

# Agribiz

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A quarterly update from Westpac

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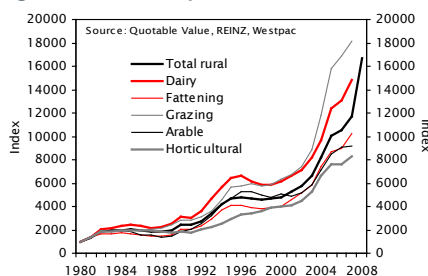
## The price of dirt

*The value of farmland has had its strongest six year run in at least two decades as strong returns from a booming dairy sector are capitalized into property prices. We suggest caution in taking dairy land prices significantly higher from here as world prices ease and costs rise.*

### Land prices lift further

Farmland prices continue to surge higher. The current upswing that started in 2001 has been sustained by a booming dairy sector in recent years thanks to sky-high product prices on world markets. We estimate that the average sale price of rural land will have increased by a whopping 209% in the six years to the end of 2008.<sup>1</sup> This is equivalent to a compound rate of 20.7% per annum on average and is the biggest lift over any six year period since the data began more than two decades ago (see Figure 2). Moreover, in real terms<sup>2</sup> by the end of 2008 the current lift is expected to be more than a third larger than the

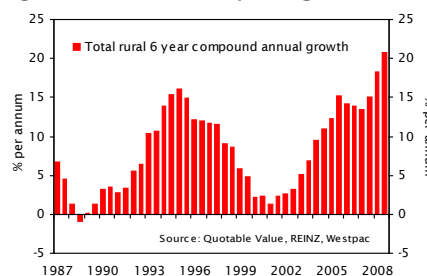
Figure 1: Farmland prices continue to rise



appreciation over the 1988 to 1995 period. Not surprisingly, dairy land has been in the thick of the action with a very strong spillover effect into grazing properties.

Figure 2 also shows around a 6 year cycle in land price growth over the past 20 years: the trough in six year compound annual growth in 1989/90 was followed by a peak in 1995/96 and then a trough in 2001/02. If this pattern continued, 2007/08 would be a peak.<sup>3</sup> We suspect this will be the case. Strong returns tend to get quickly capitalized into farm values, with a slower rate of land price appreciation in the following period.

Figure 2: Rural land compound growth



In this article, we take a look at some of the fundamental determinants of land prices before briefly considering where land prices might go next. So, what determines land prices? The price of land, as an investment, should be determined by the potential for future returns – just like any other productive asset. In practice, the market price of farmland is influenced by three factors: the ability to generate profits; the prospect of capital gain (driven by land use changes and/or perceived greater income potential); and the ability to provide less quantitative benefits (such as housing and closeness to amenities). Here we look at the expected return that land can generate via trends in product prices, productivity and costs.

<sup>1</sup> We use Quotable Value's rural land index extrapolated forward to 2008 using monthly REINZ data.

<sup>2</sup> That is, after adjusting for general inflation. We have used the CPI as the measure of general inflation.

<sup>3</sup> Note that this is a peak in the rate of land price appreciation on a six year basis. So that a 'peak' means the fastest rate of increase, not a peak in land prices themselves. Likewise, a 'trough' means the slowest rate of increase not a low in land prices.

### Product prices – a starting point

Strong economic growth in emerging markets and oil producing nations combined with limited supply have boosted world prices for our key export products over the past few years. Drought in Australia, low cattle numbers in the US, and

low sheep numbers in the UK and Europe have added impetus to dairy, beef and lamb prices.

The price of products is a transparent and accessible market indicator. Despite these qualities, product prices alone clearly

ignore the influence of productive capacity, future prices and the cost of production on land prices. But they do correlate well with land prices, suggesting they are a significant factor in determining farm profits. Also, in some cases, an indication

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of incomes in the immediate future is available. For example, at the beginning of each season – and well before production begins – Fonterra provides an estimate of what dairy farmers will receive for each kilogram of milksolids produced. This is important in the current context as market participants evaluate how persistent high dairy payouts will last. Fonterra's early forecast of \$7 / kgMS has given confidence to the market that high dairy payouts are going to be around for the next 12 months.

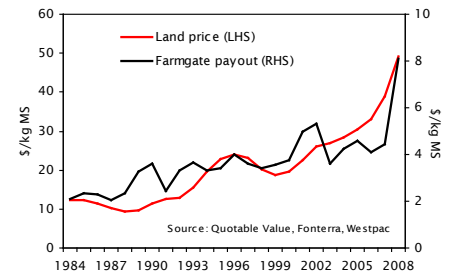
Using dairy as an example, Figure 3 shows that over time land prices (excluding dairy shares) generally track farmgate payouts, although they have deviated from each other from time-to-time. During the late 1980s and early 1990s land prices

failed to reflect improved farmgate returns as major economic reform and high interest rates associated with reducing inflation took their toll. The situation reversed during the mid-1990s when confidence in the New Zealand economy grew and the former New Zealand Dairy Board was in the process of issuing shares relating to production. Farmers wishing to maximize their stake in the off-farm assets of the industry sought to lift production, which often included increasing their land holdings – driving land prices higher.

Today, land prices appear higher than is implied by the payout in the past season and the expected payout for the current season alone. Of course, many other factors are at play including productivity gains over

time, expectations of future productivity gains and intense competition from other land uses. In addition, today's land prices are likely to reflect the high degree of confidence in the dairy sector and/or farmers expecting elevated payouts to continue, or improve further, in future.

Figure 3: Dairy land prices rising with payout



## Production, average incomes and costs

Productivity and production are also key factors in determining the value of land. Considerable gains in productivity – right across the agricultural industry – have been achieved year after year. For example, in dairying over the past decade milksolids per hectare has increased by a compound rate of 2.6% per year – a result of both more cows per hectare and more milksolids per cow. Likewise, productivity in sheep farming has been on a rising trend, reflected in the average lambing

percentage rising from around 105% in the mid-1990s to over 120% now (although this season is shaping up to be under 120% as the effects of last summer's drought lingers on).

Average income per hectare can be estimated by combining production per hectare with farmgate product prices. Comparing land prices per hectare to this income flow gives a standard metric for asset price evaluation – the price to income ratio. Figure 4 shows our estimate of the

price to earnings ratio for the 2007/08 season at 4.3, very close to the 4.4 average ratio for dairy land since 1982. This suggests that average productivity gains through time account for the widening gap between land prices and payout shown in Figure 3. But averages can hide a lot. We will expand on this later, but first we look at costs.

Of course, income is only one side of the story. Costs matter too. Across all farm types, farm expenses have increased by 7.9% in the year to June 2008 – and that is only the price effect! Energy costs like fuel (up 40%) and electricity (up 11%) are pinching the bottom line as are feed costs up 15% in the past 12 months, as drought hit. One of the biggest headaches is the price of fertiliser. The average imported price of fertiliser burst through \$700/tonne in the June quarter, to be up 71% on a year earlier (see Figure 5). Rising costs are likely to dampen the rate of land price appreciation going forward.

Figure 4: Dairy land price to income ratio

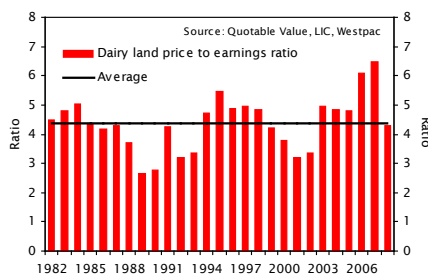
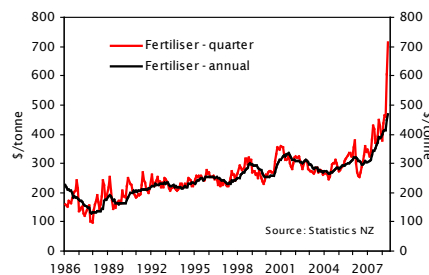


Figure 5: Rising fertiliser costs a concern



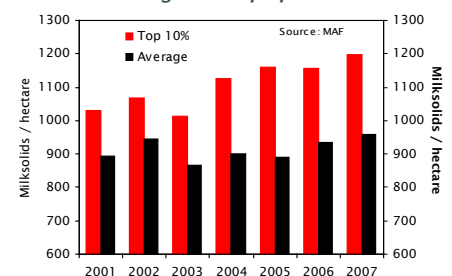
## Averages can hide a lot – is land reasonably priced?

It is very important to note that the above analysis and discussion of prices, production, costs and implications for profits represent the average operator. Moreover, historical data shows what has been achieved, not what can be achieved. In contrast, land price statistics are not an average of all land but are based on land sold – the buyers of which are often high-end operators looking to expand. This means that land buyers could expect to either produce more than the incumbent or more than the industry average, or both,

thereby raising the productive value of the land and the amount they are willing to pay for it.

This dynamic is most significant at times of industrial change – like the rapid expansion through productivity growth and intensification that has occurred. Greater economics of scale and the related diffusion of advanced management and productive techniques are part of this process. For example, a farmer may be prepared to pay extra for a particular piece of land because it is next door and will

Figure 6: Production gap wide between average and top operators



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generate efficiency gains (through scale) when run in tandem with the existing operation.

Changing land use patterns can also make averages misleading. Grazing land prices appear completely out of step with recent profits in the sheep and beef sectors. This follows a more than doubling in grazing land prices over the past 4 years

- far outstripping average productivity and product price increases. This reflects changing land use patterns as some sheep and beef farms are bought and converted to dairy (at prices reflecting expected returns from dairying).

MAF survey data shows that the top 10% of dairy operators in the 2006/07 season produced 25% more milksolids per hectare

than the average operator. Moreover, Figure 6 shows that the gap is widening on a trend basis. This suggests the price buyers have been prepared to pay is likely to have increased relative to that implied by industry average returns. So, the estimated average price-to-income ratio for 2007/08 suggests land values may not be excessive.

## The future

Before we get carried away with thinking that land is undervalued, we must bear in mind that underlying the current price to income calculation was last season's record payout. We continue to forecast the dairy payout to average \$6.20 over the coming 5 years. This is well up on the previous 5 year average of \$4.20, but it is lower than last year's record. The upshot is that an average payout around this level combined with the high-end operator premium implies earnings that justify current land prices, at least compared to historical trends.

The lower-than-record payouts expected over coming years is partly due to increasing global milk supply. The US and EU has already increased supply significantly. We expect a 9% bounce in NZ production from last season's drought affected supply and some recovery in

Australian production. This is likely to see world prices continue tracking down over the coming 12 months. Add in the risk that emerging market growth (and thus commodity demand) may not be as resilient to the developed world slowdown as it could be and it suggests some caution in taking dairy land prices significantly higher from here.

Our analysis suggests that farmland is fairly priced (given an industry propensity to largely capitalise returns) despite the strongest six year increase in at least two decades. We expect the rate of land price appreciation over the coming few years to slow rapidly from the rates of the recent past. Over the long-term there are many uncertainties around the impact of the emissions trading scheme and the price of carbon, wider environmental considerations and water

access to name a few. That said, economic growth in New Zealand will continue to drive competition from alternative land uses, increasing world demand for food, possible gains from world agricultural trade liberalization, further productivity growth through innovation should support further appreciation.

The above only provides a general indication of the broad macroeconomic environment that may prevail in future and the possibly influence this will have on rural land prices. There are many potentially important factors that have been excluded from our analysis such as the difficulty to predict market sentiment, the potential impact from high-spending overseas buyers, and competition from alternative land uses. As always, each farms' value depends on its specific characteristics and relative attributes.

### Historical compound annual growth rates - rural sectors and residential

	Dairy	Fattening	Grazing	Arable	Horticultural	Total rural	Residential
<b>Nominal</b>							
Average annual growth - 1980s	11.8	6.9	10.3	6.8	5.9	8.9	13.8
Average annual growth - 1990s	7.1	7.2	8.4	10.0	8.2	7.1	3.6
Average annual growth - 2000s	14.0	15.6	18.1	9.2	10.8	14.5	12.2
Annual growth from 1980 to 2007	10.6	9.2	11.5	8.6	8.0	9.7	9.5
Annual growth from 1990 to 2007	9.9	10.6	12.3	9.7	9.3	10.1	7.1
Annual growth from 2000 to 2007	14.0	15.6	18.1	9.2	10.8	14.5	12.2
Maximum (any 10 yr period)	12.6	11.4	12.7	15.0	10.9	10.4	14.2
Median (any 10 yr period)	8.3	8.1	9.7	7.1	7.5	8.0	7.5
Minimum (any 10 yr period)	5.3	3.1	4.4	2.9	1.3	3.8	3.6
<b>Real</b>							
Average annual growth - 1980s	0.5	-4.0	-1.0	-4.0	-4.9	-2.1	2.2
Average annual growth - 1990s	5.3	5.3	6.5	8.1	6.4	5.3	1.8
Average annual growth - 2000s	11.2	12.7	15.1	6.5	8.0	11.7	9.4
Annual growth from 1980 to 2007	4.9	3.6	5.8	3.0	2.5	4.1	3.9
Annual growth from 1990 to 2007	7.7	8.3	10.0	7.4	7.1	7.9	4.9
Annual growth from 2000 to 2007	11.2	12.7	15.1	6.5	8.0	11.7	9.4
Maximum (any 10 yr period)	8.2	9.0	10.2	11.1	8.7	8.0	5.9
Median (any 10 yr period)	4.8	5.3	7.1	3.9	5.2	5.1	2.4
Minimum (any 10 yr period)	-2.2	-4.8	-3.3	-5.5	-6.5	-3.6	0.8

Source: QVNZ, Westpac



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# Beyond the farm gate

## Dairy

International dairy prices continue to ease following solid increases in late season milk supply from the EU (most growth coming from new member states) and the US. Now with the Northern Hemisphere season nearing seasonal lows, attention turns to southern supply. We expect domestic milk production to lift around 9% this season. More cows and a strong lift in the amount of milk per cow from the drought-affected flow last season will drive the increase. Increased milk flow will largely offset the lower payout keeping industry revenues similar to last year. Australian production is also expected to stop declining and even improve a notch. Falling world prices would usually see us revising down our payout forecasts, but a lower New Zealand dollar has offset the decline in world prices. We retain our \$7.10/kgMS payout forecast for the 2008/09 season, but have reduced our 2009/10 forecast to \$6.00 from \$6.30.

## Forestry

Lumber markets have deteriorated significantly over the past year with the downturn in the US housing market. Asian demand for logs has been weak outside China and India. Export volumes have been low. The value of log exports in the year to July was down \$170m or 8%. However, prices are starting to rise. The Agri-fax Log Price index, which measures the return from the whole forest, stood at \$73.1 per tonne in August. This is up from \$71.2 per tonne a year ago with prices now close to their 10-year average. Easing shipping costs and a lower NZD have helped. We remain optimistic prices will continue to push higher in 2008 and into 2009 as further increases in Russian log tariffs lifts demand for NZ product. Slowing economic growth in Asia is a concern.

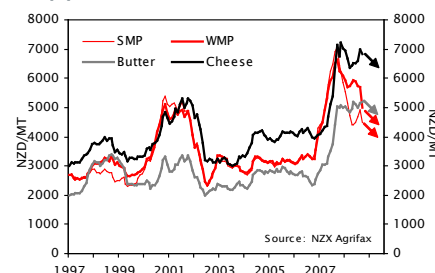
## Beef

Beef prices in the US market have been very strong, with prices in August averaging around a third more than a year ago. However, increased slaughtering in the US has seen prices pull back significantly in the past few weeks as this supply more than offsets the limited product from Australia, New Zealand and Uruguay. The re-entry of US beef into Asia continues to progress putting some downward pressure on prices. Meanwhile, emerging market demand especially from Russia remains strong and is expected to provide some support to prices. The outlook for beef prices at the farmgate remains positive over the medium term, despite the many uncertainties prevailing on the world stage at present.

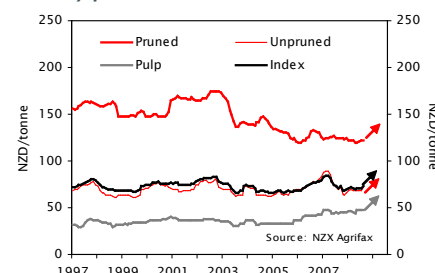
## Lamb

Lamb prices are shaping up to be considerably better than the dismal returns of the past few seasons. A lack of global lamb supply is expected to support prices over coming years. Drought and dairy expansion in New Zealand, the lowest sheep count in Australia for over 80 years and ongoing stock reduction in the EU will limit product availability. Prices in Europe are already up 30% on a year earlier. Co-product prices like skins and tallow are also rising on reduced supplies. While growth in demand in the EU and US may ease with economic growth, reducing supply is likely to keep prices firm. We expect prices at the farmgate to average \$4.50/kg in the 2008/09 season, up on the \$4.00/kg received last season and much better than the \$3.50 received in the season before that.

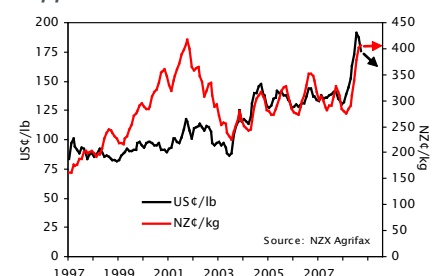
Dairy prices



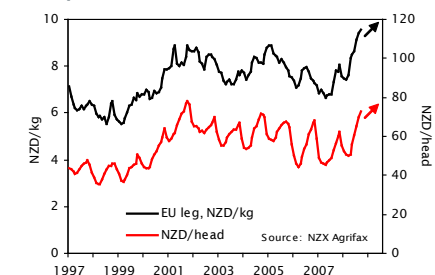
Forestry prices



Beef prices



Lamb prices



**Forecast Key:**  
General pace and direction of prices expected over the next 12 months



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