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Review of Fonterra's 2017/18 base milk price calculation

Emerging views on asset beta

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Introduction

Purpose of this paper

1. The purpose of this paper is to:
 - 1.1 outline our emerging 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; and
 - 1.2 provide you with the opportunity to comment on our emerging views in this area prior to us publishing our draft report on our review of Fonterra's 2017/18 base milk price calculation on 15 August 2018.

Invitation to make submissions

2. We invite submissions by **5pm on 5 July 2018** on the following topics:
 - 2.1 Our emerging views on asset beta; and
 - 2.2 Cambridge Economic Policy Associates' (CEPA's) response to submissions.
3. Please address submissions, using 'Emerging views on asset beta' in the subject header, to:

Keston Ruxton
Manager, EAD Regulation Development
Regulation Branch
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Executive summary

4. This paper sets out our emerging 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. Submissions on this issue are invited from interested parties.
5. We have commenced this part of our review of the base milk price calculation in advance of the 1 July date by which the Dairy Industry Restructuring Act (DIRA) requires Fonterra to provide us with information relating to its base milk price calculation for the 2017/18 base milk price. The reason for doing so is to ensure that there is sufficient time to engage fully with stakeholders and reach a properly considered view on Fonterra's proposed asset beta before we publish our review reports.¹
6. 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. 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 particular, whether it is practically feasible for an efficient processor to match the asset beta value adopted by Fonterra.² In reaching this view we consider it is necessary to consider all the evidence available, and to use judgement to weigh that evidence.
7. Having considered the information available, our emerging view is 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 not practically feasible.
8. 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 further below, we consider that other dairy and commodity processors are better comparators than EDBs.
9. In previous reviews of Fonterra's milk price calculation we queried Fonterra's reliance on the EDB comparison, as opposed to other dairy and commodity processors. In those previous reviews we have not had sufficient robust analysis of the other listed dairy and commodity processors, including 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.

¹ We must provide Fonterra with a draft report by 15 August 2018 and publish a final report by 15 September 2018.

² 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.

10. We commissioned expert advice from CEPA/Freshagenda (“CEPA”) to address that information gap. CEPA concludes that other dairy and commodity processors are better comparators for the asset beta of the NP than EDBs are.
11. CEPA also 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. 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’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. This empirical analysis casts significant doubt on the practical feasibility of the estimate of 0.38 used by Fonterra to set the milk price.
12. 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 currently 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.³
13. 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. 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 beta as Fonterra has claimed.
14. 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 as used by Fonterra is unlikely to be practically feasible when setting the price for raw milk collected from NZ farmers.

³ 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.

Emerging views on the practical feasibility of the asset beta

The milk price monitoring regime

15. The DIRA establishes a monitoring regime over the price for milk which Fonterra purchases from its suppliers. The monitoring regime is intended to provide incentives for Fonterra to operate efficiently while providing for contestability in the market for the purchase of raw milk.
16. The DIRA requires us to complete two separate, but related, reviews of Fonterra's setting of the base milk price for each dairy season:
 - 16.1 following the start of each dairy season, a review of the manual that considers Fonterra's methodology for calculating its base milk price for that season (Manual); and
 - 16.2 following the end of each dairy season, a review of Fonterra's calculation of the price of raw milk purchased from farmers.
17. We completed the review of the Manual for the 2017/18 season in December 2017.
18. We must issue our draft report on Fonterra's calculation of the milk price for the 2017/18 season by 15 August 2018. The value of asset beta used by Fonterra is an input into that milk price as beta influences the cost of capital included in the milk price.
19. This paper sets out our emerging view on the extent to which the value of asset beta proposed by Fonterra is consistent with the contestability purpose of subpart 5A of the DIRA. To inform our draft decision reviewing Fonterra's base milk price calculation for the 2017/18 season, we seek submissions from interested parties on our emerging view and on CEPA's response to submissions (which we have released with this emerging view). We also welcome further comments on the submissions and cross-submissions previously made on the asset beta.⁴

The framework for our review of the milk price

20. 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.

⁴ For example, on the TDB Advisory submission which was received during our review of the Manual for the 2017/18 season.

21. 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.⁵
22. 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). So the outstanding issue is to review the extent to which the value of asset beta used by Fonterra is providing for contestability in the market for the purchase of milk from farmers.
23. 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.
24. The terms ‘practically feasible’ and ‘efficient processor’ are not defined in the DIRA.
25. 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 s150B and the mandatory principles in s150C.
26. 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 (eg, the unit costs achieved at one existing plant, or the gross values achieved in a part of Fonterra's current business).
27. 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.
28. 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.
29. 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

⁵ For the further analysis see Commerce Commission “Our approach to reviewing Fonterra’s Milk Price Manual and base milk price calculation” (15 August 2017).

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.

30. 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:
 - 30.1 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 largely 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
 - 30.2 relying on a single company produces an unreliable estimate due to the significant measurement error of such an estimate.
31. 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.
32. 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.
33. 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.⁶ 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.
34. 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.
35. 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

⁶ Section 150P(1) of the DIRA.

likelihood that the beta estimate used by Fonterra is practically feasible. In particular:

- 35.1 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
 - 35.2 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.
36. 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 so that someone could calculate our implied view of the milk price.⁷ Instead, we report our conclusion on the extent to which the value 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

37. 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 Act. 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.
38. 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 Act; 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

⁷ Section 150P(3) of the DIRA.

39. 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.
40. The effect of the above is that it is a necessary implication of the mandatory principles in s 150C that the NP should be assumed to transfer the 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, 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.
41. TDB Advisory, in a submission we received during the 2017/18 manual review, submit that while the NP is able to transfer risk, other processors including Fonterra can't transfer this risk. Instead, they can at best only manage this risk.⁸ 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 s150B and the mandatory principles in s150C.
42. We intend considering TDB's submission and the possible implications (if any) for our interpretation of s150C further, before publishing our draft report.

Background to the review of the asset beta

43. 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.
44. 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.
45. 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.
46. 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

⁸ TDB Advisory "Asset Beta Discussion" (14 November 2017).

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.⁹

Further information requested

47. 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).

48. 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.¹⁰

49. 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.¹¹

50. The Commission did not receive the information we recommended that Fonterra provide to a satisfactory level, nor we receive such information from independent processors (although we did receive the submission from TDB Advisory mentioned above), and we therefore 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. 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.

⁹ Commerce Commission "Review of Fonterra's 2016/17 base milk price calculation" (15 September 2017), para 2.16.

¹⁰ Commerce Commission, "Review of Fonterra's 2016-17 base milk price calculation" (15 September 2017), para 2.23.2.

¹¹ Commerce Commission, "Review of Fonterra's 2017/18 Milk Price Manual" (15 December 2017), Attachment D, para D5-D6.

Summary of CEPA's report

51. 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 the evidence to fill the gap.
52. The independent advice followed two main analytical approaches:
 - 52.1 First, to test whether the sample or 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.
 - 52.2 Second, to undertake empirical analysis of the asset beta for an efficient processor, using our established approach for estimating asset beta, so as to:
 - 52.2.1 estimate an asset beta for the NP, taking account of the characteristics of the various processors; and to
 - 52.2.2 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.
53. The main findings from CEPA/Freshagenda were as follows:
 - 53.1 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.
 - 53.2 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

54. 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.
55. 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.¹²

56. 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.¹³

Comparators should have systematic risk similar to the notional processor

57. 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.
58. 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 by consideration of the variation in the long-term value of the business compared to the market.¹⁴

Sector comparators' asset betas have averaged 0.45 – 0.58

59. 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.

¹² CEPA "Asset Beta report" (28 March 2018), p. 2.

¹³ CEPA "Asset Beta report" (28 March 2018), p. 2.

¹⁴ CEPA "Asset Beta report" (28 March 2018), p. 2.

60. 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.¹⁵
61. 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.^{16,17}

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

62. 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 0.3.¹⁸

CEPA's conclusions

63. 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, and CEPA has not seen sufficient empirical support for an asset beta below the bottom end of this range.¹⁹

Submissions on the CEPA report

64. 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.
65. Goodman Fielder agreed with the approach undertaken by CEPA in its review. It submitted that the key findings of the report were that:

¹⁵ CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), pp.6-7.

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

¹⁷ 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.

¹⁸ 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).

¹⁹ CEPA "Asset Beta report" (28 March 2018), p. 3.

- 65.1 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;
- 65.2 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
- 65.3 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.²⁰
66. 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.²¹
67. Miraka also submitted in support of the findings of the CEPA report, which it submits are in line with previous submissions made by Miraka.²²
68. Fonterra's submission disagreed with the CEPA Report's analysis and conclusion for a number of reasons. Fonterra considered:
- 68.1 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;
- 68.2 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;
- 68.3 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;
- 68.4 the asset beta for EDBs is a better comparator, as EDBs provide the best indicator of the NP's systematic risk;
- 68.5 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
- 68.6 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.²³

²⁰ Goodman Fielder, "Submission on CEPA asset beta report" (9 May 2018).

²¹ Open Country Dairy "Submission on CEPA asset beta report" (May 2018).

²² Miraka "Submission on CEPA asset beta report" (27 April 2018).

69. 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

70. 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 have published CEPA's report responding to these submissions alongside this emerging views paper. The key points from CEPA's response were as follows.

71. 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.

71.1 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.

71.2 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 lack of competition, which would be difficult to align with the requirement that the asset beta reflect that of a practically feasible efficient processor.²⁴

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

72. Our emerging 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.

73. In reaching this emerging view, we have considered all of the information available to us, including:

73.1 the advice from CEPA/Freshagenda of 28 March 2018 comparing the risks faced by the NP and the listed dairy companies;

²³ Fonterra "Submission on CEPA asset beta report" (9 May 2018).

²⁴ CEPA "Dairy Notional Processor's Asset Beta – Response to Submissions" (4 June 2018), p.6.

- 73.2 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;²⁵
- 73.3 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;
- 73.4 further analysis undertaken by CEPA in response to the submissions on its first report;
- 73.5 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 manual²⁶; and
- 73.6 reports and analysis from other commentators including NZ trading and investment banks.
74. The factors that support our emerging view that the asset beta of 0.38 is unlikely to be practically feasible for an efficient processor are summarised below, and then discussed in further detail:
- 74.1 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;
- 74.2 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;
- 74.3 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;

²⁵ 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).

²⁶ 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/>.

- 74.4 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; and
- 74.5 While there is a difference in view between the various experts as to whether or not an asset beta of 0.38 is practically feasible, if we are to err in deciding whether or not it is practically feasible, there are likely lesser consequences from erroneously concluding it is not practically feasible, than erroneously concluding it is practically feasible.

Differences in risk

75. 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.
76. There is disagreement between the experts on the significance of the differences in the risk borne by the NP and other dairy companies.
77. 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.²⁷
78. 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.²⁸

79. 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.²⁹ 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

²⁷ Fonterra "Submission appendix - UOA report" (14 May 2018), para 2.2.

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

²⁹ 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.

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.

80. However, our preliminary 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).³⁰ In particular:
- 80.1 while the NP may be more able to transfer price and volume risk to its farmer suppliers than other processors, it is unlikely that such risks are systematic in nature; and
 - 80.2 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 estimates³¹) is not sufficiently justified, even if the risks referred to in clause 80.1 were systematic in nature.

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

81. 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:
- 81.1 Beta represents the exposure to systematic risk (that is, the risk which affects every investment a diversified investor may hold);
 - 81.2 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;
 - 81.3 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,

³⁰ 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.

³¹ 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.

including two years, five years, and full length of available dataset, and various monthly lags;³²

- 81.4 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;³³ and
- 81.5 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.
82. 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.

The gap between 0.38 and the average dairy processor is not justified

83. 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.
84. We note the following in terms of the plausible size of any adjustment of the asset beta estimate for the comparator dairy companies:
- 84.1 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;
- 84.2 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;
- 84.3 Fonterra's proposed asset beta of 0.38 is significantly below the mid-point of 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);

³² CEPA/Freshagenda "Dairy Notional Processors' Asset Beta" (28 March 2018), p. 16.

³³ 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.

- 84.4 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;
- 84.5 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;
- 84.6 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
- 84.7 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).

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

85. 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.
86. 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.
87. CEPA's analysis yielded estimates that were similar to those estimated by Dr Marsden, in advice commissioned by Fonterra.
88. 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.³⁴ Dr Marsden's most recent report derives a similar 20-25% likelihood using CEPA's empirical analysis of asset beta.³⁵ 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.

³⁴ Dr Marsden, "Asset Beta for Fonterra's Notional Business: Further Comments" (12 May 2017), para 7.2.

³⁵ 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.

89. Fonterra submitted that an estimate of its asset beta should be included in the sample of comparator companies used to estimate asset beta. We disagree with including Fonterra in the sample:
- 89.1 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.
 - 89.2 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:
 - 89.2.1 farmer cashflow tends to hit a lull through the winter/spring period, limiting purchases;
 - 89.2.2 farmers need to meet the share standard on 1 December each year; and
 - 89.2.3 the majority of farm sale settlements or milk company switching is aligned with the financial year – typically June.³⁶
 - 89.3 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).

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

- 90. The subsamples looked at by CEPA are those which are predominately dairy-focused, those which are commodity exposed, and thus higher risk, those which enjoy cost pass-through arrangements, and those with regulated prices.
- 91. 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 sample is broken down into small sub-groups. These ranges, and their mid-points, are generally well above the point estimate adopted by Fonterra.
- 92. 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.

³⁶ ANZ Research "AgriFocus We have Lift Off" (June 2018), p. 24-25.

Table 1 : Asset beta mid-points across sub samples, five-year period to 15 January 2018³⁷

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

93. 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.
94. 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 slightly weakens the argument for a downwards adjustment.

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

95. 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.³⁸ What NERA overlooked, however, is that 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.
96. 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.

³⁷ CEPA "Dairy Notional Processor's Asset Beta - Response to submissions" (4 June 2018), p. 16.

³⁸ Fonterra "Submission appendix – NERA report" (9 May 2018), para 3a.

97. 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:³⁹
- 97.1 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;
 - 97.2 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;
 - 97.3 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
 - 97.4 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.
98. 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:
- 98.1 are the US listed electricity and gas utilities a good proxy for the NP?
 - 98.2 are there differences in systematic risk between the NP and the US listed utilities? and
 - 98.3 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?
99. 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:
- 99.1 that the US listed electricity and gas utilities may be a poor proxy for the notional milk processor; or
 - 99.2 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.

³⁹ 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 para's 347-456.

100. 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.
101. 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.
102. We consider that the other evidence is better evidence of the appropriate asset beta and more weight should be placed on that evidence, including:
- 102.1 the empirical analysis of beta for listed dairy companies (discussed above); and
 - 102.2 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.
103. 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:
- 103.1 Macquarie Bank assumes an asset beta of 0.65 for the Fonterra Shareholders' Fund and a beta of 0.88 for Synlait;⁴⁰ and
 - 103.2 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.⁴¹ First NZ Capital currently assumes an asset beta of 0.60 for the Fonterra Shareholders Fund.⁴²
104. 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:
- 104.1 are both equity investments exposed to the risks of significant milk processing activities principally in NZ;
 - 104.2 are both NZ listed (and therefore are available to NZ equity investors);
 - 104.3 are both acknowledged to have an ability to transfer risk to farmer suppliers including commodity risks;

⁴⁰ 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).

⁴¹ 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).

⁴² First NZ Capital "Fonterra Shareholders' Fund – Getting off the farm gate fence" (24 May 2018).

- 104.4 both 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; and
- 104.5 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.
105. 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.
106. 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 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.
107. Dr Marsden discussed the estimates used by the broker in his 2016 report. In particular:
- 107.1 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;
- 107.2 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
- 107.3 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.⁴³
108. We take a different view on the weight to be accorded to the estimates from the brokers. In particular, we note:
- 108.1 as discussed above, there is little evident systematic risk in dairy commodity prices. So, whatever the differences there are in various processors’ ability

⁴³ 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.

to transfer risk to other parties via ex post adjustments to price, this is unlikely to have a material impact on beta;

108.2 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:

108.2.1 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

108.2.2 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.⁴⁴

108.3 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)".⁴⁵ We note the average asset beta for the companies with a material commodity exposure was 0.49-0.50; and

108.4 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.

109. In our view:

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

109.2 we note that all of those broker estimates of asset beta are higher than Fonterra's proposed beta of 0.38;

⁴⁴ 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.

⁴⁵ Dr Marsden "Asset Beta for Fonterra's Notional Business: Further Comments" (12 May 2017), p.12.

- 109.3 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
- 109.4 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 contention 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.

The consequences if the asset beta is wrong

110. As a number of submitters and experts have noted, it is difficult to estimate beta with reliability and confidence. There is therefore an inevitable risk of getting an estimate of beta, or a review of someone else's estimate of beta, wrong. If we conclude that the asset beta proposed by Fonterra is likely to be practically feasible when it is not, then, assuming the other components of the base milk price are set at efficient and contestable levels and Fonterra pays farmers the base milk price, independent processors may find it increasingly difficult to compete for milk with Fonterra.
111. If the price for milk is set too high then this market may be unable to function properly and correct itself, resulting in a sustained high price. This could result in:
- 111.1 expanding output inefficiencies;
 - 111.2 returns to milk processors not being sufficient to offset the costs and risks from investing in milk processing plant; and
 - 111.3 current and prospective alternate processors potentially being deterred from investing.
112. If we conclude that the asset beta adopted by Fonterra is not practically feasible when it is, and Fonterra subsequently changes the asset beta used to set the milk price to reflect a higher estimate of asset beta (even though the asset beta of 0.38 is practically feasible), then independent processors may compete more aggressively for milk supply if this leads to lower milk prices. This competition may also then increase the price independent processors are willing to pay for milk supply. This increased competition may cease when the price reaches market equilibrium.
113. While neither scenario is desirable, it does appear that in the medium term, owing to the way milk price is set, that an asset beta that is too high may have a less adverse effect on the milk price market than too low an asset beta.
114. Castalia, in its submission on behalf OCD to the draft report to the 2015/16 milk price calculation review, alluded to this point:

Since the asset beta is a sensitive input, setting it too low leads to a significant inflation of the milk price, raising the bar for entry and expansion by competing processors.

There is a trade-off here between actual and theoretical discipline. In theory, putting more pressure on Fonterra's costs improves its incentives to be efficient, however, the trade-off is that artificially-established milk prices deter competition and therefore lessen actual competitive pressure.⁴⁶

The contrary considerations identified by Fonterra

115. In its submission, 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:

- 115.1 Whether the IM approach to estimating the asset beta is appropriate under the DIRA;
- 115.2 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;
- 115.3 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;
- 115.4 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;
- 115.5 The Commission's view on Fonterra's milk price asset beta has materially changed over time; and
- 115.6 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

116. In its submission, Fonterra questioned whether the IM approach is the appropriate approach to estimating beta for the NP. For example, Fonterra submitted that:⁴⁷

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.

⁴⁶ Castalia "Report to Open Country Review of Fonterra base milk price calculation" (5 September 2016), p. 2.

⁴⁷ Fonterra "Submission on CEPA asset beta report" (9 May 2018), para 18.

117. 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 regulates, including under the DIRA.⁴⁸ 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).
118. 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:
- 118.1 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
- 118.2 not something which is unique or specific to any particular sector (the milk processing sector in this case) or legislative regime.
119. 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.
120. 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.
121. 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"

122. 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.
123. We have previously accepted that Fonterra is subject to range of incentives when setting the milk price, but note that:

⁴⁸ Commerce Commission "Draft Guidelines The Commerce Commission's Approach to Estimating the Cost of Capital" (October 2005), para's 6 and 9.

- 123.1 Fonterra has a principle in its company constitution of paying the maximum amount it can for the milk supplied to it;⁴⁹
- 123.2 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.
124. We agree with Fonterra's submission that we need to consider all the relevant evidence and we have done so in forming our emerging 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.

The continuing investments made by independent processors

125. 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.
126. 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.
127. 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:
- 127.1 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.⁵⁰ 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.
- 127.2 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.
- 127.3 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.

⁴⁹ Fonterra "Constitution of Fonterra Co-operative Group Limited" (2016), Annexure 1.

⁵⁰ Section 105P(1) of the DIRA.

- 127.4 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.

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

128. 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.
129. 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

130. 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.
131. Fonterra's submission mischaracterised our position:
- 131.1 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.
- 131.2 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.⁵¹ 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.
- 131.3 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

⁵¹ Commerce Commission "Draft report - Review of Fonterra's 2015/16 base milk price calculation" (15 August 2016), para X27.

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

- 131.4 As discussed above, the Commission's preferred methodology for estimating beta has been consistent for more than a decade.
- 131.5 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.
- 131.6 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

- 132. 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:
 - 132.1 Advice from international economists on the weight that should be placed on estimates of Chorus' own beta;
 - 132.2 The use of a combined sample of electricity and gas businesses for estimating an asset beta for gas businesses; and
 - 132.3 The use of EDBs as a relevant comparator for estimating the beta for an airport in 2001.
- 133. 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".⁵²
- 134. We consider that Fonterra has mischaracterised our approach:
 - 134.1 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.

⁵² Fonterra "Submission on CEPA asset beta report" (9 May 2018), para 20.

- 134.2 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 there were practically no listed airport businesses with a track record of trading at that time.
- 134.3 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).
- 134.4 With respect to estimating an asset beta for services offered by Chorus:⁵³
- 134.4.1 we used a sample of comparator firms to estimate the beta;
- 134.4.2 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
- 134.4.3 our approach to estimating an asset beta applicable to Chorus' services was consistent with the approach to estimated beta used in the IMs.
- 134.5 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

135. 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.
136. Having considered all the available information we conclude that an asset beta of 0.38 is unlikely to be practically feasible for an efficient processor.

⁵³ Commerce Commission "Cost of capital for the UCLL and UBA pricing reviews Final decision" (15 December 2015), para 143-144.