 The Commerce Commission in its Input Methodologies (2016, Chapter 4, para 344) paper noted that in reaching its decision to apply an upward adjustment of 0.05 to determine the asset beta for Gas Pipeline Businesses (“GPBs”) compared to ELBs, most weight was placed on the following two factors:
- (a) Gas has a higher elasticity of demand compared to electricity. However, the presence of price / revenue cap regulation would reduce this effect;
 - (b) There is an increased risk of asset stranding for GPBs, which also suggests greater growth options. However, the impact of growth options will be significantly limited by regulation.
- 2.19 In UOA’s view, the Notional Processor has a lower systematic risk than the CB Sample, particularly with respect to revenue risk, operational leverage, capex / investment risk (i.e., growth options) and asset stranding risk. This spans a broad set of systematic risk differences, which in turn would support a larger adjustment than 0.05.
- 2.20 In addition, the CB Sample is drawn predominantly from a non-regulated sample, with Fonterra advising that all entities in the CB Sample sell speciality or value-added products (in addition to sales, if any, of basic commodity type products). As noted, the Commission considers that regulation will dampen any impact of differences in betas between ELBs and GPBs due to differences in income elasticity of demand and the presence of growth options. In UAO’s view, the Manual imposes features of “regulation”.
- 2.21 In other words, the Commission’s 0.05 adjustment to asset beta was between ELBs and GPBs, with both industries subject to regulation. In this case we must consider differences between the Notional Processor, which is effectively subject to “regulation” under the rules in the Manual, and comparators in the CB Sample predominantly not subject to regulation.

- 2.22 We consider this factor also supports a larger adjustment than the Commission’s adjustment of 0.05 for GPBs, when comparing asset betas for a non-regulated sample to the Notional Processor.
- 2.23 UOA still, however, considers that the CB Sample is not the most appropriate or best set of “comparators” to determine the asset beta of the Notional Processor.

Differences to US entities

- 2.24 In UOA (2018) we concluded (and still hold the view) that the Notional Processor has a similar (low) systematic risk profile to that of ELBs. This was based upon revenue risk, exchange rate risk, opex (excluding raw milk), capex/ investment, asset stranding, counterparty and financing systematic risk factors.
- 2.25 Thus, in our view, it is appropriate to draw upon asset betas from US electricity businesses, where these are also considered to provide a reasonable estimate of the systematic risk faced by NZ ELBs.
- 2.26 Also, as noted in UOA (2018), to the extent that the sample of US and other foreign ELBs includes vertically integrated energy companies and these companies are not subject to a regulatory regime, in UOA’s view, the empirical estimate of 0.35 will be a biased upwards estimate of the systematic risk faced by a pure regulated electricity lines business with 100% of its operations subject to a revenue or price cap.

Other evidence including brokers’ estimates of beta

- 2.27 Our asset beta estimate of 0.38 is above the Commission’s asset beta estimate of ELBs of 0.35 and hence, in our view, implicitly places some weight on other evidence.
- 2.28 As noted by the Commission, brokers do not explain how they derive their estimates of asset beta. Brokers may adopt an upward biased estimate of beta to adjust for “optimism bias” or to “compensate” for downside risks that are not fully reflected in their discounted cashflow analysis. For example, we are not aware of brokers adding an increment to Fonterra’s cost of capital for expected losses from asset stranding.

Asset beta bounds

- 2.29 In UOA (2018) we concluded that an asset beta of 0.38 is within credible percentile bounds of the range of asset betas observed for the CB Sample, where this sample of companies include companies with processing and value-added businesses with (in our view) different (higher) systematic risk profiles than the Notional Processor.
- 2.30 In UOA’s view, based upon the degree of analysis undertaken by the Commerce Commission (and submissions from interested parties) on the appropriate WACC percentiles for ELBs and Airports, more rigorous analysis of the consequences of an asset beta that may be too low or too high is required than that set out in the CC Report, before any definitive view on this issue is reached.

Conclusion on asset beta for the Notional Processor

2.31 UOA still concludes a point estimate asset beta for the Notional Processor is 0.38.

Limitations

2.32 Our executive summary should be read in conjunction with our full report.

2.33 This report is also subject to our disclaimer and “Important Notice” on page 2 of this report.

3 The Nature of the Notional Processor

Market Power and Competition

The Cambridge Report No. 2

3.1 The Cambridge Report No. 2 states (page 6) that:

“In our view Fonterra’s and its advisors’ statements indicate that their proposed risk profile, and therefore asset beta, for the NP is only achievable if the NP benefits from its position of market power and a lack of competition. We find these points difficult to align to the requirement that the asset beta reflect that of a practically feasible efficient processor.”

CC Report

3.2 The CC Report (para 71.2) also notes that the Cambridge Report No. 2 expresses the view that UOA and Fonterra only consider the risk profile and the asset beta of the Notional Processor is achievable if the Notional Processor holds market power and faces limited competition.

Our view and response

3.3 In UOA (2018, para 6.2) we noted that the Notional Processor is subject to limited competition and may have a high degree of market power in setting the farmgate milk price. In the absence of “regulation” or other forms of market control, and assuming the Notional Processor has actual greater “bargaining power” than supplier farmers, the Notional Processor could subject the supplier farmers to “hold-up” risk. For example, the Notional Processor may be able to “exercise” greater bargaining power to pass commodity price risk back to farmer suppliers when prices fall but capture upside gains if commodity prices rise. This is where raw milk cannot be stored but must be immediately processed.

3.4 The New Zealand (“NZ”) milk market is, however, subject to DIRA and rules of the Milk Price Manual, with review of Fonterra’s milk price calculation by the Commerce Commission. UOA understands that both DIRA and the rules under the Milk Price Manual are designed to encourage competition and provide incentives for Fonterra to operate efficiently. Our assessment of the Notional Processor’s systematic risk assumes the allocation of risks between Fonterra’s Notional Business and suppliers in accordance with the Milk Price Manual is “practically feasible” and consistent with DIRA.

3.5 Thus, contrary to the suggestion in the Cambridge Report No. 2, UOA’s assessment of the Notional Processor’s systematic risk profile is not based upon the assumption that the Notional Processor “*benefits from its position of market power and lack of competition*”.

Price (and Volume) pass-through risk

The Cambridge Report No. 2

3.6 The Cambridge Report No. 2 states (page 6) in relation to its sub-sample analysis the CB Sample:

“This approach of isolating the different characteristics does not provide a perfect comparison point for the NP’s asset beta; it does, however, provide a strong indication that commodity exposure and price pass-through abilities do not materially impact on companies’ asset betas.”

3.7 The Cambridge Report No. 2’s conclusion that the ability to pass-through price risk may not have a material impact on beta is also reiterated on pages 10 and 11 of the Report.

Our view and response

3.8 In response to the Cambridge Report No. 2 that the ability to pass-through price risk may not have a material impact on beta, we note:

- (a) The commodity and cost-pass through sub-samples in the CB Sample are relatively small. Thus, caution must be exercised in drawing any conclusions based upon analysis comparing companies with commodity exposure and ability to pass-through price risk relative to the other companies in the CB Sample.
- (b) In the Cambridge Report No. 1 (Table 3.2), there is only one company (Dairy Crest) that is listed as having both “commodity exposure” and “cost-pass through”. The Cambridge Report No. 2 now excludes Dairy Crest from the commodity sample. Also, as acknowledged in the Cambridge Report No. 2 (page 10), commodity and price pass-through companies in the CB Sample are unlikely to have the ability to pass-through all price risk in a prompt manner. Rather there is only scope to pass back some risk. Under the rules in the Manual, the Notional Processor is significantly protected from both these risk exposures (and in addition is protected against volume risk).
- (c) In UOA’s view, it is plausible that both commodity exposure and cost-pass through exposure are systematic risk factors. This is where: (i) commodity and/or pass-through exposure are only one component(s) of systematic risk that contributes to a company’s overall beta,² and (ii) the weightings of all the factors that contribute to the beta of the commodity, cost pass-through, dairy companies, regulated milk price and other companies differ between these

² In UOA (2018) and the Cambridge Report No. 1 the components of systematic risk considered in detail included revenue risk, exchange rate risk, opex (excluding raw milk), capex/ investment, asset stranding, counterparty and financing systematic risk factors.

groups³. For example, some companies in the CB Sample may have greater exposure to systematic demand shocks that impact on revenues for speciality value added products, but a lesser exposure to direct commodity price risk. The small sample size of sub-groups means it is not possible to detect the level of systematic exposure to commodity or pass-through risk based upon comparing aggregate asset betas for the commodity exposure and/or pass-through samples to the other companies in the CB Sample.

- (d) Thus, in UOA's view, one cannot conclude (as stated in the Cambridge Report No. 2, page 6) that their analysis comparing betas in the CB Sample based upon small sub-samples of commodity and cost-pass through companies provides "... a strong indication that commodity exposure and price pass-through abilities do not materially impact on companies' asset betas."
- (e) As already noted, unlike the Notional Processor, the commodity pass-through companies do not appear to have the ability to pass through volume risk (albeit the Cambridge Report No. 2 argues the systematic component of volume risk is low for dairy companies).

The CC Report

3.9 The CC Report (para 81) also concludes that the ability of the Notional Processor to transfer price and volume risk to farmer suppliers is unlikely to be systematic in nature. The reasons advanced by the Commission include:

- (a) Returns to diversified investors would be unlikely to be impacted by price and volume risk for a milk processor (for example, returns to an investor from holding shares in a casino, tourism or airline company) (CC Report Para 81.2).
- (b) The Cambridge Report No. 1 finds no strong correlation between NZD dairy price indices and the NZX 50 equity market. Auckland UniServices (2016) also reports no clear relationship between NZX 50 Gross index and the level of the on-GDT WMP in NZD. This suggests there is little systematic risk in dairy prices (CC Report Para 81.3, 81.4 and 81.5).

Our view and response

3.10 UOA agrees that empirical analysis to date has not shown any relationship between dairy price indices and the NZX market. However, in UOA's view, a large degree of caution must still be exercised to reach any strong conclusion that the ability to transfer dairy commodity price and volume risk represent a largely non-systematic risk in the NZ market. The reasons are:

- (a) Beta depends, in part, on the co-variance of returns to equity investors relative to market returns. Regressions of dairy price indices or dairy price returns on the NZX price index or index returns are a coarse measure of the equity and asset "beta" of a company.

³ The classification of companies into commodity, cost pass-through, dairy companies, regulated milk price and other companies is in accordance with Table 3.2 of the Cambridge Report No .1.

- (b) The dairy industry is an important contributor to NZ's GDP. For example, a recent report by the NZ Institute of Economic Research (2017) estimated that the dairy sector contributed \$7.8 billion (3.5%) to New Zealand's total GDP. Dairy farming also supports a range of supplying industries and significant sums of money are spent on agricultural services, financial services and accounting and tax services. In addition, the dairy processing sector spends significant amounts on packaging, hired equipment and plastics.⁴
- (c) The NZ Institute of Economic Research (2017, page 14) notes:
- “However, it can be seen that the dairy farming sector injects revenue into a wide range of sectors across rural economies, and also likely directly into cities too, given that most services firms tend to be located in urban centres. As we noted in our 2010 report, “when dairy farmers are smiling, the whole region smiles”.*
- (d) Overall, the NZ Institute of Economic Research (2017, page 14) considers that the dairy sector plays an important role in supporting other activities in the New Zealand economy and there may likely be additional flow on effects from farmers spending on discretionary items such as entertainment, clothing and holidays.
- (e) In respect of the Commission's view that returns to an investor in a casino, tourism venture and airline are not impacted by dairy commodity price and volume risk and the suggestion this may be non-systematic risk in the NZ market, this ignores the potential impact of shocks to dairy prices and volumes on NZ domestic tourism and travel and other discretionary expenditure.
- (f) Also, as noted in the Cambridge Report No. 1 (page 20), the analysis of any relationship between commodity prices and the market index has not been replicated in other markets to further test the view in the Cambridge Report No. 1 and No.2 and the view of the Commission that the ability of the Notional Processor to transfer price and volume risk to farmer suppliers is unlikely to be systematic in nature.

Conclusion on systematic risk exposure from commodity and price pass-through risk

3.11 In summary, in UOA's view:

- (a) The importance of the dairy industry to the wider NZ economy suggests exposure to NZ dairy commodity price risk and volume will have some systematic risk component. This is where shocks to dairy prices and volumes may have a wide macro-economic impact across the whole NZ economy.
- (b) It is not possible to conclude (based upon a small sample size), by comparing the betas for commodity and cost-pass through companies with other companies in the CB Sample, that commodity exposure and price pass-through abilities do not materially impact on companies' asset betas. A plausible explanation is that both “commodity” exposure and “price-pass through” abilities are systematic risk factors.

⁴ See NZ Institute of Economic Research (2017, page 16).

- 3.12 The ability of the Notional Processor to substantially pass all price and volume risk onto supplier farmers means that the Notional Processor's exposure to the systematic component of commodity price and volume risk is very small.

4 Inclusion of Fonterra's asset beta in the sample

The Cambridge Report No. 2

- 4.1 The Cambridge Report No. 1 excluded the Fonterra asset beta from the sample on the basis that there was insufficient liquidity in trading in Fonterra's shares.
- 4.2 However, notwithstanding that Cambridge Reports No. 1 and No. 2 still disagree with Fonterra's and UOA's view that Fonterra should be included in the CB Sample, the Cambridge Report No. 2 (Table 2.2, page 7) updates the empirical estimates of asset beta including Fonterra for the five-year period to 15 January 2018.
- 4.3 Inclusion of Fonterra in the CB Sample reduces the average asset beta by 0.01 in the full sample and up to 0.03 in the commodity exposed and cost pass-through samples (Cambridge Report No. 2, page 8).

The CC Report

- 4.4 The CC Report (para 89) also suggests that Fonterra should be excluded from the CB Sample for reasons of:
- (a) In excess of 90% of shares in the Fonterra Shareholders' Market are owned by farmer suppliers, and their decisions to buy and sell shares are not linked to Fonterra's earnings outlook;
 - (b) The ANZ Report (2018)⁵ has identified significant seasonality in Fonterra's share price, with the peak share price around December / January and a low June / July; and
 - (c) These farmer-supplier specific factors would lower Fonterra's beta.

Our view and response

Buy and sell decisions not linked to Fonterra's earnings outlook

- 4.5 Farmer-suppliers decisions to buy or sell Fonterra shares may be linked to Fonterra's earnings outlook if they are contemplating joining or leaving Fonterra. However, even if the decision to buy or sell is not linked to the earnings outlook, there is no strong reason why the share price in the Fonterra Shareholders' Market will not still reflect Fonterra's earnings outlook (particularly

⁵ AgriFocus We have Lift Off' (June 2018), p. 24-25 as referenced in the CC Report (page 22).

where the price will be aligned with the price at which Fonterra Shareholders' Fund Units trade on the NZX). Overall, any price differential between Fonterra shares traded on the Fonterra Shareholders' Market and Fonterra Shareholders' Fund Units traded on the NZX for any point in time has tended to be small.

Liquidity

- 4.6 UOA (2018, paras 8.15 to 8.20) argued there was no reason to exclude Fonterra on account of lack of liquidity and other related factors.
- 4.7 The Commerce Commission in its Input Methodologies (2016, Chapter 4, para 284) paper excluded Jersey Electricity from its sample of comparator companies because it was only traded on approximately 36% of the possible trading days over the sample period. However, the Commerce Commission in its Input Methodologies (2016, Chapter 4, para 285) did not apply liquidity filters based on the average free float percentage, bid-ask spreads or average gearing.
- 4.8 In respect of liquidity, UOA (2018) noted that Fonterra shares are traded on the Fonterra Shareholders' Market and Fonterra Shareholders' Fund Units are traded on the NZX. Using volume data sourced by EY New Zealand from Capital IQ, trading occurred on all trading days from January 2013 for both shares in Fonterra Co-operative Group Ltd and units in the Fonterra Shareholders' Fund.

ANZ Report

- 4.9 In respect of the CC Report reference to the ANZ Report (2018) that identifies seasonality in Fonterra's share price, it is not stated what statistical tests (if any) may have been undertaken to formally test for seasonality.⁶
- 4.10 The ANZ Report (2018, page 25) states that there only "...*appears to be some seasonality in the share price*" (emphasis added). Moreover, looking at Figure 1 in the ANZ Report (page 25), which provides a graph of Fonterra's share price between November 2012 and May 2018, a number of positive and negative announcements could also explain price movements. For example,
- (a) Prior to the low price for Fonterra's shares in May 2015-August 2015, Figure 1 of the ANZ Report notes:
 - (i) "*Dividend and milk price outlooks downgraded together for 14/15*"
 - (ii) "*Chinese economic & share market concerns*".
 - (b) In the period between the share price low in August 2015 and the localised high price circa Dec 2016, Figure 1 notes "*Share market improvement & 0.25 dividend confirmed 14/15*".
 - (c) The most recent share price fall in April-May 2018 is attributed in part to "*Further downgrade to 2018 earnings*".

⁶ Moreover, if seasonality were present and persistent it may represent some form of market inefficiency, which traders in the Fonterra Shareholders' Fund Units may be able to exploit and arbitrage away.

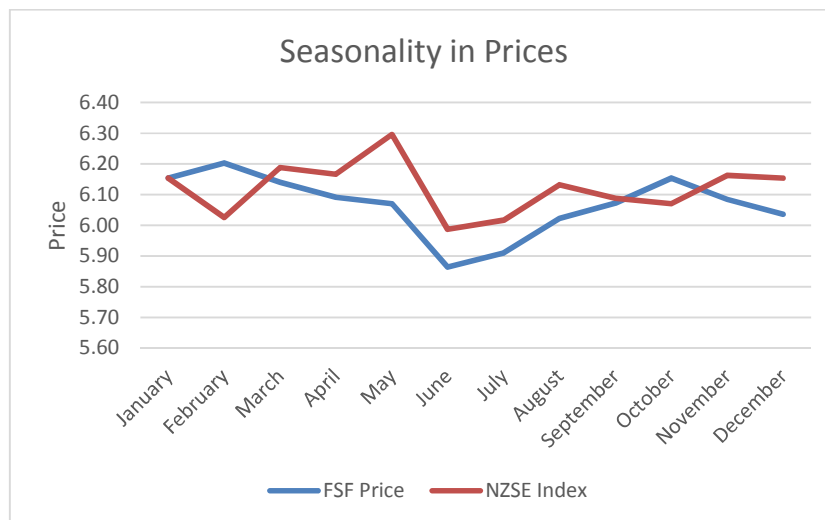
4.11 In reaching their conclusion on seasonality in the share price, it is therefore not clear in their analysis how the ANZ Report fully takes into account the impact of price-material announcements on the share price of Fonterra and the impact of dividends paid by Fonterra. To further illustrate, shares in Fonterra typically go ex-dividend in early April and October each year. A comparison using un-adjusted prices between the months of March and April (September and October) will therefore provide a distorted view of any price comparison.

4.12 The ANZ Report (page 25) also notes that dividend payments could contribute to some of the observed “seasonality” in Fonterra’s share price.

4.13 In the graph below we seek to replicate the ANZ Report’s analysis using daily share price data for Fonterra and the NZSE Capital index for the period 21 January 2013⁷ to 31 May 2018. For simplicity we abstract from the issue of dividends and use capital prices (i.e., unadjusted for dividends).

4.14 We calculate over the time period 21 January 2013 to 31 May 2018:

- (a) The average of the daily price for Fonterra shares for each month;
- (b) The average NZSE Capital index value for each month; and
- (c) Scale the average NZSE index value for each month in step (b) above by a factor to equate the average Fonterra price for January to equal the average NZSE index value for the month of January.



Data Source: EY New Zealand Ltd (and Capital IQ).

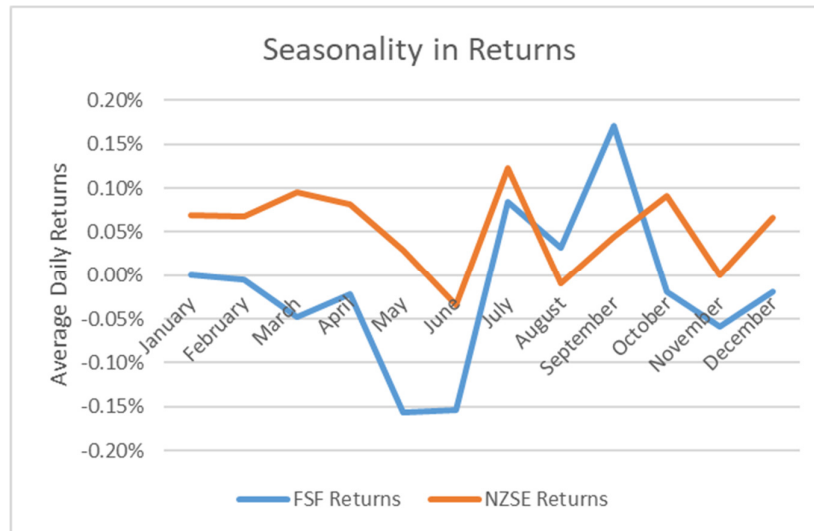
4.15 The results of our analysis show that both the average Fonterra share price and the average scaled NZSE index value were lowest in June each year. Also, for reasons that are not clear to us, the

⁷ Fonterra first started trading on 24 December 2012. We remove the first months of trading that immediately followed the IPO to allow the price to “normalise”.

results of our analysis are less suggestive of any seasonality (if it exists) than the results of the ANZ Report (2018).

Impact on beta

- 4.16 We repeat our analysis above except instead of using prices we use average daily adjusted returns⁸ for Fonterra and returns on the NZSE Gross index.



Data Source: EY New Zealand Ltd (and Capital IQ).

- 4.17 The results also show that adjusted average returns for Fonterra and the NZSE Gross index were low in May and June.
- 4.18 It is therefore not clear to UOA (contrary to the suggestion in the CC Report, para 89) why any seasonality in Fonterra's price as suggested in the ANZ Report (if it exists) can be certain to have lowered beta (which is calculated by the covariance of the company's and index returns divided by the variance of the index returns) in the absence of more detailed empirical analysis.
- 4.19 Lastly, there is much empirical research that documents effects such as seasonality, January effect and the Halloween effect in many developed markets (for example, see Bouman et Jacobsen, (2002); Gultekin and Gultekin (1983)). In general, we are not aware of financial analysts routinely deleting companies that may be subject to these effects in empirical estimates of beta.

Conclusion on exclusion of Fonterra from the sample set

- 4.20 In UOA's view, there is prima-facie no strong reason to exclude Fonterra from the CB sample, either on earnings outlook, liquidity grounds or any seasonality (if it exists) in the share price.

⁸ These returns are adjusted for dividends and capital changes.

- 4.21 We still consider that the empirical beta estimate for Fonterra (that comprises both the business of the Notional Processor and the value-added business) will be an upward biased “empirical” estimate of the beta for the Notional Processor.

5 Asset beta estimation

Revenue Risk

The Cambridge Report No. 2

- 5.1 The Cambridge Report No. 2 (page 10) reiterates its earlier point that the ability of the commodity price pass-through group to pass on price risk is not necessarily a significant systematic risk factor.

Our view and response

- 5.2 We have already commented on the Cambridge Report No. 2’s (and the CC Report’s) conclusions in relation to the pass-through of commodity price risk and impact on beta.

Operational Leverage

The Cambridge Report No. 2

- 5.3 The Cambridge Report No. 2 (page 11) states:
- (a) Their analysis shows ELBs have a higher proportion of fixed costs than the Notional Processor;
 - (b) UOA’s argument that the Notional Processor’s operational leverage is low as it can pass through fixed costs variances is reasonable; and
 - (c) That ELBs have a different pass-through process and thus will likely have a different risk profile.
- 5.4 The Cambridge Report No. 2 still concludes that the CB Sample is a more appropriate starting point for comparisons and their cost base is more similar to the Notional Processor.

Our view and response

- 5.5 In UOA (2018), we noted that the Milk Price Manual allows the recovery of efficient fixed costs to the Notional Processor. The term “EBIT” should be relatively stable under the Manual to provide the required (expected) return (WACC) to capital providers. Thus, “operational leverage” defined as $\% \Delta EBIT\% / \Delta revenue$ will also be low.
- 5.6 We see no reason in the Cambridge Report No. 2 to change UOA’s (2018) view that:

- (a) The systematic risk exposure to operational leverage for the Notional Processor should be substantially different or be greater than the relative risk exposure to operational leverage faced by ELBs; and
- (b) The average systematic risk exposure of the CB Sample to operating leverage will be higher than the systematic risk exposure of the Notional Processor.

Asset stranding

The Cambridge Report No. 2

5.7 The Cambridge Report No. 2 (page 12) states that:

“While we cannot be sure that all the companies in the sample would have a similar asset stranding risk profile to the NP, we are confident that they are more likely to have a similar asset stranding to valuation relationship than the ELBs.”

5.8 In addition, the Cambridge Report No. 2 (page 12) argues that:

- (a) Compared to ELBs, investors are likely to place a different relative risk assessment on the impact of a serious outbreak of “foot and mouth”.
- (b) Asset stranding in the electricity industry is more likely to be related to technical changes. Fonterra’s submissions have not considered this factor; and
- (c) It is not clear why the rule in the Manual that removes the oldest assets first from the asset base mitigates asset stranding risk.

Our view and response

Do companies in the CB Sample face a similar (low) level of asset stranding risk similar to the Notional Processor?

5.9 In respect of the Cambridge Report No. 2’s statement that they are “confident” that the CB Sample are more likely to have a similar risk profile of asset stranding to the Notional Processor, UOA (2018) noted that the rules in the Manual, which reduce or mitigate the risks associated with asset stranding, include:

- (a) Review of the asset base every four years and plant with the earliest deemed acquisition date will be removed from the farmgate milk price asset base.⁹
- (b) The requirement that any independent reviewer must consider the necessity of maintaining a prudent level of buffer capacity to cover variations in year on year supply. Thus, a short to

⁹ In terms of the Manual we understand that Fonterra would allocate any allowance for asset stranding across the oldest North or South Island plant (depending upon which Island is subject to the adverse event).

medium term fluctuation in demand related to systematic risk factors will not automatically justify an immediate optimisation of assets; and

- (c) Where assets are removed from the fixed asset base due to a change in the RCPs, the financial implications of removing these reference assets will be deducted from the farmgate milk price.¹⁰
- (d) The use of a tilted annuity approach to recover an annual capital recovery amount using an updated WACC and an updated estimate of long-run inflation.

Asset stranding risk faced by ELBs

5.10 UOA acknowledges that asset stranding risks faced by ELBs may predominantly arise due to the risk of technical change, which would lower network use. However, ELBs may still face some systematic risk of asset stranding.

Foot and Mouth Exposure

5.11 In respect of exposure to “Foot and Mouth”, UOA (2018) noted that to compensate for expected losses from asset stranding, the 0.15% per annum increment to the WACC may in part reflect an allowance to systematic risk exposure from a serious outbreak of “foot and mouth” across the broad NZ economy.

5.12 We also commented on “foot and mouth” in Auckland UniServices (2016, para 8.17 to 8.19), where we also quoted the Ministry of Primary Industries, who stated that to date New Zealand had never had an outbreak of foot and mouth disease. Also, while the risk was low due to NZ’s geographical isolation and strict border controls, foot and mouth is highly contagious and risk can never be eliminated.¹¹

5.13 A widespread foot and mouth outbreak would have a significant impact on the NZ dairy industry and the wider NZ economy. However, an outbreak may still be “serious” but relatively localised or localised to the North or South Island only.

Why removal of oldest assets mitigates asset stranding risk

5.14 In UOA’s view, removal of oldest assets first from the asset base lowers downside risk faced by the Notional Processor. This is because these oldest assets will likely have the lowest book (“regulatory”) value in the Notional Processor’s financial accounts. The removal of these low value assets will have a smaller impact on the Notional Processor’s remaining asset base compared to the removal or asset stranding of higher value (younger) assets.

¹⁰ This is other than where this would result in the farmgate milk price being significantly less than the milk price Fonterra’s competitors for milk in New Zealand are able to pay, while still earning a reasonable risk-adjusted return on their invested capital.

¹¹ See (sourced 9 March 2016)

<http://www.biosecurity.govt.nz/pests/foot-and-mouth>.

Also see Forbes and van Halderen, (2014) for a discussion of the impact of foot and mouth in NZ.

Conclusion on asset stranding risk

- 5.15 In summary, it is not clear to UOA why the Cambridge Report No. 2 concludes they are “*confident*” that the asset stranding risk profile (where asset stranding can reflect risks other than just “Foot and Mouth”) of the CB Sample is more likely to be similar to the Notional Processor than ELBs, when the Notional Processor has a significant degree of protection against asset stranding risk under the rules in the Milk Price Manual. Also, based upon discussions with Fonterra, we are not aware of any companies in the CB Sample that benefit from this same degree of protection against asset stranding risk.
- 5.16 Overall, we still consider that the systematic risk exposure to asset stranding risk for the Notional Processor will be significantly lower than the asset stranding risk faced by other companies in the CB sample.

Financing risk

The Cambridge Report No. 2

- 5.17 The Cambridge Report No. 2 (page 13) agrees with UOA that the Notional Processor will have low re-financing risk. However, the Report raises a concern about the practical feasibility of an efficient processor to achieve the same credit rating. While Fonterra may be able to subordinate its raw milk payment to other obligations, other New Zealand processors might struggle to have the same arrangements.

Our view and response

- 5.18 Other Co-operative entities that participate in the NZ dairy market (e.g., Westland Co-operative Dairy Co, Tatua Co-operative Dairy Company Ltd) have the ability to determine interim milk payments and adjust in later months.
- 5.19 Similarly, we understand based upon discussions with Fonterra that Synlait Ltd, Miraka and Open Country Dairy Ltd have some ability to set interim forecast milk payments, which may suggest some mitigation of risks to debtholders. For instance, Fonterra advise that Open Country Dairy Ltd sets two final milk prices during the year but does not finalise its third payment till after year-end, so may still has some ability to adjust its final milk price so as to ensure payments to debtholders, if necessary.

Decomposition of asset beta into short-term cash flow risk and longer-term risk

The Cambridge Report No. 2

- 5.20 The Cambridge Report No. 2 (page 14) concludes that:

“UOA considers that the NP faces relatively low uncertainty on the value V_e (valuation at the end of the period). This assumption implies that asset beta is determined primarily by the relationship of changes in short term cash flows to changes in market returns.” and

“The UOA argument is a theoretical one. It relies on the assumption that the allowed return is constantly set equal to the cost of capital, so that the value at the end of a regulatory period is precisely equal to the value of assets on which returns are calculated (the regulatory asset value) and this also applies to any new investment”.

5.21 The Cambridge Report No. 2 (page 14) also states that:

- (a) UOA’s view is not supported by empirical evidence;
- (b) Asset betas for revenue-capped regulated businesses (e.g., ELBs) are well above zero; and
- (c) It is implausible that observed betas for revenue-capped regulated businesses are entirely from short-term cash flow risk. The impact of growth opportunities is important based upon Lally’s (2016a) decomposition of asset betas into terms reflecting short term cash flow risk and longer-term risk.

5.22 The CC Report (para 58) also notes that CEPA consider the scale of long-term growth opportunities of the Notional Processor are likely to be similar to those of other dairy businesses.

Our view and response

5.23 The decomposition of the Notional Processor’s asset beta into its component parts based upon the analysis in Lally (2016a, equation 5) is:

$$\frac{\text{Cov}\left(\frac{V_e}{V_0}, R_m\right)}{\sigma_m^2}$$

Where:

R_m is the rate of return on the market portfolio.

σ_m^2 is its variance.

V_0 denotes the current value of the business.

V_e denote the value of the business at the end of the regulatory period.

5.24 Variability in the term V_e can arise due to uncertainty with respect to, inter-alia:

- (a) The value of growth options;
- (b) In the case of a “regulated entity” errors in setting the cost of capital; and
- (c) The impact of other shocks to the discount rate during the regulatory price re-reset period that impact on the value of V_e until the next “regulatory” price re-set date.

Impact of growth options

5.25 The Cambridge Report No. 2 does not clarify or clearly state what it means by the term “growth option”. In UOA (2018) we noted that the value of the firm is:

Firm Value = Value of Assets in Place + Present Value of Growth Opportunities

- 5.26 That is, a “growth” firm is a firm that has options to undertake new investments that will return in excess of the firm’s cost of capital. A firm is not a growth firm just because its assets or earnings may grow over time.¹²
- 5.27 UOA still disagrees with the Cambridge Reports that “growth options” of the Notional Processor mean the asset beta for the Notional Processor is “similar” to the CB Sample in respect of this systematic risk factor. As noted by UOA (2018), in our view, since growth opportunities are restricted to growth in milk supply, any excess returns are largely “owned” by the land owner and not the Notional Processor. In other words, the Notional Processor invests in response to an increase in the supply of raw milk by farmers. In this respect, we agree with Lally (2016b) that the ELBs and the Notional Processor are similar in that ELBs may face a requirement to undertake new investment in response to decisions by the firm’s customers.
- 5.28 Also, unlike the firms in the CB sample, which will have a diverse range of growth options, the Notional Processor has only one potential “growth option”, relating to investment in new plant to process an increased supply of milk.
- 5.29 Moreover, even where the Notional Processor invests more in new plant to process an increased supply of milk, in our view this does not represent a growth opportunity that is likely to significantly impact (increase) the asset beta of the Notional Processor. As already noted, this is because under the building blocks approach methodology in the Milk Price Manual, the returns to the Notional Processor’s capital providers are targeted to provide a fair rate of return only (i.e., close to NPV = 0 outcome) and not provide for excess profits or abnormal returns.¹³ In contrast, it appears reasonable to assume all the comparators in the CB Sample will target growth opportunities that have expected NPVs that materially exceed zero.
- 5.30 We also consider that our view is consistent with Lally (2016c). Lally (2016c) considered whether or not GPBs that were to now be subject to regulation should have a higher asset beta than ELBs. In relation to the impact of “growth options”, Lally (2016c, section 2.1) considers that the introduction of regulation of GPBs will reduce any value of growth or expansion options and in Dr Lally’s view weaken any argument for a differential asset beta between ELBs and GPBs (also see the Commission’s Input Methodologies (2016, Chapter 4, para 444)).
- 5.31 The Commerce Commission in its Input Methodologies (2016, Chapter 4, para 344) paper appears to concur that “regulation” significantly limits the value of growth options. In reaching its decision on whether or not to apply an upward adjustment to the asset beta for Gas Pipeline Businesses, the Commission states (para 344.2):

“A low proportion of New Zealand households are connected to gas, relative to other countries in our comparator sample. This potentially increases the risk of economic network stranding for GPBs (which is likely to be at least partly systematic in nature) relative to

¹² Growth in assets and earnings will still occur if the firm undertakes NPV = 0 projects and also even if some projects are NPV < 0.

¹³ One reason the Notional Processor may still earn a small excess return is where actual costs are less than “efficient” costs. This provides incentives for the Notional Processor to continue to innovate and improve efficiency and is similar to incentives provided to ELBs under a revenue cap or rate of return regulation (see UOA, 2018).

EDBs/Transpower,^{240 14} and suggests that greater growth options will exist (although the value of these growth options will be significantly limited by regulation, once prices are reset for the following regulatory period),^{210 15} (emphasis added).

- 5.32 The Commerce Commission in its Input Methodologies (2016, Chapter 4, para 346.5) paper again notes that the value of growth options for gas businesses will be significantly limited once they are regulated.
- 5.33 In UOA's view, the same principle applies to the Notional Processor, whereby under the rules in the Milk Price Manual the value of "growth options" for the Notional Processor are very limited.
- 5.34 In summary, in UOA's view, the Cambridge Reports No. 1 and No. 2 fail to recognise that growth options are more than simply new investment or expansion of the firm's asset base. Rather a growth option must reflect the existence of a profitable (NPV >0) investment opportunity. As already noted, in the case of the Notional Processor the Manual restricts the value of new investments to be close to a NPV = 0 outcome.

Errors in setting the cost of capital

- 5.35 As noted in UOA (2018), we agree with Lally (2016a) that potentially the biggest source of error in setting the "cost of capital" is the market risk premium ("MRP") and the beta. This is because proxies for the risk-free rate and debt margin (other parameter inputs into the WACC) are "observable inputs" based on traded market data.
- 5.36 Lally (2008, p 61) notes that if the MRP falls (increases) but the regulator fails to recognise this, the cost of capital will be too high (low) and returns to the regulated entity will also be too high (low). In addition, the decline (increase) in the MRP increases (decreases) asset returns and hence the firm is exposed to positive systematic risk.
- 5.37 To further illustrate Dr Lally's (2008, 2016a) arguments, assume the current time period is a time prior to the next price re-set or review period for a regulated entity. There is a fall in the MRP. The overall "market" increases in value in response to this fall in the MRP. Investors also perceive the possibility that the regulator will fail to recognise the fall in the MRP and still apply the "old" (higher) MRP to determine the cost of capital at the next price review or price re-set date of the regulated entity. Hence the "regulated" cost of capital may be too high at the next price review date. That is, investors perceive that the regulator at the next price review date will likely allow higher revenues (i.e., cash flows) under the building blocks model than are actually required by the market to recover the investor's cost of capital (taking into account the fall in the

¹⁴ "However, it is not clear to us whether this risk has materially increased for GDBs since we set the IMs in 2010, as discussed in the emerging technology topic paper. Commerce Commission "Input methodologies review decisions, Topic paper 3: The future impact of emerging technologies in the energy sector" (20 December 2016)."

¹⁵ "As noted in paragraph 426 below, the relatively low penetration of gas in New Zealand means that gas pipelines are closer to the 'death spiral' tipping point, where gas networks could lose enough customers to make getting the remainder to pay infeasible. This suggests investors' perception of stranding risk may be more correlated with the market for gas than electricity, leading to a higher asset beta."

MRP). This means the share price of the regulated entity now also rises along with positive market returns and this is positive beta.

- 5.38 The key point to note is that this possibility of regulatory error introduces uncertainty into the value of V_e at the next price review date and this uncertainty in value is due to the impact on the longer term (i.e., not short-term) cash flows.

Other shocks to the discount rate

- 5.39 In UOA (2014, para 6.40) we noted that the beta of the firm may also reflect shocks to the discount rate.
- 5.40 Shocks to the discount rate (e.g. change in the risk-free rate) may impact on the value of V_e during the price or revenue setting period until such time that prices and /or revenues are re-set and these shocks are corrected. In the case of the Notional Processor, UOA (2018) expressed the view the systematic risks faced by the Notional Processor from these type of shocks to the discount rate will be relatively small when the WACC is re-set annually in response to interest rate changes. This is distinct from “regulatory” errors in the cost of capital, which impacts long-term cash flows through the setting of allowable revenues.

Summary on Decomposition of asset beta into short-term cash flow risk and longer-term risk

- 5.41 In summary, UOA strongly disagrees with the assertions in the Cambridge Report No. 2 that UOA’s hypothesis is a theoretical one, where the results of our analysis rely entirely on short-term cash flow risk.
- 5.42 Rather, we consider our analysis is consistent with Lally (2008 and 2016a) where “regulatory” errors in setting the cost of capital used to calculate prices or revenues create uncertainty on the value of V_e and this “positive beta” is through the impact of possible regulatory errors on long-term (not short-term) cashflows.

6 Additional comments on the CC Report

- 6.1 We provide additional comments below on the CC Report.

Size of the differences in asset beta between UOA’s estimate for the Notional Processor and the asset betas for the CB Sample.

- 6.2 In our view, a key reason the CC Report considers the gap between the asset beta of 0.38 adopted by UOA and the range for other dairy companies is not sufficiently justified is due to the Commission’s view that the ability of the Notional Processor to transfer price and volume risk is unlikely to be systematic in nature (see the CC Report, para 80 and 80.1). The difference is also not justified if these risks were systematic (CC Report, para 80.2).

Our view and response

- 6.3 In Section 3 of this report under the sub-heading “Price (and Volume) pass-through risk”, we consider it is not possible to conclude that commodity exposure and price pass-through abilities do not materially impact on companies’ asset betas or systematic risk. A more plausible explanation is that both “commodity” and “price-pass through” abilities are systematic risk factors.
- 6.4 We also referenced a report by the NZ Institute of Economic Research (2017), which concludes that the dairy sector plays an important role in supporting other activities the New Zealand economy and there may likely be additional flow on effects from farmers spending on discretionary items such as entertainment, clothing and holidays.

Further analysis on asset beta adjustments if the CB Sample is used to derive the asset beta for the Notional Processor

- 6.5 The Commerce Commission (2016) in its Input Methodologies (2016, Chapter 4, para 344) paper noted that in reaching its decision to apply an upward adjustment of 0.05 to determine the asset beta for GPBs compared to ELBs, most weight was placed on the two following factors:
- (a) Gas has a higher elasticity of demand compared to electricity. However, the presence of price / revenue cap regulation would reduce this effect; and
 - (b) There is an increased risk of asset stranding for GPBs, which also suggests greater growth options. However, (as already noted) the impact of growth options will be significantly limited by regulation.
- 6.6 In UOA’s view, there are additional differences in the systematic risk profile other than just “revenue” risk and “asset stranding” risk, which means that the CB Sample is not the most appropriate or best set of “comparators” to determine the asset beta of the Notional Processor. We reproduce an extract from Table 1 of UOA (2018) below.

| Table 1 of UOA (2018) | | | |
|----------------------------------|--------------------|------------------|---------------------------|
| Type of Risk | UOA's view | | |
| | Notional Processor | CB Sample | ELBs |
| Column 1 | Column 5 | Column 6 | Column 7 |
| Revenue Risk | No risk | ↑ Higher risk | Low (but slightly higher) |
| Exchange rate | No risk | Unclear | = Low (similar) risk |
| Opex (excluding raw milk) | Low risk | Unclear | = Low (similar) risk |
| Operational leverage | Low risk | ↑ Higher risk | Low (similar) risk |
| Capex / Investment | Low risk | ↑ Higher risk | Low (similar) risk |
| Asset stranding | Low risk | ↑ Higher risk | Low risk but ↑ |
| Counterparty risk | No risk | ↑ Higher risk | = low (no) risk |
| Financing risk | Low risk | ↑ Higher risk | Low risk but ↑ |

6.7 In most factors in the Table above, UOA's consider that:

- (a) The systematic risk profiles of ELBs and the Notional Processor are very similar; and
- (b) The systematic risk profiles of the Notional Processor are less than the CB Sample.

6.8 In particular the Table shows that, in UOA's view, the Notional Processor has a lower systematic risk than the CB Sample with respect to:

- (a) Revenue Risk;
- (b) Operational leverage;
- (c) Capex / Investment risk (i.e., the Manual means the impact of growth options on the Notional Processor's asset beta is significantly limited); and
- (d) Asset stranding risk.

- 6.9 That is, in addition to “revenue” risk and asset stranding risk factors when comparing the asset beta between ELBs and GPBs, in UOA’s view, the systematic risk profiles of the CB Sample and the Notional Processor include differences in exposure to operational leverage and capex (growth options). This spans a broad set of systematic risk differences, which in turn would support a larger adjustment than 0.05.
- 6.10 In addition, the CB Sample is drawn predominantly from a non-regulated sample, with Fonterra advising that all entities in the CB Sample sell speciality or value-added products (in addition to sales, if any, of basic commodity type products). As already noted, the Commission in its Input Methodologies (2016, Chapter 4, para 344) notes that regulation will dampen any impact of differences in betas between ELBs and GPBs due to differences in income elasticity of demand and the presence of growth options. In UOA’s view, the Manual imposes features of “regulation”.
- 6.11 In other words, the Commission’s 0.05 adjustment was between ELBs and GPBs, with both industries subject to regulation. In this case we must consider differences between the Notional Processor which is effectively subject to “regulation” under the rules in the Manual and comparators in the CB Sample predominantly not subject to regulation.
- 6.12 We consider this factor also supports a larger adjustment than the Commission’s adjustment of 0.05 for GPBs, when comparing asset betas for a non-regulated sample to the Notional Processor.
- 6.13 In Auckland UniServices (2017a and 2017b), we provided further justification why, in our view, a large difference in the asset beta may exist between the average asset beta of the CB Sample and the Notional Processor.
- 6.14 In conclusion, any downward adjustment to asset beta if starting from observed asset betas in the CB Sample to determine the asset beta of the Notional Processor will contain some degree of judgment or subjectivity. In our view, however, any downward adjustment should exceed 0.05.
- 6.15 UOA still, however, considers that the CB Sample is not the most appropriate or best set of “comparators” to determine the asset beta of the Notional Processor.

Differences to US entities

- 6.16 The CC Report (para 99) considers that the ultimate reliance on the empirical estimates of beta for the US listed utilities introduces a further source of potential error, if this sample is adopted to determine the asset beta for the Notional Processor. This can arise due to factors such as:
- (a) US electricity entities may be a poor proxy for the systematic risk profile faced by the Notional Processor; and
 - (b) Additional adjustments are required to reflect differences between the US listed electricity and gas utilities and Notional Processor but have not been made.

Our view and response

- 6.17 UOA understands that the Commerce Commission in its Input Methodologies (2016) paper makes no material adjustment to asset beta to account for the differences in the systematic risk

for ELBs due to regulatory differences between NZ and other countries. This is notwithstanding arguments that price-cap regulatory regimes should have higher betas than revenue capped regimes, albeit UOA acknowledges that there is a lack of empirical evidence to support this conclusion.

- 6.18 Overall, in our view, it is appropriate to draw upon asset betas from US electricity businesses, where these businesses are also considered to provide a reasonable estimate of the systematic risk faced by NZ ELBs.
- 6.19 Also, as noted in UOA (2018), to the extent that the sample of ELBs includes vertically integrated energy companies and these companies are not subject to a regulatory regime, in UOA's view, the empirical estimate of 0.35 will be a biased upwards estimate of the systematic risk faced by a pure regulated electricity lines business with 100% of its operations subject to a revenue or price cap. We acknowledge, however, that the extent of any bias may be very difficult to empirically measure.

Other evidence including brokers' estimates of beta

- 6.20 The CC Report (para 100) consider that we place too much weight on the theoretical arguments comparing the Notional Processor to the NZ ELBs and insufficient weight on alternative evidence.
- 6.21 The CC Report (para 103) quotes asset beta estimates adopted by brokers for Fonterra and Synlait. These are circa 0.60 to 0.65 for Fonterra Shareholders' Fund and 0.70 to 0.88 for Synlait. The CC Report (para 104) notes that both have the ability to transfer risk to farmer suppliers including commodity risks.

Our view and response

- 6.22 Our asset beta estimate of 0.38 is above the Commission's asset beta estimate of ELBs of 0.35 and hence, in our view, implicitly places some weight on other evidence.
- 6.23 As noted in the CC Report (para 105), the brokers' estimates of the asset beta for Fonterra and Synlait are higher than the average beta estimates in the CB Sample and brokers do not explain how they derive their estimates of asset beta. These broker estimates could reflect a number of views or bias. For instance, brokers may adopt an upward biased estimate of beta to adjust for optimism bias or to "compensate" for downside risks that are not fully reflected in their discounted cashflow analysis. By way of illustration we are not aware of brokers adding an increment to Fonterra's cost of capital for expected losses from asset stranding risk.
- 6.24 In UOA (2018, para 8.30) we also noted that at least some brokers in the NZ market may value the Notional Processor as akin to a regulated tolling operation.
- 6.25 The ANZ Report (2018, page 28) also references the Milk Price Manual as a "regulated return", being the allowed return under the Milk Price Manual.

Asset beta bounds

6.26 The CC Report states in respect of UOA's (2018) report:

- (a) *“Dr Marsden’s analysis indicates there is only a 25% chance of the typical dairy processor having a beta of 0.38 or less (using data for the five years to 2018)”* (para 84.7); and
- (b) *“Dr Marsden’s analysis implies that it is statistically feasible to observe an asset beta of 0.38. But, as we discussed above, providing for contestability requires more than just a theoretical or technical feasibility. It must also be achievable in practice”* (para 88).

6.27 The CC Report (para 53.2) also notes that CEPA considered there is an argument for a downwards adjustment to the mid-point of the CB Sample and that the Commission's past adjustment of 0.05 for other industries may be reasonable.

6.28 Lastly, the CC Report (para 113) considers that an asset beta that is too high may have a less adverse effect on the milk price market than an asset beta that is too low.

Our view and response

6.29 In UOA (2018) we concluded that an asset beta of 0.38 is within credible percentile bounds of the range of asset betas observed for the CB Sample, where this sample of companies include companies with processing and value-added businesses with (in our view) different (higher) systematic risk profiles than the Notional Processor.

6.30 UOA have not considered the consequences of an asset beta that may be too low or too high. However, we consider that, based upon the degree of analysis undertaken by the Commerce Commission (and submissions from interested parties) on the appropriate WACC percentiles for ELBs and Airports, more rigorous analysis is required than that set out in the CC Report before any definitive view on this issue is reached. The Commission should also allow the opportunity for detailed submissions on this matter.

7 Report Conclusion

7.1 UOA still concludes a point estimate asset beta for the Notional Processor is 0.38.

7.2 We refer to our executive summary for the remainder of our conclusions.

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