2 September 2019

Dear Stephen

Open Country Dairy Submission on 2018/19 Milk Price Calculation Review

Introduction

Open Country Dairy Limited (Open Country) is pleased to make this submission on the Commerce Commission's Draft Report on the 2018/19 base milk price calculation.

We welcome the Commission's findings on asset beta, but respectfully submit that the Commission must now act on the material impact that the artificially low asset beta has on the base milk price, and accordingly on contestability in the dairy processor market. Open Country's objective in these milk price proceedings has always been to help ensure that Fonterra, with the Commission's oversight, should operate transparently and set the base milk price at the appropriate level in terms of section 150A of DIRA.

Fonterra has now been defending a low beta since 2012/13. Fonterra continues to use a high proportion of non-transparent off-Global Dairy Trade sale prices in the calculation. Fonterra has incentives to operate in this non-transparent manner and inflate the base milk price above the level that provides an incentive for it to operate efficiently, while providing for contestability in the market. Fonterra's persistent use of low asset beta and reference to non-transparent off-Global Dairy Trade sale prices are symptoms of this incentive. In light of this, the Commission must conclude that the inputs and processes used by Fonterra in the base milk price calculation are not consistent with the contestability dimension in section 150A(2) of DIRA.

1. Open Country welcomes the Commission's findings on asset beta—the debate is now settled

Open Country fully supports the Commission's view that an efficient processor with a similar systemic risk exposure to the notional processor is unlikely to have an asset beta as low as Fonterra's estimate of 0.38.

It is appropriate to briefly traverse the history of Fonterra's use of a low asset beta. Fonterra has adopted an asset beta of 0.38 to determine the notional processor's WACC since at least the 2012/13 season. Ever since then, the asset beta question has been the subject of debate between Fonterra, the Commission and interested parties such as Open Country and other independent processors. The Commission eventually reached a view that Fonterra's use of a 0.38 asset beta is unlikely to be practically feasible under section 150A of DIRA. The Commission has also reached an 'emerging view' that an asset beta of 0.45 to 0.58 was more appropriate.

The debate around the appropriate level of asset beta for the notional processor is now settled. It is inconceivable that further consultants' reports or discussion, can add to the information the Commission needs to reach a determination on the question.

The Commission's preferred empirical approach to WACC and the independent view of CEPA are the best available evidence of the appropriate level of asset beta. Fonterra has appointed multiple consultants over the years to provide a view and none have provided evidence to rebut the conclusion that its asset beta is too low. The independent asset beta analysis paper prepared by CEPA for the

Commission in 2018[1] and CEPA's independent response to Partington and Satchel paper (P&S)[2] in 20193 now settle the matter for the purposes of the base milk price regime. The CEPA analysis is consistent with the Commission-preferred empirical approach to WACC.

Independent processors have also consistently pointed out that Fonterra's asset beta is materially too high.

A higher asset beta at the upper end of the Commission's range is more reflective of Fonterra's own risk or risk of a comparable large dairy processor.

2. **Open Country requests that the Commission now act on the material impact of the low asset beta on base milk price**

Fonterra's use of a significantly lower asset beta than is appropriate has a material impact on the base milk price. The Commission has all the evidence needed to now reach a firm conclusion that Fonterra's use of a low asset beta in the milk price calculation is not consistent with the contestability dimension.

Lower asset beta has material impact on earnings

Fonterra's use of a low asset beta of 0.38 translates into a material lowering of earnings for Fonterra and has a similar effect on independent processors. This effect is material for dairy processors, as Fonterra's Milk Price Panel itself has confirmed.[4] A 0.1 change in asset beta translates to a $45 to $60 million impact on annual earnings for Fonterra. This has a proportionate impact on smaller independent processors. Reduced earnings mean reduced growth for independent processors that fund growth through retained earnings.

Lower asset beta materially increases the base milk price from the appropriate level and materially impacts contestability

The low asset beta increases the base milk price above the appropriate level in a way that impacts on contestability for dairy processors. Fonterra's Milk Price Panel has confirmed that a 0.1 change in asset beta will have an approximate 3-4 cents effect on the base milk price. Even marginal changes in the base milk price have important implications in the dairy processor market, where processors compete to attract farmer-suppliers. In any event, the Commission has previously accepted that similar effects are 'material' in terms of the base milk price calculation.

Even small or marginal changes in the base milk price impede efficient entry to the processor market and erode contestability. The competition between processors on prices, and decisions by firms whether to enter the processing market, are driven by the marginal cost. As the Commission itself has noted, "the price of milk is Fonterra's largest cost driver".[5] If the marginal cost of raw milk (reflected in the milk price) is above the the appropriate level required by section 150A, this materially impacts on the ability for existing processors to compete, and whether new firms enter the market.

[1] CEPA (2018) https://comcom.govt.nz/__data/assets/pdf_file/0017/90620/CEPA-Asset-Beta-report-28-March-2018.pdf

[2] Partington and Satchell (2019) https://comcom.govt.nz/regulated-industries/dairy/milk-price-manual-and-calculation/milk-price-calculation/milk-price-calculation-201819-season?target=documents&root=165779

[3] CEPA (2019) https://comcom.govt.nz/regulated-industries/dairy/milk-price-manual-and-calculation/milk-price-calculation/milk-price-calculation-201819-season?target=documents&root=160869

[4] Fonterra Milk Price Panel member Brent Goldsack is reported as stating that "anything that could move the milk price by 0.1c [has] a $1.5 million effect on the business." Farmers Weekly, "Milk price guardian fights back", 24 September 2018, available at: https://farmersweekly.co.nz/section/dairy/view/milk-price-guardian-fires-back

[5] Commerce Commission (2017), Our approach to reviewing Fonterra's Milk Price Manual and base milk price calculation

Use of lower asset beta is consistent with Fonterra's commercial incentive to inflate base milk price above the appropriate level

The Commission must interpret Fonterra's use of a lower asset beta in the context of Fonterra's commercial incentive to inflate the base milk price above the appropriate level. As we have consistently noted in our last four submissions in this forum,[6] as well as in the context of the Commission's review of competition, and in submissions to Government, Fonterra has a clear incentive to maximise the milk price it pays to farmers above levels appropriate for an efficient processor in a contestable market. This incentive was front and centre at the time of the introduction of the subpart 5A regime, and was recognised recently in MPI's latest review.

Fonterra faces four major incentives to inflate the base milk price to levels that are inconsistent with DIRA. First, Fonterra has an incentive to retain and attract additional milk supply. Second, Fonterra has an incentive to weaken existing competition. Third, Fonterra is incentivised to prevent additional competition from new entrants. Fourth, Fonterra is incentivised to respond to farmer-shareholders' preference to receive returns in the form of the milk price rather than dividend payments.

The Commission itself accepts that Fonterra has an incentive to retain and attract suppliers over the long-run. By keeping the base milk price is consistently high in the long-run relative to the competing independent processors, Fonterra ensures that suppliers choose Fonterra and remain loyal, relative to other processors. The Commission believes that in the absence of DIRA, there is a risk that Fonterra would engage farmers in long-term supply contracts, and possibly prejudice against any farmers that left the cooperative and sought to return. The Commission has also confirmed that Fonterra "may have an incentive to restrict [independent processors] from accessing farmers".[7]

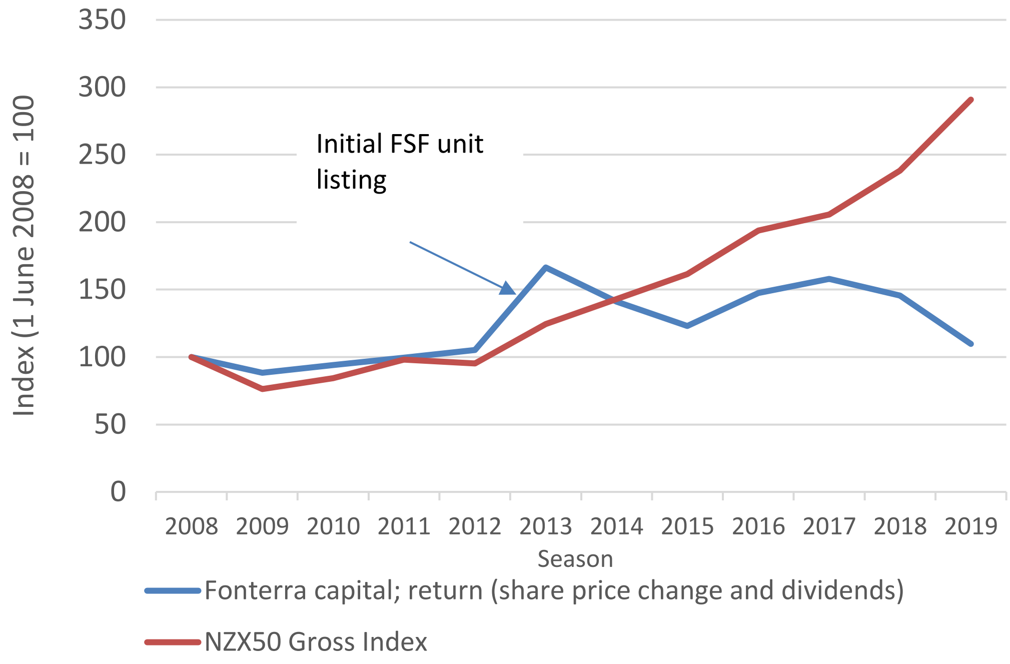
Fonterra's dominant incentive is to inflate the base milk price above the appropriate level. This is despite the apparent duties to shareholders (including owners of the 'dry' listed FSF units). The reality is that Fonterra shareholders' interests are very weakly served by both the corporate governance arrangements and dominance of interests of "wet" shareholders. FSF unitholders only supply approximately 6 percent of Fonterra's equity, and they have no rights to vote in the co-operative.

The consequences of Fonterra's dominant incentive to allocate its returns to the milk price and away from dividends or retained earnings can be observed in the marked collapse in the FSF share price over time. The FSF has materially underperformed the NZX50 index, as Figure 1 illustrates, during the period in which Fonterra has allocated earnings from dividends and returning capital to shareholders to bolster the milk price.

6 Open Country's submissions to Commerce Commission on Milk Price Calculation for 2014/15, 2015/16, 2016/17, 2017/18

7 Commerce Commission (2016), "Review of the State of Competition in the New Zealand Dairy Industry: Final Report

Figure 1: Total economic return of Fonterra shares vs NZX50 gross index



Sources: Fonterra, NZX

3. Use of off-GDT sales remains non-transparent and inflates base milk price

We have continuing concerns with the use of off-GDT sales for pricing purposes. This sales information is non-transparent, and increases the base milk price above the appropriate level. The Commission must remove the non-commodity aspects of the RCP price data (i.e. the difference between the transparent GDT and off-GDT prices) from the calculation to be consistent with the contestability dimension.

Fonterra's use of off-GDT sales has become standard, with 43 per cent by volume of Fonterra's actual sales in 2018/19 used to calculate notional processor revenue being undertaken off-GDT, the same as 2017/18. The GDT is a transparent trading platform with an auction mechanism. As the Commission knows, off-GDT sales data from Fonterra is sourced from bilateral, non-transparent, over-the-counter transactions on terms specific to each transaction. Off-GDT prices for RCPs are consistently higher than GDT prices.

The notional processor is assumed to be selling into a world market. In competitive markets, it is a logical and well-established principle of economics that the same product being sold on the same terms should achieve the same price. Arbitrage should ensure the same RCP would reach the same price in GDT and non-GDT markets. Why would a buyer pay more through an off-GDT transaction if they could pay less on the transparent GDT platform? The only explanation can be that the terms and conditions of sale of the same RCP on GDT and off-GDT are sufficiently different as to represent separate products (with separate markets).

Off-GDT sales tend to include longer term contracts, increased security of supply for customers, and non-standard product specifications. Longer-term contracts like those under the off-GDT sales that have more stability and security are more akin to hedges in the electricity market and involve the provision of a financial product in the form of greater certainty over price and supply. To provide such hedging products, the notional processor would need to hold more capital to handle the volatility of input prices, while providing more fixed output prices. That capital has a cost, which is not incorporated into the milk price calculation.

We recognise some of the negative effects of including off-GDT sales is mitigated through the 'Decision Criteria and Processes for Identifying off-GDT 'Price Include' Sales'.[8] This includes that only sales contracted for shipment between one and five months (inclusive) are to be used in the revenue calculation. We also understand that Fonterra asserts that customers prefer transacting for higher prices off-GDT because of customers' perceptions that off-GDT has higher product quality and participating in GDT sales could shift prices for products. Neither of these assertions makes any economic sense. First, RCPs by definition must be of the same quality off- and on-GDT. Second, it is inexplicable that a buyer would prefer to pay more for RCPs due to a desire not to shift a GDT reported price. Fonterra's still cannot credibly explain the off- and on-GDT price differential.

It remains the case that in order for the prices to be significantly different, there must be some non-commodity component of the off-GDT price.

Best regards,

Steve Koekemoer

Chief Executive Officer

Open Country Dairy Ltd

8 https://comcom.govt.nz/__data/assets/pdf_file/0032/159197/Fonterra-Reasons-paper-on-review-of-2018-19-base-milk-price-calculation-1-July-2019.pdf

Appendix A: Table 1: Overview of the Commission's view, and Open Country Dairy's view, on the asset beta review process

In the table below, we describe the Commission's position, and Open Country's position, on each step of the asset beta analytical review process. In the last column, we explain what the Commission's position means for the asset beta: importantly, it shows that even if the Commission does not change its view on any of the issues below, there remains no justification to move the asset beta from the midpoint.

Commission's view	Open Country Dairy view	Does the Commission's view justify a move from the asset beta midpoint?
The Commission's approach to assessing Fonterra's initial sample of comparator firms		
The Commission accept that Fonterra's initial company comparator set was inconsistent with the Input Methodology (para 2.45). The Commission have refined Fonterra's initial dataset to ensure consistency, including addressing inconsistencies pointed out by OCD (such as the erroneous inclusion of parent and subsidiary companies).	Open Country agree with the Commission's recognition that the dataset was not consistent with the Input Methodologies.	No
The risk of misestimating the asset beta: The Commission's approach to the incentives facing Fonterra		
The Commission state that Fonterra do not have an incentive to move the asset beta downwards (para 2.49). The Commission cite a report to justify this,[9] and summarises Fonterra's need to ensure their capital programme remains sustainable and to balance the interests of other parties (like external investors).	The cited report does not support the Commission's conclusions. The report concluded that "Fonterra may have an incentive to restrict IPs from accessing farmers", but Fonterra is "limited in its *ability* to do so." The report queries Fonterra's ability to act on its incentive: it does not query the existence of the incentive. The reasons cited by the Commission which limit Fonterra's ability to act on its incentive are unrelated to the asset beta calculation:	No

[9] Commerce Commission "Review of the state of competition in the New Zealand Dairy Industry: Final Report (1 March 2016)", paras X32-X36.

	• The importance of TAF to Fonterra, and the need for Fonterra to protect divergent interests, require confidence in the milk price. This confidence is largely a product of the credible application of the DIRA regulatory regime, and so Fonterra's incentives must be assessed as part of that regime. • There is no obvious connection between Fonterra's incentive to ensure the sustainability of their capital programmes and limits on their incentive to reduce the asset beta. Any under-investment from a misestimated asset beta is compensated for through profit retention. Most investors are farmers and are more likely to be indifferent to lower dividends because, in return, they benefit from higher milk prices, while non-farmer investors retain confidence in the milk price precisely because the Commission supports Fonterra's asset beta. • The existence of the DIRA regulatory regime itself presupposes that Fonterra has both the incentive and the ability to meaningfully restrict IPs' ability to access raw milk supply through the base milk price. The Commission should only adopt a different position if there was compelling evidence.	
The risk of misestimating the asset beta: The Commission's approach to the consequences of miscalculating the asset beta		
The asymmetric consequences of unintentionally misestimating the milk price are not comparable to sectors regulated under Part 4 of the Commerce Act, because Part 4 sectors are subject to a 5-year annual 'reset' (unlike Fonterra, which is subject to an annual 'reset') which can lead to longer-term underinvestment consequences.	The dairy industry is worth over $18 billion to the New Zealand economy and employs over 40,000 people: it is unclear how the Commission have concluded that reduced market resilience through reduced contestability has substantially lower consequences than underinvestment in energy networks. This year is the second year the Commission are not prepared to conclude on the asset beta, which has the *de facto* effect of allowing Fonterra to roll over the same asset beta of 0.38. This undermines the view that there is an annual 'reset', or that any longer-term risks are being effectively mitigated.	No

	The Commission's position on these issues has concerning consequences for the success of the DIRA regime. The Commission believes that an erroneous asset beta is unlikely to outlive several annual reviews (para 2.51). However, the Commission has not clarified what indicators of weak contestability it might be looking for, and how the Commission will know if contestability is threatened. Given the Commission's apparent rejection of the independent processors' evidence to date, the most likely indicator of the remaining options is the very damaging market exit of competition, by which point mitigation action is too late.	
The Commission state the estimation error needs to be 'material' in magnitude and duration to justify an uplift. To define this, the Commission cite a paper stating a 'material under-investment problem' would exist when there is a sustained differential of 0.5–1% between the true cost of capital and the allowed WACC (para 2.52).	Open Country strongly disagrees with the Commission's conclusion and query the robustness of the Commission decision-making process, because under the Commission's own definition, the potential misestimation error *is* material. Open Country has calculated the Notional Producer WACC using an asset beta of 0.38 and 0.51, and estimate there is a difference of 91 basis points between them (see Appendix B for calculations), which fits inside the Commission's 0.5-1% range of 'material under-investment'. The Commission also refers to the effect of Fonterra's asset beta on the milk price (a deviation of 5 cents) as 'material' (para 2.61).	No
The Commission's approach to Fonterra's downwards adjustment of the asset beta		
The Commission consider Fonterra's departure from the sample mean as 'material' (para 2.61). Despite this, the Commission believe Fonterra have provided a valid reason for a downwards adjustment (on the view that processors can transfer systematic risk to farmers, para 2.62), while recognising that Fonterra have not verified this reason (para 2.63).	There is no case for a downwards adjustment. The assertion made by Fonterra is neither supported by evidence nor verified by the Commission, and the Commission should conclude that the argument is not valid. The issue of risk transference is discussed below.	No – there are no verified reasons for a downwards adjustment.

The Commission's assumption that risk is transferred from processors to farmers as a reason to adjust the asset beta downwards		
It is a necessary principle of section 150C of the Milk Price Manual that the Notional Producer should be assumed to transfer the commodity price risk to farmers	The Commission's approach leads to a logical circularity that comes from assuming the Milk Price Manual determines the risk profile of the notional producer, simply because of the calculations it applies to determine the milk price. The Milk Price Manual is a tool for estimating a market price of milk, which is otherwise unobservable, and not itself a guide to how we conceive the nature of the business in which the notional processor is involved. The nature of the business must be decided independently of, and then fed into, the Milk Price Manual. This requires determining risk allocation that is practically feasible. This is discussed in the row below. There is no necessary implication arising from the statutory framework that the Notional Producer should be assumed to transfer commodity price risk to farmers. Section 150C(1)(b) expressly signals that the issue is to be "taken into account" as a relevant consideration, indicating that the matter falls for consideration rather than being treated as an assumption to be adopted. The costs of both "collecting milk" and "processing milk" naturally operate as considerations rather than assumptions on an orthodox interpretation, and it would be an odd construction of section 150C(1)(b) if the costs of "selling commodities" were treated differently.	No – there are no verified reasons for a downwards adjustment.
Aside from section 150C, risk allocation should be determined by whether it is practically feasible for an efficient processor to pass on commodity risk, which the Commission believe is the case. The Commission cite real-world co-operative processors that pay farmers ex-post as an example.	Open Country agrees that risk transfer should be determined with reference to practical feasibility, but does not think the Commission has done this. Observable evidence directly contradicts Fonterra's reasoning that there is a simple, mechanistic transfer of systematic risk from commodity prices to the milk price. If this were the case, we would expect to see milk prices move in mechanistic synchronisation with commodity prices, which is not the observed, real-world case. More importantly, a true mechanistic transfer of commodity prices to the milk price would result in processors that were genuinely indifferent to commodity prices – because all risk would be transferred. This is patently not the case, and analysing the reasons why	No – there are no verified reasons for a downwards adjustment.

	processors may or may not care about commodity prices becomes a second order issue: real-world, practically feasible observation tells us, conclusively, that all processors act to mitigate commodity price reduction, and are therefore clearly not indifferent to changes in commodity prices. The Commission's cooperative example is not compelling. Ex-post payment to farmers is not evidence that commodity price risk transfers mechanistically to farmers: at best, it shows that *some* commodity price risk transfers.	
The Commission's approach to testing Fonterra's specific asset beta of 0.38		
The Commission refine Fonterra's sample set to try to capture companies that might be able to transfer systematic risk to farmers, to see if the asset beta is closer to Fonterra's (0.38).	Open Country is concerned that the Commission is applying its own approach to try to back-calculate to Fonterra's pre-determined answer, which does not justify Fonterra's inputs and processes.[10] We would expect the Commission to develop an alternative approach only as a means of testing Fonterra's approach – not to replace it, and not to justify a pre-conceived answer. Further, refining the sample this way leads to new 'false positive' errors. By cherry-picking only the perceived systematic risks presented by Fonterra – and trying to refine the comparator set to try to reflect these risks – the Commission is not accounting for the impact of unknown systematic risks present in other jurisdictions, and is failing to refine the sample for unknown New Zealand systematic risks (the Commission already notes they "have not assessed whether any relevant comparators were excluded, or any relevant ones included" (footnote 33)). Finally, refining the sample to capture companies that change prices throughout the season is a very poor indicator that milk price risk is mechanistically transferred to farmers: at best, it shows that *some*	No – there are no verified reasons for a downwards adjustment, and the Commission cannot justify Fonterra's asset beta by refining the sample set.

[10] As OCD noted in its previous submission (Open Country "Submission on emerging views – 31 July 2017", Section 3.2, page 4), the process that Fonterra used to calculate 0.38 was specious, so if the Commission could match Fonterra's figure, it would not justify Fonterra's calculation process.

	commodity price risk transfers, but processors can still absorb significant commodity risk prior to an ex-post payment.	
The Commission's decision not to conclude on the matter, and to seek further information		
The Commission have asked for better information on the extent to which comparators pass on systematic risk to farmers, and for IP input into Fonterra's statement that no other jurisdiction is governed by a milk price mechanism like the Milk Price Manual.	Open Country recognises the Commission's request for information on systematic risk transfer to farmers. We remain willing to assist the Commission where needed, however the Commission's information request is for an erroneous calculation and therefore we do not see the value in supporting it. For completeness, we explain why the calculation would be erroneous below. First, asymmetric risks and Fonterra's incentives tell us that there must be very compelling evidence to move from the beta midpoint, particularly downwards (which is most risky). Second, there are no compelling reasons to consider a downwards adjustment. Fonterra's reasoning is unverified, and as we explain in this submission, evidence tells us the opposite is the case: there is not a mechanistic link between commodity prices and milk prices in the real world. Third, manipulating the data is very likely to lead to a 'false positive' error, whereby other systematic risks that are unique to other jurisdictions are captured in the modified dataset, making it impossible to draw meaningful conclusions.	No – there are no verified reasons for a downwards adjustment, and the Commission has not been presented with any compelling evidence.
The Commission cannot conclude on Fonterra's asset beta of 0.38, because the Commission do not have confidence in their alternative approach to the calculation.	This table illustrates that, under any approach, the asset beta arrived at is significantly higher than 0.38. Firstly, the Commission ought to accept the mid-point range of the sample set. If an adjustment were to be made, there are compelling reasons to adjust the asset beta upwards to account for the incentives facing Fonterra and asymmetric risks. There are no verified reasons for a downwards adjustment.	No – under any approach taken, the Commission ought to conclude that 0.38 is not practically feasible.

Despite this, even when exploring all avenues for a downwards adjustment, the asset beta remains significantly higher than 0.38.

Fonterra have had two years to provide compelling evidence, and in the absence of that, the Commission are departing from best-practice by refusing to conclude the matter and allowing Fonterra to continue for a further year with an unjustified asset beta miscalculation.

Appendix B: Calculation of the Notional Producer WACC using two Different Asset Betas

The calculations below have been provided by Castalia Strategic consultants.

We describe how we calculate the notional producer WACC using Fonterra's asset beta (0.38) and the company comparator midpoint asset beta (0.51). The difference between the two calculations is **91 basis points**.

Calculating the WACC

The general formula for calculating the WACC is:

$$WACC = K_E \times \frac{E}{D+E} + K_d \times \frac{D}{D+E} \times (1 - T_{Firm})$$

Where:

$WACC$ is the weighted average cost of capital,

K_E is the cost of equity,

$\frac{E}{D+E}$ is the ratio of equity to total capital in the firm,

K_d is the cost of debt,

$\frac{D}{D+E}$ is the ratio of debt to total capital in the firm,

$(1 - T_{Firm})$ is the tax shield of the firm,

T_{Firm} is the marginal tax rate faced by the firm.

Calculating the ratio of equity ($\frac{E}{D+E}$)

We assume 40 percent equity, as per the inputs into the Farmgate Milk Price Calculation.[11]

Calculating the ratio of debt ($\frac{D}{D+E}$)

We assume 60 percent debt, by subtracting the total equity from total assets.

Calculating the cost of equity (K_E)

We calculate cost of equity as:

$$K_E = R_f + (B_E * MRP)$$

Where,

K_E is the cost of equity,

R_f is the risk free rate,

B_E is the equity beta,

MRP is the market risk premium.

The risk-free rate (R_f)

We calculate the risk-free rate using the average secondary market yield on five-year government stock as reported by the Reserve Bank of New Zealand for the last 60 months. This is 3.10 percent.

[11] See Fonterra "Reasons' paper in support of Fonterra's base milk price for the 2015/16 Season." 1 July 2016. Page 39.

The equity beta ($\boldsymbol{B_E}$)

Equity beta is calculated as:

$$B_E = B_A \times \frac{D + E}{E}$$

Where,

B_A is the asset beta,

$\frac{D+E}{E}$ is the ratio of capital in the firm to total equity.

The asset beta ($\boldsymbol{B_A}$)

We calculate the WACC using two asset betas: Fonterra's asset beta (0.38) and the company comparator midpoint (0.51).

*The market risk premium **(MRP)***

We use 7 percent for the market risk premium, as recommended by the Commerce Commission.[12]

Calculating the cost of debt ($\boldsymbol{K_d}$)

We calculate the cost of debt using the inputs for the Farmgate Milk Price Calculation.[13] This assumes four components:

- The risk-free rate, calculated as five-year rolling average of monthly average five-year government stock rates, as reported by RBNZ. We calculate this as 3.10 percent.[14]
- The average US company debt premium, calculated as five-year average of average spread of five-year A-rated debt issued by US industrials over US treasuries. We calculated the average five-year US Treasury bond yield as 1.42 percent,[15] and the average five-year US industrial bond yield as 4 percent.[16] This gives a spread of 2.55 percent.
- Allowance for annualised debt issuance & other debt-related costs of 35 basis points.
- Specific risk premium of 15 basis points.

Summing these leads to a cost of debt of 6.15 percent.

Calculating the marginal tax rate ($\boldsymbol{T_{Firm}}$)

We use the corporation tax rate in New Zealand, which is 28 percent.

<u>Calculating the WACC (using an asset beta of 0.38)</u>

We apply this formula:

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[12] See the Commission's cost of capital determinations 2016: http://www.comcom.govt.nz/regulated-industries/input-methodologies-2/cost-of-capital-2/cost-of-capital/

[13] See Fonterra "Reasons' paper in support of Fonterra's base milk price for the 2015/16 Season." 1 July 2016. Page 39.

[14] Data source: RBNZ https://www.rbnz.govt.nz/statistics/b2

[15] Data source: https://www.investing.com/rates-bonds/u.s.-5-year-bond-yield-historical-data

[16] Data source: S&P Dow Jones Indices. See: https://us.spindices.com/indices/fixed-income/sp-500-industrials-corporate-bond-index

$$WACC = K_E \times \frac{E}{D+E} + K_d \times \frac{D}{D+E} \times (1 - T_{Firm})$$

Using these figures:

$$WACC = 0.098 \times 0.4 + 0.062 \times 0.6 \times (1 - 0.28)$$

$$WACC = 6.56\%$$

<u>Calculating the WACC (using an asset beta of 0.51)</u>

We apply this formula:

$$WACC = K_E \times \frac{E}{D+E} + K_d \times \frac{D}{D+E} \times (1 - T_{Firm})$$

Using these figures:

$$WACC = 0.12 \times 0.4 + 0.062 \times 0.6 \times (1 - 0.28)$$

$$WACC = 7.47\%$$