



# **Review of Commerce Commission's draft report into dairy competition**

Fonterra Co-operative Group Limited

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**Project Team**

James Mellsop

Will Taylor

Bronwyn McDonald

NERA Economic Consulting  
Level 18, 151 Queen Street  
Auckland 1010  
New Zealand  
Tel: 64 9 928 3288 Fax: 64 9 928 3289  
[www.nera.com](http://www.nera.com)

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## 1. Introduction and executive summary

### 1.1. Introduction

We have been asked by Fonterra to review the Commerce Commission's draft report titled, "Review of the state of competition in the New Zealand Dairy Industry", dated 6 November 2015. Our comments are set out in this report.

### 1.2. Executive summary

#### 1.2.1. Competition in the factory and farm gate markets

We agree with the Commission that the factory gate market is immature, and therefore caution is needed with any deregulation, particularly as it might affect downstream New Zealand markets. However, we disagree with the Commission's competition analysis – we do not think that Fonterra would be able to increase the price of raw milk it sells to other domestic processors above the competitive level. This is because there are no barriers to IPs switching material levels of production to the factory gate market.

Indeed, the demand-side of the farm gate market is the supply-side of the factory gate market. While flows on both sides may not match each other (clearly volumes in the farm gate market are vastly larger than volumes in the factory gate market), capacities do, and therefore the competitive pressures will be quite similar in each market.

This segues into our final main point on the Commission's competition analysis - we consider the Commission has understated the competitive pressure on Fonterra in the farm gate market. For example, at paragraph 4.65 the Commission states that Fonterra faces "limited competition" in this market (or geographic markets, as the Commission finds). As we noted in our 17 August 2015 report, we would not characterise the farm gate market as being workably competitive (in the absence of the DIRA). However, we do think the competition is more than "limited".

#### 1.2.2. Efficiency costs of free entry and exit

The Commission has quantified the efficiency cost of the raw milk regulations in the region of \$6m per year. The free entry and exit provisions, particularly as they relate to conversions, also result in efficiency costs:

- The free entry provision has a very similar effect on excess capacity as the raw milk regulations, and it would be appropriate to ascribe a further \$6m cost per year due to this, on the basis that this uncertainty is at least as material as that caused by the raw milk regulations (since the 2009/2010 season, conversions have accounted for almost █████% of Fonterra's milk growth);
- The free entry and exit provisions create a stranding risk, because Fonterra builds capacity for new conversions which subsequently leave before Fonterra has recovered its sunk investment. This results in a cost of approximately \$█████m per year;

- Fonterra is also exposed to large, one off stranding events. [REDACTED]. This suggests that the \$ [REDACTED] m is conservative; and
- By constraining Fonterra's ability to manage its (conversion) growth, the free entry and exit provisions crowd out investment by Fonterra in plant that can produce value added products – we estimate this cost as being in the range of \$ [REDACTED] m per year, with a point estimate of \$ [REDACTED] m.

As they relate to new conversions (as opposed to existing dairy farms switching between Fonterra and IPs), the free entry and exit provisions do not result in any competition benefit, and yet impose efficiency costs. Accordingly there would be net benefits in adjusting the free entry and exit provisions as they relate to new conversions.<sup>1</sup>

### 1.2.3. DIRA raw milk price and opportunity cost

The regulated raw milk price is generally lower than the opportunity cost to Fonterra of not processing and exporting this milk, for a variety of reasons that might vary depending on timing and how opportunity cost is measured. The key reason we explain in this report is that world commodity prices are volatile, creating option value that Fonterra could take advantage of by either producing a different ratio of WMP/SMP than assumed in the milk price or by producing more commodities outside the reference bundle.

Raising the regulated raw milk price to opportunity cost would:

- Improve allocative efficiency and reduce the risk of inefficient entry. The quantum of the allocative efficiency gain would be the mirror of the allocative efficiency loss the Commission has already quantified, i.e., in the range of \$3.5m to \$13m per year; and
- Increase the maturity of the factory gate market.

The Commission interprets the higher prices that Fonterra charges at the factory gate for non-regulated milk as evidence of market power. However, reviewing Fonterra's pricing models, we think it is best to interpret these prices as being set at opportunity cost.

### 1.2.4. Triggers for next review

As noted, we think the Commission has underestimated the competitive pressures Fonterra is under, and the efficiency costs of the DIRA. Furthermore, the investment plans described in section 3 of our 17 August 2015 report suggest that the farm gate and factory gate markets are quite dynamic.

Accordingly we think that a further competition review would be justified at a lower threshold, and at an earlier time than the default of the 2021/22 season suggested by the Commission.

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<sup>1</sup> Note that this change would also increase the allocative efficiency of New Zealand land.

However, if the DIRA provisions were adjusted to address the aspects that impose net costs (as discussed elsewhere in this report), then a stronger argument could be made for the 30% threshold as a trigger for review of the remainder of the DIRA provisions.

### **1.2.5. Developing factory gate market**

The Commission is right to suggest consideration be given to restricting DIRA raw milk rights, particularly for IPs focussed on the global market. At the very least, the regulations should be amended to require IPs to commit to their required volumes well in advance (e.g., make the contracts include a “take or pay” component), and pay the opportunity cost, even if that exceeds the farm gate price.

More caution is required for factory gate purchasers focussed on the downstream New Zealand markets. The balance of costs and benefits of the raw milk regulations for these firms is quite different, as discussed in our 17 August 2015 report.

## **2. Competition analysis**

### **2.1. Competition in the factory gate market – the Commission’s primary concern**

At paragraphs X3 and X4 of the draft report, the Commission states the following:

*Our primary concern is that competition in the factory gate is very limited. Without the DIRA Regulation, Fonterra would be able to increase the price of raw milk it sells to other domestic processors. This would result in higher prices for dairy products in downstream domestic markets.*

*Because of these concerns, we do not think that there is sufficient competition to remove the DIRA Regulation at this time. This is an on-balance assessment of the costs and benefits.*

We agree that the factory gate market is immature, and therefore caution is needed with any deregulation, particularly as it might affect downstream New Zealand markets. However, we disagree with the Commission’s competition analysis – we do not think that Fonterra would be able to increase the price of raw milk it sells to other domestic processors above the competitive level. This is because there are no barriers to IPs switching material levels of production to the factory gate market.

To explain this point further, it is necessary to understand the linkages between the global dairy market, the farm gate market, and the factory gate market.

Fonterra has the ability to sell its output into either the New Zealand domestic market, or the global market. Accordingly, Fonterra can switch its production into either market, depending on what is more profitable. As it happens, approximately 95% of the raw milk Fonterra acquires in

the farm gate market gets turned into products that are sold overseas.<sup>2</sup> We would therefore expect a close link between global prices and domestic prices – the opportunity cost of selling in either market is the margin given up by not selling in the other.

The large (exporting) IPs are in the same situation, or at least could be with minimal investment. If the margin obtainable by selling through the factory gate market rose above the opportunity cost of selling overseas, IPs would switch production into the factory gate market.

Indeed, the demand-side of the farm gate market is the supply-side of the factory gate market. While flows on both sides may not match each other (clearly volumes in the farm gate market are vastly larger than volumes in the factory gate market), capacities do, and therefore the competitive pressures will be quite similar in each market.<sup>3</sup>

In footnote 153, the Commission responds to this line of argument, stating that it is not consistent with the Commission's finding that "the current market price for non-DIRA milk reflects market power and that this has not resulted in IPs competing the price down to competitive levels despite the fact that volumes of non-DIRA factory gate sales are small". However, as we discuss in section 4 below, we do not think the current market price for non-DIRA milk reflects market power.

Furthermore, the Commission's comment about small non-DIRA factory gate sale volumes is perhaps answered by its own next sentence in that footnote: "Moreover, IPs have generally indicated that they are unwilling to supply small volumes and their willingness to supply at all will depend on price." A demand for larger volumes of raw milk at the factory gate would make it more attractive for IPs to switch production.<sup>4</sup>

As a final comment on the factory gate market, we think the Commission is on stronger ground in its finding that in regions where there is not a rival IP, there would be fewer constraints on Fonterra's pricing (see paragraph 5.35 of the draft report).<sup>5</sup>

## 2.2. Competition in the farm gate market

We also consider the Commission has understated the competitive pressure on Fonterra in the farm gate market. For example, at paragraph 4.65 the Commission states that Fonterra faces "limited competition" in this market (or geographic markets, as the Commission finds). As we noted in our 17 August 2015 report, we would not characterise the farm gate market as being

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<sup>2</sup> <https://www.fonterra.com/au/en/About/Our+Locations/NewZealand>

<sup>3</sup> In effect, the Commission makes this same point at paragraph 7.50.1.

<sup>4</sup> Indeed, the context of the non-DIRA sales is important. We are advised by Fonterra that they generally relate to situations where IPs failed to meet the October rule, did not provide forecasts, or were not entitled to milk.

<sup>5</sup> Subject of course to transport costs.

workably competitive (in the absence of the DIRA). However, we do think the competition is more than “limited”, for the following reasons:

- IPs are gaining significant shares in their catchment zones (see Figure 7 of our 17 August 2015 report) and of new conversions (see section 3.3.5 of our 17 August 2015 report).<sup>6</sup> This competitive pressure has external effects beyond the IPs’ catchment zones, because as a co-operative it is difficult for Fonterra to discriminate (e.g., on milk price or transport costs) between shareholder suppliers, particularly between existing shareholder suppliers. Uniform pricing means that Fonterra shareholder suppliers without local IP options still enjoy the benefit of IP competition;
- Most IPs have demonstrated growth and confidence, and continue to invest.<sup>7</sup> They offer farmers a differentiated product (e.g., no capital requirements), and are investing in value added outputs. There is also an emerging trend of global food company ownership of IPs, for strategic reasons, which we would expect to provide some comfort to farmers around solidity; and
- It seems likely that these IPs would be sustainable (provided they are efficient) without the DIRA – indeed, they are continuing to invest in the knowledge that the DIRA will at some point disappear.

For these reasons, plus the fact that Fonterra also competes globally, Fonterra is subject to pressure to be productively and dynamically efficient.

### 3. Efficiency costs of free entry and exit

#### 3.1. Introduction

The raw milk regulations cause Fonterra to maintain excess capacity. The Commission has quantified this cost at \$6m per annum (maximum), presumably on the basis of [REDACTED]

[REDACTED] On its face, this seems a reasonable approach.

In addition to this, there are various efficiency costs caused by free entry and exit. As we noted in our 17 August 2015 report, there are adjustments that could be made to the free entry and exit regime to reduce the efficiency costs imposed by the regulations without losing the benefits.

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<sup>6</sup> The Commission acknowledges this at paragraph 4.70.

<sup>7</sup> The continued investment mitigates the Commission’s point that “competing IPs are operating at or near capacity” (paragraph 7.25.2)

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These “avoidable costs” relate particularly to the obligation on Fonterra to accept milk from new conversions, without having any material ability to manage timing.<sup>8</sup>

Conversions have a large impact on the volume of milk Fonterra collects and the processing capacity it needs, yet an obligation to accept new conversions provides no competition benefit. Free entry and exit is really about lowering switching costs, i.e., the costs to farmers switching between Fonterra and IPs.<sup>9</sup> Permitting land converters to freely enter Fonterra does not lower switching costs between Fonterra and IPs.

To understand the magnitude of the issue, note that between the 2009/10 and 2014/15 seasons:<sup>10</sup>

- [REDACTED] new farms joined Fonterra, [REDACTED] of which are new conversions;
- Of those [REDACTED] conversions, only [REDACTED] remain with Fonterra today (i.e., [REDACTED] conversions have joined Fonterra and then subsequently left), representing an increase of about [REDACTED]m kgMS over the period; and
- Supply from the remaining [REDACTED] farms that were existing in the 2009-10 season has grown over the same period by about [REDACTED]m kgMS.

The purpose of the remainder of this section is to attempt to quantify the efficiency costs that could be avoided by adjusting the free entry and exit regulations. These costs come under the following broad headings, although we note they are interrelated:

- **Excess capacity due to uncertainty:** Building capacity for farms that may or may not supply Fonterra, but Fonterra is effectively forced to assume they will due to free entry. This includes both existing dairy farms, and dairy conversions. While Fonterra’s present strategy involves growing milk supply (globally), it has little control over the timing and magnitude of its growth. This leads Fonterra to build earlier than it otherwise would and also to build excess capacity. Note that this is exactly the same issue as the excess capacity built to account for IPs not taking raw milk, which the Commission has already quantified – the same type of cost is caused by the free entry provision;
- **Investment in higher value producing plant is crowded out:** Fonterra, like any business, faces capital constraints in the short to near term, which requires it to plan its investment commitments over a 2-3 year rolling horizon. But the obligation to accept supply in almost all circumstances means that Fonterra has limited scope to phase supply growth, including from conversions, to match its planned medium-term investment programme. As a consequence, it is prudent for Fonterra to advance investment in low-cost/low-value capacity earlier (and to a greater extent) than it might prefer. Investment demands arising from

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<sup>8</sup> Keeping in mind that as a cooperative, Fonterra would probably take milk from its existing suppliers regardless – we are trying to isolate the DIRA effect beyond that.

<sup>9</sup> See, e.g., paragraph 7.78 of the Commission’s draft report.

<sup>10</sup> Source: Fonterra.

unanticipated milk growth can also disrupt planned investments in higher-returning projects. Overall, scarce capital is drawn away from higher-returning opportunities; and

- **Asset stranding due to free exit:** Capacity becoming stranded when Fonterra is obliged to build capacity for new farms that subsequently leave Fonterra, e.g., the [REDACTED] conversions in the data above.

## 3.2. Quantification

### 3.2.1. Excess capacity and asset stranding

The Commission has already accepted that the raw milk regulations lead Fonterra to hold excess capacity of about [REDACTED], equating to an annual cost of up to \$6m. The free entry requirement has exactly the same type of effect, and so by the same logic the Commission should quantify that cost.

A simple approach would be to assume that open entry has a similar effect on the uncertainty Fonterra faces - since the 2009/2010 season, conversions have accounted for almost [REDACTED]% of Fonterra's milk growth. Therefore [REDACTED] buffer capacity could be attributed to open entry, adding a cost of \$[REDACTED]m per year.

In addition to this cost, there is also an asset stranding risk, because of free exit. For example, as already noted, about [REDACTED] percent of the conversions that joined Fonterra since 2009/10 have since left.<sup>11</sup> The [REDACTED] remaining supply approximately [REDACTED]m kgMS, so let us assume that the leaving conversions supplied the same average per farm, being [REDACTED] kgMS. [REDACTED] leaving farms multiplied by [REDACTED] kgMS equals approximately [REDACTED]m kgMS.

This is equivalent to approximately [REDACTED]m peak day litres.<sup>12</sup> If Fonterra had known that it did not need to build for this volume, it could have avoided \$[REDACTED]m of capex,<sup>13</sup> or \$[REDACTED]m on an annualised basis.<sup>14</sup>

The larger the conversion, the starker this issue becomes – we provide a brief case study of a particularly large conversion in section 3.2.3 below.

As another corroborating example, we understand that total 2014-15 Fonterra milk production was approximately [REDACTED]m kgMS (see

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<sup>11</sup> Being [REDACTED].

<sup>12</sup> We understand that Fonterra uses a rule of thumb conversion from annual kgMS to peak day litres of [REDACTED].

<sup>13</sup> Using the figure of \$[REDACTED] per peak litre from section 3.2.2.2 and abstracting away from the point in time at which capex occurs.

<sup>14</sup> We are informed by Fonterra that \$[REDACTED] per peak litre is used internally to proxy the annualised cost of new capacity.

Table 3 below). Therefore the [REDACTED] leaving conversions supplied about [REDACTED] percent of Fonterra production. If we assume the same proportion for capacity, then the excess capacity due to free entry and exit can be valued at \$ [REDACTED]m per year (on the same basis as the excess capacity due to the raw milk regulations).<sup>15</sup>

Note that these costs could be avoided if Fonterra had more:

- Discretion around timing of conversions entering; and/or
- Ability to contract entering conversions (i.e., if the free exit provision was relaxed).

### 3.2.2. Crowding out of higher value plant

#### 3.2.2.1. Framework

On page 42 of our 17 August 2015 report, we stated the following:

*It is also important to note that, due to the seasonal nature of milk production in New Zealand, the extra capacity Fonterra needs to account for free entry is peak capacity, e.g., whole milk powder driers which can process large volumes of milk at peak. An opportunity cost of this is the allocation of scarce capital to plants such as whole milk powder driers, rather than to plants that can produce higher value products (e.g., lactoferin). As we noted in our 2010 report (page 20), as a co-operative, capital constraints are a major issue for Fonterra.*

We expand on this point in this section.

One consequence of the free entry provisions of DIRA is that Fonterra is constrained in its ability to efficiently allocate its capital. This is due to the interplay of Fonterra:

- Being capital constrained, particularly over the short- to medium-term business planning horizon; and
- Being obliged to accept all milk, including from new conversions, without having any material ability to manage timing. (As a cooperative, Fonterra would be likely to accept all milk from existing suppliers regardless of the DIRA. But Fonterra would have more discretion around milk from switching suppliers and new conversions).

This means that Fonterra's investment decision making involves determining the value maximizing way to process all milk given a capital constraint, instead of determining the value maximizing use of its capital (which might involve declining or deferring some milk). Put differently, the free entry and exit provisions are crowding out efficient value-add investment.

In this regard, we understand that Fonterra's present strategy is focused on increasing the proportion of milk processed into higher value products. Therefore the free entry and exit provisions are constraining this strategy.

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<sup>15</sup> This is of course a proxy, as conversion losses over time are being compared to a single year's production.

### 3.2.2.2. Illustrative calculation

The inefficiency caused can be illustrated using a simple (and not necessarily realistic) example. Suppose that Fonterra expects new conversions to result in an extra 1,000,000 L of milk at peak.

Fonterra has provided the following information regarding the costs and returns from investing in different types of plant:

- Building a WMP plant costs \$[REDACTED]/L<sup>16</sup> peak and returns an IRR of [REDACTED]%; and
- Building a C21 mozzarella plant costs \$[REDACTED]/L peak and returns an IRR of [REDACTED] %.

If we assume Fonterra only has enough capital to process the 1,000,000 L by building WMP plant (i.e., \$[REDACTED]m), we can now compare two situations:

1. “Free entry” = Fonterra must have capacity to process the entire 1m L of peak milk; and
2. Discretion = Fonterra can choose how much milk it processes and therefore builds a C21 plant until its capital is exhausted and it declines to take milk over and above this.

These two scenarios are set out in Table 1 below.

**Table 1**  
**Illustrative comparison between free entry and discretion**

	Milk collected (L)	Milk declined (L)	Investment (\$)	IRR (%)	IRR (\$)
Free entry (Full WMP)	1,000,000	-	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]
Discretion (Full C21)	[REDACTED]	[REDACTED]	\$ [REDACTED]	[REDACTED]%	\$ [REDACTED]

Source: NERA

Therefore, the value loss to Fonterra from being constrained to accept all milk in this simple example is \$[REDACTED]m per annum. This is also a proxy for social cost – the [REDACTED] L of milk would not be produced in the first place, and the relevant land would remain in whatever its alternative use is.

Note that this example is intentionally extreme, but our purpose is to be illustrative.

### 3.2.2.3. More representative calculation

The “actual scenario” in Table 2 below sets out Fonterra’s actual domestic commodity capex between 2009 and 2014. The second and third rows of the table assume that 5% of this capex was instead invested in value added plant each year. The table calculates the higher return Fonterra would have earned from this.

<sup>16</sup> Based on a 4.5mL per day plant.

The benefit of adjusting the regulations is therefore the difference in IRR on the diverted capital.

**Table 2**  
**IRR impact of diverting 5% of historic domestic commodity capex to value add @ █████% IRR differential (figures in millions)**

Year	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Average
NZ commodity capex	████	████	████	████	████	████	████	████
Divert 5% to Value add	████	████	████	████	████	████	████	████
IRR differential (\$)	████	████	████	████	████	████	████	████

*Source: NERA analysis of Fonterra data*

In this simplified calculation, the average benefit is \$████m a year, with a minimum of \$████m and maximum of \$████m. In other words, the cost of Fonterra having no discretion over conversion timing is \$████m per year, with a range of \$████m to \$████m.

Note that we do not have any specific evidence on which to base the 5% assumption made above. However, keeping in mind that just under █████% of Fonterra's growth since the 2009/10 season has been due to conversions, it is not hard to imagine that Fonterra would be able to divert 5% of its base capital investment to value added investment if it had extra discretion around the timing of conversions.

Two other contextual points also suggest the conservatism of the 5%.

Firstly, we are advised by Fonterra that a WMP dryer might cost around \$████m,<sup>17</sup> with the expenditure spread over 2 or 3 seasons – say \$████m per year. This is just under █████% of the average New Zealand commodity capex noted in Table 2 above.

Secondly, Table 3 below sets out the variability in annual milk collections by Fonterra since 2010. While average annual milk growth from FY10 to (forecast) FY16 was around 3.7%, it has been highly variable. Milk collections fell in two years (FY13 and forecast FY16) and increased above 8% or more in FY12 and FY14). The difficulty in matching these highly variable changes in annual milk production with capital planning is illustrated by comparing annual milk growth over this period with relatively 'lumpy' investment in base capacity (see Table 2).

<sup>17</sup> Being the cost of a █████m L WMP drier.

**Table 3**  
**Annual growth in Fonterra milk collection (2010-2015)**

	kgMS (,000)	% increase
2010	1286	
2011	1346	4.7%
2012	1493	10.9%
2013	1463	-2.0%
2014	1584	8.3%
2015	1614	1.9%
2016	1589	-1.5%

Source: Fonterra.

Therefore, it may be appropriate to use a diversion figure greater than 5%. If 10% was instead used then the average cost increases to \$ [REDACTED] m per year, with a minimum of \$ [REDACTED] m and maximum of \$ [REDACTED] m.

### 3.2.3. Stranding – [REDACTED] case study

The discussion of stranding in section 3.2.1 analyses the impact over time of conversions entering and then leaving Fonterra. Fonterra is also exposed to large, one-off events where a single entity controlling multiple farms can switch the entirety of its volume. These lumpy events have a much greater impact on Fonterra than gradual exits over time. This suggests that the estimates in section 3.2.1 may understate the potential cost.

While the following is an extreme example, it is a real example, and so illustrates an efficiency cost of free exit.

[REDACTED]

[REDACTED]

<sup>18</sup> We understand that Fonterra's uses a rule of thumb conversion from annual kgMS to peak day litres of [REDACTED].

<sup>19</sup> We understand from Fonterra that an 8T/hr drier would be at capacity with between 17-20 kgMS.

[REDACTED]

[REDACTED]

The social cost in this situation is the cost of the stranded capacity multiplied by the probability that it becomes stranded.

[REDACTED]

[REDACTED]

The risks highlighted by this extreme example can be applied more generally to Fonterra's existing plants and future investment decisions. Because Fonterra is unable to achieve contractual certainty from its suppliers, it faces an ongoing asset stranding risk. Should an IP set up a processing factory near an existing Fonterra plant and local farms switch their supply to that new factory, this would result in excess capacity at the Fonterra plant.

#### 4. DIRA raw milk price and opportunity cost

At paragraph 5.22 of the draft report, the Commission sets out various reasons to explain that the DIRA milk price might on occasion be above Fonterra's opportunity cost, and might on occasion be below Fonterra's opportunity cost.

It is probably correct that due to the static approach used to calculate the DIRA price (as we discuss further below), there will be times when opportunity cost is greater or less than the DIRA price. However, we remain of the view that on an expectations or more systematic basis, the DIRA price will be lower than Fonterra's opportunity cost.

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20 [REDACTED]

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The precise opportunity cost of milk sold at the factory gate depends on the increment and timeframe adopted. For example, the longer the timeframe and larger the increment adopted, the more likely it would be that Fonterra could sell at least some proportion of the DIRA milk as a value added product, earning higher returns than are assumed by the regulated price. Similarly, timing might be important - the opportunity cost of supplying milk at peak is likely to be different from that during the shoulder periods when milk is scarcer.

But even if a shorter timeframe and smaller increment is adopted, Fonterra would generally be able to sell the processed milk at a higher price than that assumed by the milk price manual. This is because world commodity prices are volatile, creating option value that Fonterra could take advantage of by either producing a different ratio of WMP/SMP than assumed in the milk price or by producing more commodities outside the reference bundle. Put another way, the marginal value of a unit of milk is not the bundle assumed in the milk price calculation, but instead the highest value product stream at the time the IP takes the milk.

To see this, note for a start that the regulated price is set by the milk price manual, and is therefore based off a portfolio of commodity product prices at certain points in time. The commodity products are the “Reference Commodity Products”, being WMP and SMP, and their by-products BMP, butter and AMF. The milk price is calculated as a weighted average of the average (mainly GDT) returns over a year to milk allocated to four ‘streams’ of these products, comprising WMP/Butter/BMP, WMP/AMF/BMP, SMP/Butter/BMP and SMP/AMF/BMP. We understand from Fonterra that these “stream returns” are updated every two weeks based on Fonterra’s view of the current market price for the base specification of each product.

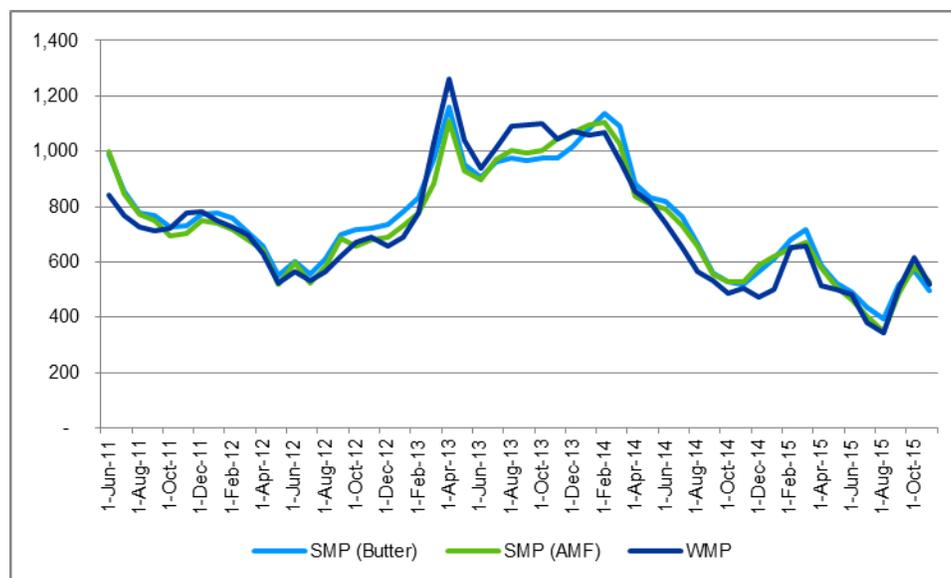
Returns to these four streams can be expected to be around the same over time,<sup>21</sup> but at any point in time there will invariably be differences in relative returns. This is illustrated by Figure 1 below, which plots Fonterra’s calculated “stream returns” for three of the four RCP streams.<sup>22</sup>

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<sup>21</sup> This is because the four streams are effectively different ways of “cutting” raw milk, so producers can move between the different product streams and therefore arbitrage away any profit differentials.

<sup>22</sup> The data we have been provided with by Fonterra only presents a single WMP stream. This is because WMP comprises approximately 85% of the finished product in a WMP stream. Therefore the choice between butter and AMF has little impact on the overall stream return.

**Figure 1**  
**Stream returns for RCP streams (cents per kgMS)**



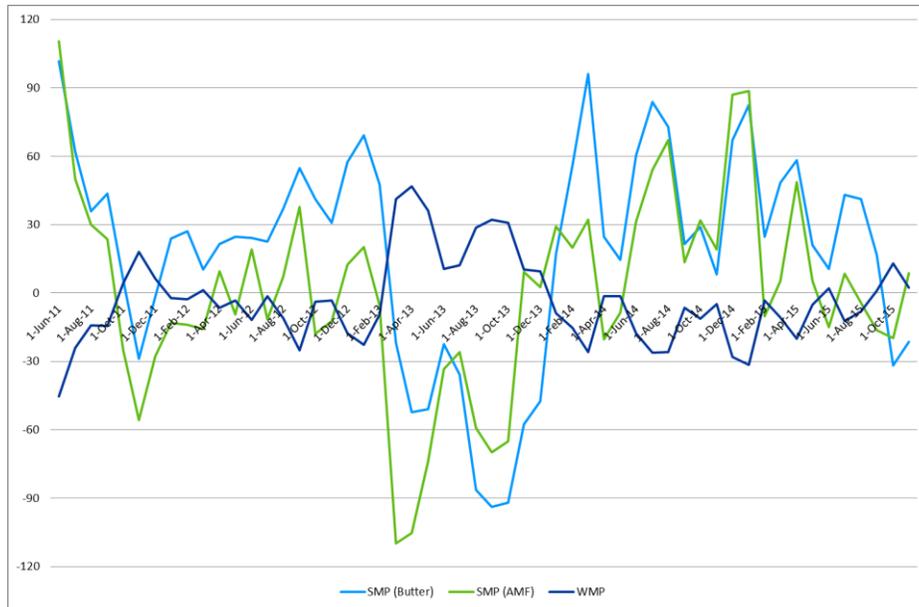
Source: Fonterra. Note: Stream returns assume all product is sold on GDT, or at GDT-equivalent prices, and factor in variable but not fixed costs.

Figure 1 demonstrates that the most profitable stream at any one point varies over time. Because the milk price uses assumed weightings for each stream,<sup>23</sup> when Fonterra is supplied an incremental kilogram of milk solids, it will generally be able to generate superior returns to the prior milk price basket return by allocating the milk to whichever stream yields the highest returns at the time of allocation. If the incremental milk is allocated to an RCP stream, the resulting returns will be averaged into the milk price, resulting in a slightly higher milk price than would otherwise have been the case. But if the milk is not available to Fonterra, the milk price will of course remain unchanged. It therefore follows that the difference between weighted average milk price stream returns and the returns available to the highest returning RCP can be regarded as an opportunity cost of the milk not being available to Fonterra.

This opportunity cost is demonstrated in Figure 2 below, which tracks the difference in returns to each of three RCP streams relative to the weighted average returns going to the milk price calculation (over the 2011 – 2015 financial years).

<sup>23</sup> Being a weighted average over the entire year.

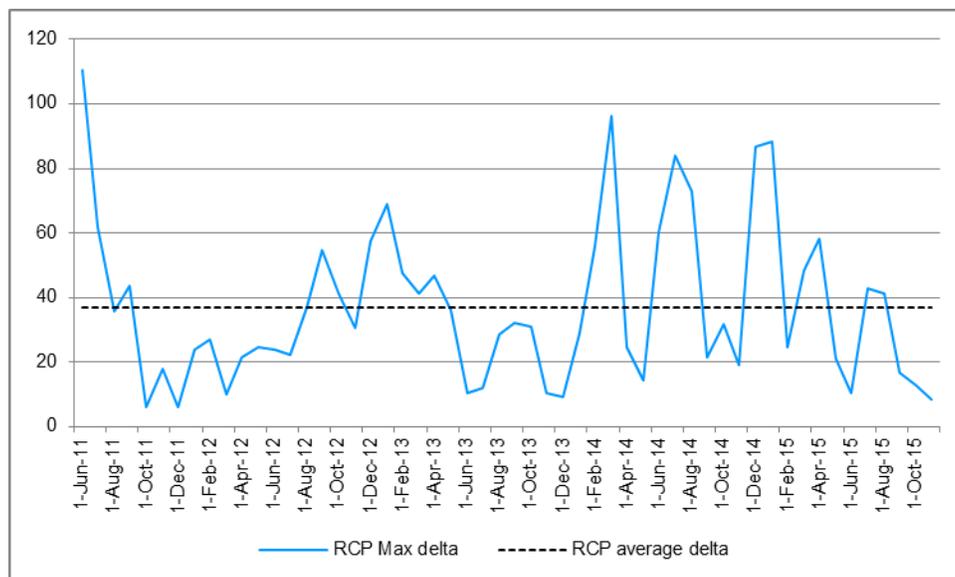
**Figure 2**  
**Difference in returns between each RCP stream and the weighted average milk price**  
**(cents per kgMS)**



Source: Fonterra. Note: Stream returns assume all product is sold on GDT, or at GDT-equivalent prices, and factor in variable but not fixed costs. The weights used are the final weighted average for the year in question, as this is what determines the milk price.

This graph demonstrates that the return of each RCP stream relative to the milk price varies substantially over time. Rather than look at each individual stream, we can look at the maximum delta over the milk price that would be achieved (i.e., create a series where at each point in time the RCP stream with the highest delta is chosen). This is shown in Figure 3 below.

**Figure 3**  
**Maximum delta assuming optimal RCP stream chosen at each point in time relative to weighted average milk price (cents per kgMS)**



Source: NERA analysis of Fonterra data. Note: Stream returns assume all product is sold on GDT, or at GDT-equivalent prices, and factor in variable but not fixed costs.

This analysis demonstrates that over the period 2011-2015, an incremental kilogram of milk solids allocated to the highest returning RCP stream would on average have generated a return that was 37 cents per kgMS higher than the Farmgate Milk Price. This is equivalent to 5.6% of the average milk price of \$6.57 over the 2011 - 2015 period.



Therefore the evidence suggests that in general the DIRA price will be lower than Fonterra’s opportunity cost. Indeed, this appears to be the Commission’s overall view. For example, at paragraph 7.62 it states: “The analysis in Chapter 5 suggest(s) that the Raw Milk Regulations in



- At the very least, the regulations should be amended to require IPs to commit to their required volumes well in advance (e.g., make the contracts include a “take or pay” component), and pay the opportunity cost, even if that exceeds the farm gate price.

More caution is required for factory gate purchasers focussed on the downstream New Zealand markets. The balance of costs and benefits of the raw milk regulations for these firms is quite different, as discussed in our 17 August 2015 report.

The Commission is also right to suggest a review of the DIRA raw milk price compared to opportunity cost – see paragraph 7.69, and section 4 of our report above. This is the core issue, and so problem definition and solutions around it are obvious work flows.

## 7. Commission's CBA

There is a matrix of costs and benefits of the DIRA, and the Commission has only quantified two of them:

- The allocative efficiency benefit of preventing the exercise of market power in the factory gate market – we discuss this calculation below; and
- The cost of excess capacity caused by the raw milk regulations, as we discuss in section 3 above.

We would not suggest that the Commission should quantify the broader suite of costs and benefits, as there is little dispute that there are still net benefits to maintaining certain core elements of the DIRA. But a problem with the Commission's analysis is that it does not recognise there are adjustments that could be made to the regulations that would not materially reduce the benefits, but would materially reduce the costs.

In particular:

- Providing Fonterra with more discretion around the entry of conversions would not reduce competition benefits, but would avoid costs – we discussed this in section 3 above, including quantification of the costs;
- Requiring IPs to provide more certainty over volumes would reduce Fonterra's capacity costs – we discussed this in section 6 above; and
- Raising the regulated raw milk price to opportunity cost would improve allocative efficiency and reduce the risk of inefficient entry (see section 5.2.2 of our 17 August 2015 report).

In the remainder of this section, we expand on this final bullet.

We have described in section 4 of this report how we interpret Fonterra's non-regulated DIRA prices to reflect opportunity cost, while the Commission interprets them to reflect market power. On this basis, the Commission posits that, in the absence of regulation, Fonterra could price all factory gate milk at a 25% premium to the competitive level. The Commission accordingly quantifies the allocative efficiency benefit of the raw milk regulations as being in the range of \$3.5m to \$13m per year (paragraph 6.33).

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However, at the same time the Commission finds that the regulated price is below Fonterra's opportunity cost, but does not quantify this cost. It does not make sense to quantify the benefit of regulation preventing price from rising above the competitive level, while not quantifying the cost of that same regulation forcing price below the competitive level. It is the same regulation causing both effects.

On the basis of our argument that the prices set out in Table E1 on page 155 of the Commission's draft report reflect Fonterra's opportunity cost, not market power, we can quantify the allocative inefficiency of the regulated price being 25% below opportunity cost. In fact, this would be the mirror of the allocative efficiency calculation the Commission has already carried out.<sup>24</sup> That is, the benefit of allowing price to rise would be in the range of \$3.5m to \$13m per year.

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<sup>24</sup> If the allocative efficiency calculation assumes a linear demand curve and constant marginal cost (i.e., opportunity cost), then the two calculations are geometrically identical. The only distinction is that the Commission has calculated the dead weight loss assuming the current price is equal to opportunity cost and rises by 25%, whereas the calculation we describe would assume that the current price is actually 25% below opportunity cost. In effect the same demand curve and starting point would be used, but the assumed location of the marginal cost curve would differ.

# NERA

ECONOMIC CONSULTING

NERA Economic Consulting  
Level 18, 151 Queen Street  
Auckland 1010  
New Zealand  
Tel: 64 9 928 3288 Fax: 64 9 928 3289  
[www.nera.com](http://www.nera.com)