

Drought, Chinese Mums, and the price of milk

The unexpected consequences of the 2013 New Zealand drought

- Fonterra has gradually cornered the fast growing Chinese whole milk powder market – the drought has revealed its market power.
- The drought will hit agricultural production in the June and September quarters.
- But incredibly, the net cost to the economy of the drought could be close to zero. World dairy price increases could offset the costs of lost production due to drought.
- Individual dairy farm incomes for this season will vary widely from the nationwide average – particularly depending on access to irrigation.
- The impact of the drought on the meat sector to date is negative and closer to historical experience.
- Overall, this drought has revealed that over the next several years New Zealand Inc. can potentially expect higher income which would also be reflected in a higher exchange rate.

This drought has been remarkable. It has been widespread, covering the whole North Island plus parts of the South Island’s west coast. Milk production has fallen off a cliff while sheep and beef slaughtering has shot to record levels. At the same time, the drought has dealt a severe blow to farmer confidence and morale. Production will take time to recover and the effects will linger into next season.

The above effects largely mirror previous droughts, but in one respect this drought is different. The source of this difference lies far from our shores. And the consequences of this drought have been unexpected.

In eight short weeks, world whole milk powder prices have surged to record levels. In the four auctions to 2 April, whole milk powder prices shot skyward, rising 62%. This is largely a consequence of drought in New Zealand.

Moreover the price surge, particularly over the last four auctions, has largely held up in New Zealand dollar terms. Since the New Year, the New Zealand dollar has ranged between 83 and 86 cents against the US dollar.

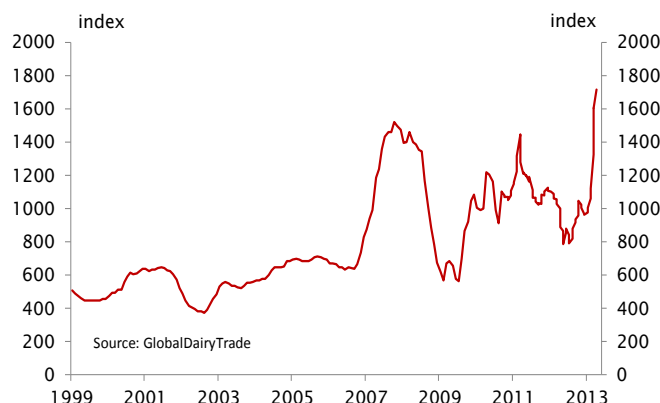
The resulting boost to dairy farmer incomes could offset the costs of lost production due to drought. How on earth can a reduction in production volumes lead to an increase in revenue? The answer is market power.

Booming Chinese milk demand has been met by New Zealand...

Over the last five years, Chinese demand for whole milk powder has increased by over 600,000 metric tons or the equivalent of annual EU production. In annual terms, demand has grown by 11%. New Zealand has met most of this demand. Chinese demand for dairy products and New Zealand production are now very much intertwined.

Chinese demand is still growing at a rapid pace, so when dairy production in New Zealand dives the effects are immediate. With no other producers able to fill the gap, one thing has to give – prices. And Chinese Mums insist on baby formula made with foreign milk powder (the majority of which is from New Zealand), no matter what the price.

Figure 1: World Whole Milk Powder Prices



...giving Fonterra market power in the whole milk powder market...

In these current whole milk powder market conditions, Fonterra effectively has market pricing power. Come again?

The drought has been the catalyst for this spike in powder prices – but the conditions that made this possible have been brewing since 2007 or longer. Firms that have market power can reduce the supply of the good or service that they produce, pushing up the price by more than the fall in supply – so that their revenue increases.

The best historical examples of this kind of market power are Saudi Arabia in world oil market and de Beers in the market for diamonds. Both Saudi Arabia and de Beers, while not having

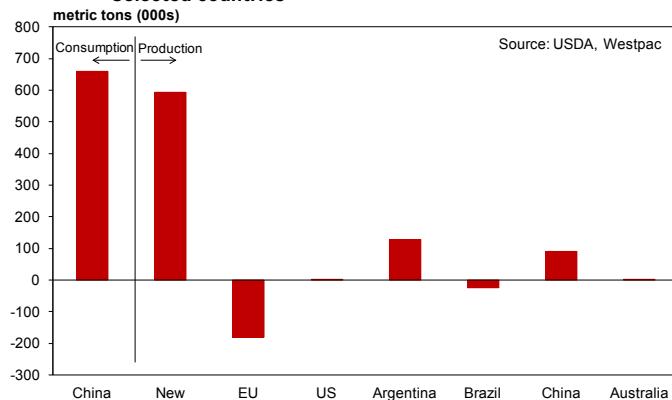
full control over their markets, were large enough players in the traded part of their respective markets to be able to adjust their supply and influence the market price. When the price was high they could increase supply, and vice versa when the price was low.

Fonterra now shares similar market power, particularly, in the short run. This is precisely what has happened in the whole milk powder market, albeit it took an act of nature for these conditions to surface.

...while other producers have missed the boat to China

As a result, monopolistic conditions are now possible during the Southern Hemisphere season and may increase in the medium term. While other major producers, the EU and the US in particular, have been slow learners, they are still a counter balance at least during the Northern Hemisphere season. For example, New Zealand has doubled its whole milk powder production, and sent most of this increase to China, leaving other major dairy exporters in the dust. The EU, has in fact gone backwards, reducing its production by over 20%.

Figure 2: 5-year change in whole milk powder (2008 to 2013*)
– Selected countries



*Data for 2013 are based on USDA projections.

China has said to the world “we want milk”, and New Zealand has said “sure thing”. This is a victory for smart policy and smart business. New Zealand’s free trade agreement with China has helped. But the main victory is that the price signal has been heard loud and clear by New Zealand farmers, and they have responded by producing more milk. Fonterra has then done its bit by getting it to China efficiently in a form that works for the Chinese market i.e. manufacturers there can easily transform it into baby formula for Chinese Mums.

The only other producing regions capable of competing with New Zealand in world dairy markets have missed the Chinese boat. Shoddy European farm policy has meant authorities there have been too pre-occupied protecting their own patch (and incomes) for European farmers, while US policy has led farmers there to focus on their domestic market at the expense of exports.

World dairy prices have the potential to go higher over the next few years...

Over the next several years, global dairy prices could go higher. Since 2007, New Zealand production has largely kept

pace with Chinese demand. Some of this has been increases in milk production, but a larger part has been as Fonterra has rejigged products and tailored existing production to meet the Chinese market needs. For example, milk solids production over the last five years has increased 33%, compared to an 88% increase in whole milk powder production. Before long, whole milk powder production will slow and grow more in line with milk solids production – over history New Zealand dairy production growth has averaged a modest three percent.

Moreover, the shoddy state of European and US farm policy remains, meaning that dairy production there will continue to respond to demand sluggishly or not at all. Other producers, in Latin America and Eastern Europe will try their best, but it will take decades to overcome the disadvantage of poor infrastructure and poor economic productivity.

Rising dairy prices will force the governments’ of some major consuming countries to introduce price ceilings and subsidies. Invariably, this government intervention will amplify the dairy price cycle. Local producers will respond to lower prices by producing less, exacerbating shortages and putting more pressure on prices. Case in point is the increasing reports of ‘baby formula smuggling’ and supermarket limits on the number of purchases per customer.

Again, the clear winner in this case will be New Zealand at the expense of consumers and producers in milk importing countries.

The net cost of the drought to the economy could be close to zero...

We expect that what the drought and lower production has taken out of dairy farm incomes, the higher prices have put straight back in. The higher revenue for New Zealand Inc. is enough to cover higher dairy farm costs such as higher feed costs and the transport of stock.

The table below shows our estimate of the net financial effect of drought on the dairy farming sector. This estimate is based on our latest estimate of Fonterra’s total payout (before retentions for a fully shared-up farmer) of \$6.60/kg compared to our \$6.00/kg estimate prior to the drought. We also assume a five percentage point drop in production growth due to the drought from our estimate for production prior to the drought, and increased farm costs of between \$200m and \$400m.

Table 1: Net financial effect of drought on the dairy farming sector (2012/13 season)

	\$M
Gain on milk price	+1,010
Loss on production	-510
Net Revenue Effect	+500
Increased costs	-200~-400
Net Financial Effect	+100~+300

...but, results will differ widely between farms...

Some farmers’ situations will be much worse than the average across New Zealand. Anecdotally, some farms have seen production fall by 10-20% this season; this compares with our estimate of one percent fall for the country as a whole.

For these farmers, the 10% increase in the total payout will not offset the lost revenue from lower production. Higher costs will further exacerbate their plights.

...and between islands

The drought has redistributed dairy profits from the North Island to the South Island. Another way to look at this is that profits have been redistributed to farmers with better access to water or irrigation from those without. Canterbury farmers, for example, have access to an aquifer, ensuring water is available even during a drought.

Overall, with higher production and largely unchanged costs, southern dairy farm revenue and profits will increase this season. Most farms in the South Island, particularly in Canterbury and Southland, have higher production than last season.

While the drought has affected the meat sector largely as expected...

The meat sector has been affected largely in line with the experience of previous droughts; farm incomes will fall from last season, particularly for sheep farmers. And unlike the dairy sector, there has been no offset from higher prices. Slaughtering has spiked to record levels as farmers move stock from parched pastures and in an effort to increase cashflows. Also, carcass weights have fallen due to lack of feed further reducing returns. Finally, costs are higher as farmers buy in feed and move stock to areas less affected by drought.

The drought effects in the meat sector will linger into next season as farmers rebuild their flocks and herds. Following the 2007/08 drought some sheep and beef farmers didn't fully rebuild their flocks or herds or converted their land to other uses, especially to dairy. We expect a similar pattern to develop this time.

...compounded by euro, pound and yen weakness

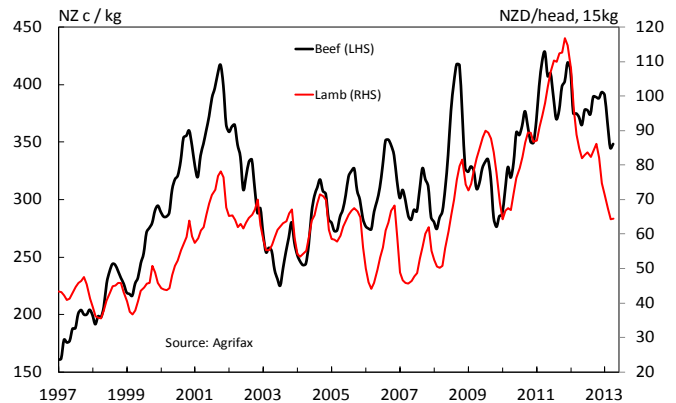
However, the euro, pound and yen have been weak since the end of 2012, and despite world prices holding up, farmgate prices for farmers have fallen. The European currencies have weakened on the back of their very weak economies. We expect the Eurozone economy to contract by 0.5% over 2013; while we expect the UK economy to perform somewhat better, growth will still be low. Japan on the other hand, has embarked on series reforms aimed to end decades of deflation. The announcement of these reforms has seen the yen fall around a quarter against the New Zealand dollar since the end of 2012.

To date, world meat prices are holding up; we suspect that this could have been worse. The US beef market remains tight, following the US's own drought last year. Large quantities of New Zealand beef have been absorbed without any obvious downward movement in prices.

Also, Chinese demand for sheep meat continues to grow, having overtaken the UK last year as our largest market by volume. For example, the Chinese market has taken most of the large increase in the ewe slaughter. Traditionally, this less popular meat has been hard to find takers for, particularly at quantities this high, but this has not been the case this time around, and prices have not fallen by as much as they might have.

While the net cost to the meat sector is negative, it may not be large enough to offset the positive net financial effect on the dairy farm sector (Table 1).

Figure 3: Beef and Lamb prices (NZD terms)



The drought will hit real GDP in the June and September quarters...

Farm production will be down this season compared to our estimates prior to the drought; this will be most obvious in the June and September quarters. Meat production has spiked higher in the March quarter, and with a backlog at meat processors, this has continued into to June quarter. Dairy production, on the other hand, has been very low over both the March and June quarters. Dairy production, assuming forecast rains arrive, should improve in the second half of 2013. At the same time, meat production will slow as farmers rebuild their flocks and herds.

Looking at the GDP profile for 2013, the drought will directly boost production in the March quarter, before subtracting from the June and September quarters. From the December quarter onwards, improving dairy production may start to make a positive contribution to GDP. The second round effects of lower production, such as reduced food manufacturing, will also be most obvious in the June and September quarters.

Higher dairy incomes will go a long way to offsetting lower production in both the dairy and meat sectors, particularly from the second half of 2013. However, because this particular drought has had such unequal impacts on different parts of New Zealand's farm sector, there's also still some uncertainty around the flow-on effects on confidence and spending – those whose incomes get a boost may not raise their spending by as much as those whose incomes have taken a hit curtail theirs. Moreover, as the timing of higher payments to dairy farmers may lag the hit to production and as confidence takes time to return, dairy incomes may boost GDP later rather than sooner.

Overall, we expect that the drought will have an impact of up to 0.6% of real GDP over 2013.

...plus the impact of future droughts on NZ Inc. has changed permanently...

We expect future droughts will have a similar impact. New Zealand will continue to dominate whole milk powder exports, while Chinese demand growth will continue to outpace supply. Moreover, we don't think that competing producers have their act sorted, and that it will take them several years at least for them to do so.

...and points towards higher incomes, exchange rate, and living standards

Overall, this evidence suggests that New Zealand's terms of trade will stay higher, and trend higher over the next several years versus what we knew prior to the drought. A higher terms of trade means higher incomes for the economy in general.

Moreover, higher New Zealand Inc. income over the next several years will be reflected in a higher exchange rate, which will boost New Zealand households' purchasing power and thus increase their living standards. On the flip-side, a higher exchange rate will hamper non-agricultural exports.

And so it seems that drought has shown us that market power and Chinese Mums have a lot to do with the price of milk.

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