

Review of Fonterra's 2017/18 base milk price calculation: Dairy Industry Restructuring Act 2001

Final report

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Associated key documents

Publication date	Title
15 August 2018	Draft report – Review of Fonterra’s 2017-18 base milk price calculation
14 June 2018	Emerging views on asset beta - Review of Fonterra’s 2017/18 base milk price calculation
15 December 2017	Final Report – Review of Fonterra’s 2017/18 Milk Price Manual: Dairy Industry Restructuring Act 2001
15 September 2017	Final report - Review of Fonterra's 2016/17 base milk price calculation: Dairy Industry Restructuring Act 2001
15 August 2017	Our approach to reviewing Fonterra's Milk Price Manual and base milk price calculation
14 December 2016	Final report – Review of Fonterra’s 2016/17 Milk Price Manual: Dairy Industry Restructuring Act 2001
15 September 2016	Final report - Review of Fonterra's 2015/16 base milk price calculation: Dairy Industry Restructuring Act 2001

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Chapter 1 Introduction

Purpose of this report

- 1.1 This report sets out our final conclusions from our statutory review of the extent to which Fonterra's 2017/18 base milk price calculation ("the calculation") is consistent with the purpose of the milk price monitoring regime ("monitoring regime") under subpart 5A of the Dairy Industry Restructuring Act 2001 ("the Act").¹
- 1.2 This report follows our review of Fonterra's Milk Price Manual ("Manual") for the 2017/18 season² and builds on the analysis and conclusions from our previous Manual and base milk price calculation reviews.³
- 1.3 This season's review draws on the framework paper published as part of the 2016/17 review. This framework paper provides an overview of the approach which we took last year in reviewing the calculation for the 2016/17 dairy season which we believe is still relevant for the review of the 2017/18 calculation. That paper includes:⁴
 - 1.3.1 an overview of how the base milk price is set;
 - 1.3.2 our interpretation of key legislative provisions guiding our views; and
 - 1.3.3 our practical approach to the statutory reviews we undertake.
- 1.4 We did not make any changes to the framework paper for this year's review.

Scope of our review of the 2017/18 calculation

- 1.5 The key focus areas for this year's review were:
 - 1.5.1 a fit for purpose review of the calculation; and
 - 1.5.2 a detailed review of the asset beta applied in the setting of the WACC rate.

Our review follows fit for purpose principles

- 1.6 In this section we set out the key parts of our framework that have supported our review of the 2017/18 calculation review.

¹ The base milk price is the average price that Fonterra pays farmers for raw milk, which was set at \$6.75 per kilogram of milk solids for the season just ended.

² For our report on the 2017/18 Manual review, see: <http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-manual/review-of-milk-price-manual-201718-season/> .

³ For our reports on our reviews for earlier seasons, see: <http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-calculation-2/> .

⁴ Commerce Commission "Our approach to reviewing Fonterra's Milk Price Manual and base milk price calculation" (15 August 2017).

- 1.7 We have carried out our review of the 2017/18 calculation as required by and in accordance with the Act. The statutory framework and analytical approach we have taken in this review are described in our framework paper.⁵
- 1.8 Fonterra calculates the milk price by using a notional construct called “the Notional Milk Price Business” which is explained in Fonterra’s Farmgate Milk Price Manual. In this paper, we refer to the Notional Milk Price Business as the notional producer (NP).⁶
- 1.9 The aim of using this notional construct is to set an efficient Farmgate Milk Price (i.e., a milk price that is derived from Fonterra or another efficient processor producing only commodity dairy products) while providing for contestability in the market for milk at the farmgate.
- 1.10 The notional producer has the same site footprint as Fonterra’s manufacturing site footprint but is assumed to only produce Fonterra’s five most profitable commodity products, whole milk powder, skim milk powder, butter, anhydrous milk fat and butter milk powder.
- 1.11 Although notional values are generally used for the revenue and cost components, the notional producer calculation uses some actual Fonterra data to reflect some of the revenue and cost components. For example, it uses Fonterra’s actual revenues for certain commodities sold on the global dairy trade (GDT) auction platform and Fonterra’s foreign exchange gains and losses.

Why we have carried out more work on the asset beta

- 1.12 In our Final Report on the 2016/17 Base Milk Price Calculation review (15 September 2017), we were unable to conclude on the practical feasibility of the asset beta used by Fonterra in its calculation of the base milk price. We considered that the asset beta (and therefore the WACC estimate) was consistent with the efficiency dimension.
- 1.13 As a result, in our discussion of this review in our 2017/18 Manual review we recommended that Fonterra provide detailed evidence of the extent to which firms in the sample transfer price risk to farmers or others, and how this compares to the notional producer that passes through that risk.⁷ We also noted that we intended to conduct some work of our own in this area, aimed at helping us reach a more definitive conclusion on whether or not Fonterra’s estimate of the asset beta is consistent with the Act.⁸
- 1.14 As part of this year’s review we commissioned an independent report from CEPA/FreshAgenda (“CEPA”) on the asset beta. We commissioned the report as we

⁵ Above n 4. Chapter 2 sets out our interpretation of key legislative provisions. Chapter 3 describes our analytical and practical approach.

⁶ Above n 4, p. 25 - 27.

⁷ Commerce Commission, Review of Fonterra’s 2017/18 Milk Price Manual, para D5.

⁸ Above n 7, para D6.

considered that in previous reviews stakeholders had not provided sufficient robust analysis of the other listed dairy and commodity processors, and in particular the nature of the risks they are exposed to and how this compares with the risks borne by the NP, to know how much weight to place on an analysis of their asset betas relative to the NPs. We published CEPA's report on 28 March 2018 and invited submissions from stakeholders.

- 1.15 This information when taken together has provided sufficient insight into the risk exposures of the dairy comparators relative to the NP to enable us to assess whether Fonterra's estimate of the asset beta is practically feasible when taken together with the other available evidence.

Information considered in our review process

- 1.16 In reaching our final conclusions we considered:
- 1.16.1 submissions received on our draft report on the review of Fonterra's 2017/18 base milk price calculation;⁹
 - 1.16.2 Fonterra's reasons paper in support of the base milk price for the 2017/18 season;
 - 1.16.3 additional models and documentation that Fonterra has provided to us in the course of our review; and
 - 1.16.4 material used in the development of our emerging view on asset beta, as well as submissions received on our emerging views paper published on 14 June 2018.

How this report is structured

- 1.17 Chapter 2 sets out the key findings of our fit for purpose review and of our review of the asset beta.
- 1.18 Key terms and abbreviations are explained in the Glossary in Appendix A.
- 1.19 Our detailed analysis on the asset beta, including our considerations of the key points in submissions on our draft report is set out in Appendix B.

⁹ Submissions were received from Miraka, Open Country Dairy, Fonterra, and the University of Auckland (UOA) on behalf of Fonterra.

Chapter 2 Key findings

Purpose of this chapter

- 2.1 In this chapter we outline our conclusions on the consistency of the components of the calculation with the s 150A purpose statement and related matters.
- 2.2 We also set out:
 - 2.2.1 our findings on Fonterra's proposed reduction to the 2017/18 forecast milk price;
 - 2.2.2 a summary of submissions on our draft report together with our responses;
 - 2.2.3 the key findings of our review of the asset beta which reference the detailed asset beta analysis in Appendix B;
 - 2.2.4 the key findings of our fit for purpose review; and
 - 2.2.5 next Steps for next season's reviews.

Summary of overall conclusions

- 2.3 With the exception of the asset beta, the assumptions adopted and the inputs and processes used by Fonterra to calculate the 2017/18 base milk price are consistent with the contestability dimension of the s 150A purpose.
- 2.4 The assumptions adopted and the inputs and processes used in calculating the 2017/18 base milk price are consistent with the efficiency dimension of the s 150A purpose.¹⁰
- 2.5 An efficient processor with a similar risk exposure to the notional producer is unlikely to have an asset beta as low as Fonterra's estimate of 0.38, and on balance we consider that this beta estimate is therefore unlikely to be practically feasible.
- 2.6 Fonterra made a number of transparency commitments in their submission to the 2016/17 base milk price calculation draft report regarding off-GDT transparency. We consider that these commitments are being met, with the exception of Fonterra's commitment to publish quarterly forecasts of the cents per kgMS impact from the inclusion of off-GDT sales of WMP, SMP and AMF in the Milk Price

¹⁰ We have previously stated that in some instances, the use of actual performance data in calculating the base milk price is reasonable. However, the incentive to operate efficiently is potentially weaker than if notional data was used. We have concluded in previous reports on the consistency with the efficiency dimension where Fonterra has used actual data. This is summarised in our 2015/16 calculation review: Commerce Commission "Final report: review of Fonterra's 2015/16 base milk price calculation review" (15 September 2016), para 3.6.

calculation. The Commission expects Fonterra to meet the commitments it has made and therefore encourages this quarterly forecast information to be published going forward.

- 2.7 We note that this is the third successive season of milk volume decline. The trend in the milk volume collected by Fonterra is something we intend to monitor ahead of our review of the 2018/19 calculation. If the milk volume collected by Fonterra showed a sufficiently large and consistent decline such that plants of the notional producer were to be assumed to be permanently mothballed, it would raise the issue of sunk costs and their treatment in the calculation.

Forecast reduction in the milk price paid to farmers

- 2.8 Fonterra announced on 10 August 2018 that its Board has decided to reduce Fonterra's 2017/18 forecast milk price from \$6.75 to \$6.70.¹¹
- 2.9 Since this adjustment will impact on the final base milk price we must also consider the impact of this change on the s 150A purposes.
- 2.10 Our 2013/14 base milk price calculation review was the only other time we considered a discretionary ad hoc adjustment to the base milk price calculated under the Manual. In December 2013 Fonterra proposed making a reduction as a result of high stream returns occurring during the 2013/14 season that were unprecedented, as well as unanticipated peak milk flow volumes to which it responded in part by accelerating its capital expenditure on new capacity.^{12,13} Fonterra's final milk price for the 2013/14 season ended up reflecting a 55 cent downward adjustment to the Manual-consistent milk price. In our review of the 2013/14 milk price we concluded that this adjustment was inconsistent with the efficiency dimension of s 150A. We commented:

The Act allows and provides for Fonterra to set a price that is different from the milk price calculated in accordance with the Manual, and we have not reached our overall conclusion simply because Fonterra has not set a 'Manual-consistent' milk price. Rather, we consider the specific way the adjustment has been determined and applied is not consistent with setting a base milk price that provides incentives for Fonterra to operate efficiently. Fonterra is using the adjustment to entirely reverse out the adverse effects of a number of 'unanticipated' and 'unprecedented' events that would have otherwise detrimentally impacted its profitability due to current constraints on its milk processing asset footprint and physical capacity. Lowering the base milk price to reduce its input costs and protect its profits in this way would not be possible if Fonterra were operating in a contestable market.

¹¹ We note that on 13 September 2018 Fonterra confirmed the 2017/18 Farmgate Milk Price at \$6.69. <https://www.nzx.com/announcements/323782>

¹² Commerce Commission 'Final report – Review of Fonterra's 2013/14 base milk price calculation (15 September 2015), page 47.

¹³ NZX report - <https://www.nzx.com/announcements/321997>

2.11 We further went on to say:

We consider that deducting the Adjustment Amount from the Manual-consistent price, to avoid the financial consequences of Fonterra's current asset-related constraints, is likely to undermine most of the positive efficiency incentives associated with Fonterra using notional inputs to calculate the majority of the other components of the base milk price.

Had the decision to make a discretionary ex post adjustment to protect earnings only been made at the end of the 2013/14 season, the use of mainly notional inputs for the Manual-consistent price might have maintained incentives for Fonterra to operate efficiently during that season, despite weakening incentives for efficiency for the subsequent season (or seasons). However, the decision to make an adjustment in that way was made at least as early as December 2013, and would likely have weakened incentives for Fonterra to operate efficiently from that time.

2.12 Fonterra now proposes making an adjustment to the forecast Manual-consistent milk price for the 2017/18 season. Prima facie, the ability to make ex post adjustments, particularly when such adjustments occur relatively frequently, weakens the incentive on Fonterra to be efficient. In the NZX announcement of this latest reduction, Fonterra is noted as saying that the higher milk price had put pressure on Fonterra's earnings and its balance sheet in a year which was already challenging financially due to the payment to Danone and the impairment of Fonterra's Beingmate investment.

2.13 In contrast to the 2013/14 adjustment, the proposed adjustment for 2017/18 dairy season is much smaller and has been proposed after the end of the dairy season. We therefore consider that the adjustment is unlikely to have materially undermined Fonterra's incentives to be efficient for the 2017/18 dairy season.

2.14 However, we note that if such adjustments become more routine, they are likely to increasingly weaken Fonterra's incentive to be efficient that arises from setting a milk price using largely notional assumptions.

2.15 We consider that the adjustment is consistent with the contestability dimension of the s 150A purpose as other processors who face similar events would likely be able to make similar adjustments to their milk prices.

Submissions on our draft report

2.16 Table 2.1 captures key substantive points from submissions on our draft report as well as the Commission's responses. Submissions were received from Miraka, Open Country Dairy, Fonterra, and the University of Auckland (UOA) on behalf of Fonterra.

2.17 The asset beta submission points are addressed more fully in Appendix B of this paper.

Table 2.1 Summary of key points in submissions on our draft report

Issue	Submitter	Summary of submission point	Commission response
Asset beta - Conclusion wording	Miraka	This doubly qualified decision (“on balance” and “unlikely”) leaves the door open for Fonterra to continue its campaign to justify the low asset beta, or to simply ignore the Commission on this matter.	Estimating asset beta is inherently difficult, as shown by the stark differences between the views of the parties (including their experts). While we are confident that it is unlikely that the asset beta of 0.38 is practically feasible we do not consider that we are able to be more conclusive.
Asset beta - Conclusion wording	Open Country Dairy	The Commission should take great care that the wording of its conclusions does not mislead.	As above.
Off-GDT sales - Selling costs	Miraka	In the Commission’s opinion selling costs in 2016/17 and 2017/18 remain practically feasible. Miraka considers this is not credible. Given the fundamental change in sales infrastructure which must now be assumed to have occurred for the Notional Processor, and the reduced volume of product attracting the low marginal GDT commission rate, the selling costs should have moved substantially.	There is an additional selling cost associated with selling products off-GDT compared with on GDT. This is captured in the milk price calculation and is not considered material. This is consistent with our stated position in the 2016/17 calculation review.
Off-GDT sales - Transparency of information	Miraka	As part of the milk price review process, Fonterra made transparency and reporting commitments to the Commission. Failure to hold Fonterra accountable for its failure to address those commitments undermines the authority of the milk price review processes and confidence in its outcomes.	Comments on off-GDT information transparency are included in this paper, where we encourage Fonterra to publicly disclose all information it has previously committed to provide.
Off-GDT sales - Transparency of information	Open Country Dairy	We are similarly concerned by the Commission’s apparent willingness to rely on assurances by Fonterra, despite these assurances being: (a) unsupported by identifiable objective evidence; and (b) inconsistent with Fonterra’s public statements.	The inclusion of the sales proportions of GDT vs off-GDT in Fonterra’s 2017/18 reasons paper improves transparency. We note the language Fonterra used in its 2016/17 reasons paper (when proportions were not included) was somewhat misleading. We expect that the inclusion of the sales proportions is now the established position.

Mothballed plants – Assumption to mothball plants	Miraka	This can only mean the Notional Producer was assumed to decide to continue mothballing after actual peak milk had occurred. By contrast, in the real world decisions regarding recommissioning of mothballed plants must be made before peak milk supply has occurred.	We consider that lower volumes in August and September due to poor weather would have given the notional producer sufficient information to modify its forecasts and temporarily mothball plants accordingly. Although October and November volumes were up on the previous years, they were still well down on recent historic levels. This is an area we intend to focus on in the 2018/19 Manual and calculation reviews, dependent on the extent of any material reduction in volume.
Mothballed plants – Future forecasts	Miraka	Miraka also recommends that the Commission find that going forward, Fonterra should register its assumption regarding mothballing and recommissioning plants in advance of the start of the Season, and the Notional Producer must carry the consequences (as would Fonterra or any processor) of that decision. For 2018/19, that is now an urgent matter which Fonterra should respond to immediately.	As above.
Assessment of practical feasibility	Miraka	The Commission should consider recent developments in financial markets and their effect on the approach to interpreting s 150A of the DIRA.	We do not consider any information has been presented to change our previous interpretation of s 150A.
Yields and losses	Miraka	Miraka requests the Commission to reconsider its view on the practical feasibility of the Notional Producer yields and losses, including the wider costs associated with optimisation.	Yields and losses were looked at as part of this year's review. The changes from 2016/17 were not considered material and were able to be explained by Fonterra.
Packaging costs	Miraka	The Commission notes that Notional Producer packaging costs have decreased by 3.4%, largely due to a reduction in AMF volume. This does not appear to be credible.	We acknowledge the language was imperfect in the draft and have adjusted the language in the final report in table 2.2.
Packaging costs	Open Country Dairy	Decreasing AMF would not be expected to result in lower packing costs.	As above.

Sales phasing	Miraka	Miraka requests the Commission to revisit this issue in the light of the view presented by Fonterra noted above. Ideally Fonterra would provide the phasing information as requested. Failing that, the Commission is requested to assess how and why the Fonterra assumption on phasing remains practically feasible.	Sales phasing was looked at as part of this year's review. The changes from 2016/17 were not considered material and were able to be explained by Fonterra.
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Asset beta

- 2.18 Having considered the information available, our view remains that an efficient processor with similar risk exposure to the notional producer is unlikely to have an asset beta as low as Fonterra's estimate of 0.38, and on balance we consider that this beta estimate is therefore unlikely to be practically feasible.
- 2.19 In Appendix B to this paper we provide the detail behind this conclusion. The appendix focuses on the discussions presented in our draft report and consideration of the submissions received and our responses to those submissions.
- 2.20 As we have previously acknowledged, estimating asset beta with reliability and confidence is inherently difficult, and there are differing views between submissions from interested persons and the various experts as to the most appropriate approach to do so, and on the correct level of asset beta.
- 2.21 Our task is to evaluate the extent to which the estimate of the asset beta adopted by Fonterra to set the milk price is consistent with the DIRA and, in this instance in particular, whether it is practically feasible for an efficient processor to match the asset beta value adopted by Fonterra. In reaching our view we consider it is necessary to consider all the evidence available, and to use judgement to weigh that evidence.
- 2.22 Fonterra's proposed adoption of an asset beta of 0.38 places significant weight on the premise that electricity distribution businesses (EDBs) are the best proxy for estimating the asset beta for a risk-minimising NP which collects raw milk and processes it into commodity milk products like whole milk powder. However, as discussed in the appendix to this paper, we consider that other dairy and commodity processors are better comparators than EDBs.
- 2.23 As part of this year's review we commissioned expert advice from CEPA/FreshAgenda ("CEPA") to better understand 39 listed dairy and commodity processors and the nature of the risks they are exposed to. CEPA produced information about 39 dairy and commodity companies, from which they concluded that other dairy and commodity processors are better comparators for the asset beta of the NP than EDBs are.¹⁴ CEPA's analysis produced estimates of asset beta

¹⁴ CEPA, 'Asset beta report' 28 March 2018.

that are significantly above the point estimate of 0.38 adopted by Fonterra for the NP.

- 2.24 We acknowledge there are differences between the risks borne by the NP and the sample of global listed processors analysed by CEPA and previously by Dr Marsden. However, based on the available evidence, we do not consider that the differences in these risks are likely, for the most part, to be systematic in nature, nor sufficiently significant to explain the difference in asset beta between that found empirically by CEPA, and the estimate of asset beta used by Fonterra.
- 2.25 CEPA undertook additional empirical analysis by splitting the sample of listed processors into smaller sub-groups, to create more homogenous sub-groups. The resulting ranges of estimates, and their mid-points, are not greatly different and are generally well above the point estimate adopted by Fonterra. Among other things, this empirical analysis suggests that differences in the degree of exposure to commodity versus value-added products and differences in the ability to transfer commodity price risk to farmers do not appear to have a significant influence on beta as Fonterra has claimed.¹⁵
- 2.26 In our view, when all the available evidence is properly considered, an asset beta of 0.38 is unlikely to be practically feasible for purposes of the milk price calculation.
- 2.27 For reference purposes we have estimated the effect asset beta has on milk price. We estimate that a 0.1 change in asset beta would have approximately a 3 to 4 cent effect on the milk price.

Fit for purpose review

- 2.28 We focused our fit for purpose review by comparing calculation inputs against previous seasons' inputs. We did not identify any material inconsistencies with previous milk price calculations.
- 2.29 We received Fonterra's milk price calculation model for review, as well as a suite of supporting models for each of the key inputs. Further information was provided where we considered it necessary.

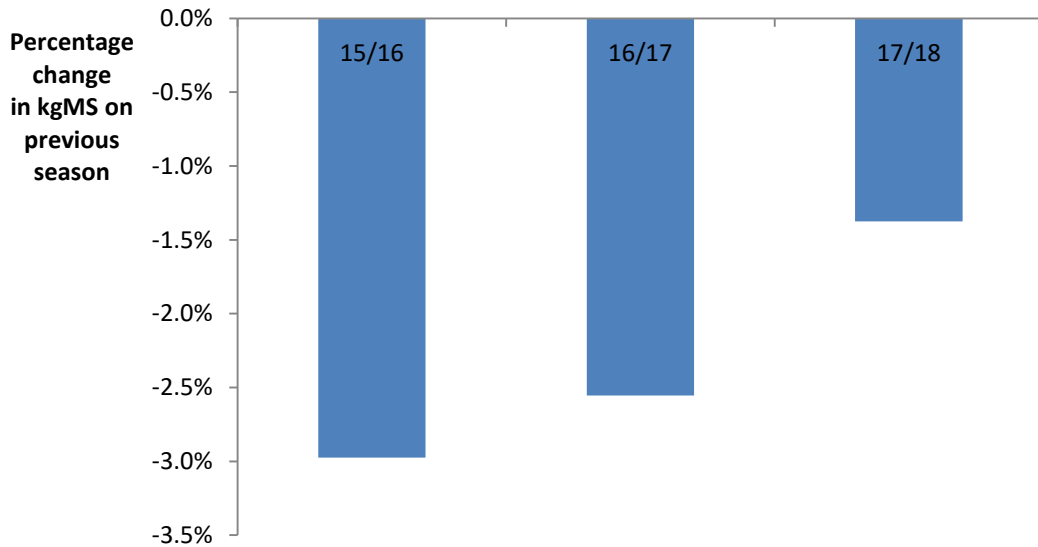
Impact of reduced milk volumes in 2017/18 season

- 2.30 A key assumption of previous calculations has been an increasing trend in milk volumes on a year on year basis. In particular, variable costs and the requirement for additional plant capital for the notional producer are based on this assumption.

¹⁵ We acknowledge the limitations of the analyses of the commodity exposed and cost pass-through sub samples. However, we have carried out some confidence interval testing on these sub samples which has given us confidence that their use for reference purposes is appropriate. We have estimated the 90% confidence interval around the mean for each subsample. The confidence interval was 0.09 for the full sample, 0.11 for commodity exposed businesses and 0.13 for cost pass through business.

2.31 Although there can be slight seasonal variations in milk volumes, the milk volume in the 2017/18 season decreased overall by 1% relative to the 2016/17 season, to a total of 1,505 million kgMS. The lower than expected volume was driven primarily by adverse weather conditions in the early part of the 2017/18 season. This is the third season in a row that has seen a decline in total milk volumes collected by Fonterra.

Figure 2.1 Percentage seasonal decline in total kgMS collected by Fonterra



2.32 This season there was a larger reduction in milk volumes in the first part of the season, with an increase in the milk volume collected in the second half of the season. The 1% reduction for the season overall is the net position.

2.33 In response to the reduced volume in the earlier part of this season, Fonterra made an adjustment to the calculation to reflect a notional temporary “mothballing” of older plants of the notional producer in order to match up milk volumes with production capacity. We believe the lower volumes in August and September would have given the NP sufficient information to modify its forecasts and temporarily mothball plants. We consider this to be an appropriate real world response when faced with reductions in milk volume.¹⁶

2.34 This season’s calculation includes variable cost savings as a result of the reduced milk volume (and the seasonality of that reduced milk volume) and some minor offsetting increases in costs as a result of the notional mothballing of plants. We consider the assumptions adopted by Fonterra to deal with temporary changes in volume to be reasonable.

2.35 Although volumes have decreased for the last three seasons it is still not apparent whether this reduction is a long term trend and therefore whether it merits a rethink of the fixed costs in the calculation.

¹⁶ N.B Fonterra still earn a WACC return on the mothballed plant.

- 2.36 The main issue that reducing or static milk volumes raises is the capital investment programme that is assumed in the number of plants of the notional producer. This in turn potentially impacts on the capital cost and depreciation components of the calculation, as well as other fixed costs of production.
- 2.37 If the reductions in the milk volume collected by Fonterra showed a sufficiently large and consistent decline such that plants of the notional producer were to be assumed to be permanently mothballed, it would raise the issue of sunk costs and their treatment in the calculation. However, the recovery in the volume in the latter part of this season suggests we are not yet at that stage. This is a topical issue and one which is playing out in the real world.¹⁷
- 2.38 The trend in the milk volume collected by Fonterra is something we intend to monitor ahead of our review of the 2018/19 calculation, with the scope of our work in that review being guided by the extent of any material reduction in volume.

2017/18 cost variances

- 2.39 With reduced milk volume relative to last season, we have seen reductions in some variable cost components, as would be expected. Where we noticed variances worthy of further consideration, due to decreased volumes or otherwise, Fonterra was asked to provide more detail. We have summarised material variances in the calculation relative to the 2016/17 season in table 2.2.

Table 2.2 Cost components showing material variances on last season

Component	Comment
Packaging costs	The total cost of packaging decreased by 3.4%. The decrease is due to an overall reduction in volumes, particularly driven by AMF which has seen both the largest season on season volume reduction while also being considerably more expensive to package per metric tonne than the other BCPs.
Effluent costs	There has been a decrease in effluent costs by 13.3%. This is attributed to a decrease in effluent as a result of a review of effluent assumptions by Fonterra and the overall lower volume of production.
Variable supply chain costs	Variable supply chain costs have marginally decreased. This is due to the decrease in volume and cost of transportation.
One off costs	Last season the one off Velocity programme cost savings were included under this category. These savings have now been permanently moved to the administration cost category, with a consequent increase in costs in this category this season relative to last season. In addition there are new one off costs for the Receivables Management program and a cost due to a product quality complaint.
Capital charge	Capital charge has decreased due to a decrease in WACC. This decrease was driven by lower recent risk free and debt premium rates driving down 5 year averages.

¹⁷ https://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=12080284.

Losses

Fonterra conducted a review of its loss assumptions. As a result, the calculation model shows a reduction in plant effluent costs (see above) and in wholemilk losses.

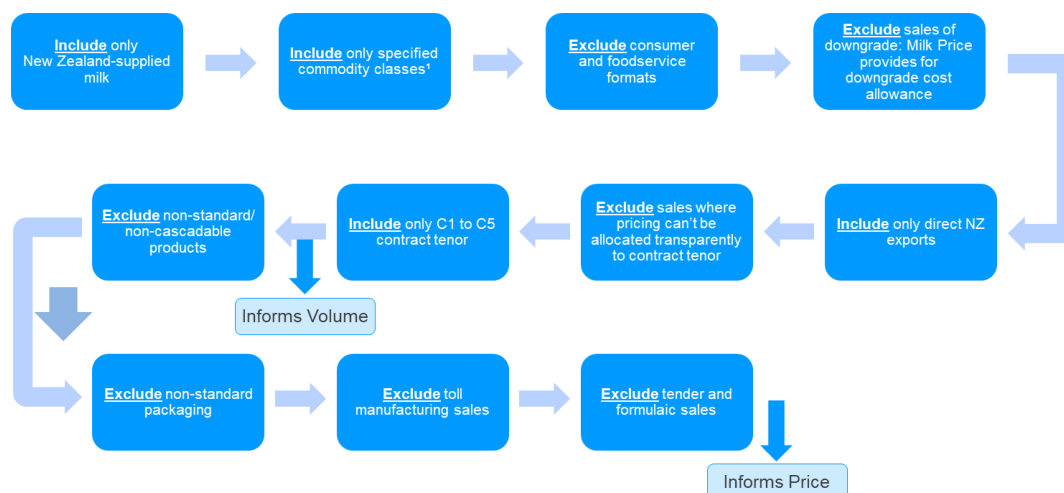
Inclusion of off-GDT sales as a reference for calculating WMP, SMP and AMF prices

- 2.40 We concluded in our 2016/17 calculation review that the inclusion of off-GDT reference sales is consistent with the efficiency dimension. We consider inclusion by Fonterra of off-GDT sales as a reference for prices used for the notional producer is practically feasible for Fonterra and an efficient processor. Fonterra has included the necessary costs for the notional producer as a result of including off-GDT sales for WMP, SMP and AMF.
- 2.41 In reviewing the 2017/18 milk price calculation we have looked at the off-GDT prices and volumes against last seasons to obtain comfort in what is being included in this year's calculation. We have seen a similar proportion of the milk price revenues coming from the off-GDT sales, as well as a similar price differential with GDT sales prices in this year's calculation relative to last year. This is in line with what Fonterra describes in its reasons paper supporting the 2017/18 milk price.¹⁸
- 2.42 In its reasons paper for the 2017/18 milk price calculation Fonterra has confirmed that it has not made any amendments to the product specifications used to determine which off-GDT sales are used in the milk price calculation.¹⁹
- 2.43 For the purpose of this season's review we requested further information from Fonterra on this issue, focused around the decision making process to include or exclude off-GDT sales. Fonterra supplied us with a 'decision tree' describing the process/decision points for filtering out non-milk price informing sales. Figure 2.2 is a simplified version of this decision tree.

¹⁸ Fonterra, 'Reasons paper in support of Fonterra's base milk price for the 2017/18 season', 11 July 2018, page 24.

¹⁹ Fonterra, 'Reasons paper in support of Fonterra's base milk price for the 2017/18 season', 11 July 2018, page 25.

Figure 2.2 Off-GDT milk price decision tree – Product to be determined in milk price calculation



2.44 We continue to consider that there should be more transparency around how Fonterra has determined the off-GDT sale prices used for the Notional Producer.

A request for further Transparency

2.45 We note the submissions of Miraka and Open Country outlining concerns around the transparency of off-GDT sales included in the milk price calculation. They also note that Fonterra has made commitments around the transparency of the off-GDT component of the milk price that have not been upheld.

2.46 Fonterra made a number of transparency commitments in its submission to the 2017 base milk price calculation draft report regarding off-GDT transparency. The Commission believes these have been met, with the exception of Fonterra's commitment to publish quarterly forecasts of the cents per kgMS impact from the inclusion of off-GDT sales of WMP, SMP and AMF in the Milk Price calculation.²⁰

2.47 As per Fonterra's 2017 submission this quarterly forecast information was included in the November 2016 Global Dairy Trade update. Since then it has only been published in Fonterra's January 2018 update, as noted by Miraka in their submission. The Commission expects Fonterra to meet the commitments it has made and therefore encourages this quarterly forecast information to be published going forward.

Calculation methodology changes

2.48 In line with the changes identified in the 2017/18 Manual review, Fonterra has made two methodology changes in this year's calculation, neither of which have had a material effect on the milk price.

²⁰ Fonterra, 'Submission on the review of Fonterra base milk price calculation draft report (1 September 2017), Attachment 2.

- 2.49 Rule 14 relating to repairs and maintenance (R&M) was amended to include a specific definition of Maintenance Department Labour Costs (as defined in Part C of the Manual).
- 2.50 Rule 16 was amended, adding a requirement that the determination as to which lactose cost methodology is used must be made prior to the commencement of the relevant season. The amendment is designed to remove the ability to retrospectively pick the lactose cost informing the calculation.
- 2.51 As stated in the 2017/18 Manual review, the Commission supports both of these methodology changes.

Other matters

Assumptions on losses

- 2.52 We have reviewed Fonterra's updated input assumptions on losses. We conclude that the updates to these inputs are supportable. We received the necessary information as requested to support the updates. A full break down of Fonterra's process to update the loss assumptions can be found in its 2017/18 reasons paper.²¹

Reference commodity product (RCP) basket

- 2.53 We were provided with Fonterra's RCP basket review report and we accept its findings. The report recommended that no adjustments to the reference basket of commodities are warranted for the 2018/19 Manual or calculation.

New definitions in the 2018/19 Manual

- 2.54 We have confirmed that the terms that Fonterra committed to including definitions for in the 2018/19 Manual have been added. These are standard packaging, specialised plant or technical resources and standard product offerings.

Next Steps – next season's reviews

- 2.55 We aim to publish our draft report on the 2018/19 Manual in October 2018.
- 2.56 At this stage we see the milk volume forecasts as a key issue to be carried forward into the 2018/19 Manual and calculation reviews. Assessing how static or declining volumes are factored into the base milk price calculation will be a key consideration in next season's reviews. For example, whether further notional plant mothballing will be required, the impact on the cost of capital and depreciation as a result, and whether there is a sufficient allowance for the risk of asset stranding are all ~~a~~issues that will need to be considered.

²¹ Fonterra, 'Reasons paper in support of Fonterra's base milk price for the 2017/18 season', 11 July 2018, page 21.

- 2.57 The Government is currently conducting a review of DIRA, including the provisions that govern our reviews of the Manual and calculations. The terms of reference for this review currently indicate that any implementation of review outcomes will happen during 2019. We therefore expect at this stage that the terms of the reviews of the Manual and calculation will remain unchanged for the 2018/19 season.

Appendix A **Glossary of terms**

Table A1 Glossary

Term/Abbreviation	Definition
The Act, or DIRA	Dairy Industry Restructuring Act 2001
AMF	Anhydrous milk fat
Base milk price	Farm gate milk price expressed per kilogram of milk solids
BMP	Butter milk powder
Capex	Capital expenditure
Dairy season	1 June to 31 May
ELB	Electricity lines business
GDT	Global dairy trade, Fonterra's online auction platform used to sell commodities
kgMS	Kilogram of milk solids
Milk Price Manual or the Manual	Fonterra's Farm Gate Milk Price Manual generally referred to by the version relating to each dairy season (e.g., 2016/17 Manual). The Manual contains the methodology used to calculate Fonterra's base milk price
Notional Producer	The notional commodity business that is used to calculate the base milk price
Opex	Operating expenditure
RCP	Reference Commodity Product. These products are manufactured and sold by the Notional Producer. This currently consists of WMP, SMP, BMP, Butter and AMF
SMP	Skim milk powder
WACC	Weighted average cost of capital
WMP	Whole milk powder

Appendix B **Asset beta**

Purpose of this appendix

- B1 This appendix provides the detailed asset beta analyses supporting our conclusions on the asset beta for our final review of the 2017/18 milk price calculation.
- B2 In this review our final conclusion is that an efficient processor with similar risk exposure to the notional producer is unlikely to have an asset beta as low as Fonterra's estimate of 0.38, and we therefore consider that this beta estimate is unlikely to be practically feasible for an efficient processor.

Structure of this appendix

- B3 The basis of this appendix is the asset beta report published as part of our draft decision on 15 August 2018. The material has been updated to respond to the submissions received on the draft report, as we consider appropriate.²²
- B4 This appendix is designed to be a standalone document outlining how we came to our conclusion on asset beta while also showing analyses of our updated thinking between our draft and final position.

Process to get to our final conclusion

- B5 As part of this year's review we commissioned an independent report from CEPA/FreshAgenda ("CEPA") on the asset beta. We commissioned the report as we considered that in previous reviews stakeholders had not provided sufficient robust analysis of the other listed dairy and commodity processors, and in particular the nature of the risks they are exposed to and how this compares with the risks borne by the NP, to know how much weight to place on an analysis of their asset betas relative to the NP's. We published CEPA's report on 28 March 2018 and invited submissions from stakeholders.
- B6 Submissions were received on CEPA's report and these were considered in our emerging view on Fonterra's asset beta estimate.²³ CEPA were asked to provide their views on certain elements of the submissions which we also published.²⁴
- B7 Submissions were received on our emerging views paper which we considered before reaching the conclusions set out in the draft report. CEPA was also asked to provide their views on certain elements of these submissions which were published alongside the draft report.

²² The draft report, emerging views paper and submissions are all available on the Commerce Commission website.

²³ Review of Fonterra's 2017/18 base milk price calculation – Emerging views on asset beta dated 14 June 2018.

²⁴ CEPA and Freshagenda 'Dairy notional producers asset beta response to submissions (4 July 2018).

B8 Submissions were received on our draft report, which we considered before reaching the conclusions set out in this final report.²⁵

Summary of conclusions

- B9 This appendix sets out our final view on whether or not the asset beta of 0.38 proposed by Fonterra for setting the 2017/18 base milk price is practically feasible for an efficient processor. Estimating asset beta with reliability and confidence is inherently difficult, and there are differing views between submissions from interested persons and the various experts as to the most appropriate approach to do so, and on the correct level of asset beta.
- B10 Our task is to evaluate the extent to which the particular estimate adopted by Fonterra to set the milk price is consistent with the DIRA and, in this instance in particular, whether it is practically feasible for an efficient processor (practically feasible) to match the asset beta value adopted by Fonterra, subject to the safe harbours in s 150B and the mandatory principles contained in s 150C.^{26,27} In reaching this view we consider it is necessary to consider all the evidence available, and to use judgement to weigh that evidence.
- B11 Having considered the information available, our final view remains that of our draft report that an efficient processor with similar risk exposure to the notional producer (NP) is unlikely to have an asset beta as low as Fonterra's estimate of 0.38, and on balance we consider that this beta estimate is therefore unlikely to be practically feasible.
- B12 As appears from our discussions later in this appendix, for purposes of our assessment we have accepted that most of the assumptions made by Fonterra in relation to the asset beta for the NP are practically feasible and/or required by s 150C. The focus of our assessment is therefore mainly on Fonterra's assumed impact of the assumptions on the asset beta rather than on the assumptions themselves.
- B13 Fonterra's proposed adoption of an asset beta of 0.38 places significant weight on the premise that electricity distribution businesses (EDBs) are the best proxy for estimating the asset beta for a risk-minimising NP which collects raw milk and processes it into commodity milk products like whole milk powder. However, we retain our draft position that other dairy and commodity processors are better comparators than EDBs.

²⁵ Submissions to us on our draft report are available on our website.

²⁶ We have previously concluded (and this seems uncontroversial) that Fonterra's proposed asset beta of 0.38 would meet the efficiency dimension of s 150A of the DIRA.

²⁷ Section 150C assumes that all milk collected is converted into the reference commodity products (RCPs). The base milk price is the sum of all revenue associated with the sale of the RCPs minus all the costs of collecting milk, producing and selling the RCPs, and capital costs and a return of capital. 150B sets out certain key assumptions that the new co-op uses in setting the base milk price that do not detract from the purposes of s 150A.

- B14 CEPA undertook an empirical analysis of share prices for a sample of global listed companies which process dairy and other commodities. CEPA selected 39 companies to use as its sample. The basis of this analysis was the sample of comparators selected by Fonterra's advisor, Dr Marsden, except that CEPA excluded Fonterra itself, while Dr Marsden included Fonterra. We explain in more detail later in this appendix why we consider that Fonterra should be excluded from the comparators when we carry out our assessment of the asset beta.
- B15 CEPA's analysis produced estimates of asset beta that, even when expressed in a range, are significantly above the point estimate of 0.38 adopted by Fonterra for the NP. CEPA's results were very similar to those reported previously by Dr Marsden. We consider this empirical analysis casts significant doubt on the practical feasibility of the estimate of 0.38 used by Fonterra to set the milk price and when taken together with other factors suggest that this estimate is unlikely to be practically feasibility.
- B16 We acknowledge there are differences between the risks borne by the NP and the sample of global listed processors analysed by CEPA and Dr Marsden. However, based on the available evidence, we do not consider that differences in these risks are necessarily systematic in nature or are sufficiently significant to explain the difference in asset beta between that found empirically by CEPA, and the estimate of asset beta used by Fonterra.²⁸
- B17 CEPA undertook additional empirical analysis by splitting the sample of listed processors into smaller sub-groups, to create more homogenous sub-groups. For example, CEPA compared differences in the degree of exposure to commodity versus value-added products, and differences in the ability to transfer commodity price risk to farmers. However, that analysis did not yield different estimates of asset beta.
- B18 Indeed, estimates of beta for the sub-groups remain remarkably stable even when the sample is broken down in these ways. The resulting ranges of estimates, and their mid-points, are generally well above the point estimate adopted by Fonterra. Among other things, this empirical analysis suggests that differences in the degree of exposure to commodity versus value-added products and differences in the ability to transfer commodity price risk to farmers do not appear to have a significant influence on asset beta as Fonterra has claimed.
- B19 In our view, Fonterra's approach places too much weight on analysis of the observed betas for predominantly US listed energy utilities (which form the basis for the EDBs' beta estimates), and insufficient weight on the other available evidence. In our view, when all the available evidence is properly considered, an asset beta of 0.38 is unlikely to be practically feasible when setting the price for raw milk collected from NZ farmers.

²⁸ For a detailed review of the sample of global listed processors analysed by CEPA refer to ANNEX D of CEPA's Asset Beta report (28 March 2018) on our website.

Specific comments in response to submissions on our draft report

B20 This section of the appendix provides further detail on the areas that we believe required further consideration following submissions on our draft report.

The notional producer's RAB is not effectively guaranteed like that of an ELB

B21 UOA and Fonterra disagree with CEPA on the relative impact of asset stranding on the NP versus ELBs. For example, Fonterra submits that: "Like ELBs, and unlike any of the comparators, the NP also has a RAB that has no less of an effective guarantee than ELBs through the Milk Price Manual's quasi-regulatory framework. Both CEPA and the Commission overlook this point."²⁹

B22 We continue to disagree with Fonterra on this point and, by way of simple example, refer Fonterra and Dr Marsden to rule 32 of Fonterra's milk price Manual. This rule provides that the Farmgate Milk Price fixed asset base must be adjusted where the peak milk supply in a region has decreased by an amount that results in one or more Standard Plants being surplus to requirements. In short, the NP is required to bear the costs associated with permanently stranded assets due to a permanent supply shock.³⁰

B23 In stark contrast, there is no provision in the part 4 regulatory regime for an ELB to wear the costs of stranded electricity network assets. This is the case for stranding due to permanent supply shocks or indeed any other factor.

Asset stranding

B24 Fonterra submit that our position in the draft report on the adequacy of the allowance in the milk price for asset stranding has changed from that which we reached in the 2015/16 Review.³¹ Our revised view is as a result of the current price calculation review, and the comments from Dr Marsden and CEPA. Specifically, we are concerned that:

B24.1 the narrow focus on the modelled NP with respect to asset stranding will underestimate any new entrant processor's exposure to asset stranding risk; and

B24.2 as such it is not apparent that the current approach to asset stranding is consistent with providing for contestability in the market for the purchase of milk from farmers.

B25 We intend to reconsider the approach and sufficiency of the allowance for asset stranding in our reviews for the 2018/19 milk season.

²⁹ Fonterra 'Submission on review of Fonterra base milk price calculation draft report' (31 August 2018), page 3.

³⁰ See also Table 2.1: Allocation of Risks between Farmgate Milk Price (suppliers) and Earnings (Fonterra) of the Manual).

³¹ Fonterra 'Submission on review of Fonterra base milk price calculation draft report' (31 August 2018), page 4.

Options available to the NP

- B26 Dr Marsden and Fonterra continue to argue that the NP has “no” or “few if any” growth options. In the draft report, we noted that while the DIRA limits the products the NP can produce in the short term, in the longer term, like other processors, the NP has a portfolio of growth options available to it, including expanding its product offering.^{32,33}
- B27 Fonterra’s response to that point was that the Manual was introduced prior to it being required by legislation and that Fonterra is on record as confirming it will continue to maintain the Manual even if no longer required to do so under DIRA.³⁴
- B28 In our view, that response does not properly address our point as, regardless of whether or not Fonterra chooses to exercise the option to expand the products produced, it has an option to do so as or when DIRA is relaxed or repealed. As such, in the longer term (when option value is greatest), the NP is very much like the other listed processors in the comparator sample.
- B29 Further, even while DIRA is still in full effect, there are other potentially valuable options relevant to the base milk price. In particular:
- B29.1 The Manual, as currently drafted, already contemplates the NP expanding the range of products included in the milk price even without any amendment to DIRA. This is evident in:
- B29.1.1 Section 4.2 which explains that “...the Reference Basket of the Farmgate Milk Price Commodity Business may be adjusted if Fonterra faces a material and sustainable level of likely future competition for milk in New Zealand from producers of commodity products other than the then current Reference Commodity Products, and it is expected that inclusion in the Reference Basket of one or more of those other commodity products will result in a higher average Milk Price over time”; and
- B29.1.2 Rule 32, which provides for the basket of RCPs to be adjusted, and the rules for how this is to be reflected in the calculation of the base milk price. We note in particular that Rule 32 gives the NP the ability to put the unrecovered sunk costs of existing plants into the milk price. This is an option which other processors facing competition for milk would not have.

³² Fonterra ‘Submission on review of Fonterra base milk price calculation draft report’ (31 August 2018), page 4.

³³ Commerce Commission ‘Draft report – Review of Fonterra’s 2017-18 base milk price calculation (15 August 2018), para 54.

³⁴ Fonterra ‘Submission on review of Fonterra base milk price calculation draft report’ (31 August 2018), page 4.

- B29.2 There is the option to set a base milk price which is different to the milk price calculated under the manual. This possibility is contemplated in sections 150N and 150R of the DIRA. Indeed, Fonterra has exercised the option to override the manual in two seasons when the Manual-consistent milk price was more than Fonterra was willing and/or able to pay its suppliers.
- B30 In summary, we consider that as a result of DIRA the NP has different and possibly fewer options than other processors, but it still has a number of valuable options relevant to the base milk price. It is difficult to assess the extent to which the payoffs from these options co-vary with market wide returns as there are a wide range of factors potentially in play (particularly in the case of the Manual-over-ride option), some of which may be systematic in nature.
- B31 It is possible that the asset beta for the NP could be lower than the mid-point observed for the sample of other processors based on the available evidence in relation to this point. However, we do not consider that the evidence provides a basis for concluding that it is significantly below that for other processors. The NP does seem to have greater options, in respect of the base milk price, than do ELBs which are subject to price-quality regulation.

Focus on comparators average asset beta

- B32 In our judgement the systematic risks faced by the NP are not sufficiently different to those faced by the average comparator to support an asset beta as low as 0.38.

Our decision on the practical feasibility of the asset beta

The framework for our review of the milk price

- B33 Section 150A sets out the purpose of Subpart 5A of the DIRA:

150A Purpose of this subpart

(1) The purpose of this subpart is to promote the setting of a base milk price that provides an incentive to new co-op to operate efficiently while providing for contestability in the market for the purchase of milk from farmers.

- B34 The DIRA also sets out the process, nature and timing of our review of the milk price calculated by Fonterra. We have set out our approach for this review previously (the “approach paper”) and we do not repeat all of that analysis in this document.³⁵
- B35 From our review of the milk price in previous seasons we are satisfied that the estimate of asset beta used by Fonterra provides it with an incentive to operate efficiently, satisfying that aspect of s 150A(1). As the asset beta has remained 0.38 as per the previous season, the outstanding issue is to review the extent to which the

³⁵ For the further analysis see Commerce Commission “Our approach to reviewing Fonterra’s Milk Price Manual and base milk price calculation” (15 August 2017).

value of asset beta used by Fonterra is providing for contestability in the market for the purchase of milk from farmers.

B36 Section 150A(2) provides that:

For the purposes of this subpart, the setting of a base milk price provides for contestability in the market for the purchase of milk from farmers if any notional costs, revenues, or other assumptions taken into account in calculating the base milk price are practically feasible for an efficient processor.

B37 The terms 'practically feasible' and 'efficient processor' are not defined in the DIRA.

B38 We have set out our interpretation of practical feasibility and the efficient processor in our approach paper. We explained that practical feasibility under s 150A goes further than theoretical feasibility and technical feasibility, to include commercial feasibility in the sense that it must be possible for an efficient processor operating in New Zealand to replicate or achieve the component being assessed, subject to the 'safe harbours' in s 150B and the mandatory principles in s 150C.

B39 In our view, there is clear evidence that a notional cost, revenue or other assumption is commercially feasible if it can be demonstrated that an existing plant, or processor, can achieve the revenue, cost or other assumption (e.g. the unit costs achieved at one existing plant, or the gross values achieved in a part of Fonterra's current business).

B40 Our interpretation of the term efficient processor is not limited to the existing processors, as other potential entrants exist and may enter the market for the purchase of milk from farmers. Under the DIRA, it does not matter whether existing independent processors can necessarily achieve that efficiency in practice or not. As long as Fonterra or some other potential entrant can achieve that level of efficiency, then that ensures that the base milk price reflects a practically feasible level, and would provide a normal return on the incremental investment.

B41 We therefore consider the base milk price setting is consistent with the contestability dimension if the assumptions adopted, and inputs and processes used are practically feasible for Fonterra, or another processor, that is efficiently building an incremental plant.³⁶

B42 In practice, we often examine whether the notional costs, revenues, and other assumptions in the Manual that are used in calculating the base milk price are practically feasible for Fonterra. We consider that this approach is appropriate because, more often than not, the Manual provides for the use of parameters that reflect Fonterra's 'average' plant rather than its most cost efficient plant(s). An efficient processor building an incremental plant should be able to achieve lower costs than this.

³⁶ Subject to this not being due to special features unique to Fonterra that is not a 'safe harbour' under section 150B or a mandatory principle under section 150C.

- B43 However, when assessing the practical feasibility of Fonterra's estimate of asset beta, Fonterra itself is not an appropriate point of comparison. This is because:
- B43.1 the beta estimated from an analysis of Fonterra's share price (as proxied by the Fonterra Shareholders' Fund) is affected by factors which are idiosyncratic to Fonterra: more than 90% of Fonterra shares are owned by Fonterra's own farmer suppliers and their decisions to buy and sell Fonterra shares are significantly affected by factors which link to their interests as farmers and are not linked to Fonterra's earnings outlook. This is discussed further below; and
 - B43.2 relying on a single company produces an unreliable estimate due to the significant measurement error of such an estimate.
- B44 Accordingly, we cannot simply compare the beta estimated for Fonterra with the value of beta adopted by Fonterra to set the milk price to determine practical feasibility.
- B45 Instead, we must look at the other available information and assess whether the asset beta adopted by Fonterra is practically feasible for a firm with comparable risk to the NP. Which information constitutes the best evidence of this, and the weight which we place on each piece of information, necessarily requires expert judgment.
- B46 The DIRA requires us to report on the extent to which the assumptions adopted and the inputs and process used by Fonterra in calculating the base milk price for the season are consistent with the purpose of this subpart (see section 150A).³⁷ In light of the available evidence on the asset beta for a dairy processor of similar risk to the NP, we ought to be able to conclude that the beta is practically feasible at some estimates of beta. For example, because the estimate of asset beta used to set the milk price is located around the middle, or above, the asset beta level indicated by the analysis of the other information.
- B47 Conversely, if the asset beta used by Fonterra is materially below the level indicated by analysis of the available other information, then we ought to conclude that the estimate used by Fonterra is not practically feasible.
- B48 Between those two extremes, there is a grey area where we cannot easily reach a definitive conclusion that the beta used by Fonterra is or is not practically feasible. For estimates of asset beta falling within those extremes, we consider that we can satisfy the DIRA's requirement that we report on the extent to which the input assumption used by Fonterra is practically feasible, by expressing a view on the likelihood that the beta estimate used by Fonterra is practically feasible. In particular:

³⁷ Section 150P(1) of the DIRA.

B48.1 the further the estimate used by Fonterra is below the level indicated from analysis of the available other information, then the lower the likelihood is that Fonterra's estimate of beta is practically feasible; and

B48.2 the further the estimate used by Fonterra is above the level indicated from analysis of the available other information, then the higher the likelihood is that Fonterra's estimate of beta is practically feasible.

B49 The DIRA states that we must not calculate our own estimate of the milk price, and we infer from this that we should not publish our own view of the best estimate of asset beta.³⁸ Instead, we report our conclusion on the extent to which the estimate used by Fonterra is consistent with practical feasibility (providing for contestability) and do not report our view on the best estimate of asset beta for the NP.

Using the allocation of commodity price risk of the NP is consistent with s 150C

B50 In our reviews to date of Fonterra's Milk Price Manual, we have concluded that the Manual has been largely consistent with the statutory purpose set out in s 150A of the DIRA. Inherent to the Manual is an assumption that the NP (or any other New Zealand commodity milk processor) could shift the risk of changes in international commodity product prices to farmer suppliers via changes in the base milk price.

B51 We have also previously concluded that this risk allocation under the Manual is consistent with the basis on which the base milk price is required to be determined under the DIRA; namely, the difference between the revenues achieved for sales of commodities and the efficient costs of producing and selling those commodities. In particular, s 150C(1) requires:

For the achievement of the purpose set out in section 150A, the base milk price must be set in a way that is consistent with the following principles:

(a) revenue taken into account in calculating the base milk price is determined from prices of a portfolio of commodities at the times that those commodities are contracted to be sold by [Fonterra]:

(b) price include costs (including capital costs and a return on capital) of—

(i) collecting milk; and

(ii) processing milk into the same portfolio of commodities as the portfolio adopted for the purposes of paragraph (a); and

(iii) selling those commodities

B52 As a result of this mandatory requirement, the actual commodity prices achieved by Fonterra go into milk price. The risk of changes in commodity prices also goes into the milk price and is therefore borne by its farmer suppliers.

³⁸ Section 150P(3) of the DIRA.

- B53 The effect of the above is that the NP should be assumed to transfer commodity price risk to farmers. As the NP constructed by Fonterra under its Milk Price Manual transfers commodity price risk to farmers in the way directed by s 150C, we consider the purpose of s 150A will be met if the asset beta proposed by Fonterra is practically feasible for a firm with comparable risk to the NP.
- B54 To the extent that section 150C does not require the risk of all changes in commodity price to be borne by farmers, this would support a higher asset beta than Fonterra's estimate, if it were assumed that the risk of changes in commodity price were a systematic risk contrary to our conclusions in B96 and B97.
- B55 Westland and TDB Advisory have previously submitted that while the NP is able to transfer risk, other processors including Fonterra cannot transfer all of this risk. Instead, they can only manage this risk. This is discussed further in paras B100 to B102.
- B56 We note that while our interpretation of practical feasibility requires that an input or assumption must be possible for an efficient processor operating in New Zealand to replicate or achieve the component being assessed, this is subject to the 'safe harbours' in s 150B and the mandatory principles in s 150C. Accordingly, while we accept the views of Westland and TDB Advisory that Fonterra and other processors are unable to fully transfer commodity price risk as assumed by Fonterra for the NP, we consider that this assumption is required by section 150C as set out in paragraphs B50 to B52 above.

Background to the review of the asset beta

- B57 Under Section 150O of the DIRA, the Commission must review Fonterra's calculation of the base milk price for each season and report on the extent to which it is consistent with the purpose set out in section 150A of the DIRA.
- B58 Ahead of the review of the calculation each season Fonterra must produce a 'manual' which contains the methodology used to calculate Fonterra's base milk for that season, which the Commission reviews. We published our final report on the review of the 2017/18 milk price manual on 15 December 2017.
- B59 In Attachment D of that report we highlighted that our primary focus for our review of the 2017/18 milk price calculation would be the estimate of the asset beta and estimated cost of capital.
- B60 This followed our Final Report on the 2016/17 Base Milk Price Calculation review (15 September 2017), where we were unable to conclude on the practical feasibility of the asset beta used by Fonterra in its calculation of the base milk price. We considered that the asset beta (and therefore the WACC estimate) was consistent with the efficiency dimension.

We were unable to conclude on whether the asset beta was consistent with the contestability dimension of the s 150A purpose. We stated that we did not consider the evidence available was robust enough to support Fonterra's estimate of 0.38. The asset beta

estimate of 0.38 for the Notional Producer is a material departure from the sample mean of 0.48 – 0.52, albeit within a standard deviation. Our assessment to date suggests that there may be good reasons to go below the sample mean. However, at this point we do not consider the evidence is robust enough to support the extent of the specific departure implied by Fonterra’s estimate.³⁹

Further information requested

B61 In our final report on the review of Fonterra’s 2016/17 base milk price calculation, we asked for further information to assist us in concluding on asset beta, including detailed evidence of the extent to which firms in the sample of dairy processors transfer risk and especially systematic risk to others, and how this compares to an NP that fully passes through that risk (largely to farmers).

B62 We also invited independent processors' engagement in the empirics and outlined that it would be helpful for a third party to validate, or otherwise, Fonterra’s statement that:

In no other jurisdiction are the milk prices paid by any processor, let alone the market-leading processor, governed by a milk price mechanism like the Milk Price Manual which results in the mechanistic translation of average realised commodity prices into a milk price.⁴⁰

B63 In our Review of Fonterra's 2017/18 Milk Price Manual we set out our proposed process for reviewing the asset beta used in calculating the milk price. In particular, we stated that:

To assist with our review we have recommended that Fonterra provides detailed evidence of the extent to which firms in the sample transfer price risk to farmers or others, and how this compares to the notional producer that fully passes through that risk.

In addition, we plan to conduct some work of our own in this area, aimed at helping us reach a more definitive conclusion on whether or not Fonterra’s estimate of the asset beta is consistent with the Act.⁴¹

B64 The Commission did not receive information in support of these points to a satisfactory level during or leading up to this calculation review, nor did we receive such information from independent processors (although we did receive the submission from TDB Advisory mentioned above). To progress this issue the Commission sought specialist knowledge on the international dairy industry in order to identify the risk exposure of international dairy comparators. This was consistent with the statements in the manual review noted above of us conducting some work of our own in order to reach a more definitive conclusion on the practical feasibility of Fonterra’s estimate of the asset beta.

³⁹ Commerce Commission “Review of Fonterra's 2016/17 base milk price calculation” (15 September 2017), para 2.16.

⁴⁰ Commerce Commission, “Review of Fonterra’s 2016-17 base milk price calculation” (15 September 2017), para 2.23.2.

⁴¹ Commerce Commission, “Review of Fonterra's 2017/18 Milk Price Manual” (15 December 2017), Attachment D, para D5-D6.

B65 This information has provided sufficient insight into the risk exposures of the dairy comparators relative to the NP to enable us to assess whether Fonterra's estimate of the asset beta is practically feasible when taken together with the other available evidence.

Summary of CEPA's report

B66 Information about international dairy companies and how comparable these companies in the sample were to the NP was a key piece of information the Commission was lacking to inform its review of Fonterra's asset beta. The independent report we commissioned from economic regulation experts, CEPA, and international dairy industry specialists, FreshAgenda, provided evidence to fill the gap.

B67 The independent advice followed two main analytical approaches:

B67.1 First, to test whether the sample of EDBs are the best comparators – a theoretical study that assessed key risks affecting asset beta for each of the four subsamples, and compared them to the risks affecting the NP and EDBs. This was informed by an analysis (in greater depth than ever before) of the key operating features and risk exposure for each of the comparators, including the markets in which they operate.

B67.2 Second, to undertake empirical analysis of the asset beta for an efficient processor, using our established approach for estimating asset beta, so as to:

B67.2.1 estimate an asset beta for the NP, taking account of the characteristics of the various processors; and to

B67.2.2 test whether an adjustment to the sample mid-point is justified – an empirical analysis of the asset betas of each of the sub samples and the sample as a whole.

B68 The main findings from CEPA/FreshAgenda were as follows:

B68.1 First, companies in the sample should have systematic risks more similar to the NP, than those of EDBs. Therefore, relying on the estimates from the dairy comparators should produce a better estimate of the asset beta for the NP than the sample of EDBs used by Fonterra.

B68.2 Second, analysis of the subsamples produced sub-sample means that are very similar to the full sample mean. However, CEPA considered there is an argument for a downwards adjustment to the sample mid-point. They could not estimate this empirically, but considered our past 0.05 adjustment in other sectors provides a reasonable estimate.

Selecting a comparator sample

- B69 The Commission's approach to forecasting asset beta has been to use comparators from the same sector, an approach which has been developed and applied consistently over a number of years.
- B70 In CEPA's view, in a mature economy like New Zealand, the drivers of EDBs' revenues are somewhat different to those of the NP:

Network growth is somewhat decoupled from economic growth, related to factors such as changing patterns of electricity demand and supply, rather than changes in economic growth. The input cost pressures for ELBs are also likely to be different from those of the Notional Processor. Another difference is that the Notional Processor is assumed to export all of its commodity outputs, while the ELBs services are provided domestically.⁴²

- B71 CEPA considered that the suggestion the asset beta of the NP should be derived from EDBs (and therefore the energy sector) relies on analysis of short-term cash flows and does not reflect how investors would view an investment in this business:

The evidence presented so far does not justify the assumption that an ELB's characteristics and risk profile will result in the same systematic risk profile as that of the Notional Processor. Moreover, the Commission's comparator sample for the energy sector is much wider than regulated ELBs and includes generators and vertically integrated companies. The argument that an international collection of electricity utilities with a range of different types of regulation provide the best proxy for the Notional Processor is unconvincing.⁴³

Comparators should have systematic risk similar to the notional processor

- B72 CEPA's analysis indicates that dairy price variation is not correlated with general stock market movements, and so may not be systematic. This is supported by the analysis of commodity-based companies' betas, which shows little difference between commodity and non-commodity exposed businesses. CEPA's analysis also indicates that exposure to other risks is similar for the NP and the comparator group, in particular cost risks, risk of asset stranding, and financing risks.
- B73 CEPA considered that the scale of long-term growth opportunities for the NP are likely to be similar to those of other dairy businesses:

Although we note environmental policies and land resources may mean that New Zealand is close to 'peak cow' numbers, the overall value of the industry still has scope to grow. In addition, the times at which investors will reflect changes to future investment requirements into valuations are likely to correlate for the Notional Processor and the dairy industry. The analysis of the Commission's advisor, Dr Lally, is helpful to assess the validity of this. In Lally (2016a), the author sets out a decomposition of the asset beta, in which the value of the short-term betas is assumed to be low, as costs are assumed to be negatively correlated with positive market shocks. The question of the level of the asset beta can therefore be assessed

⁴² CEPA "Asset Beta report" (28 March 2018), p. 2.

⁴³ CEPA "Asset Beta report" (28 March 2018), p. 2.

by consideration of the variation in the long-term value of the business compared to the market.⁴⁴

Sector comparators' asset betas have averaged 0.45 – 0.58

- B74 Investors normally estimate asset beta through analysis of changes in share prices of companies in the same or broadly similar sectors relative to the overall market index. This aligns with the approach set out in the Commission's input methodologies (IMs) for the electricity, gas, and airport sectors. CEPA has estimated the asset beta for a range of sector comparators using the IM approach.
- B75 CEPA selected 39 dairy companies to use as its sample. This is the same sample of comparators selected by Fonterra's advisor, Dr Marsden, except that CEPA excluded Fonterra itself, while Dr Marsden included Fonterra. CEPA excluded Fonterra over liquidity concerns and because CEPA did not have the same combinations of factors affecting its share price, as the other comparators.⁴⁵
- B76 For the full set of 39 companies CEPA estimated an average asset beta of 0.50 – 0.58 in the most recent five-year period, and between 0.45 – 0.50 in the five-year period to 2013 using daily, weekly and four-weekly estimates.^{46,47}

Sub-sample groups all have similar asset betas to the full sample

- B77 CEPA has undertaken a detailed analysis of the companies and identified sub-samples comprising those which are predominately dairy-focused, those which are more exposed to commodity markets, those which enjoy cost pass-through arrangements, and those with regulated prices. The purpose of this was to help assess the validity of the average asset beta from the whole comparator group.

For the latest five-year period, to January 2018, the asset betas for the different subgroups are similar, and the weekly average is between 0.48 and 0.53. For the previous five-year period to January 2013, the asset betas for the commodity exposed and cost pass through groups are similar, but the dairy comparators had lower asset beta averages, 0.41 to 0.47, and two companies with regulated milk prices show a much lower asset beta of 0.3.⁴⁸

CEPA's conclusions

- B78 CEPA's analysis indicates that dairy industry companies are a reasonable proxy for asset betas in the dairy industry in general, including in New Zealand and for the NP. The betas for subsamples of industry comparators are similar, giving validity to the use of broader comparators. The full range of comparator estimates is 0.45 – 0.58,

⁴⁴ CEPA "Asset Beta report" (28 March 2018), p. 2.

⁴⁵ CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), pp.6-7.

⁴⁶ CEPA "Response to submissions" (4 June 2018), p.7 and p.16.

⁴⁷ For a detailed review of the sample of global listed processors analysed by CEPA, refer to ANNEX D of CEPA "Asset Beta report" (28 March 2018) on our website.

⁴⁸ CEPA "Asset Beta report" (28 March 2018), p. 3. This quote reflects the erratum identified by CEPA in their second report: CEPA "Response to submissions" (4 June 2018).

and CEPA has not seen sufficient empirical support for an asset beta below the bottom end of this range.⁴⁹

Submissions on the CEPA report

- B79 The submissions we received on CEPA's report can be categorised into two distinct groups, those from independent processors which were in support of the CEPA reports findings and those from Fonterra. Goodman Fielder, Open Country Dairy and Miraka all submitted in support of the CEPA report's findings that the asset beta as currently set by Fonterra is not practically feasible.
- B80 Goodman Fielder agreed with the approach undertaken by CEPA in its review. It submitted that the key findings of the report were that:
- B80.1 there are companies within the comparator sample that have the same sort of cost pass-through characteristic as the NP does and therefore their asset betas are observable;
 - B80.2 because the asset betas of companies that have the same sort of cost pass-through characteristic as the NP can be observed, the EDB comparison is not relevant or appropriate; and
 - B80.3 the asset betas of the cost pass-through companies and the commodity exposed companies are similar and therefore no downward adjustment to the asset beta is required.⁵⁰
- B81 Open Country Dairy submitted that after considering the report it remains of the view that the asset beta used by Fonterra is demonstrably too low to be practically feasible.⁵¹
- B82 Miraka also submitted in support of the findings of the CEPA report, which it submits are in line with previous submissions made by Miraka on the matter.⁵²
- B83 Fonterra's submission disagreed with the CEPA Report's analysis and conclusion for a number of reasons. Fonterra considered:
- B83.1 the CEPA Report does not properly consider the unique characteristics of the NP and its ability to pass on systematic risk through prices to a materially greater extent than companies in the CEPA sample;
 - B83.2 under any approach to estimating asset beta under the DIRA (including the IM approach), it is important for the comparator sample to be a good indicator of the NP's systematic risk;

⁴⁹ CEPA "Asset Beta report" (28 March 2018), p. 3.

⁵⁰ Goodman Fielder, "Submission on CEPA asset beta report" (9 May 2018).

⁵¹ Open Country Dairy "Submission on CEPA asset beta report" (May 2018).

⁵² Miraka "Submission on CEPA asset beta report" (27 April 2018).

- B83.3 the sample used by CEPA is not the correct starting point to estimate asset beta, because it is not a good indicator of the NP's systematic risk;
- B83.4 the asset beta for EDBs is a better comparator, as EDBs provide the best indicator of the NP's systematic risk;
- B83.5 although the CEPA Report acknowledges a downward adjustment from the CEPA sample is warranted under its use of the IM approach, its failure to fully identify the differences between the systematic risk of companies in the CEPA sample and the NP means it has materially understated the adjustment required; and
- B83.6 the CEPA Report should not have excluded from consideration Fonterra's asset beta (recently calculated as range of 0.14 (weekly) to 0.28 (monthly)), which is lower than the NP's.⁵³
- B84 Fonterra's submission was supported by a report from economic consultancy firm NERA and another informative report from Dr Alistair Marsden from the University of Auckland (UOA).

CEPA's response to Fonterra's submission

- B85 The Commission asked CEPA to consider and provide its views on the submissions we received to the original CEPA report published on 11 April 2018. We published CEPA's report responding to these submissions alongside the emerging views paper. The key points from CEPA's response were as follows.
- B86 On the nature of the NP, CEPA expressed a view that 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. CEPA considered this difficult to align to the requirement that the asset beta should reflect that of a practically feasible efficient processor.
- B86.1 On the risk analyses, CEPA acknowledged that UOA's views were well set out, however CEPA suggested that UOA's arguments do not support the requirement of being achievable by a practically feasible efficient processor. For example, UOA notes that Fonterra has a higher credit rating than the comparators and points to Fonterra's ability to have all raw milk payments subordinated to other obligations which lowers its cost of debt and equity. CEPA considered a practically feasible efficient processor is unlikely to have the same ability to shift payment obligations.
- B86.2 CEPA commented on Fonterra and Dr Marsden's view of the NP's relative risk profile, and expressed a view that that risk profile and asset beta may only be achievable if the NP benefits from a position of market power and

⁵³ Fonterra "Submission on CEPA asset beta report" (9 May 2018).

lack of competition, which would be difficult to align with the requirement that the asset beta reflect that of a practically feasible efficient processor.⁵⁴

Our view on why an asset beta of 0.38 is unlikely to be practically feasible for an efficient processor

- B87 Our final view is that an efficient processor with a similar risk exposure to the NP is unlikely to have an asset beta as low as Fonterra's estimate of 0.38, and therefore an asset beta of 0.38 is unlikely to be practically feasible for an efficient processor.
- B88 In reaching this view, we have considered all of the information available to us, including:
- B88.1 Submissions to the draft report
 - B88.2 Submissions to the emerging views paper;
 - B88.3 the advice from CEPA/FreshAgenda of 28 March 2018 comparing the risks faced by the NP and the listed dairy companies;
 - B88.4 the empirical analysis of asset beta for listed comparator companies undertaken by CEPA and previously by Dr Marsden in his submission to the 2015/16 milk price calculation review and updated in 2017;⁵⁵
 - B88.5 Fonterra's submission and the reports submitted by Fonterra from its expert advisers, Dr Marsden and NERA, on the CEPA/FreshAgenda report, as well as submissions received from independent processors on the CEPA/FreshAgenda report;
 - B88.6 further analysis undertaken by CEPA in response to the submissions on its first report;
 - B88.7 submissions and advice provided to us in previous years' reviews of the milk calculation, including the reports we commissioned from Dr Lally and the submission from TDB Advisory received during the review of the 2017/18 Milk Price manual⁵⁶; and
 - B88.8 reports and analysis from other commentators including NZ trading and investment banks.

⁵⁴ CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), p.6.

⁵⁵ Dr Alastair Marsden "Update on Asset Beta for Fonterra's NZ based Commodity Manufacturing Businesses and Specific Risk Premium for Fonterra's Notional Business Draft Fonterra Report" (10 April 2016).

⁵⁶ The submission from TPD Advisory is available on our website at:
<http://www.comcom.govt.nz/regulated-industries/dairy-industry/review-of-fonterra-s-farm-gate-milk-price-and-manual/statutory-review-of-milk-price-manual/review-of-milk-price-manual-201718-season/>.

B89 The main factors that support our final view that the asset beta of 0.38 is unlikely to be practically feasible for an efficient processor have not changed from the draft report and are summarised below, and then discussed in further detail:

- B89.1 While there are differences between the risks borne by the NP and the sample of listed comparators, based on the evidence available we do not currently consider that these risks are systematic in nature or that, to the extent the risks are systematic, they are sufficiently significant to explain the difference in beta between that observed for the sample, and the estimate of beta used by Fonterra;
- B89.2 The empirical analysis of dairy and commodity-exposed companies' asset beta undertaken by CEPA and Dr Marsden has generated estimates of asset beta that, even when expressed in a range, are significantly above the point estimate of 0.38 adopted by Fonterra;
- B89.3 Splitting the sample of comparator companies into smaller sub-groups, to create more homogenous sub-groups, does not yield different estimates of asset beta. Indeed, estimates of beta for the sub-groups remain remarkably stable even when the sample is broken down into a variety of different sub-samples. The resulting ranges of estimates, and their mid-points, are above the point estimate adopted by Fonterra;⁵⁷ and
- B89.4 In our view, Fonterra's approach, relying on the advice of Dr Marsden, has placed too much weight on our analysis of the observed betas for EDBs, but this analysis is based on predominantly US listed energy utilities which may not be good proxies for a notional producer of commodity dairy products. Fonterra's and Dr Marsden's approach places insufficient weight on the other available evidence.

Differences in risk

- B90 There are differences in the risk borne by the NP and some other dairy companies, but we do not currently consider that these differences are sufficient to justify an asset beta of 0.38.
- B91 There is disagreement between the experts on the significance of the differences in the risk borne by the NP and other dairy companies.
- B92 Dr Marsden submitted that the NP has less systematic risk exposure to revenue risk, operational leverage, capex investment, asset stranding, counterparty risk and financing risk than companies in the CEPA sample.⁵⁸

⁵⁷ We have conducted some confidence interval testing on the sample and subsample analyses which has given us confidence that is appropriate to draw some conclusion from this analyses.

⁵⁸ Fonterra "Submission appendix - UOA report" (14 May 2018), para 2.2.

B93 On the other hand, CEPA advised that the NP has less exposure to price/volume risk and does not bear price risk. However CEPA disagreed that this risk is predominantly systematic:

By design, the risks faced by the Notional Processor are limited. In particular, under the DIRA price risk is passed through to farmers via the farmgate milk price calculation, and so the Notional Processor does not bear price risk. This might suggest that the business is very low risk compared to comparator companies that may face commodity price risk. However, our analysis indicates that dairy price variation is not correlated with general stock market movements, and so may not be systematic. This is supported by the analysis of commodity-based companies' betas, which show little difference between commodity and non-commodity exposed businesses.⁵⁹

B94 We accept that the NP does face less risk than most other dairy companies and, in particular, that it is able to transfer price and commodity risk more completely to farmers than most other processors can.⁶⁰ To the extent that this reflects systematic risk then it is likely that the NP would have a lower asset beta than the average dairy company. That is, to that extent, the NP may have an asset beta lower than the mid-point (average) estimate of beta estimated for a sample of other dairy processors.

B95 However, our view is that those differences do not sufficiently explain the extent of the gap between the estimate used by Fonterra of 0.38 and the estimates of beta for the average dairy processor produced by CEPA (0.50-0.58 for the five years to Jan 2018) and Dr Marsden (0.48-0.52 across all periods).⁶¹ In particular:

B95.1 while the NP may be more able to transfer price and volume risk to its farmer suppliers than other processors, it is unlikely that most such risks are systematic in nature; and

B95.2 the size of the gap between the betas used by Fonterra (0.38) and the range for other dairy companies (0.48 – 0.58; combining Dr Marsden and CEPA's latest estimates⁶²) is not sufficiently justified, even if the risks were systematic in nature.

⁵⁹ CEPA "Dairy Notional Processor's Asset Beta" (28 March 2018), p.2.

⁶⁰ TDB Advisory make a similar point, submitting that only the notional processor can transfer commodity price risk, and other processors including Fonterra can at best attempt to manage these risks, but are unable to do so completely effectively. See TDB Advisory "Asset beta discussion" (14 November 2017). We note that it appears that under TDB's approach there would be no downward adjustments of the asset beta estimates of the dairy comparators if the commodity price risk was systematic risk.

⁶¹ CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), Table 2.1. Dr Marsden (Uniservices) "Asset Beta for Fonterra's Notional Business: Further Comments" (12 May 2017), Table 1.

⁶² CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), Table 2.1. Dr Marsden (Uniservices) "Asset Beta for Fonterra's Notional Business: Further Comments" (12 May 2017), Table 1. This uses Dr Marsden's estimates for all periods.

Commodity price and volume risk is unlikely to be a systematic risk

B96 While the NP may be more able to transfer price and volume risk to its farmer suppliers than other processors, it is unlikely that such risks are mostly systematic in nature:

B96.1 Beta represents the exposure to systematic risk (that is, the risk which affects every investment a diversified investor may hold);

B96.2 The other investments held by a diversified investor are unlikely to be affected by the price and volume risk for a milk processor which is predominantly selling its output internationally (or more specifically the incremental price and volume risk borne by the average milk processor over and above that borne by the NP). For example, the returns to an investor from holding shares in a casino, tourism venture, or airline would seem to be almost wholly unaffected by international dairy commodity price and volume risk. A diversified investor would, in our view, be largely indifferent to modest differences in a milk processor's ability to pass on dairy price and volume volatility to its farmer suppliers, as opposed to the processor bearing that volatility itself;

B96.3 CEPA analysed the correlation between the NZD dairy price indices and the NZX50 equity market index and could not identify a strongly positive correlation between the two series. This was after testing various periods, including two years, five years, and full length of available dataset, and various monthly lags;⁶³

B96.4 Dr Marsden's analysis also showed no clear relationship between NZX 50 Gross index and the weighted average on Global Dairy Trade(GDT) price of whole milk powder expressed in NZD;⁶⁴ and

B96.5 The lack of correlation in the empirical analysis by CEPA and Dr Marsden suggests there is little systematic risk in dairy prices, regardless of how that systematic risk is divided between the processor and its supplying farmers.

B97 In other words, in our view, the greater effectiveness of the NP (and to a lesser degree Fonterra itself) in passing commodity price and volume risk back to farmer suppliers, compared to other processors, may protect the NP (and Fonterra) from those risks, but this risk is largely a risk specific to the dairy industry, rather than a systematic one which affects all investments held by an investor. That is, it is not risk that is relevant to, or captured by, beta.

B98 In its response to the emerging views paper, UOA submitted that the importance of the dairy industry to the wider NZ economy suggested that exposure to dairy commodity price risk and volume will have some systematic risk component.⁶⁵

⁶³ CEPA/Freshagenda "Dairy Notional Processors' Asset Beta" (28 March 2018), p. 16.

⁶⁴ Dr Marsden "Update on Asset Beta for Fonterra's New Zealand based Commodity Manufacturing Businesses and Specific Risk Premium for Fonterra's Notional Business" (10 April 2016), p. 21.

- B99 Dairy is an important industry to the NZ economy but still only makes up 3.5% of NZ GDP, including processing.⁶⁶ We acknowledge dairy has a larger share of exports, but as a proportion of GDP this is quite small. Most investors, and the share market, have minimal exposure to dairy prices making it unsurprising that little correlation is observed between dairy prices and the share market.
- B100 Westland also cited evidence in their submission that Fonterra is not (or, at least, is not always) able to pass commodity price risk back to farmers.⁶⁷ Westland's position is supported by the TDB Advisory's submission, which noted that Fonterra, similar to independent processors, was not able to transfer all commodity price risk to farmers as Fonterra assumes for the NP.⁶⁸
- B101 Westland further disagreed with the Commission's current position that the mandated method for calculating the milk price in s 150C means that the risk of changes in commodity price goes into the milk price and must therefore be assumed to be borne by farmers. Both TBD Advisory and Westland argue that it is unreasonable to assume the ability of milk processors to fully pass commodity-price risk to farmers when the businesses (including Fonterra) contesting the market are unable to do so.
- B102 We agree with Westland and TDB Advisory that Independent Processors would not be able to fully pass on the commodity price risk to suppliers as Fonterra assumes for the NP, as if they were to do so this could put their milk supply at risk. We also consider that, although Fonterra may be able to transfer more risk than Independent Processors, it may not always be able to fully transfer this risk to suppliers.⁶⁹ To the extent that s 150C does not require the risk of all changes in commodity price to be borne by farmers, this would support a higher asset beta than Fonterra's estimate, if it were assumed that the risk of changes in commodity price were a systematic risk contrary to our conclusions.
- B103 UOA cautioned the Commission's use of CEPA's analyses on the commodity and cost-pass through sub-samples due to their size. UOA believe that 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 comparator sample.
- B104 We acknowledge the limitations of the analyses of the commodity exposed and cost pass-through sub samples. However, we have carried out some confidence interval

⁶⁵ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 2.2.

⁶⁶ NZIER, 'Dairy Trade's economic contribution to New Zealand', February 2017.

⁶⁷ Westland Milk Products "Submission on emerging views paper on asset beta" (4 July 2018), para 22.

⁶⁸ TDB Advisory "Asset beta discussion" (14 November 2017) .

⁶⁹ We note that Fonterra asserts that its milk price should reflect the actual allocation of risk between suppliers of milk and suppliers of equity to Fonterra.

testing on these sub samples which has given us confidence that their use for reference purposes is appropriate.⁷⁰

- B105 Without empirical evidence to support UOA's theoretical position, the Commission maintains the view of favouring the empirical evidence available, which does not suggest correlation.
- B106 In its submission to the emerging views paper UOA also suggested that it is not possible to conclude that commodity exposure and price pass-through abilities do not materially impact on companies' asset betas. UOA Suggested a plausible explanation is that both "commodity" exposure and "price-pass through" abilities are still systematic risk factors.⁷¹
- B107 UOA goes on to state that it 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 represents a largely non-systematic risk in the NZ market.⁷²
- B108 The Commission maintains its position from the draft report, favouring the empirical evidence that is available which suggests no correlation. We would also question how Fonterra has justified such a large difference, essentially drawing a strong conclusion, given their assertions of data limitations. The gap between 0.38 and the average dairy processor is not justified.
- B109 UOA's submission on the emerging view suggested, based upon the degree of analysis undertaken by the Commission (and submissions from interested parties) on the appropriate WACC percentiles for ELBs and Airports, that 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.
- B110 While we conclude that the commodity price and volume risk is generally not systematic in nature, we cannot rule out the possibility that there is a small systematic risk component. To the extent that there is a systematic component, then the NP's superior relative ability to transfer commodity risk to farmers, could reduce its systematic risk relative to other processors, and accord it a lower asset beta than those processors. If so, then the question becomes what level of downward adjustment to the asset beta can be justified for the NP, relative to the average for the comparators.

⁷⁰ We have estimated the 90% confidence interval around the mean for each subsample. The confidence interval was 0.09 for the full sample, 0.11 for commodity exposed businesses and 0.13 for cost pass through business.

⁷¹ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 2.3.

⁷² UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 3.10.

- B111 We note the following in terms of the plausible size of any adjustment of the asset beta estimate for the comparator dairy companies:
- B111.1 the further below Fonterra's estimate is from the mid-point beta observed by other listed processors, the less likely the estimate used by Fonterra is to be practically feasible for the NP;
 - B111.2 the further above Fonterra's estimate is from the mid-point beta observed by other listed processors, the more likely the estimate used by Fonterra is to be practically feasible for the NP;
 - B111.3 Fonterra's proposed asset beta of 0.38 is significantly below the mid-point of asset betas identified in CEPA's range for typical dairy companies. Indeed it is well below the bottom of the range of the estimates of asset beta for the comparator companies identified by CEPA (0.45-0.58);
 - B111.4 further analysis of the listed dairy comparators including classifying them into smaller more homogenous subsamples does not produce estimates of asset beta that are very different to that of the aggregate sample;
 - B111.5 the evidence before us on the level of adjustment from the dairy company mid-point is essentially based on theoretical considerations (and much of that is contested). In particular, while the NP may bear less risk, how much of that risk is systematic in nature, and therefore relevant to the analysis, is doubtful;
 - B111.6 neither Dr Marsden's nor CEPA's empirical analysis found a statistical correlation between dairy commodity prices and the NZ share market index, so the empirical case for any downwards adjustment is weak; and
 - B111.7 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).

Stranding risk

- B112 UOA submitted that the assumption in 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 NP. In their view this is because these oldest assets will likely have the lowest book ("regulatory") value in the NP's financial accounts. The removal of these low value assets will have a smaller impact on the NP's remaining asset base compared to the removal or asset stranding of higher value (younger) assets.⁷³

⁷³ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 2.8.

B113 As a result, in UOA's view, the systematic exposure to asset stranding risk for the NP is lower than the asset stranding risk faced by other companies in the comparator Sample.⁷⁴

B114 In their response to submissions on the emerging views paper CEPA suggested that forcing the NP to reduce the book value by removing the oldest assets first is not necessarily the best approach to reduce stranding risk. Removing the assets that are forecast to generate the least value would be a better approach than prescriptively removing the oldest asset. As a result, CEPA do not believe that this approach would reduce the asset beta to the extent that UOA and Fonterra state.⁷⁵

B115 We acknowledge that the Manual provides for the removal of the oldest assets from the asset base first. However, as indicated in the discussion of CEPA's response on this issue, this is not how processors (including Fonterra) would make decisions relating to asset stranding in the real world. An allowance for asset stranding risk which is less than that required by any processor other than the NP is unlikely to be practically feasible. This is therefore an issue that we will consider further in our review of the Milk Price Manual for the 2018/19 season.

B116 CEPA also considers that the NP faces stranding risk as it removes assets from its asset base while ELBs have a RAB that is effectively guaranteed through regulation.

In CEPA's view, UOA and Fonterra have still not provided reasons why ELBs' and the NP's asset stranding requirements would respond to the movement in the market returns in the same way. We are confident that risk to the NP's valuation from asset stranding would be more similar to those risks faced by companies in the sample rather than ELBs. This is because the times when NP assets and sample companies might be stranded are more likely to be similar, whereas ELB asset stranding would be determined by different factors and potentially occur at different times.⁷⁶

B117 After reviewing submissions to the draft report and emerging views paper, the Commission remains of the view that UOA and Fonterra have not provided sufficient reasons why ELBs' and the NP's asset stranding requirements would respond to the movement in the market returns in the same way. Regulated ELBs have a RAB that is effectively guaranteed through regulation.

B118 We also note rule 32 of Fonterra's milk price Manual. This rule provides that the Farmgate Milk Price Fixed Asset Base must be adjusted where the peak Milk Supply in a region has decreased by an amount that results in one or more Standard Plants being surplus to requirements. In short, the NP is required to bear the costs associated with permanently stranded assets due to a permanent supply shock.

⁷⁴ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 2.9.

⁷⁵ CEPA "Response to submissions on emerging views paper" (16 July 2018), page 2.

⁷⁶ CEPA "Response to submissions on emerging views paper" (16 July 2018), page 2.

The Fonterra estimate of beta is below the empirical estimate of asset beta for other dairy companies

- B119 Since 2005, the Commission has developed a standard methodology for estimating the cost of capital, including asset beta. This approach has been used by us across multiple sectors, and has been accepted by the High Court. We consider this approach is also appropriate for reviewing Fonterra's asset beta.
- B120 We commissioned CEPA/Freshagenda to use this methodology to estimate an asset beta for the NP, taking account of the characteristics of the various processors.
- B121 CEPA's analysis yielded estimates that were similar to those estimated by Dr Marsden, in advice commissioned by Fonterra.
- B122 Dr Marsden's analysis indicated that there is only around a 25% chance of observing an asset beta of 0.38 if the true mid-point is the centre of his range.⁷⁷ Dr Marsden's most recent report derives a similar 20-25% likelihood using CEPA's empirical analysis of asset beta.⁷⁸ 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. Dr Marsden's analysis implies an approximately 75% likelihood that the true asset beta is above 0.38. That is, there is approximately three times the likelihood that the true asset beta is above 0.38, than below it. Adoption of an asset beta of 0.38 to set the milk price is therefore unlikely to provide for contestability.
- B123 Fonterra questioned our point in the preceding paragraph on the basis of its and Dr Marsden's contention that:
- B123.1 the NP faces less exposure to systematic risk than the average comparator;⁷⁹
and
- B123.2 the Commission's and CEPA's acknowledgement that the NP has at least a somewhat lower exposure to systematic risk than the average comparator.⁸⁰
- B124 As explained in this paper, in our judgement the systematic risks faced by the NP are not sufficiently different to those faced by the average comparator to support an asset beta as low as 0.38.
- B125 We accept that to the extent to which the true asset beta for the NP is below the midpoint estimate of beta for the sample, then the likelihood of observing an asset

⁷⁷ Dr Marsden, "Asset Beta for Fonterra's Notional Business: Further Comments" (12 May 2017), para 7.2.

⁷⁸ Dr Marsden, "Asset Beta for Notional Processor: Response to the Cambridge Report" (9 May 2018), para 8.26, using the data to 15 January 2018.

⁷⁹ Fonterra 'Submission on review of Fonterra base milk price calculation draft report' (31 August 2018), page 3.

⁸⁰ Fonterra 'Submission on review of Fonterra base milk price calculation draft report' (31 August 2018), page 3.

beta 0.38 would increase above the 20-25% likelihood noted in the paragraph above. However, based on all the information available, an asset beta of 0.38 still seems unlikely to be practically feasible.

B126 Fonterra submitted throughout this process that an estimate of its asset beta should be included in the sample of comparator companies used to estimate asset beta. We retain our decision from the draft report to exclude Fonterra from the sample:

B126.1 Over 90% of shares in the Fonterra Shareholders' Fund are owned by farmer suppliers, and farmers' decisions to buy and sell shares are governed by a wide range of considerations that are not linked to the company's earnings outlook.

B126.2 For example, independent analysis by ANZ identified significant seasonality in Fonterra's share price, with a 10% variation in Fonterra's share price from peak (around December/January) to trough (around June/July). ANZ identified a range of likely explanations for this seasonality including:

B126.2.1 farmer cash flow tends to hit a lull through the winter/spring period, limiting purchases;

B126.2.2 farmers need to meet the share standard on 1 December each year; and

B126.2.3 the majority of farm sale settlements or milk company switching is aligned with the financial year – typically June.⁸¹

B126.3 We accept that the ANZ analysis does not offer a definitive conclusion on asset beta however we believe it is relevant evidence to be used in support of our position. These factors are specific to farmer-suppliers and would clearly impact the observed beta by lowering the correlation between the price of Fonterra shares and the broader market. This means estimates of beta from Fonterra's own shares are not a reliable indicator of beta for any other processor (including the NP).

B127 The exclusion of Fonterra from the sample was supported by Westland in their submission to the emerging views paper:

Fonterra farmers' decisions to buy or sell Fonterra shares have more to do with their milk production decisions and less to do with Fonterra's forecast earnings performance. The timing of their share sales and purchases are driven by Fonterra's rules.⁸²

B128 UOA also submitted that the ANZ Report quoted in the emerging views paper on seasonality in Fonterra's share price is inconclusive. We accept that the ANZ analysis does not offer a definitive conclusion on asset beta. However we believe it is relevant evidence to be used in support of our position. Further, the observed

⁸¹ ANZ Research "AgriFocus We have Lift Off" (June 2018), p. 24-25.

⁸² Westland Milk Products "Submission on emerging views paper on asset beta" (4 July 2018), para 27.

estimate of Fonterra's beta is very different from the estimate recommended by Marsden indicating it is a significant outlier.

B129 In its submission on the emerging views paper Fonterra also claims:

subordination of payments for milk to payments to debt holders results in the transfer of risk from debt-holders to suppliers of milk, with the resultant lower interest rates offset by a reduction in expected (as compared to headline) payments for milk. Suppliers should be compensated for the relevant risk through a higher milk price.⁸³

B130 Fonterra argues that by subordinating payments for milk to payment to debt holders (i.e. in case of financial hardship, milk payments will be made only after debt holders have been paid), milk suppliers bear more risk. This results in lower interest rates (i.e. cost of debt) since debt is less risky.

B131 However, if the headline milk price remained unchanged, then milk suppliers' expected milk price would fall due to an increased risk component. For the expected milk price to remain the same after the risk transfer, the headline milk price should increase.⁸⁴

B132 In addition, as CEPA pointed out independent processors do not have the ability to subordinate debt milk payments to debt holders in the same way as Fonterra as this ability is a result of its ownership structure.⁸⁵ It is worth noting that the inclusion of Fonterra in the comparator sample makes a very small difference to the full sample mean, moving it from 0.50-0.58 to 0.49-0.57 in the latest five year period.⁸⁶

Analysing sub-groups of the overall sample does not produce materially different estimates of asset beta

B133 The subsamples looked at by CEPA are those which are predominately dairy-focused, those which are commodity exposed, those which enjoy cost pass-through arrangements, and those with regulated prices.

B134 Splitting the sample of comparator companies into smaller sub-groups, to create more homogenous sub-groups, does not yield different estimates of asset beta. Indeed, the asset betas for the sub-groups remain remarkably stable even when the

⁸³ Fonterra "Submission on emerging views paper on asset beta" (5 July 2018), page 4.

⁸⁴ As an example:

Investment 1: risk of failure in the next year 50%. Headline return: \$20. Expected return: \$10 = \$20*50%.

Investment 2: risk of failure in the next year 25%. Headline return: \$13.33. Expected return: \$10 = \$13.33*(1-25%)

⁸⁵ This ability appears to be based on Fonterra's Constitution (clause 10.1) "Payment for Milk supplied by shareholders... in determining that payment, the Board shall have regard to the income from all activities of the Company, including any dividends received or receivable by the Company and any transfers to or from reserves as the Board, in its absolute discretion, determines are desirable, less the costs of the Company. The costs of the Company include all manufacturing costs, principal repayments, interest and financing costs, and other costs directly attributable to the other activities of the Company."

⁸⁶ CEPA and FreshAgenda "Dairy notional producers asset beta response to submissions" (4 June 2018), page 7.

sample is broken down into small sub-groups. These ranges, and their mid-points, are generally well above the point estimate adopted by Fonterra.

B135 For the latest five-year period, to January 2018, the asset betas for the different sub-groups are similar, and the weekly average is between 0.48 and 0.53.

Table B1 Asset beta mid-points across sub samples, five-year period to 15 January 2018⁸⁷

Chosen sample	Daily	Weekly	4-weekly
Full sample	0.58	0.50	0.56
Dairy companies	0.58	0.53	0.59
Commodity exposed	0.51	0.48	0.54
Cost pass-through	0.53	0.49	0.52
Regulated milk price	0.57	0.49	0.61
Across all sub-samples	0.56	0.51	0.57

B136 CEPA has provided a description of the 39 companies selected as comparators in ANNEX D of the CEPA asset beta report (28 March 2018). On page 22 of the same report you will also find a breakdown of the features that CEPA identified for purposes of comparing their range of subsamples with the NP.

B137 We did further analysis to test the case for an adjustment to the sample mid-point. We constructed an additional subsample containing firms with substantial exposure to overseas markets (as the NP does). This subsample produces marginally higher beta estimates. This would weaken the argument for a downwards adjustment.

Options available to the NP

B138 In its submission to the emerging views paper UOA disagreed with the CEPA Report conclusion that growth options of the NP result in an asset beta for the NP that is more similar to the comparator sample compared to ELBs. UOA argue that unlike the firms in the comparator sample, which will have a diverse range of growth options, the NP has only one potential growth option, relating to investment in new plant to process an increased supply of milk.

B139 UOA argue that under a building blocks approach, where capital providers are targeted to provide a fair rate of return only, even if the NP invests in a 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 NP.⁸⁸

B140 The Commission considers the NP has, in the short term, some limitations on its product set, the key DIRA provision being the mandatory principles in 150C

⁸⁷ CEPA "Dairy Notional Processor's Asset Beta - Response to submissions" (4 June 2018), p. 16.

⁸⁸ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 2.13 & 2.14.

especially 150C(1)(b) which states ‘costs taken into account in calculating the base milk price include costs (including capital costs and a return on capital) of— (i) collecting milk; and (ii) processing milk into the same portfolio of commodities as the portfolio adopted for the purposes of paragraph (a); and (iii) selling those commodities.’ So long as DIRA is in place, the NP does not have the option to expand its portfolio of product beyond the RCPs. In the longer term, however, if DIRA regulation is relaxed as intended, the portfolio of growth options available to the NP would include offering a wider range of products, similar to other dairy producers.

B141 We sought advice from CEPA in relation to UOA’s submission on growth options which is published alongside this report. CEPA disagrees with UOA’s conclusion as it considers that UOA has provided no evidence that investors do not value growth options.⁸⁹

B142 In their response CEPA made the point that:

UOA’s only evidence that the market doesn’t value growth options is a narrative that the regulator will set the cost of capital at a level that ensures that the NPV of future investments is zero. However, that does not mean that investors do think in that way. That is why UOA’s argument is “theoretical” – it draws conclusions based on how it believes investors should invest in theory rather than how they actually do.⁹⁰

B143 In their submission to the draft report Dr Marsden and Fonterra continued to submit that the NP has “no”, or “few if any” growth options. In the draft report, we noted that while the DIRA limits the products NP can produce in the short term, in the longer term, like other processors the NP has a portfolio of growth options available to it, including expanding its product offering.⁹¹

B144 Fonterra’s response to that point was that the manual was introduced prior to it being required by legislation and that Fonterra is on record as confirming it will continue to maintain the Manual even if no longer required to do so under DIRA.⁹²

B145 In our view, that response does not properly address our point as regardless of whether or not Fonterra chooses to exercise the option to expand the products produced, it has an option to do so when DIRA is relaxed or repealed. As such, in the longer term (when option value is greatest), the NP is very much like the other listed processors in the comparator sample.

B146 Further, even while DIRA is still in full effect, there are other potentially valuable options relevant to the base milk price. In particular:

⁸⁹ CEPA “Response to submissions on emerging views paper” (16 July 2018), page 3.

⁹⁰ CEPA “Response to submissions on emerging views paper” (16 July 2018), page 3.

⁹¹ Commerce Commission ‘Draft report – Review of Fonterra’s 2017-18 base milk price calculation (15 August 2018), para 54.

⁹² Fonterra ‘Submission on review of Fonterra base milk price calculation draft report’ (31 August 2018), page 4.

B146.1 The Manual, as currently drafted, already contemplates the NP expanding the range of products included in the milk price even without any amendment to DIRA. This is evident in:

B146.1.1 Section 4.2 which explains that “...the Reference Basket of the Farmgate Milk Price Commodity Business may be adjusted if Fonterra faces a material and sustainable level of likely future competition for milk in New Zealand from producers of commodity products other than the then current Reference Commodity Products, and it is expected that inclusion in the Reference Basket of one or more of those other commodity products will result in a higher average Milk Price over time”; and

B146.1.2 Rule 32, which provides for the basket of RCPs to be adjusted, and the rules for how this is to be reflected in the calculation of the base milk price. We note in particular that Rule 32 gives the NP the ability to put the unrecovered sunk costs of existing plants into the milk price. This is an option which other processors facing competition for milk would not hold or exercise.

B146.2 There is the option to set a base milk price which is different to the milk price calculated under the manual. This possibility is contemplated in s 150N and s 150R of the DIRA. Indeed, Fonterra has exercised the option to override the manual in two seasons when the manual-consistent milk price was more than Fonterra was willing and/or able to pay its suppliers.

B147 In summary, we consider that as a result of DIRA the NP has different and possibly fewer options than other processors, but it still has a number of valuable options relevant to the base milk price. It is difficult to assess the extent to which the payoffs from these options co-vary with market wide returns as there are a wide range of factors potentially in play (particularly in the case of the manual-over-ride option), some of which may be systematic in nature.

B148 It is possible that the asset beta for the NP could be lower than the mid-point observed for the sample of other processors based on the available evidence in relation to this point. However, we do not consider that the evidence provides a basis for concluding that it is significantly below that for other processors. The NP does seem to have greater options, in respect of the base milk price, than do ELBs which are subject to price-quality regulation.

Fonterra’s approach places too much weight on US listed energy utilities as opposed to listed dairy companies when estimating the beta of notional dairy processor

B149 In its submission to CEPA’s report on asset beta, NERA asserted that Fonterra has better information on the risks dairy processors face and Fonterra is best placed to assess the asset beta for the NP.⁹³ What NERA overlooked, however, is that

⁹³ Fonterra “Submission appendix – NERA report” (9 May 2018), para 3a.

Fonterra's asset beta estimate relies as heavily on an understanding of the risks of an entirely different industry (electricity and gas utilities) in a different market (mostly US listed firms), as it does on an understanding of the dairy sector. Fonterra may well have a very good understanding of the risks of the dairy industry, but any claim to Fonterra having a greater understanding of the US electricity and gas utility sector is less compelling.

B150 To explain further, Fonterra relied on our estimate of asset beta for the NZ electricity line and gas pipeline businesses as a strong indicator of the asset beta for the notional dairy processor. When we have been required to estimate an asset beta for the electricity and gas businesses we have inevitably found there are too few NZ listed companies to reliably estimate beta. So we have used overseas listed (and in reality predominantly US listed) firms as a proxy. The focus then becomes the extent to which they are good proxies for a NZ electricity and gas business, and what adjustments are required to the estimates derived from that overseas based sample of companies to reflect differences with the NZ industry.

B151 Significant adjustments have been allowed over the years, and they have tended to be greater in size when we are comparing across sectors. For example, we made:⁹⁴

B151.1 a 0.20 adjustment to the asset beta estimated for US electricity and gas utilities when we set an asset beta for the Gas Control Inquiry and a 0.1 and a 0.15 adjustment to asset beta for the Gas Authorisation;

B151.2 a 0.10 adjustment to the estimated asset beta for US electricity and gas utilities when we set an asset beta for the Unison Post-Breach Inquiry;

B151.3 a 0.10 adjustment to the estimated asset beta for US electricity and gas utilities when we set an asset beta for gas pipeline businesses in the original IMs in 2010, which we subsequently reduced to a 0.05 adjustment in the subsequent 2016 IM review; and

B151.4 a 0.20 adjustment to estimated asset beta for US electricity and gas utilities when we set an asset beta for airports in the 2001 airports inquiry.

B152 Dr Marsden and CEPA focussed heavily on the similarities and differences between the NP and NZ EDBs. However, since we cannot directly estimate the asset beta for NZ EDBs using NZ empirical evidence, mostly US firms are used as a proxy, and the issue is therefore less about how comparable the NZ EDBs and the NP are, and more about how comparable the US listed utilities and the NP are. In particular, we ask:

B152.1 are the US listed electricity and gas utilities a good proxy for the NP?

⁹⁴ This is summarised in the original IM reasons paper: see Commerce Commission (22 Dec 2010), "Input Methodologies (EDBs & GPBs) Reasons Paper", para H8.111-H8.182. For the reasons for the subsequent adjustment to the asset beta for gas pipeline businesses see: Commerce Commission (20 Dec 2016), "Input methodologies review decisions Topic paper 4: Cost of capital issues", at paras 347-456.

- B152.2 are there differences in systematic risk between the NP and the US listed utilities? and
- B152.3 what, if any, adjustments to the asset beta estimated for the US utilities are required to reflect differences in systematic risk between them and the NP?
- B153 Neither CEPA's nor Dr Marsden's analysis addressed these questions and we accordingly note that the ultimate reliance on the empirical estimates of beta for the US listed utilities introduces an additional source of potential error into the analysis of the estimate of asset beta for the NP, namely:
- B153.1 that the US listed electricity and gas utilities may be a poor proxy for the notional milk processor; or
- B153.2 that further adjustments to the allowed asset beta estimated for the US electricity and gas utilities are required to reflect differences between them and the NP, but have not been made.
- B154 In our view, it is better to start the process of estimating the asset beta for the NP by looking at dairy and other commodity processors than to look at an estimate derived from a different sector and market. Dr Marsden's approach places too much weight on the theoretical arguments comparing the NP and the NZ EDBs and insufficient weight on the alternative evidence. Dr Lally's approach in advice previously commissioned by us was similar, but we consider reliance should be placed on all of the information that is available.
- B155 UOA and Fonterra both made submissions to the emerging views paper that it was 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.^{95,96}
- B156 We use US electricity businesses for the purposes of estimating asset beta for NZ regulated EDB's due to sample limitations. We would use NZ EDBs if we could, as we would use a sample of gas businesses for gas if we could. We accept what UOA and Fonterra are saying but it is worth recognising that this just adds another layer of uncertainty.
- B157 We consider that information on the asset beta used for EDBs should only be used as part of a range of available information that provides a sense check on the reasonableness of the estimate of asset beta derived from the empirical analysis, including any subsequent adjustment.
- B158 We consider that the other evidence is better evidence of the appropriate asset beta and more weight should be placed on that evidence, including:

⁹⁵ UOA "Fonterra – Submission appendix – UOA report" (5 July 2018), para 6.18.

⁹⁶ Fonterra "Submission on emerging views paper on asset beta" (5 July 2018), page 7.

- B158.1 the empirical analysis of beta for listed dairy companies (discussed above); and
- B158.2 that the asset betas assumed for New Zealand listed dairy processors by expert research analysts employed by NZ investment banks provides another perspective on the asset beta for the NP.
- B159 A number of research analysts publish the estimates of asset beta which they use when valuing Synlait and the Fonterra Shareholders Fund. For example, we note:
- B159.1 Macquarie Bank assumes an asset beta of 0.65 for the Fonterra Shareholders' Fund and a beta of 0.88 for Synlait;⁹⁷ and
- B159.2 at the time of the competition review Credit Suisse/First NZ Capital used a beta of 0.65 for the Fonterra Shareholders Fund and 0.70 for Synlait.⁹⁸ First NZ Capital currently assumes an asset beta of 0.60 for the Fonterra Shareholders Fund.⁹⁹
- B160 In respect of the estimates of asset beta used by Macquarie and Credit Suisse/First NZ Capital we note that Fonterra Shareholders Fund and Synlait Milk:
- B160.1 are both equity investments exposed to the risks of significant milk processing activities principally in NZ;
- B160.2 are both NZ listed (and therefore are available to NZ equity investors);
- B160.3 are both acknowledged to have an ability to transfer risk to farmer suppliers including commodity risks; and
- B160.4 that the Fonterra Shareholders Fund, and more particularly Synlait, are imperfect proxies for the NP, since they both are exposed to a wider range of commodities than the NP. On the other hand, we note that both Dr Marsden and CEPA's analysis did not find a difference in estimated betas between the subsamples of comparator companies based on the nature of the output they produced.
- B161 The analysts' reports do not explain how they have arrived at the estimates of asset beta which are used in their valuation models. Further, we note that the estimates the analysts use are higher than the estimates of asset beta produced in the empirical analysis of Dr Marsden and CEPA.
- B162 These research houses use asset betas in their research which are materially above the estimate used by Fonterra to set the milk price. While we place greater weight

⁹⁷ Macquarie "Synlait Milk - Huge ROCE, but peaking for now" (22 March 2018); and Macquarie "Fonterra Shareholders' Fund - A half of two quarters" (22 March 2018).

⁹⁸ Credit Suisse/First NZ Capital "DIRA review will be of interest to investors" (18 August 2015); and Credit Suisse/First NZ Capital "Synlait Milk - Build phase completes; focus on execution" (27 July 2015).

⁹⁹ First NZ Capital "Fonterra Shareholders' Fund – Getting off the farm gate fence" (24 May 2018).

on the empirical analysis from Dr Marsden and CEPA than we do on the estimates of beta used by the research analysts, the estimates used by the analysts are additional information to test the feasibility of the estimate of asset beta used by Fonterra.

B163 Dr Marsden discussed the estimates used by the broker in his 2016 report. In particular:

B163.1 he placed no weight on the estimates for the Fonterra Shareholders Fund because he understood this Fund comprised both the ingredients and the global value added businesses and he assumed that the ingredients business will have a lower beta;

B163.2 he highlighted a Credit Suisse estimate of 0.45 for the Fonterra ingredient business, and a UBS report which assumed an asset beta of 0.55 for the Fonterra Milk Products business; but

B163.3 he considered that both Credit Suisse and UBS overstated the asset beta for Fonterra's Notional and actual businesses, including because he considered that none of the comparator companies have the ability, like Fonterra, to make ex-post adjustments to pass through variances between forecast and actual performance to the milk price.¹⁰⁰

B164 We take a different view on the weight to be accorded to the estimates from the brokers. In particular, we note:

B164.1 as discussed above, there is little evident systematic risk in dairy commodity prices. So, whatever the differences there are in various processors' ability to transfer risk to other parties via ex post adjustments to price, this is unlikely to have a material impact on beta;

B164.2 the evidence that the ingredients and the global value added businesses have different asset betas is weak and inconsistent. For example, empirical analysis reported in Dr Marsden's 2016 report showed that:

B164.2.1 companies with the greatest exposure to commodity product had a lower average asset beta than companies with brand exposure when he used weekly data to estimate beta, but had a higher average asset beta than companies with some exposure or a large exposure to branded products when he used monthly data to estimate beta. This instability in result, depending on whether monthly or weekly share prices are used in the analysis, suggests the underlying relationship between the degree of branded versus commodity product on beta is not strong; and

¹⁰⁰ Dr Marsden "Update on Asset Beta for Fonterra's New Zealand based Commodity Manufacturing Businesses and Specific Risk Premium for Fonterra's Notional Business" (10 April 2016), section 6.

B164.2.2 companies with a material commodity exposure had an asset beta which was higher than a sample of firms with a mix of commodity and branded product, and higher than firms with a dominant exposure to branded goods, when using monthly share price data.¹⁰¹

B164.3 the updated empirical analysis reported by Dr Marsden in his 2017 report produced an “empirical point estimate asset beta of between circa 0.49 and 0.52 for companies with both commodity & brand exposure and brand exposure (based on the average of the combined weekly and four-weekly data estimates)”.¹⁰² We note the average asset beta for the companies with a material commodity exposure was 0.49-0.50; and

B164.4 given this weak and inconsistent evidence for adjusting asset betas for differences in product mix we disagree with Dr Marsden on the case for making further adjustments to the estimates used by the equity analysts, or with discounting some observations for differences in product mix.

B165 In our view:

B165.1 some weight should be attributed to all of the estimates of beta identified in published reports by broker analysts, and the estimates have some useful information content as is without adjusting for differences in product mix;

B165.2 we note that all of those broker estimates of asset beta are higher than Fonterra’s proposed beta of 0.38;

B165.3 most of the broker estimates are significantly higher than 0.38 including USB at 0.55, First NZ Capital at 0.60, and Macquarie at 0.65 in respect of their analysis of the Fonterra Shareholder Fund; and

B165.4 the size of the differential between the estimates of asset beta adopted by the analysts (especially for the Fonterra Shareholders’ Fund), and the asset beta adopted by Fonterra to set the milk price, casts considerable doubt on the view that an asset beta of 0.38 is practically feasible for the NP and provides for contestability. Differences in product mix, and differences in the ability to transfer output price risk to farmer suppliers, do not explain the size of this differential.

B166 In its submission to the emerging views paper UOA questioned the referencing of brokers estimates, submitting that broker estimates of beta could reflect a number of biases.¹⁰³

¹⁰¹ Dr Marsden “Update on Asset Beta for Fonterra’s New Zealand based Commodity Manufacturing Businesses and Specific Risk Premium for Fonterra’s Notional Business” (10 April 2016), p. 34.

¹⁰² Dr Marsden “Asset Beta for Fonterra’s Notional Business: Further Comments” (12 May 2017), p.12.

¹⁰³ UOA “Fonterra – Submission appendix – UOA report” (5 July 2018), para 2.28.

B167 We maintain the view that broker analyst estimations are another useful input to help us assess the practical feasibility of the NP's asset beta. Broker estimations carry limitations but are independent and act as a useful reference point in our review.

The contrary considerations identified by Fonterra

B168 In its submission on CEPA's report on asset beta, and in the reports from its experts, Fonterra identified a number of considerations for why we should find that its estimate of 0.38 is practically feasible. In particular, Fonterra highlighted the following points, which we respond to in turn below:

B168.1 whether the IM approach to estimating the asset beta is appropriate under the DIRA;

B168.2 Fonterra has balanced incentives when setting the milk price and a more flexible application of the IM approach, or a different estimation approach, is warranted;

B168.3 there is evidence that independent processors continue to invest and earn reasonable returns, which suggests that the asset beta is feeding into a Fonterra milk price that promotes contestability;

B168.4 CEPA's opinion that the application of the IM approach to estimating an asset beta does not mean Fonterra's estimate is inconsistent with the DIRA purpose;

B168.5 the Commission's view on Fonterra's milk price asset beta has materially changed over time; and

B168.6 the Commission has established a "precedent of flexibility" when estimating the asset beta and has used the regulated company's own asset beta as the appropriate asset beta in the Commission's determinations.

Is the input methodology approach to asset beta appropriate under the DIRA

B169 In its submission, Fonterra questioned whether the IM approach is the appropriate approach to estimating beta for the NP. For example, Fonterra submitted that:¹⁰⁴

Fonterra is concerned that the Commission's view on asset beta fundamentally changed primarily because its view on its preferred methodology for estimating asset beta changed... and the commission has not sought to establish that DIRA requires the IM approach to be adopted.

B170 We do not agree with Fonterra that our preferred methodology for estimating beta changed. Since 2005, when we released our draft cost of capital guidelines, the Commission has explicitly signalled an intention to develop and use a consistent approach to estimating cost of capital including asset beta for all the sectors that it

¹⁰⁴ Fonterra "Submission on CEPA asset beta report" (9 May 2018), para 18.

regulates, including under the DIRA.¹⁰⁵ This pan-sector approach has been most fully articulated in the Part 4 context (since amendments to the Commerce Act required us to develop and publish an input methodology for the cost of capital by 2010), but this same cross-sector approach has also been applied to sectors where IMs are not required (such as Telecommunications).

B171 Since the cost of capital and beta seeks to estimate the return which investors seek and the risk which they are exposed to, it is appropriate for the Commission to adopt a pan-sector methodology. This is because the appropriate focus is:

B171.1 on how a diversified investor is likely to assess the additional risk which investing in the NP would contribute to the investor's diversified portfolio; and

B171.2 not something which is unique or specific to any particular sector (the milk processing sector in this case) or legislative regime.

B172 We further agree with Fonterra that we have not sought to conclude that the DIRA requires the IM approach to be adopted by Fonterra when it estimates the asset beta. Rather, as previously stated, our purpose is to test and examine Fonterra's estimate of the asset beta against the practical feasibility standard set in s 150A of the DIRA.

B173 We believe it is more appropriate to start with a sample of companies that operate in a similar industry, with similar scope for future growth and efficiencies, and investment and operating conditions, and then adjust for differences in systematic risk, rather than starting with the asset beta estimated from a sample of companies from a different sector and market, and making adjustments.

B174 We consider that the most appropriate approach for carrying out our review includes using our existing approach to estimating beta. In particular, we consider that this approach is an appropriate method for developing a range of plausible asset beta estimates for the purpose of our review.

Fonterra's "balanced incentives"

B175 Fonterra submitted that it has balanced incentives when setting the milk price such that a more flexible application of the IM approach, or a different estimation approach, is warranted.

B176 We have previously accepted that Fonterra is subject to range of incentives when setting the milk price, but note that:

¹⁰⁵ Commerce Commission "Draft Guidelines The Commerce Commission's Approach to Estimating the Cost of Capital" (October 2005), para's 6 and 9.

B176.1 Fonterra has a principle in its company constitution of paying the maximum amount it can for the milk supplied to it;¹⁰⁶

B176.2 the DIRA requires us to review the inputs, processes and assumptions used by Fonterra to calculate the milk price and express a view on the extent to which they are consistent with the purpose of subpart 5A of the DIRA.

B177 We agree with Fonterra's submission that we need to consider all the relevant evidence and we have done so in forming our view. However, we disagree that an assessment of the incentives Fonterra is subject to carries significant weight, when we are reviewing the inputs, processes and assumptions that are used in its milk price calculation for consistency with the purposes of subpart 5A.

B178 This imbalance is further described by Open Country Dairy in their submission to the emerging views paper:

We acknowledge that Fonterra is subject to conflicting incentives. The most important of these are its short-term incentives to raise the milk price (to secure supply), and its long-term incentives to lower the price (to lower input costs and invest in high-value processing). But whether those conflicting incentives are "balanced" is an empirical question – it cannot simply be assumed.¹⁰⁷

The continuing investments made by independent processors

B179 Fonterra submitted that there is evidence that independent processors continue to invest and earn reasonable returns, and Fonterra suggested that the asset beta is therefore feeding into a Fonterra milk price that promotes contestability. NERA's report sought to demonstrate the continued growth of the independent processors.

B180 We acknowledge the continued investment and growing share of milk production which is now processed by independent processors. We agree that this suggests that the overall milk price is set at a level which provides for contestability.

B181 However, the observation of continued competitive entry by independent processors is not definitive as to whether an asset beta of 0.38 is practically feasible for an efficient processor, as the beta is only one of numerous components that contribute to the total milk price:

B181.1 the DIRA requires us to report on the extent to which the assumptions adopted and the inputs and process used by Fonterra in calculating the base milk price for the season are consistent with the purpose of subpart 5A.¹⁰⁸
We therefore need to look at each input, process, and assumption, rather than just reaching a conclusion on the practical feasibility or otherwise of the overall milk price.

¹⁰⁶ Fonterra "Constitution of Fonterra Co-operative Group Limited" (2016), Annexure 1.

¹⁰⁷ Open Country Dairy "Submissions on emerging views paper on asset beta" (5 July 2018), page 2.

¹⁰⁸ Section 105P(1) of the DIRA.

B181.2 Fonterra could use assumptions, or inputs, which individually are not practically feasible, while the overall milk price is set at a level which is practically feasible (and therefore still provides for contestability). This result could occur, for example, if some other assumption or some other input reflected a level of inefficiency.

B181.3 we have therefore only used the level of competitor entry and investment as a cross-check on our conclusion on the overall consistency, in aggregate, of the inputs, processes and assumptions with the purpose of subpart 5A. We have also used the aggregate assessment analysis in this way.

B181.4 given the issues discussed above, we consider that substantially more weight should be attached to the other evidence than on the evidence of continuing investments by independent processors.

B181.5 OCD also submitted on this issue in their submission to the emerging views paper:

Finally, Fonterra suggests that specific examples of investment by independent processors occurring under current market conditions is evidence that the market is contestable. The evidence actually suggests the opposite. The examples referred to underscore that investment only occurs in limited pockets where independent processors still believe they can earn a viable return. There are a number of geographic regions where Fonterra still holds an effective monopoly, and the prospect of entry and expansion by competitors is remote. A contestable market would have seen these regional monopolies eliminated or at least significantly eroded over DIRA's lifespan. Instead, the incumbent still holds a market share in excess of 80% nationally. The vast majority of farmer-suppliers do not have an alternative buyer for their milk and will not realistically have one in the foreseeable future. These are not features that describe a contestable market.¹⁰⁹

B181.6 We disagree with OCD's submission. As discussed in our review of the state of competition in the New Zealand Dairy Industry (1 March 2016), we consider that Fonterra does not have the ability to exercise market power either by lowering the farm gate prices paid by Fonterra to farmers below competitive levels, or engaging in conduct to prevent or hinder rival IPs from accessing raw milk at the farm gate while the DIRA is in place. While recognising that the level of competition Fonterra faces varies by region, IPs have been entering the markets, and existing processors have expanded their operations in several regions leading to increased competition for raw milk in those regions.¹¹⁰

¹⁰⁹ Open Country Dairy "Submissions on emerging views paper on asset beta" (5 July 2018), page 3.

¹¹⁰ "Final report – Review of the state of competition in New Zealand Dairy Industry", 1 March 2016 at paragraphs 4.4 to 4.12.

CEPA’s contrary opinion does not mean Fonterra’s estimate is inconsistent with the DIRA purpose

- B182 Fonterra submitted that CEPA’s opinion that its application of the IM approach produces a better asset beta estimate does not mean that Fonterra’s estimate is inconsistent with the DIRA purpose. Instead, Fonterra submitted that the Commission’s assessment must be based on all of the relevant evidence as to whether Fonterra’s estimate is consistent with providing incentives for efficiency and contestability.
- B183 We agree that the fact that CEPA arrived at an estimated range above that of Fonterra does not of itself mean Fonterra’s estimate is inconsistent with the purpose of subpart 5A. We also agree that we need to consider all the relevant evidence as we have explained earlier in this document.

The Commission’s view on Fonterra’s milk price asset beta has materially changed over time

- B184 Fonterra asserted that the Commission’s approach to asset beta has materially changed over time, despite the characteristics of the NP having remained constant, and market dynamics changing little. In support of this claim, Fonterra referenced the 2015/16 draft decision and asserted that the Commission’s view has fundamentally changed primarily because its view on its preferred methodology for estimating asset beta changed, and that the Commission has not sought to establish that the DIRA requires the IM approach to be adopted.
- B185 Fonterra’s submission mischaracterised our position:
- B185.1 None of our final reports reviewing either the milk price manual or Fonterra’s milk price calculation in any year accepted Fonterra’s position on asset beta.
- B185.2 We acknowledge that the draft 2015/16 report stated that we considered that an asset beta of 0.38 was within an acceptable range for an efficient processor with the NP’s risk profile based primarily on the comparison with the asset beta of EDBs.¹¹¹ Following submissions on that draft, the final decision did not conclude on whether the asset beta was practically feasible. In our view, this change from our draft decision demonstrates the strength of our processes rather than a weakness.
- B185.3 The purpose of issuing a draft report is to invite submissions and evidence from stakeholders, before we make our final decision. We value and consider carefully the input from stakeholders. Having considered that material and views on our draft decision, our final report for the 2015/16 season reached the same conclusion reached in all previous reports, namely that we could not conclude on the practical feasibility of asset beta. In our

¹¹¹ Commerce Commission “Draft report - Review of Fonterra’s 2015/16 base milk price calculation” (15 August 2016), para X27.

final report we also pointed to a lack of empirical data to support Fonterra's asset beta of 0.38.

B185.4 As discussed above, the Commission's preferred methodology for estimating beta has been consistent for more than a decade.

B185.5 Under DIRA, as for other sectors regulated or otherwise, the purpose of estimating beta is to determine the return investors require to compensate them for the systematic risk they are exposed to. That approach does not, in our view, require fundamentally different approaches to estimating asset beta.

B185.6 Given the difficulty of reliably estimating asset beta from theoretical arguments, our methodology, consistently applied, starts with empirical data.

A "precedent of flexibility" and the use of a regulated company's own estimate of beta

B186 Fonterra submitted that the Commission has established a "precedent of flexibility" when estimating the asset beta and has used the regulated company's own asset beta as the appropriate asset beta in the Commission's determinations, or has used an asset beta from another industry as a relevant comparator. Three examples were identified by Fonterra:

B186.1 advice from international economists on the weight that should be placed on estimates of Chorus' own beta;

B186.2 the use of a combined sample of electricity and gas businesses for estimating an asset beta for gas businesses; and

B186.3 the use of EDBs as a relevant comparator for estimating the beta for an airport in 2001.

B187 From this discussion, Fonterra submitted that it "does not understand the IM approach to have established that the best comparators will always be from the same industry as the regulated firm".¹¹²

B188 We consider that Fonterra has mischaracterised our approach:

B188.1 It is inherent in the Commission pan-sector approach to cost of capital that we start with companies drawn from the relevant industry. Indeed, that has been a common feature in the last decade of all our applications of the pan-sector approach (or IM approach) for estimating beta.

B188.2 The use of EDB comparators for estimating the airports beta dates, as Fonterra notes, from 2001 almost a decade before the pan-sector approach was fully articulated during the 2015/16 IMs review, and was necessary as

¹¹² Fonterra "Submission on CEPA asset beta report" (9 May 2018), para 20.

there were practically no listed airport businesses with a track record of trading at that time.

B188.3 For many sectors the number of listed companies with a sufficiently long share market listing is too small for reliable estimation of beta, such that we need to look at including companies from nearby similar sectors (including electricity utilities when evaluating gas utilities, for example).

B188.4 With respect to estimating an asset beta for services offered by Chorus:¹¹³

B188.4.1 we used a sample of comparator firms to estimate the beta;

B188.4.2 we rejected placing primary weight on Chorus' own estimate of beta which almost all submissions to that process agreed was likely to be subject to significant measurement error; and

B188.4.3 our approach to estimating an asset beta applicable to Chorus' services was consistent with the approach to estimated beta used in the IMs.

B188.5 Fonterra cited principally from draft decisions, and in some cases, a technical paper (which pre-dated the draft), rather than the final reasons papers which recorded the Commission's final position after we consulted with all stakeholders.

Conclusions

B189 We have evaluated whether the asset beta of 0.38 proposed by Fonterra for the 2017/18 base milk price is practically feasible for an efficient processor.

B190 Having considered all available information, our conclusion is that an asset beta of 0.38 is unlikely to be practically feasible for an efficient processor.

¹¹³ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews Final decision" (15 December 2015), para 143-144.