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INSIDE

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HOLY GUACAMOLE!

FEATURE ARTICLE: AVOCADOS – HOLY GUACAMOLE!

Trendy, versatile and nutritious, per capita consumption of avocados is increasing and supply is struggling to keep up. Grower returns from avocados are favourable with an industry average of $27,300/ha in recent years and top growers achieving $78,000/ha. We develop a commercially focused greenfield model which shows at maturity profit of $43,500/ha. The internal rate of return (excluding the cost of land) is 24% if the steady state profit of $43,500/ha in year 10 is held through to 20 years of age. The economics of avocados stack up well, but there are many practicalities to consider. Achieving consistent yields and maintaining tree health are challenging and require very good orchard management.

THE MONTH IN REVIEW

The hot, humid and at times wet seasonal conditions have had varying effects on different sectors' production. Milk flow has been under pressure and meat production was high through Dec/Jan. Larger crops for kiwifruit, wine and pipfruit are anticipated in 2018 as the planted area expands.

RURAL PROPERTY MARKET

In the dairy sector there are a high number of listings, which the market is struggling to digest. Current turnover is holding around historical averages, but buyers are cautious. Valuations are mixed, but have certainly cooled, especially for lower-quality and less well-located properties. It's a more vibrant market for other land uses, largely due to robust earnings backdrops.

KEY COMMODITIES AND FINANCIAL MARKET VARIABLES

Export prices remain near cycle highs and in some cases these are all-time records. Those with more GBP/EUR exposure are benefiting from a lower NZD.

BORROWING STRATEGY

Indicative rural lending rates have lifted slightly. The floating rate remains the lowest, and continues to look attractive, especially as we have pushed out when we see the first OCR hike to the second half of 2019. In saying that, with long-term rates still low, they do offer some value for borrowers looking for certainty.

ECONOMIC BACKDROP

We retain a broadly constructive view of medium-term growth, with support from stimulatory fiscal policy, accommodative financial conditions and elevated terms of trade. That said, while risks are arguably not as negatively skewed as they were, we remain a little more circumspect towards the near-term growth picture as the economy transitions in terms of its growth drivers and grapples with a softer housing market.

EDUCATION CORNER: THE RUBIK'S CUBE OF LIFTING BUSINESS PRODUCTIVITY

Productivity growth is crucial to remaining profitable in an ultra-competitive and constantly changing world. We suggest businesses follow a formal planning approach when assessing potential productivity improvements. This involves a number of steps: evaluation of a business's productivity performance against its peers and goals; identification of specific capital and operational innovations and initiatives; analysis of options; implementation of chosen ideas; monitoring of performance; and improvement where expectations aren't met.

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SUMMARY

Trendy, versatile and nutritious, per capita consumption of avocados is increasing and supply is struggling to keep up, with a long lead-in time until newly developed orchards bear fruit.

The industry has ambitious plans to lift total earnings from $146m to the high-$200m mark over the next five years. This is expected to be driven by large-scale greenfield developments and improving average yields. Currently, the fresh domestic (32%) and Australian market (56%) account for the lion's share of the crop. Both markets are expected to remain important, with higher returns than other markets and further lifts in consumption.

In time, more competition can be expected in the Australian market (local supply and other exporters gaining access) and there will be a need to find a home for increasing NZ supply. This means growing other promising Pacific Rim markets, such as Greater China, where market access has just been gained to the mainland. Consumption growth in the Pacific Rim is expected to be driven by the general lift in consumption of healthy foods and the expansion of Western foodservice, tourism and expat communities.

Grower returns from avocados are favourable with an industry average of $27,300/ha in recent years and top growers achieving $78,000/ha. We develop a commercially focused greenfield model that shows an at-maturity profit of $43,500/ha. Positive cash flow is delivered in year five and establishment costs as well as financing costs can be repaid from cash flow in year eight. The internal rate of return (excluding the cost of land) is 24% if the steady state profit of $43,500/ha in year 10 is held through to 20 years of age. This is well above the cost of capital when compared with a long-run interest rate assumption of 7%.

Like most primary sector investments, when the cost of land is included the internal rate of return drops significantly. Suitable bare land in the Bay of Plenty is $125,000/ha or more due to competition with kiwifruit and urban expansion. In Northland the cost is closer to $30,000/ha due to less competitive pressure from other land uses. If this is included and other assumptions applied to both regions, the internal rate of return drops to just 12% in the Bay of Plenty, but achieves a more respectable 19% in Northland.

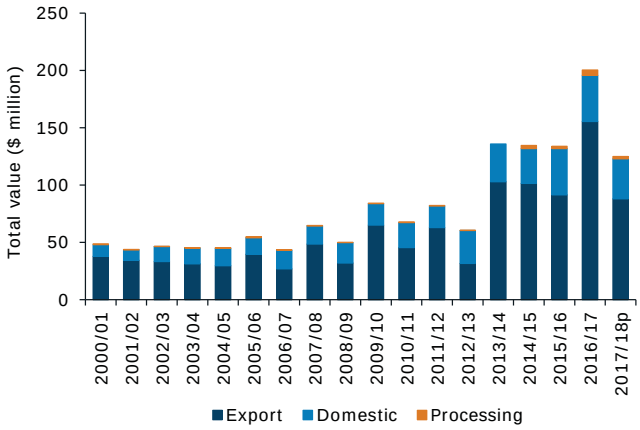
The economics of avocados appear to stack up well, but there are many practicalities to consider. Achieving consistent yields and maintaining tree health are challenging and require very good orchard management.

INTRODUCTION

Identifying the next 'big thing' that will bring about transformational change is a real challenge in today's fast-paced world. Constantly shifting consumer preferences with intense competitive pressure from multiple angles (both direct competitors and substitutes) means the goalposts are constantly shifting. However, identification of opportunity is just the first step. What follows is a lot of hard work across a number of business facets and regulation to realise the true potential of an opportunity.

In the avocado sector identification of new opportunities has occurred (ie. growing the Australian market and the opening up of the Chinese market) and now the hard work is underway to try to reach the sector's full potential and capture new opportunities. What follows is an overview of the sector and potential returns for growers/investors.

Figure 1: Avocado industry earnings



Source: ANZ, NZ Avocado

The avocado sector has ambitious plans to increase the value of the industry from $146 million (five-year average) to the high-$200 million mark over the next five years. This requires a near doubling in industry growth versus the circa 7% annual growth experienced on average since 2000/01. This is expected to be driven by both new, larger-scale greenfield developments and improving average yields across the sector. The irregular-bearing nature of avocados in New Zealand conditions is currently the sector's largest challenge to achieving a sustained higher growth rate. In terms of market split, exports currently account for around 74% of the sector's revenue, while 25% is from the NZ market and 2% is processed product.

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Total avocado export earnings have grown around 11% per annum over the past 10 years. This makes it one of the fastest-growing primary sector exports, with more to come. While domestic consumption will continue to expand, most of the future growth in demand is expected to come from fresh or processed/packaged product being sold to the Australian, Chinese and broader Asian markets. Enabling this, New Zealand has just gained market access to China – alongside competitors Mexico, Peru and Chile.

At present Australia accounts for around 80% of export revenue with Japan (4%), Singapore (2%), Thailand (2%) and South Korea (2%) being the other major markets. In the short term Australia will remain critically important given very favourable returns versus other markets (see more below), but increased competition from both others gaining market access and more local Australian supply can be expected in the future. This means it's critically important to develop other markets to match expanding New Zealand supplies.

WHAT'S SO SPECIAL ABOUT AVOCADOS?

In short, avocados are trendy, versatile and have a nutritional profile that is suitable for a range of health foods and beauty products.

Consumption trends for many foods are increasingly been driven by fashion. There has been an explosion of food 'gurus' who provide often conflicting views on what constitutes a good diet. Often one food guru will advocate a diet low in fat, or carbohydrate, or protein and the very next will claim the exact opposite. **The trendiness and changing perceptions of different foods will continue to be powerful drivers of long-term consumption trends.**

The trendiness of avocados is helped by one of the strongest social media presences of all foods. Avocados' social media charm is driven by their 'smashed avocado on toast' popularity among urban millennials. Its 'instagrammable' appearance due to its unique shape, skin texture and vibrant green colour plays an important part too.

Avocados are versatile, and can be used fresh at all meals of the day, as an ingredient for many baked goods or cooked dishes, and as a flavour enhancement (ie. sauce). Avocado is often used fresh in salads, sandwiches, burritos, tacos, sushi, and burgers, or as an ingredient in dips, guacamole, sauces, soups, smoothies and as a substitute fat in baked goods or cooked dishes.

This versatility, combined with the avocado's trendiness has seen consumption grow rapidly in recent years (see more below).

Equally important to its long-term success is cementing the avocado's nutritional and health credentials, especially with Asian markets being eyed up. Looking through the hype of many trendy foods and conflicting beliefs of food gurus, we are seeing a deepening body of research into the exact nutritional make-up of different foods and their specific impact on human health throughout our life. While the results of individual scientific studies can often be as confusing as health gurus' advice, over time the accumulation of a wider body of research will no doubt provide better clarity of what is and isn't 'healthy'.

Early dietary studies focused on the broad constituents of proteins, fats or carbohydrates. Later studies began to examine the effects of specific components, such as vitamins, minerals and dietary fibre. More recently, scientists have begun measuring phytochemicals (thought to prevent many chronic diseases) like flavonols and anthocyanins, and even more mysterious substances like free radicals.

Avocados, like butter, have benefited from the 'fat renaissance' – the belated recognition that fat is an essential part of the human diet and that decades of advice to avoid it was not leading to better health outcomes. There has also been much more research into different types of fat and their impacts on the human body. In short, saturated fat is now good (in moderation), while manufactured trans fats, even in small amounts, are bad.

Avocados are a unique fruit in that they are high in fat and fairly low in carbohydrates (specifically, sugar and starch). They are the only fruit that contains protein, carbohydrates and fat too. A ripe avocado is around 70-80% water, 10-20% fat, 8-9% carbohydrate, and 2% protein. The health qualities of both the types of fats and carbohydrates are high.

In the case of the fat in an avocado, around 70-75% is monounsaturated and 10-15% polyunsaturated, with the remainder being saturated and trans fats. The consumption of both monounsaturated and polyunsaturated fats have both long been viewed as part of a healthy diet to support metabolism, cell signalling, the health of various body tissues, immunity, hormone production, and the absorption of many nutrients (such as vitamins A, C and E). Fat suffered for decades from a misperception that cutting as much fat as possible from a diet was optimal for weight control and hence health.

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Of the carbohydrates in avocados around 75-80% is dietary fibre. For most other fruits, sugars such as fructose and glucose usually account for more than 60% of the carbohydrate content. There are two types of fibre: soluble and insoluble. Soluble fibre can help reduce cholesterol re-absorption in the intestine, while insoluble fibre, such as that found in avocados, keeps bowel movements regular. Fibre may also play a part in weight management – eating fibre-rich meals can provide a fuller feeling more quickly, helping reduce the amount eaten.

Avocados are also nutrient dense, containing a number of vitamins and phytochemicals: potassium, magnesium, vitamin A, vitamin C, vitamin E, vitamin K1, folate, vitamin B1-6, niacin, copper, pantothenic acid, riboflavin, choline, lutein/zeaxanthin, phytosterols, and MUFA rich oil. Being nutrient rich means fewer calories can be consumed for the same or more nutrients (being vitamins and phytochemicals).

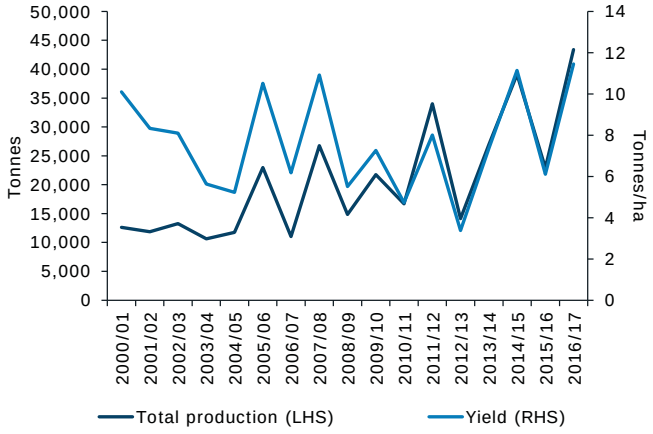
Other evidence-based research has also shown avocados' mix of vitamins, antioxidants and folate has a range of other health benefits including reducing tiredness and exhaustion; boosting immunity, brain and nervous system function; and helping development at all stages of life, but particularly for children and during pregnancy.

In summary, the excitement around avocados is being driven by not only its versatility, but also its many health benefits.

INDUSTRY PRODUCTION DYNAMICS

There are thought to be around 1,500 New Zealand avocado growers producing an average total of around 5.6 million trays of fruit each year (just over 1,000 growers are registered with NZ Avocado).

Figure 2: New Zealand production and yields

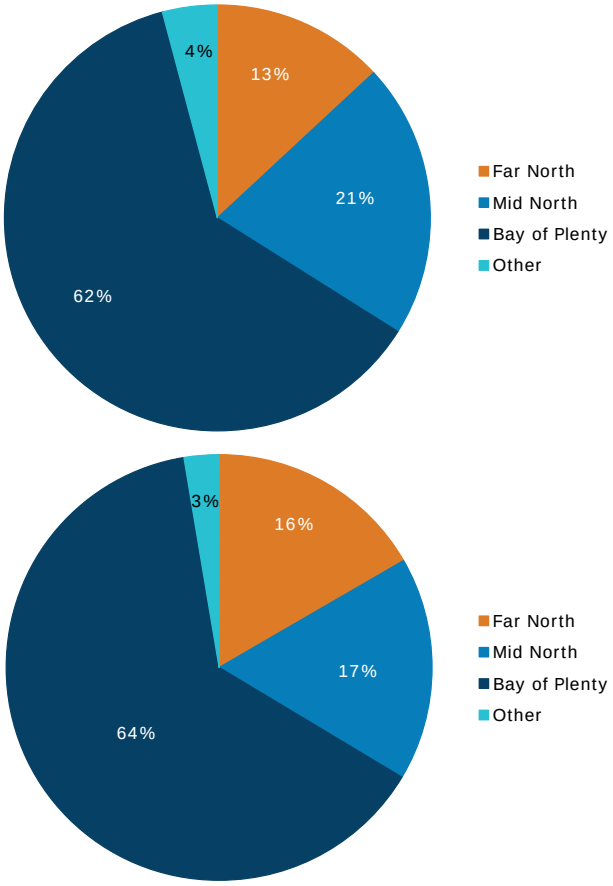


Source: ANZ, NZ Avocado

Of these growers many are hobby/lifestyle focused, particularly in the Bay of Plenty area. In fact, of the around 1,500 growers, 60% of their orchards are less than 2.5ha, accounting for 30% of the growing area. Larger, commercially-focused orchards greater than 10ha account for just 3% of orchards, but make up over 20% of the growing area.

There are currently around 3,800ha of avocados in New Zealand that on average produce around 11.5t/ha of fruit per year (2090 trays/ha). However, there is very irregular bearing, especially in the Bay of Plenty region, which causes large variations in year-to-year production (shown in figures 2 and 4).

Figure 3: Regional growing area and production for avocados



Source: ANZ, NZ Avocado

Currently the Bay of Plenty accounts for 60% of the growing area and Northland 36%. Looking through the irregular bearing challenge for the Bay of Plenty, that region has accounted for 64% of production over the last five years. This has equated to an average yield of 7.9 t/ha (or 1,440 trays/ha), but the annual variation has ranged from 1.8 t/ha to 12.2 t/ha over this period. The biophysical conditions in the Far North see far more consistent and higher

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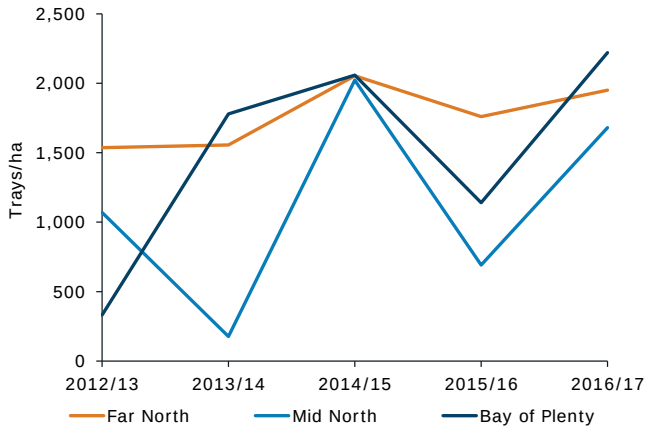
yields, having averaged nearly 9.7t/ha, with an annual variation of 8.4 t/ha to 11.3 t/ha over the last five years. For comparison commercially focused growers are achieving crop yields of 18.5 t/ha up to 25 t/ha.

Figure 4: Regional orchard yields



Source: ANZ, NZ Avocado

A proportion of the current growing area is newly developed orchards that are yet to bear full crops. Full production tends to be reached between 8 to 10 years of age, but it steps up significantly after four years.

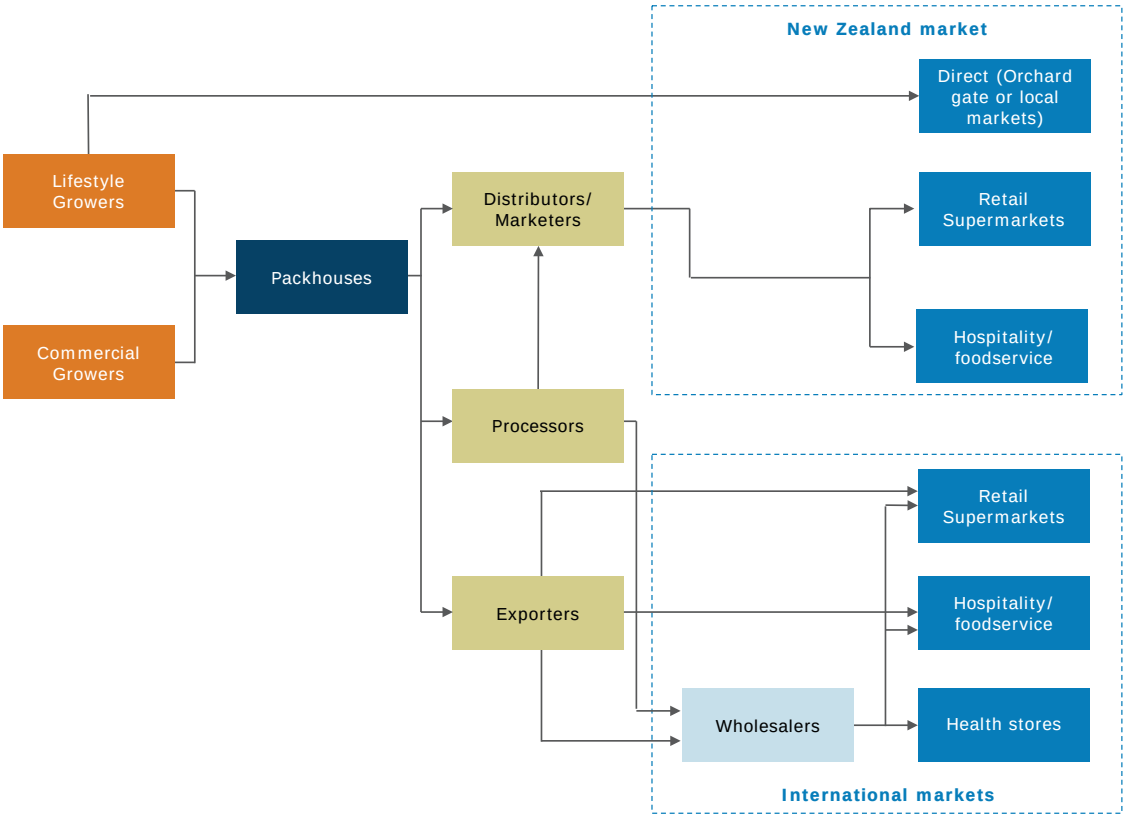
New greenfields establishment is forecast at around 1,200ha over the next five years or so, depending heavily on the availability of trees. Combined with the ambition to push average yields toward 15 t/ha on a regular basis, this could see total annual production reach 13 million trays over the next 10 years (up from 5.6 million trays at present). The majority of new greenfields development is set to occur in the Northland region due to availability to land and favourable biophysical conditions. The Bay of Plenty region will also see some development, but finding suitable land and its cost are key barriers.

INDUSTRY STRUCTURE

The supply chain works by growers entering into a supply contract for a year with a local marketer or exporter. When the fruit is picked it is graded and packed at supporting pack houses. There are 22 pack houses in total, of which 14 are export-approved. Many of the pack houses are kiwifruit oriented and grade/pack avocados in the off-season. The fruit is then shipped to pre-ripening facilities either offshore or onshore.

Locally, there are a number of marketers and suppliers that sell directly into both the retail and foodservice channels. Some growers sell product directly via own store or orchard gate sales, or local fruit/vege markets. Lower-graded product is sent for processing in New Zealand or Australia into oil or packaged food products. These are then sold either locally or exported into health stores or the food supply chain – typically through wholesalers, but in some cases directly too.

Figure 5: Market structure for New Zealand avocados



Source: ANZ

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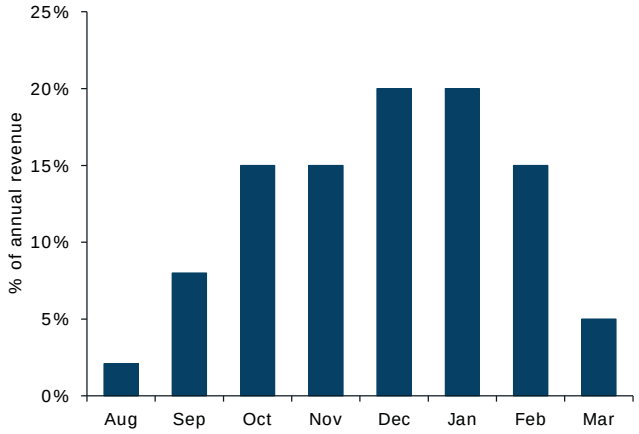
The marketplace is more concentrated for the exporters of fresh product. Avoco accounts for around 60-65% of export volumes. This is a joint venture between Tavo New Zealand and Primor Produce. The other two major players are Just Avocado (~15%), Seeka (~15%) and 8-10 smaller players that account for the remaining volume. For Avoco the main market is Australia, in which the majority of the crop is sold under direct retail programmes to the Coles and Woolworths supermarket chains. Surplus product is sold into wholesale markets in Australia, or retail programs into six countries in Asia. Product is sold and paid weekly/fortnightly as per the retail programme entered into. Payment terms are usually monthly for wholesale or Asian retail programmes.

Avoco – the main exporter – pays growers 7-8 times throughout the year. An initial advance payment is made when fruit is picked and packed. Then regular payments are made over the season as fruit is sold. Approximately 5% of each sale is held back for the final wash up. The first trays are sold in August with the final trays sold in February/March. The average % of total revenue received by month is shown in figure 6.

Figure 6: Grower payment profile



Source: ANZ, Avoco

The other support organisations for the industry include NZ Avocado, Horticulture NZ and service/product suppliers. New Zealand Avocado supports growers' interests through generic promotion of avocados, research and development programmes, general advocacy and information dissemination. All exporters must be registered with the NZ Horticulture Export Authority under NZ Avocado. Additional this means NZ Avocado implements quality standards, export grade standards, and rules and procedures that must be followed by growers, pack houses and exporters. This is important to maintain discipline around quality standards to protect NZ fruit's reputation and market access. These rules and procedures are documented in the Avocado Quality Manual and the Avocado Export Marketing Strategy. There are also consultants and service/product suppliers, such as Fruitfed, Farmlands and contract pickers that directly help growers with key inputs and crop harvest.

MARKETS

In recent years the fresh export market has accounted for 61% of total production and 74% of total sales revenue. The domestic fresh market has accounted for 28% of total production and 25% of total sales revenue, with the remainder being processed product.

As outlined avocados are trendy, versatile and have a nutritional profile that is suitable for a range of health foods and beauty products. We discuss each in turn.

Beauty products

In the natural beauty space several labels have incorporated avocado and its oils into their formulations. The poly- and mono-unsaturated fatty acids, as well as the long list of vitamins that the fruit possesses, give the avocado moisturising qualities. It is for this reason that avocados can be found in everything from under-eye cream and moisturisers to shampoo, promising rejuvenation and protection. The South Korean market in particular likes skin and hair products containing avocado.

Oil products

In order to make the most from reject and lower-quality fruit, oils and other value-add products have been created. A range of oil products exists, often infused with other flavours such as lime, balsamic, lemon, etc. Avocado oil has a high smoking point[1], making it perfect for cooking, as it can be fried, baked, stir-fried, deep-fried, seared, barbecued, roasted and sautéed. The avocado oil industry has averaged total sales of $5.3m over the past two years. The success of the avocado oil market has meant that oil producers are now battling to source enough local avocados to produce their products. This has seen several companies set up operations offshore to source enough avocados to meet demand.

[1] Smoking point' is when the oil being used to cook begins to give off smoke. A higher smoking point means there are more cooking options available for that oil. It avoids giving the food being cooked a burnt taste when the cooking oil is heated past its smoke point. Natural fats also begin to break down at this point, releasing dangerous free radicals. Beneficial nutrients and phytochemicals found in many unrefined oils are also destroyed.

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Packaged food products

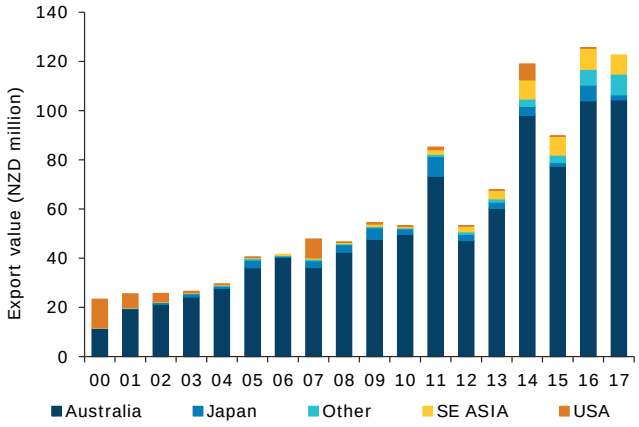
The flesh of the avocado is used in many value-add or packaged food products such as pre-mashed for convenience, butter alternatives, baby food and dressings. Keeping with the theme of waste reduction, in 2012 Avocado Oil NZ began work on producing powdered avocado using the leftover purée from the oil production process. The production of the powder, called Avopure, was taken from concept to commercialisation through collaboration with the government-funded Bioresource Processing Alliance and New Zealand Food Innovation Network's facilities. This value-add by-product is used in cosmetics, nutraceuticals and food products. It is exported to Australia, Japan, China and the United States.

The processed avocado space has seen a significant amount of growth in recent years. Prior to 2014, the revenue stream from processed products was minimal – averaging just under $355,000 per annum from the 2004/05 to the 2013/14 season. While still only a small part of the total industry, revenue has grown strongly since 2014/15, with the latest season seeing $4.52 million in sales of processed products.

New Zealand's fresh markets

The fresh domestic (32%) and Australian (56%) market have together accounted for around 89% of the total crop over the past five years. Both markets have seen strong per capita consumption gains in recent years. With total Australasian supply struggling to meet demand, especially in the latter part of the New Zealand season (February/March), this has seen wholesale and orchard gate returns jump. **Indeed, Australian market returns have nearly doubled in recent years and have achieved prices nearly a third higher than the domestic and other export markets.**

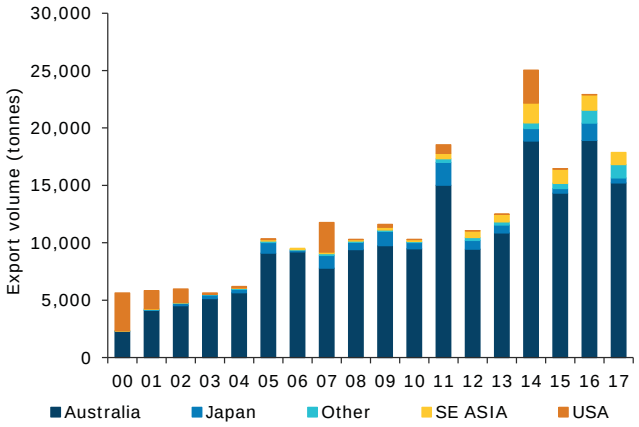
Figure 7: New Zealand export markets by value



Source: ANZ, Statistics NZ

Other smaller export markets include Japan (4%), Singapore (2%), Thailand (2%), South Korea (2%), India, Malaysia and Taiwan. The US market has been used in the past to sell excess volumes from larger crops. This has been less the case in recent years with the Australasian market and prices performing so strongly.

Figure 8: New Zealand export markets by volume

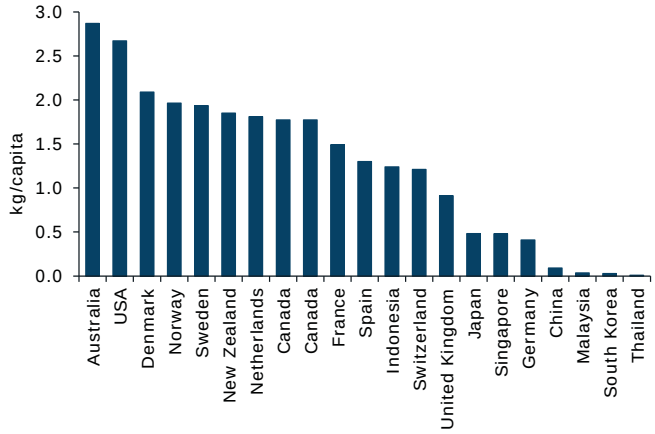


Source: ANZ, Statistics NZ

International marketplace

With expanding supplies, the maturing New Zealand market and heavy concentration risk to Australia, the search is on to develop other markets to grow long-term industry value. Market access, competitor pressure, freight costs, shelf life, consumer demand/ preferences, supply chain robustness, retail/ foodservice relationships and market returns are all important considerations in the search for new markets.

Figure 9: Avocado consumption in selected countries



Source: ANZ, FAO

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Per capita consumption is highest in the larger-producing areas/countries in South America and select parts of Africa, at 3 to 7kg per annum. Outside of these areas, Australia has one of the highest per capita consumption of avocados. This demand has been growing in excess of 6% per annum over the past five years. Restrictive market access (phytosanitary and biosecurity requirements in particular) means the market is currently supplied solely by domestic and New Zealand sources. However, the potential signing of the CPTPP by Australia is likely to open access to Mexico and other competitors such as Peru and Chile in the future.

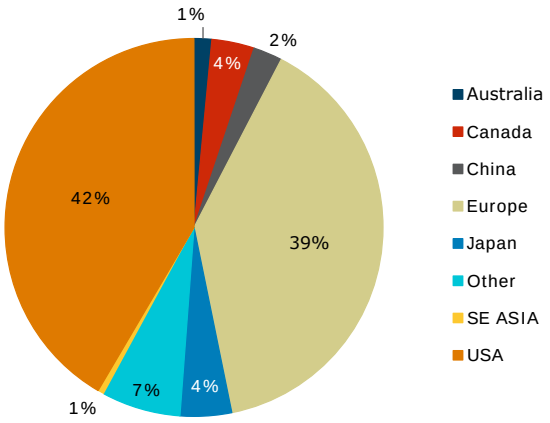
Figure 10: Australian market avocado supply/demand gap

Source: ANZ, Avoco

At present the Australian market consumes around 15 million trays per annum. Of this, local supply accounts for around 12 million trays (78%) and New Zealand the remainder. Total hypothetical demand at 'reasonable' prices is estimated to be around 18.7 million trays – implying around a 20% supply deficit. Due to this supply deficit, Australian producers are looking to expand production with estimates of growth toward the 20 million tray mark over the next 10 years.

Other markets where existing consumption is high and growing quickly include North America and Northern European countries.

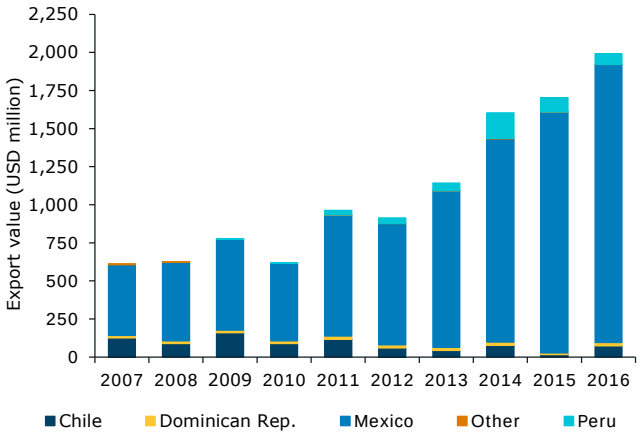
Figure 11: Total world imports by region



Source: ANZ, Comtrade

These countries are also where existing domestic production is relatively low compared with consumption and which rely on imports to fill the gap. In fact the North American and European markets combined account for 85% of global import demand. Yet New Zealand sends little to no fruit to these markets.

Figure 12: US avocado imports by country



Source: ANZ, Comtrade

The reality is that the long shipping times and freight costs limit opportunities in European markets. In the future, improved dynamic controlled atmosphere technologies are expected to improve the reliability and shelf life of shipping avocados to European markets, potentially improving viability. In the case of the US, there is a large domestic production source in California, but this market is challenged by distance too, especially to the East Coast of the US. **There is also fierce competitive pressure in both regions.** In the case of the US, imports are dominated by Mexico (92%), while in Europe it's a mix of the likes of Mexico, Peru, Chile, Kenya, South Africa and Israel. New Zealand also faces tariffs in the US market that other competitors don't.

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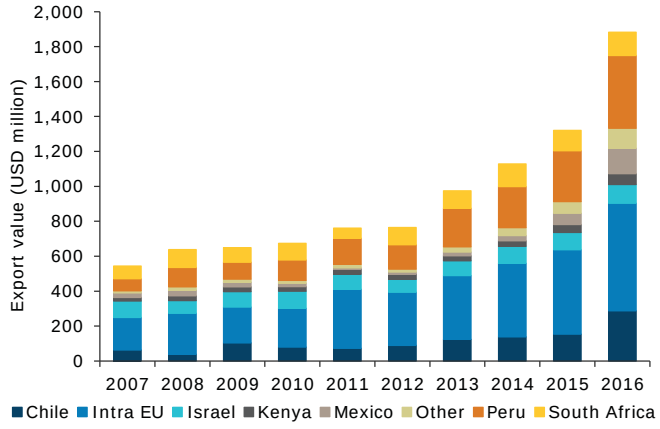
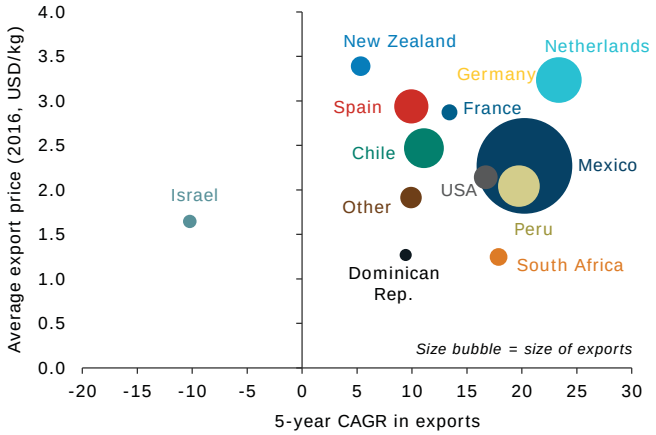
Figure 13: European avocado imports by country



Source: ANZ, Comtrade

Figure 14: Top 15 global avocado exporters



Source: ANZ, Comtrade

In terms of competitive pressures in the Pacific Rim where New Zealand's market diversification play is expected to be targeted, the North/South American competitors – particularly Mexico, Chile, Peru and Colombia – will provide the stiffest competition. These four producers account for around 70% of global exports and these have grown at 19% per annum over the past five years. Other exporter growth is running at only 10% over the same period. Market access remains restrictive in some Pacific Rim markets for these countries. However, they are also investing in expanding their growing area, improving food and biosecurity safety measures throughout the supply chain, and new orchard practices to boost both the production and quality of fruit.

Interestingly, there isn't the classic Northern versus Southern split in terms of the production season for different countries. Peruvian competition will be more on the shoulders of the NZ season, but Mexico, Chile and Columbia all produce fruit during the same timeframe as our season.

More specifically, if you examine consumption growth, import trends and pricing, some of the most attractive markets are Switzerland, Sweden, Norway, Germany and Denmark. For now, the tyranny of distance (shelf life and freight costs) and lack of surplus product means these markets aren't realistic prospects.

Table 1: Global avocado production calendar

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
South Africa			■	■	■	■	■	■	■	■		
Kenya		■	■	■	■	■	■	■	■	■		
Peru			■	■	■	■	■	■	■			
Brazil			■	■	■	■	■	■	■			
Argentina				■	■	■	■					
California				■	■	■	■	■	■			
Australia	■	■	■	■	■	■	■	■	■	■	■	■
Mexico	■	■	■	■	■	■	■	■	■	■	■	■
Chile	■	■	■	■			■	■	■	■	■	■
Israel	■	■	■	■	■	■			■	■	■	■
Spain	■	■	■	■	■					■	■	■
New Zealand	■	■	■					■	■	■	■	■
Columbia	■				■	■	■	■	■	■	■	■
India									■	■	■	■

Key: ■ In season; Out of season; ▭ New Zealand's production season

Source: ANZ, Avoco

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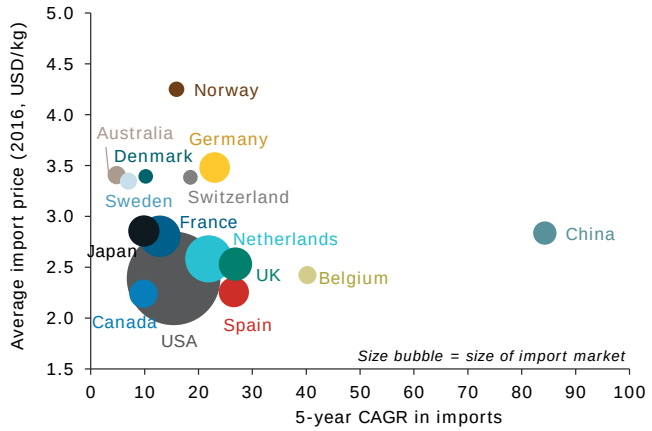
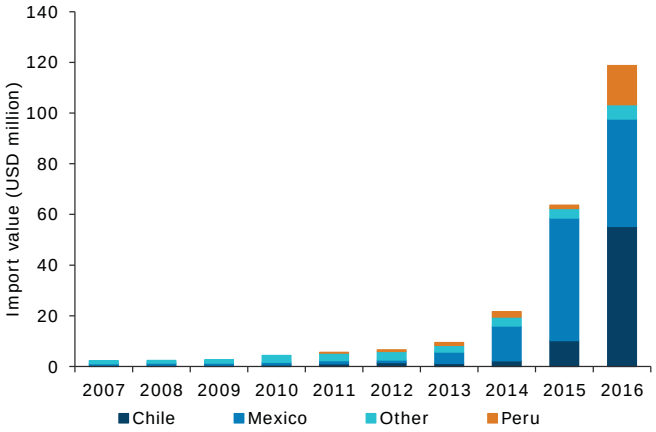
Figure 15: Top 15 global avocado importers



Source: ANZ, Comtrade

Figure 16: Chinese avocado imports



Source: ANZ, Comtrade

Rather, New Zealand exporters are looking to target the Greater China region and other existing Asian markets such as Japan, Singapore, South Korea, Thailand and Malaysia. China has long been viewed as a significant opportunity even though many Chinese palates are unfamiliar with the fruit, as underscored by current low per capita consumption (see figure 9). Consumption growth is expected to be driven by all the trends that are supporting the general growth of many food products, as well as avocados' health angle. As they say, food in the Chinese culture is viewed as 'health first and nutrition second'. This is the complete reverse of many Western markets, where it's the avocado's versatility that is an important driver of increasing consumption.

Unfortunately, the competition (Chile, Mexico and Peru) already have the hop on market access into China. Market access has recently been approved for New Zealand product, so some of the 2018 crop, starting in August, is expected to be destined for China. Relatively low volumes are likely initially and there will be extra marketing costs to establish and build a profile/brand. Initially the tug of war will be striking the right balance between needing to diversify from the Australasian market longer-term and the current shortage of supply in markets which offer very lucrative returns. It will require some exporter discipline to strike the right balance.

Each of the other Asian markets have their own quirks. Japan tends to like smaller fruit, after being established by the US, but this benefits Mexican fruit now. Singapore like the fruit for heart health; China to assist baby development (folate) and South Korea to promote smooth skin and silky hair. No doubt with more research these trends will continue to evolve and be incorporated into exporters' marketing activities, consumer education and packaging.

Expat communities and tourism are also drivers of increasing consumption in many Asian markets, such as Singapore and Thailand. Additionally, the growth in western food service restaurants (ie. Mexican, etc) across Asia is introducing the avocado in different forms to many new consumers too, which is driving consumption growth.

THE ECONOMICS AND PRACTICALITIES OF GROWING AVOCADOS

There are a number of things that need to be considered when completing a greenfield establishment for avocados, or investing in an existing orchard. We won't go into all the ins and outs on the selection, establishment and key orchard management functions here.[2]

Broadly, in terms of site selection some of the key considerations include:

1. **Winter and flowering temperatures/light intensity** – important for the fruit set and determining yields.
2. **Physical soil attributes**– requires a well-aerated, well-drained soil for healthy root growth and limiting root-rot pressure.

[2] Detailed information is available through the likes of NZ Avocado for those who are interested.

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3. **Aspect** – best light conditions are north-east and north-facing orchards. Areas prone to waterlogging need to be avoided for root rot.
4. **Chemical soil attributes** – adequate nutrition – especially nitrogen, potassium, boron and zinc – are very important for sustained yields and sizing.
5. **Water** – irrigation is required for heavy crops in areas with low summer rainfall – 30-40% of Bay of Plenty orchards are estimated to have irrigation.
6. **Wind** – protection is required for possible tree and fruit damage in high-wind areas.

Once a suitable site has been selected orchard design can take place. Orchards are using either clonal rootstock with the Hass cultivar grafted on top, or seedling rootstock with Hass grafted on top. While Hass is the main variety used in New Zealand, as it's more suited to our cooler growing conditions, there are others, including GEM, Carmen and Reed. Trees are normally grown in a nursery for two years before being planted. The first substantial crop is produced around 4 to 5 years of age and full production is reached between 8 to 10 years of age.

There are a range of views on planting density, which seems to come down to personal preference. Recent developments seem to be favouring higher-density planting of 400 trees/ha (5 by 5 metre spacing) that are then thinned later on to avoid shading. Others prefer a planting density of 200 trees/ha (7 by 7 metre spacing) with less thinning at maturity and lower tree costs. We have constructed a budget below based on 400 trees per hectare of clonal rootstock.

Table 2: Initial establishment costs

Item	$/tree	$/ha
Trees	$40-$50	$16,000-$20,000
Planting Costs (labour & equipment)	$15-$18	$6,000-$7,000
Fertiliser	$2.5-$5.0	$1,000-$2,000
Mulch	$7.30	$2,900
Tree shelter	$15	$6,000
Orchard shelter	$3.10	$1,250
Total	$83-$98	$33,150-$39,150
Site specific costs		
Irrigation	$13-$20	$5,000-$8,000
Drainage	$5-$10	$2,000-$4,000
Contouring	$13-$25	$5,000-$10,000
Total	**$113-$153**	**$45,150-$61,150**

Source: ANZ

There is a wide range of other assumptions that are applied to derive these high-level estimates:

1. **The price of trees varies depending on the rootstock.** Germinated seedlings range from $20-$25/tree, whereas clonal rootstock is twice this price at $40-$50/tree. The range depends on region and specific royalties charged for the different types of clonal rootstock.
2. **There is a range of planting costs associated with digging holes, planting, spreading fertiliser / mulch, constructing shelter around each tree, watering etc.** All the preparation through to final planting is assumed to take around half an hour per tree, with a labour cost of $20/hour (there are some assumed equipment costs too).
3. **The fertiliser cost depends on soil testing results and what deficiencies for growing avocados might exist.**
4. **Mulch is required to lay around each tree to reduce the chance of root rot.**
5. **Shade and wind shelter is required for each tree and ideally for the entire orchard at around 1.5-2.0ha blocks.**

More site-specific costs include irrigation, drainage and contouring (ripping of clay pan/ compacted soil, altering aspect etc). **For irrigation, estimates vary from $5,000 to $8,000 / canopy ha for the reticulation system, sprinklers and installation. Drainage ranges from $2,000 to $4,000 / canopy ha. Contouring can have a wide range depending on the type of work completed so could range from nothing through to $10,000 / ha or more.**

These and other equipment costs can bring a greenfield development of a commercial orchard toward the $45,000 to $60,000 / ca ha mark. Of course it can be a lot lower if seedlings are used, labour costs are non-cash (ie. owner-operators' time) and there are limited site-specific costs, such as contouring and orchard shelter.

Like most horticultural crops, the revenue side tends to dictate underlying returns. There are thought to be around 11 different factors that influence yields (eg. pollination – reliant on bees as one can't artificially pollinate, temperatures during key growing phases, disease pressures, sunlight hours, soil type, nutrition, root health, canopy management, etc). The potential for one or several of these factors to combine and affect yields is very high.

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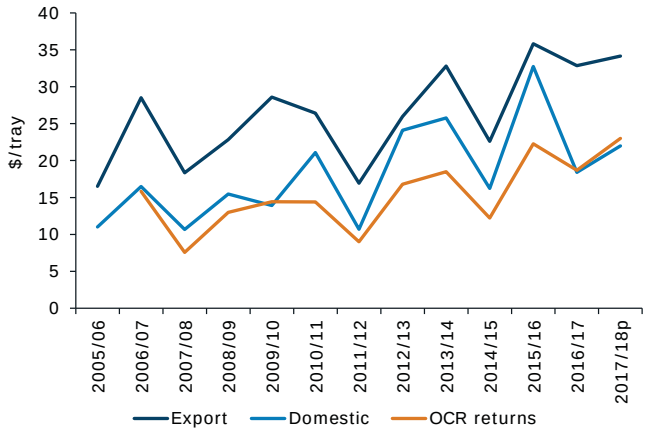
New Zealand's biophysical conditions, combined with an irregular fruit-bearing tendency, often lead to large variations in year-to-year yields. A big part of the Avocado Primary Growth Partnership initiative is a goal to sustainably lift yields toward 15 t/ha and reduce their inconsistency. As mentioned earlier, there are many lifestyle-focused growers and some greenfield developments yet to reach maturity that reduce the average industry yield. Those establishing larger-scale, more intensive orchards are looking to achieve yields of 16 to 24 t/ha, or 3,000 to 4,400 trays/ha at maturity. We have assumed 18.5 t/ha, or 3,400 trays/ha at year 10 in our model.

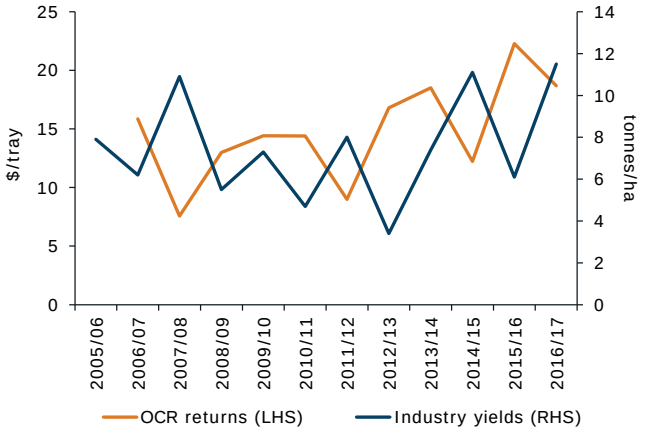
Figure 17: Average orchard gate returns



Source: ANZ, NZ Avocado

Export market returns outperform the domestic market, so the grading and proportion of a crop sold into either the export (usually the highest-graded fruit) or domestic market influences the average orchard returns a grower receives. Gross export returns have averaged $31.7/tray and the domestic market $23/tray over the last five years. Gross returns per tray have increased in recent seasons, however, as strong Australian demand has lifted pricing (10%), which in turn has had a knock-on effect to pricing in other markets (5-8%). **The weighted average return across all markets has been $28.8/tray over the past five years. Post-harvest costs (grading, packaging, freight, marketing etc) have averaged $9.9/tray over this period. This has delivered an average orchard-gate return of $18.9/tray. This has varied from $12 to $22/tray over this period.**

Figure 18: Orchard gate returns versus industry yields



Source: ANZ, NZ Avocado

The more recent lift in marketplace returns has pushed orchard-gate returns into the low $20/tray range over recent years. We have decided to use the five-year average of $18.9/tray given the favourable demand backdrop – a more conservative estimate would be around $15/tray, which can be covered by sensitivity analysis. Similar to kiwifruit, there is some revenue protection (smoothing) provided by the counter-cyclicality of prices and yield. That is, a large New Zealand crop (high yields) usually leads to lower orchard gate prices and vice versa.

The last piece of the puzzle is orchard costs, which cover labour, picking/harvesting, fertiliser, pruning/thinning, pollination, phytophthora control, mulch, irrigation, spraying and general maintenance. A big proportion of this is labour focused. Aside from the initial establishment costs listed above, ongoing operating costs start out low and increase as the trees grow and produce more fruit.

We have assumed operating costs around $3,500 to $5,500/ha in the initial establishment years. These then build to $19,000-$20,000/ha at maturity when picking costs are included. However, like many of the other assumptions there is a wide range of cost structures from $10,000/ha up to the $30,000/ha mark, depending on a range of assumptions/orchard setups. Our estimate is around the middle of this range.

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Table 3: Modelled per hectare returns over the first 10 years of establishing orchard

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Orchard yield (kg)	-	-	500	3,083	7,194	10,278	14,389	14,800	15,417	18,500
Tray equivalents (TE)	-	-	91	561	1,308	1,869	2,616	2,691	2,803	3,364
Average $ per tray			18.9	18.9	18.9	18.9	18.9	18.9	18.9	18.9
Income	**-**	**-**	**1,718**	**10,595**	**24,723**	**35,318**	**49,445**	**50,858**	**52,977**	**63,573**
Less picking cost	-	-	67	492	1,340	2,038	3,132	3,579	4,101	5,592
Gross contribution	**-**	**-**	**1,652**	**10,103**	**23,383**	**33,280**	**46,314**	**47,279**	**48,876**	**57,981**
Establishment costs										
Plants and planting	26,000	-	-	-	-	-	-	-	-	-
Irrigation	6,500	-	-	-	-	-	-	-	-	-
Shelter belts	7,250	-	-	-	-	-	-	-	-	-
Other	10,000									
Total	**49,750**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
General orchard costs										
Grass mowing	500	500	500	500	500	500	500	500	500	500
Weed spray	250	250	250	250	250	250	250	250	250	250
Shelter belt trim/mulch	-	-	-	-	200	200	200	200	200	200
Other general maintenance	100	100	100	100	100	100	100	100	100	100
Total orchard costs	**850**	**850**	**850**	**850**	**1,050**	**1,050**	**1,050**	**1,050**	**1,050**	**1,050**
Tree management costs										
Consultancy	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Monitoring	400	400	400	500	500	600	600	600	800	800
Sprays (inc foliar)	900	900	1,500	1,800	3,000	3,000	3,000	3,000	3,000	3,000
Fertiliser	1,500	500	500	1,500	2,000	2,000	2,200	2,200	2,200	2,200
Irrigation (excl depreciation, interest)	200	200	200	200	200	250	250	250	250	210
Pruning & thinning	-	-	1,000	1,250	1,500	1,750	5,000	1,750	5,000	1,750
Mulch	2,900	-	-	2,900	-	2,900	-	-	-	2,900
Phytophthora control	-	650	550	550	400	400	400	400	400	400
Pollination	-	-	300	600	900	900	1,200	1,200	1,200	1,200
Total tree mgmt. costs	**6,900**	**3,650**	**5,450**	**10,300**	**9,500**	**12,800**	**13,650**	**10,400**	**13,850**	**13,460**
Total expenditure	**57,500**	**4,500**	**6,300**	**11,150**	**10,550**	**13,850**	**14,700**	**11,450**	**14,900**	**14,510**
Net contribution / cash flow	**-57,500**	**-4,500**	**-4,648**	**-1,047**	**12,833**	**19,430**	**31,614**	**35,829**	**33,976**	**43,471**
Plus opening balance	0	-61,525	-70,647	-80,566	-87,325	-79,707	-64,496	-35,184	646	34,622
	-57,500	-66,025	-75,295	-81,612	-74,492	-60,276	-32,882	646	34,622	78,093
Notional interest	-4,025	-4,622	-5,271	-5,713	-5,214	-4,219	-2,302	-	-	-
Closing cash balance	**-61,525**	**-70,647**	**-80,566**	**-87,325**	**-79,707**	**-64,496**	**-35,184**	**646**	**34,622**	**78,093**

Source: ANZ

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The net result of all these assumptions is at maturity the trees deliver profit of $43,500/ha. Positive cash flow is delivered in year five and establishment costs as well as financing costs (at an assumed 7% interest rate) can be repaid from cash flow in year eight. The internal rate of return (excluding the cost of land) is 24% if the steady-state profit of $43,500/ha in year 10 is held through to 20 years of age. This is well above the cost of capital when compared with a long-run interest rate cost of 7%. As a comparison, the average return across the industry has been $27,300/ha over the last four years. The top growers over the same period achieving higher yields have delivered $78,000/ha.

Like most primary sector investments, when the cost of land is included the internal rate of return drops significantly. Suitable bare land in the Bay of Plenty is $125,000/ha-plus due to the competition with kiwifruit and urban expansion. In Northland the cost is closer to $30,000/ha due to less competitive pressure from other land uses. **If this is included and other assumptions applied to both regions the internal rate of return drops to just 12% in the Bay of Plenty, but achieves a more respectable 19% in Northland.**

No surprise then that the Northland region with more reliable yield outcomes and lower land cost is proving attractive from a greenfield development and returns perspective. However, labour and other services (ie. pack houses, pickers etc) in the Bay of Plenty are likely easier to source, and have potentially lower costs due to better economies of scale.

Sensitivity analysis

Looking at some sensitivity analysis of orchard gate returns and yields shows a variation of $24,000 to $56,000/ha at maturity around the mid-point of our applied assumptions. Returns drop off exponentially when yields fall below 12 t/ha and orchard gate returns are below $18/tray.

Table 4: Sensitivity analysis of per hectare returns for orchard gate prices and yields

		OCR returns ($/tray)				
		12	15	18	21	24
Yield (t/ha)	8	526	4,890	9,254	13,617	17,981
	10	4,285	9,740	15,195	20,649	26,104
	12	8,045	14,590	21,135	27,681	34,226
	14	11,804	19,440	27,076	34,713	42,349
	16	15,563	24,290	33,017	41,745	50,472
	18	19,322	29,140	38,958	48,776	58,595
	20	23,081	33,990	44,899	55,808	66,717
	22	26,840	38,840	50,840	62,840	74,840
	24	30,599	43,690	56,781	69,872	82,963

Source: ANZ

Looking at the same metrics but for internal rates of return shows results above 12% when achieving yields in excess of 13t/ha and orchard gate returns of at least $15/tray. While this excludes the cost of land it is still well above the 7% cost of capital threshold and our personal preference of 10% for primary sector investments (ie. adjusting for appropriate risks etc).

Table 5: Sensitivity analysis of internal rate of return for orchard gate prices and yields – excludes cost of land

		OCR returns ($/tray)				
		12	15	18	21	24
Yield (t/ha)	8	-18.60	-2.20	3.90	8.10	11.30
	10	-3.30	4.40	9.30	13.10	16.20
	12	2.50	8.90	13.40	17.00	20.10
	14	6.50	12.30	16.70	20.30	23.40
	16	9.70	15.30	19.60	23.20	26.40
	18	12.30	17.80	22.10	25.80	29.00
	20	14.60	20.10	24.40	28.10	31.40
	22	16.70	22.10	26.50	30.30	33.60
	24	18.60	24.00	28.50	32.30	35.70

Source: ANZ

All up, the economics of avocados looks to stack up well, but there are many practicalities to consider. Achieving consistent yields and maintaining tree health are considered challenging and require very good orchard management. The sector's further research into optimising tree decline management, understanding and validating new canopy management strategies, evaluating new cultivars and the development of best-practice guidelines will be very important in improving long-term outcomes.

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There are a number of other sector challenges:

Biosecurity – there are a number of potential pest and pathogens that New Zealand currently doesn't have. The industry has signed an agreement with the Government that includes a comprehensive plan for mitigating key biosecurity risks and a response pathway for any incursions that occur.

Accessing skilled labour – like most horticultural crops, labour requirements vary throughout the season and the current tight labour market conditions are making it difficult to source appropriate skilled people. The seasonal nature of the work can also make it difficult to retain skilled employees even though avocados are somewhat counter-seasonal to New Zealand's big crops such as pipfruit, kiwifruit and viticulture. Minimum wage increases over coming years, employment law changes and tightening migration could also have some impact on the cost of certain orchard functions, such as fruit-picking or tree-pruning.

Disease and pest issues – there is a range of pest and disease issues that can attack the tree or fruit. These are usually controlled with spray/chemical applications and integrated management systems based around good nutrition, orchard hygiene, careful handling, post-harvest treatment and temperature control. Key pests include leafroller caterpillars, greenhouse thrips and six-spotted mite infestations. Key diseases are root rot caused by Phytophthora cinnamomi and ripe rot through the flesh or stem end caused by a range of pathogens and high rainfall during the growing season. Phytophthora cinnamomi is a soil fungus that rots actively growing avocado feeder roots. The fungus is now widely distributed in all main avocado production areas, limiting tree performance and yield.

Research and development investment – more needs to be invested across the entire supply chain to improve efficiencies, validate health benefits and develop new markets. On orchard, the main focus needs to be on improving the consistency of yields through integrated management practices. In the marketplace there is a need to further investigate the health benefits of avocados and work this into the sector's marketing and product marketing/ branding. Elsewhere, if the Chinese market is to be cracked there will be a need to invest in educational marketing to teach households the nutritional benefits of avocados and how they are used in different meals, etc.

Supply chain efficiencies/improvement – some of the target markets for future growth are further away, raising freight cost and shelf-life challenges. To overcome this, further investment is required in new handling/storage technologies to extend shelf life once picked and to continue to meet restrict biosecurity importing requirements in new markets, such as China.

Accessing trees – there is a two year wait for avocado trees, such as the demand and nursery capacity at present.

THE MONTH IN REVIEW

SUMMARY

The hot, humid and at times wet seasonal conditions have had varying effects on different sectors' production. Milk flow has been under pressure, but the risk of an early finish to the season has reduced. Meat production was high through Dec/Jan, especially in the drier SI areas. A pullback is anticipated over the remainder of 2017/18. Early harvests are occurring for horticultural crops with average yields and reasonable quality. Larger crops for kiwifruit, wine and pipfruit are anticipated in 2018 as the planted area expands.

MOTHER NATURE

Climatic and pasture conditions have varied a lot by region through the summer. In typical La Nina fashion it has been warm and humid, with January 2018 being the hottest on record. Rainfall has come in short but intense bursts, driven by the remnants of several tropical cyclones. These conditions have led to patchy pasture conditions across the country, with some faring well while others have suffered. In general the lower halves of both islands have struggled, with several declared medium-scale drought areas during January.

The latest blast from tropical cyclone Gita has left saturated soil moisture conditions in the top half of both islands and kicked the recovery along in other areas. In general the hot and humid conditions have weighed on livestock performance and milk flow, even when pasture conditions remained favourable. Animal health issues have been an additional challenge. From a cropping or horticulture perspective the weather conditions have been generally favourable (apart from the wind associated with Gita) and will lead to materially earlier harvests this season.

DAIRY

NZ milk flow struggled through December and January with milk solids production down 6% y/y over this period. There was a notable increase in early culling this season (+40% ytd) which reduced the number of cows in milk through this period. Low performers were removed early as milking frequency was reduced in response to the deterioration in pasture conditions. The abnormally warm temperatures during January appear to have weighed on per cow performance too – the ideal temperature for cows is 18C, not the late-20C conditions experienced in many areas.

All up, season-to-date milk production is now tracking -0.9% y/y. The risk of a broad-based early finish to the season has reduced with widespread rain events in February. Milk flow has improved in February, but it's unlikely last year's record autumn will be bettered, especially with lower cow numbers. This leaves the season biased towards a 1-1.5% fall in milk production in 2017/18, but with large variations across regions. This will be the third consecutive fall in annual NZ production, leaving it circa 3% below the 2014/15 peak. There hasn't been three consecutive yearly falls in New Zealand milk production going back to the 1970s!

MEAT AND FIBRE

Early season sheep meat and beef production has been stronger than anticipated due to the climatic conditions and high farm-gate returns. **Year-to-date lamb production is running 6.6% ahead versus industry forecasts of only a slight lift in 2017/18.** This implies a pullback in production over the remainder of the season unless retained ewe lambs are lower than anticipated. If anything, more favourable autumn conditions in major breeding regions and high farm-gate returns should encourage higher retentions. This implies a more significant pullback (2% to 3% y/y) in supply through the autumn/winter period. **Mutton production is also running ahead, but much more so in the drier SI areas.** This implies a stable breeding flock in the NI but a decline in the SI, which could weigh on the 2018 lamb crop. Improved seasonal conditions for early autumn should support favourable tupping conditions, however.

Year-to-date beef production is tracking 8.5% ahead versus industry forecasts of little change in 2017/18. The increase has been driven by higher dairy cull cows and SI bull beef. The main dairy cull cow kill is expected to be late and fairly condensed with the lift in pasture conditions. There will be a pullback in SI bull beef, but NZ production is still anticipated to lift in 2017/18 driven by higher retentions during the dairy downturn (extra income and high beef prices).

ARABLE

The hot and humid conditions have led to an early harvest, stopped only by rain events. **Both wheat and barley have been of good quality, but yields are lower than normal (and last year's records).** Dryland crops have been the worst affected, but even irrigated crops have seen mixed results as earlier dry conditions affected development.

HORTICULTURE

In general, and particularly in Marlborough, the outlook is for an early vintage with near-average per hectare yields. Combined with an increase in new plantings reaching maturity this is expected to see the total crop lift back into the low-400,000t range in 2018.

Kiwifruit volumes are set to rebound following a tough 2017 due to vine exhaustion and difficult growing conditions. The green crop is set to lift to 80m trays (up from 65m) and gold volumes will push toward 65m trays as more vines reach maturity (up from 52.5m).

The pipfruit crop is expected to lift to 576,000 mt (circa +6%) driven by a 4% increase in the planted area. The average fruit size is larger due to regular rainfall and heat during the growing season, particularly early on.

RURAL PROPERTY MARKET

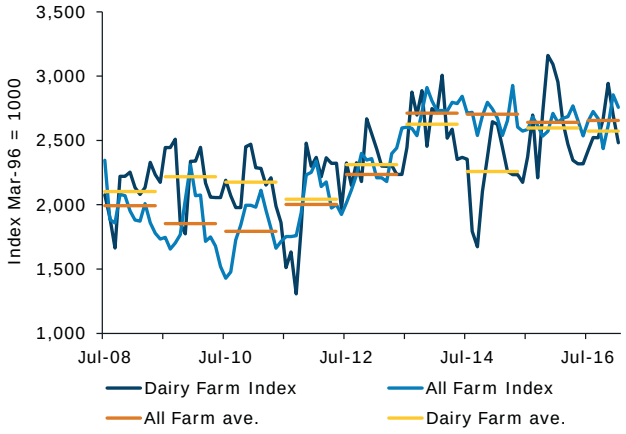
SUMMARY

There are divergent trends across the rural property market at present. In the dairy sector there is a high number of listings which the market is struggling to digest. Current turnover is holding around historical averages, but buyers are cautious. Valuations are mixed, but have certainly cooled, especially for lower-quality and less well-located properties. This cautiousness appears to be spreading into support blocks, with lower turnover for other grazing/cropping farms too. Despite a favourable earnings backdrop for dairying, regulatory change on a number of fronts, tighter bank lending criteria, high listing numbers providing buyers with choice, and foreign investment restrictions are all combining to create a more cautious environment for dairy land.

It's a more vibrant market for other land uses, largely due to robust earnings backdrops. In the horticulture space strong cash-income generation, more corporate-type and Māori investment, a diminishing area of suitable land in key regions, sector expansion (ie. issuing of more kiwifruit/pip fruit licenses), and migration out of expensive urban areas in search of lifestyle options are all combining in various measures to support valuations. Meat and fibre finishing and grazing valuations are being supported by near-record farm-gate prices for red meat and solid earnings from other activities such as dairy support. Forestry valuations have pushed up due to high returns, the prospect of higher carbon prices and new government incentives to plant trees.

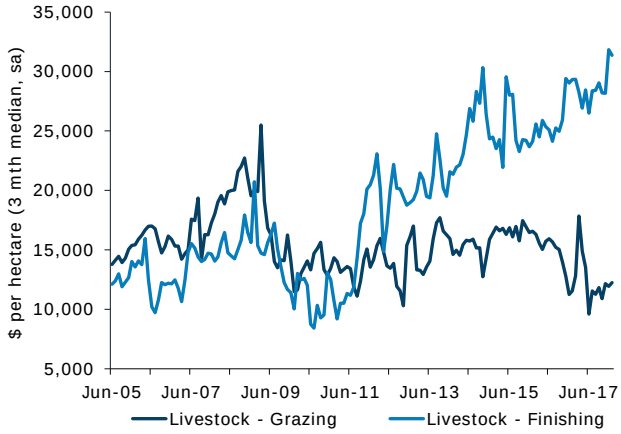
FARM SALES BY FARM TYPE								
3-Month Seasonally Adjusted		Current Period	Previous Period	Last Year	10-Year Average	Chg. P/P	Chg. Y/Y	Chg. P/10yr
Dairy	Number of Sales	58	59	57	56	↓	↑	↑
	Median Price ($ per ha)	33,800	35,700	40,400	35,200	↓	↓	↓
Livestock – Finishing	Number of Sales	89	88	122	71	↑	↓	↑
	Median Price ($ per ha)	31,400	31,800	29,300	20,200	↓	↑	↑
Livestock – Grazing	Number of Sales	97	92	143	168	↑	↓	↓
	Median Price ($ per ha)	12,200	11,900	12,000	15,200	↑	↑	↓
Horticulture	Number of Sales	52	61	59	42	↓	↓	↑
	Median Price ($ per ha)	207,900	253,800	208,400	167,600	↓	↓	↑
Arable	Number of Sales	24	26	41	22	↓	↓	↑
	Median Price ($ per ha)	38,800	38,500	39,300	35,100	↑	↓	↑
All Farms ex. Lifestyle	Number of Sales	344	343	454	384	↑	↓	↓
	Median Price ($ per ha)	28,100	28,100	26,900	23,600	↔	↑	↑
Lifestyle	Number of Sales	1,851	1,793	2,102	1,565	↑	↓	↑
	Median Price	655,000	652,000	581,000	499,000	↑	↑	↑

Figure 1. REINZ farm price indices



Source: ANZ, REINZ

Figure 2. Livestock farm sales, median price



Source: ANZ, REINZ

RURAL PROPERTY MARKET

Since the mid-1990s, the secular trend in land use change has been all about dairying, which has driven up valuations (productivity and an earnings boost) across much of the country. But this has now run out of puff, as evidenced by milk production, cow numbers and new farm conversions all having peaked. In fact, new dairy farm conversions have dropped to below 10 a year in recent seasons, having averaged around 130 a year over the prior 10 years. If you take into account consolidation and some marginal/smaller farms reverting to beef finishing, grazing or horticulture, the number of dairy farms is actually on the decline.

Not to fear, there are two new darlings: horticulture and forestry. We've been referencing the horticulture story for some time, and the growing area of kiwifruit, pipfruit and viticulture is set to further expand over the next 3+ years. There is also a lot of interest in other niche crops, such as avocados and cherries (there is a two-year wait for avocado root stock). This is supporting the valuation of existing business and suitable bare land. But in the grand scheme of things this land use change will be fairly regionalised according to the crop. And due to the often intensive nature of these crops, is not likely to be on a grand scale.

Enter forestry, which could be on a much larger scale. The new Government's goal of planting 1 billion trees over the next 10 years alone equates to an area of around 1 million ha. However, only around half of this is expected to be new greenfields development. If achieved, this would increase New Zealand's total forestry area by a third to 2.2 million ha. Most of this will be converted marginal/steeper sheep and beef hill country. So after dairy has taken 0.965 million ha from sheep/beef production since 1990/91, forestry could take another 0.5 million ha over the next decade.

While finding the land, workforce and seedlings will be a challenge to achieving the 1 billion tree goal, ultimately it all comes back to the available returns. Partly due to very strong China and domestic demand, forestry is currently experiencing somewhat of a purple patch – we outlined its strong prospects in the March 2017 *Agri Focus*.

At the time we found forests that are 'good' to 'excellent' in quality/yield and which are located within 200 km of a port or mill show an average pre-tax real rate of return (excluding carbon revenue) of 6.3%. The range varies from 4.4% to 7.9%. If you include carbon revenue, the average pre-tax real rate of return lifts to 9.9%, with a range of 8.3% to 11.25%. These returns will have only strengthened in the last year with timber prices tracking higher. But what could well turbo-charge returns further – and provide better long-term confidence around these numbers – is the new Government's policy agenda on climate change and tree planting. There are a number of facets we believe are important to watch:

1. **The legislation to make domestic carbon emission reductions binding and the fact this will be set by an independent Climate Change Commission** – potentially akin to the RBNZ. Put simply, the only practical way for New Zealand to reduce its greenhouse gas emissions by 30% below 2005 levels by 2030 is to plant trees and accelerate the change to electric vehicles.
2. **The lifting of the cap on carbon prices at $25/t.** The centre-left's medium-term view seems to centre on around $40/t. If you double the carbon price from our original analysis, it lifts the IRR for forestry by 8-10%, ie. doubles it!
3. **Forestry carbon accounting adjustments, which lower the amount of carbon required to be bought back at harvest and provides more time to buy units.** These accounting treatments can be very influential on returns. The less that needs to be bought back, the higher the returns. An increased time to buy units after harvesting reduces cash-flow risks associated with a wood/carbon price mismatch at the time.
4. **Extra incentives to plant trees.** Every investor loves being able to fund a proportion of the initial capital outlay on the back of government support. Given that the initial capital outlay for planting smaller blocks of trees is often a key constraint, any extra incentives will help reduce this road block and boost returns.

All up, the combination of the above factors has the potential to turbo-charge returns and significantly reduce the historical road blocks for non-commercial growers: upfront capital requirements and reduced cash flow until harvest. So just like dairy's expansion has influenced land prices over recent decades, forestry has the potential to do the same over the next decade. The market's anticipation of these changes and strong current returns are already starting to see pricing pressure emerge for bare land suitable for forestry development.

Elsewhere, the latest REINZ data shows the average all-farm price continues to hover between $26,000 and $28,000/ha. The adjusted REINZ index shows a similar picture, with little change in the past 2½ years. **In contrast, turnover has been running around 10% below its long-**

RURAL PROPERTY MARKET

run average over much of 2017/18, despite a high number of listings. In part this reflects a slow start during spring due to wet seasonal conditions and the general election delaying listings, but the trend has extended into the summer. Turnover by farm type is mixed, reflecting that a range of factors are currently at play in the rural property market. We suspect this will remain the case for the foreseeable future as the new Government clarifies its policy positions, and the market continues to be more discerning due to historically high valuations in most cases.

A high number of dairy businesses are listed for sale. Vendors' selling motivations vary, but generally are linked to some financial stress caused by the downturn, no family succession plan, and/or increasing compliance not being a current owner's cup of tea. From a buyer's perspective there is caution related to environmental regulations and tighter bank lending standards to navigate, and the fact that foreign investors appear to have been shut out of the market. These dynamics are providing mixed valuation signals, but there certainly seems to have been a cooling for lower-quality and less well-located properties which are sitting around 10% to 15% below the peaks of 2014/15. As usual, quality properties are still achieving high valuations, but there is some emerging evidence that these too could have slipped a touch in the current environment.

In sharp contrast, the valuations for finishing and grazing properties remain robust, although they aren't pushing higher either. Record farm-gate prices and solid returns for lamb, venison and beef seem to be helping, as are options for other future land uses, such as Manuka honey, horticulture or forestry. For now, a large part of the market seems to be conveniently ignoring forthcoming costs to meet environmental regulations and stretched valuations demonstrated by low cash rates of return.

Elswhere, the powerful effect that lifting earnings and a high-growth phase for an industry can have on asset valuations continues to be demonstrated by the horticulture sector at present.

Gold kiwifruit prices are the poster child, with good orchards fetching $850,000/ca ha and some in excess of $1m/ca ha – this is before lifestyle value, buildings and crop. Three years ago the average price was $425,000-$500,000/ca ha. The increase has been driven by higher future revenue expectations (for both yield and per-tray returns), a diminishing area of suitable land, and investment from corporates, iwi and lifestyle. Green kiwifruit orchard prices have pushed slightly higher to around $400,000-$450,000/ca ha. Bare land development is between $125,000-$150,000/ca ha.

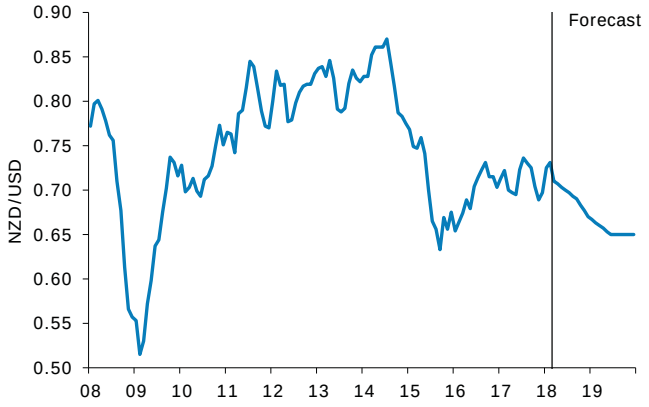
In the pipfruit space, prices have stabilised in Hawke's Bay recently, with water consents a key determining factor given the recent water conservation order application. **Average pipfruit valuations are sitting around $115,000/ha, but there are wide variations** depending on irrigation infrastructure, location, size and consent conditions.

In the viticulture sector, prices have pushed up by 5-10% over the past year. This has been driven by stable to stronger grape prices, good vineyard productivity, development activity (driven by larger wineries), investment funds being attracted by relatively good returns, and wineries looking to secure fruit supply to meet export demand. Colliers International's recent Marlborough vineyard report noted prime grape-growing blocks in Rapaura and the Lower Wairau have attracted prices in the $225,000-$300,000/ha range. Mid-tier productive blocks in the Wairau and Southern Valleys have been achieving sales prices between $175,000 and $225,000/ha. Awatere and Upper Wairau sales range from $125,000 to $175,000/ha.

ECONOMIC INDICATORS

EXCHANGE RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
NZD/USD	0.731	0.720	0.722	↑	↑
NZD/EUR	0.592	0.609	0.679	↓	↓
NZD/GBP	0.523	0.548	0.578	↓	↓
NZD/AUD	0.929	0.912	0.942	↑	↓
NZD/JPY	78.81	80.02	81.61	↓	↓
NZD/TWI	73.16	73.17	77.23	↓	↓

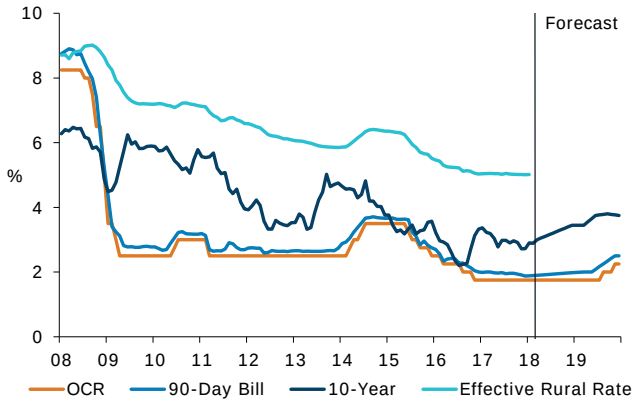
Figure 1. NZD buys USD



Source: ANZ, Bloomberg

NZ INTEREST RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Official Cash Rate	1.75	1.75	2.50	↔	↓
90 Day Bill Rate	2.00	1.95	2.56	↑	↓
2 yr	2.16	1.96	2.22	↑	↓
3 yr	2.39	2.11	2.28	↑	↑
5 yr	2.58	2.48	2.47	↑	↑
10 yr	3.23	2.93	2.97	↑	↑
Effective Rural Rate	5.01	5.01	5.03	↔	↓
Agricultural Debt ($b)	60.67	60.33	59.13	↑	↑

Figure 2. Key interest rates



Source: ANZ, RBNZ

After a strong run, we believe the backdrop is shifting for the NZD. Like many cyclical currencies, the NZD performed strongly over December and January as it benefited from a synchronised global upswing, broad commodity price strength and weak USD sentiment. The unwinding of what was arguably overly negative sentiment (and positioning) after the announcement of the new Government also contributed. The NZD outperformed many G10 peers, but we believe the highs for the year have now been seen. Performance over February was more mixed (in part due to increased market jitters), and we see that as a sign of things to come.

The recent spike in global market volatility marks something of a sea change in our view. The NZD has been a beneficiary of abundant global liquidity and low volatility conditions over recent years. But that thematic has now matured. As global central banks continue down the path of policy normalisation, a combination of liquidity withdrawal, higher volatility and narrower interest rate differentials should place the NZD on the defensive.

It is also a backdrop where global will dominate local. The domestic economic picture is expected to remain respectable. Risks around near-term growth momentum have turned less negative, the terms of trade are at all-time highs and external imbalances are small relative to history. But in a world of higher cross-asset correlations, domestic factors look set to play a secondary role. We see the NZD falling modestly over the course of 2018.

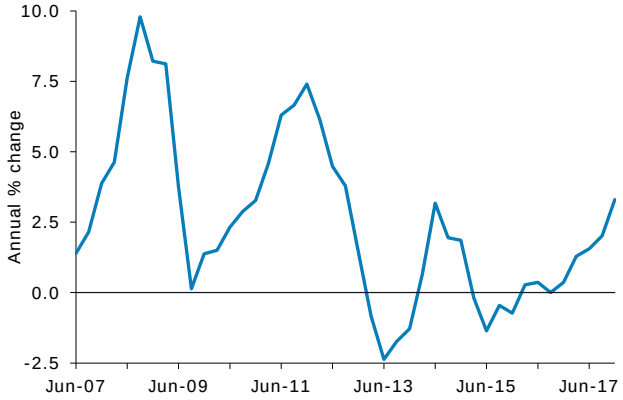
Turning to interest rates, the short end continues to be anchored by expectations that the RBNZ will remain firmly on hold. In fact, there is arguably room for short-term wholesale rates to fall modestly from current levels, given our view that the RBNZ will not start hiking the OCR until the second half of 2019 (whereas the market has hikes priced from early 2019). The market's belief that the recent jitters in domestic funding markets that led to a modest push higher in short-end swap rates will not be sustained, reinforces this view.

At the longer end of the curve, global reflationary themes will continue to dominate, seeing interest rates push higher. As central banks continue to normalise policy and unwind inflated balance sheets, term premiums should increase, pushing up longer-term global yields. All else equal, New Zealand interest rates will follow suit. However, a key judgement that needs to be made is whether or not the considerable spread compression experienced of late – which has seen New Zealand and US 10-year bonds trade close to parity – continues. The chances seem high that it does, implying that New Zealand's long-term interest rates may rise more gradually than seen offshore.

ECONOMIC INDICATORS

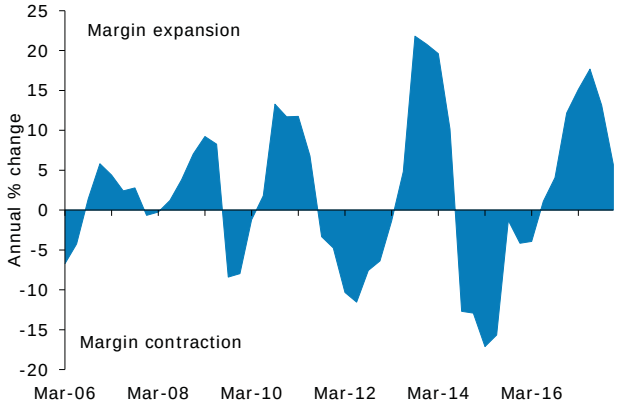
INFLATION GAUGES					
Annual % change	Current Qtr	Last Qtr	Last Year	Chg. Q/Q	Chg. Y/Y
Consumer Price Index	1.6	1.9	1.3	↓	↑
Farm Input	3.3	2.0	0.4	↑	↑
Net Imp. Margins PPI	5.7	13.1	12.2	↓	↓

Figure 1. Farm input inflation gauge



Source: ANZ, Statistics NZ

Figure 2. Annual net implied margins PPI ag/forestry/fishing (outputs – inputs)



Source: ANZ, Statistics NZ

There continues to be a dearth of evidence of a broadening in domestic inflation pressures beyond housing. At a time when the economy has been growing strongly, the unemployment rate is at a nine-year low and capacity utilisation is near all-time highs. This is a remarkable situation and highlights some of the structural forces both here and abroad that continue to alter the inflation-generating process.

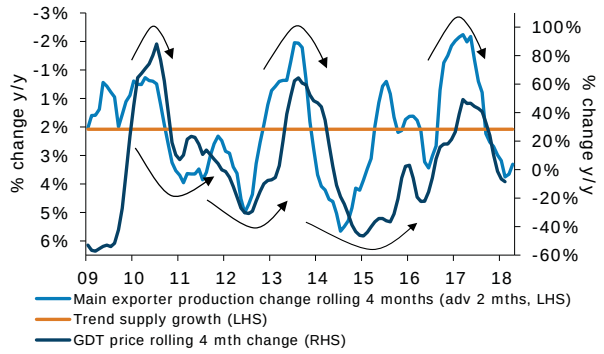
Turning to government policy, the primary sectors are watching regulatory changes closely for the impacts they could have on productivity metrics, cash-flow, earnings and asset prices. The direct and indirect impact of each policy change varies across different sectors. For example, recent employment law changes, minimum wage increases and forthcoming migration rule tightening will affect the access to and cost of labour across all sectors. This comes at a time of skill shortages and the traditional drivers of wage inflation pointing upward. But the biggest impact will be on horticultural businesses, where labour costs can account for anywhere from 40% to 70% of operating expenditure. Many of these businesses have strong growth prospects, but finding staff is already difficult and could become more so. Combined with the minimum wage set to increase from $15.75 to $20/hour by 2020 (6.2% per year), this could well push the overall wage bill up by 4-5%+ per annum over coming years.

The environmental space is also being closely watched. It looks fairly clear that agricultural emissions will be priced soon, adding a new cost line for livestock producers. The red meat sector will be the hardest hit, given its emissions intensity and margin per kilogram of product produced. It's not just the direct costs of these changes; there is also the time, additional recording and other compliance requirements that add to the unseen cost from regulation.

The other area of concern is how environmental constraints spill over into productivity metrics and result in constraints on land use change. There are suggestions that the national fresh water policy statement will be updated with a number of facets: consents being mandatory for all land use intensification; farm environmental plans to become mandatory for all intensive farm systems; and potential input controls (nutrients, animals etc) and speeding up policy change to address water quality (ie. larger reductions expected in contaminant losses to water sooner). Such changes would not only add to direct and indirect costs, but could also spill over into productivity metrics, weighing on the ability of businesses to dilute cost pressures over time.

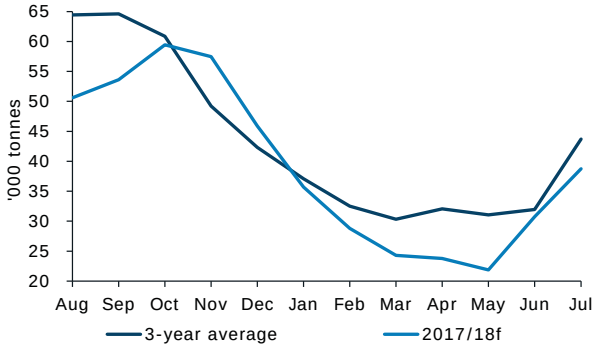
KEY COMMODITIES: DAIRY

Figure 1: Milk production growth vs GDT prices



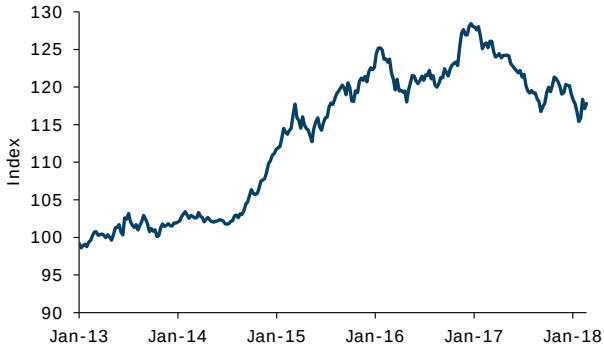
Source: ANZ, Dairy Aus, DCANZ, CLAL, Datum, USDA

Figure 2: Forecast GDT milk powder supply



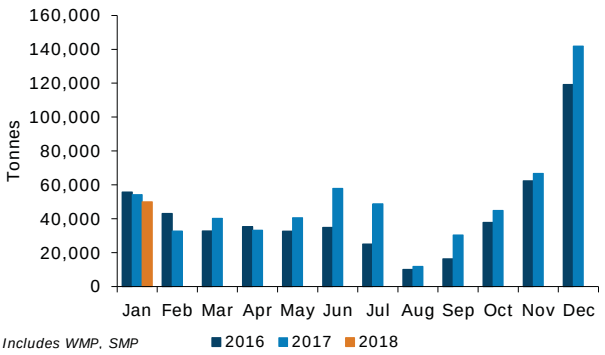
Source: ANZ, GDT, AgriHQ

Figure 3: USD TWI



Source: ANZ, Bloomberg, FOMC

Figure 4: Chinese NZ milk powder imports



Source: ANZ, AgriHQ

International dairy prices have cycled back to the top of recent ranges. The lift has been driven by a combination of lower NZ milk flow & GDT supply, USD weakness supporting purchasing power in price-sensitive markets, NZ-sourced product outperforming that of other origins and the positive global economic backdrop supporting commodity prices (ie. oil) and dairy consumption growth. The uplift looks to have now run its course, especially for milk powder, with the risk of an early finish to the NZ season past, the USD recently finding a base, and China appearing to be well-stocked in the short term.

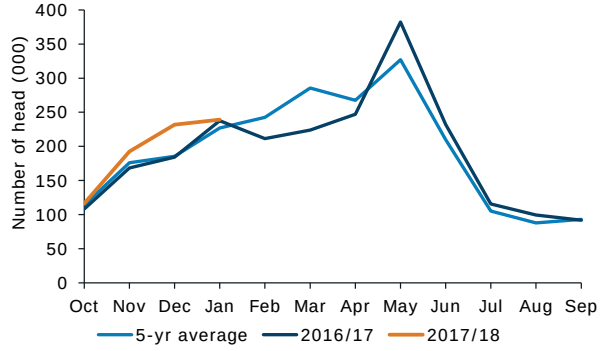
Prices are likely biased lower if Europe's recent milk growth of 5.2% y/y is sustained into its seasonal peak (May). Average farm-gate pricing across the EU is currently sitting nearly 20% above the same time last year (10% up on its five-year average). With little change in operating costs, this is supporting margins and providing an incentive to produce more. The wild card remains the weather – a cold spring last year capped production, supporting international prices. Recent weather conditions have been cooler perhaps suggesting a repeat could be on the cards. One other area of support is a higher EUR/USD (+15% y/y), which has lifted NZ-origin pricing as European-sourced product is dearer.

In powder markets WMP has moved back toward the top of its broad USD2,800/t to USD3,200/t range. GDT supply is forecast to remain constrained over the next three months (-25% y/y), which should support prices. However, China bought a large amount of product for the free-trade window and their buying presence has moderated recently, suggesting they are well stocked in the short term. As has often happened since early 2016 the more price-sensitive markets of the Middle East and South-East Asia have filled the void when prices have dropped toward USD2,800/t, but have then backed off again around USD3,300/t. If the USD maintains its recent base we suspect similar behaviour to persist. In the SMP market NZ product has been trading at a premium to that of European/US origin. This is likely to persist as some buyers need to source NZ-origin product (branding or product specifications), but the spread now look stretched, limiting further gains with Northern Hemisphere supply still abundant. Milkfat markets still seem short of product. Higher seasonal milk flow in Europe should cap short-term gains, but mid-year we could see more sustained price improvement.

Our 2017/18 milk price forecast remains $6.25 to $6.50/kg MS. With around 80% of the season sold our indicator currently sits in the middle of this band (ie. broadly aligned with Fonterra's $6.40/kg MS forecast). **An early 2018/19 forecast band is $6.00 to $6.25/kg MS.** It would certainly be unusual to achieve three years of a milk price in the low-$6/kg MS range. At this stage it's difficult to see a catalyst for a breakout of milk powder's recent well-defined ranges that would support such an outcome, either way.

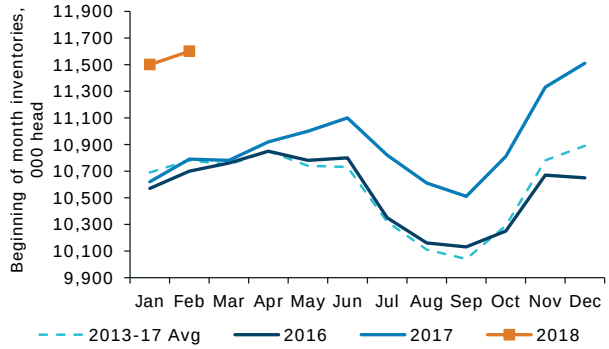
KEY COMMODITIES: BEEF AND LAMB

Figure 1: NZ export cattle supply



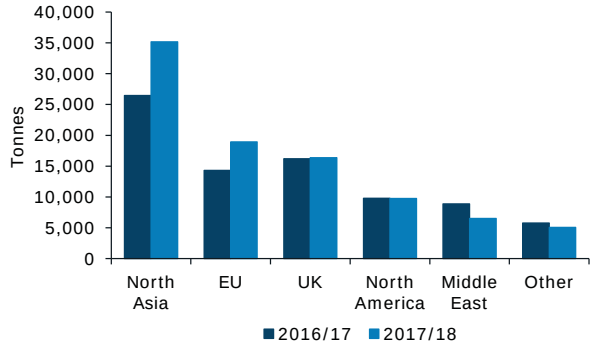
Source: ANZ, NZ Meat Board, Statistics NZ

Figure 2: US cattle on feed inventory



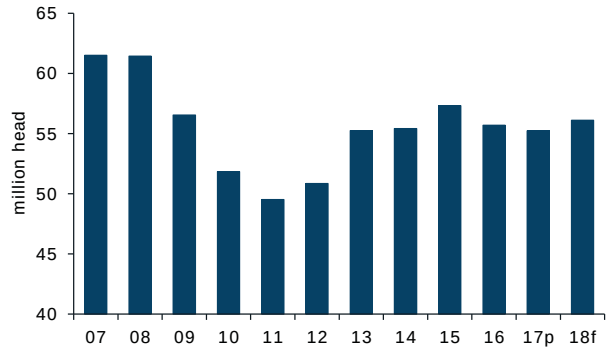
Source: ANZ, USDA, Steiner Consulting

Figure 3: New Zealand lamb exports (Oct-Jan)



Source: ANZ, Beef + Lamb NZ

Figure 4: Total UK, NZ and Australian lamb supply



Source: ANZ, Beef + Lamb New Zealand, MLA, AHDB

Cattle markets should continue to perform well as long as US demand remains robust. Farm-gate prices have tracked 10-15% above the five-year average through early 2018 despite a higher NZD/USD. **Tight Australasian supply looks set to last throughout 2018.** Industry forecasts of unchanged NZ production in 2017/18 suggest there will be a pullback in cattle supply after higher first quarter turn-off. Dairy cull cow turnoff is likely to be fairly condensed this season, with pasture growth improving and solid farm-gate returns encouraging keeping cows in milk. In Australia drier conditions – especially in Queensland – have increased turn-off in recent months. Industry forecasts are for only a 3% lift in 2018 exports (2017 exports were very low) as herd numbers are rebuilt – so improved seasonal conditions could well tighten supply at some point.

The US situation remains finely balanced. Demand indicators continue to point north as seasonal consumption will lift with onset of spring/summer. **But demand will need to be robust to absorb an increase in feedlot supplies and cow turn-off** driven by a larger breeding herd and deterioration in pasture conditions on the Southern Plains. Cattle on feedlots are at the highest level since 2012 and 8% above last year. US cow turn-off was 7% above last year in January.

One interesting feature has been lifting intermarket competition from China. In fact Chinese beef imports have risen 41% in 2017/18 so far, whereas exports to the US have increased only 14%. In part this reflects a shut Japanese market due to higher frozen product tariffs. The only challenge is South American beef, which has increased as Brazil was shut out of Russia in November 2017.

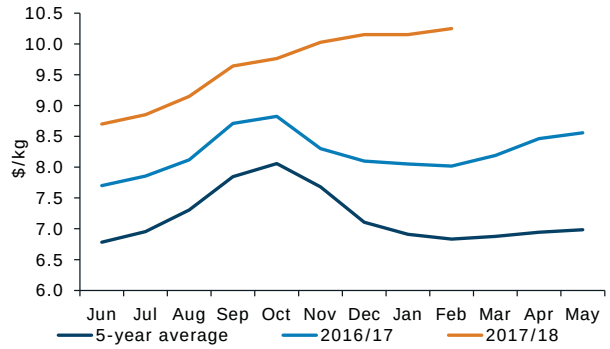
Prime lamb prices have been exceptionally high (33% above the 5-year average) driven by tight Australasian supply, a condensed speciality occasion window and more supportive GBP/Euro (-11% y/y).

Tight Australasian supply is expected to remain a feature supporting farm-gate lamb prices. New Zealand supply is expected to remain subdued through the autumn after higher early season turn-off and a potentially higher retention of ewe hoggets, given better pasture conditions and farm-gate returns.

Market-wise it has all been about China, Europe and the US, where solid demand continues to support in-market prices. Post Chinese New Year demand signals are solid, with inventories not too high. Europe continues to lift with improved economic conditions and lower NZD/EUR. The UK is the one area of weakness. Local production is forecast to increase 7% in 2018. Most of this is expected to be exported into Asia/Middle East with local consumption struggling outside Christmas/Easter. This could provide some competitive pressure, especially in the more price-sensitive markets of the Middle East.

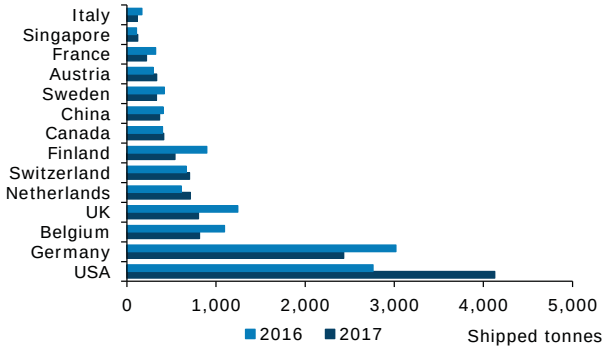
KEY COMMODITIES: VENISON AND WOOL

Figure 1: New Zealand farm-gate venison prices



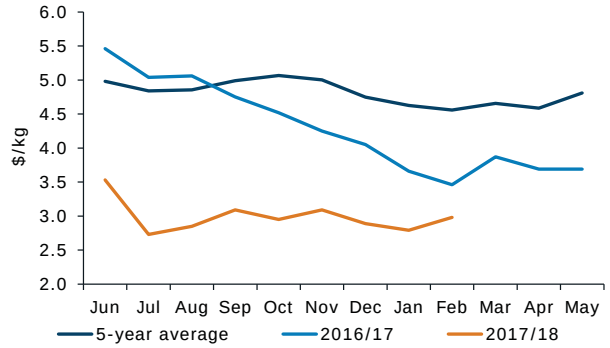
Source: ANZ, AgriHQ

Figure 2: Venison exports to major markets



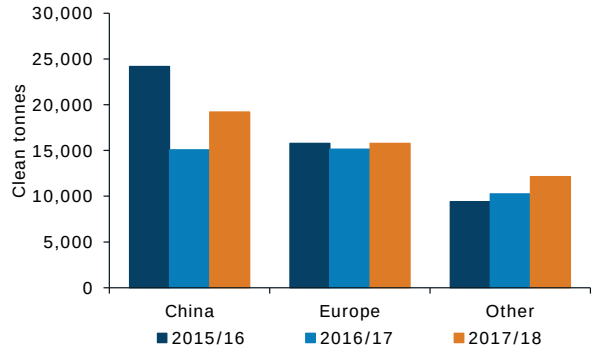
Source: ANZ, Statistics NZ

Figure 3: Coarse fibre wool prices



Source: ANZ, Wool Services International

Figure 4: NZ wool export volumes (Jul-Dec)



Source: ANZ, Beef + Lamb NZ

Venison schedule prices have brushed off a recent uptick in turn-off and continued to climb post the chilled European season closing. It's the first time ever that schedule prices have increased from the October to February period, highlighting just how tight supply became through 2017, and also the success in increasing demand outside the traditional European game season. This is even better highlighted by the US overtaking Germany – both in terms of value and volume – as NZ's largest market in 2017. Indeed exports to the US lifted 50% y/y to account for 34% of total volume in 2017, whereas German exports dropped 20% y/y to account for just 20% of total volume. In general European markets saw 20% to 30% declines in 2017 export volumes.

The challenge is now about affordability, with in-market prices at all-time highs. Improved consumer conditions in both the US and European markets as disposable income/wealth lifts do help, but it's still a tough gig passing higher wholesale prices on to menus or retail prices. Some cautiousness has started to be seen creeping into wholesale/end user demand, suggesting a peak in pricing is near.

Supply has turned a corner too, with production up 8.6% y/y in the last quarter. Some of this is due to drier South Island conditions with female production up 11% over this period, but perhaps record farm-gate prices encouraged turn-off too. It's difficult to see this being sustained, however, due to lower weaner numbers entering 2017/18 and farmers eyeing the rebuilding of breed numbers. Combined with low frozen inventories, this is expected to support farm-gate pricing through to October.

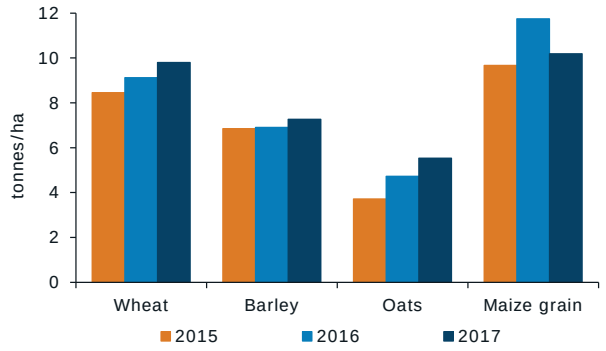
A base in the coarse wool price has been established, but a sustained upturn remains a distant prospect, given high NZ inventory. Current inventory levels in NZ are estimated at around 20-25% of total annual supply (usually they are less than 5%). Price improvement during the seasonal peak has been a positive development, but prices remain 35% below the 5-year average.

The recent lift in wool prices has been driven by bargain hunting and price competitiveness versus substitutes lifting demand. The lift in demand has been driven by China with year-to-date exports up 27% y/y. There has also been a lift in demand from other smaller price-sensitive markets such as India, Nepal, Thailand, Australia and Eastern European countries.

On a more positive note, lamb's wool prices have been stronger. This has been driven by tighter supply as farmers opt not to shear lambs before processing and Chinese demand for finer wool types. In fact China has accounted for 55% of finer wool exports so far this year, compared with 23% for stronger coarse breed wool. As previously mentioned, end demand for finer wool has surged thanks to the growing demand for next to skin clothing, which targets the outdoor and athleisure market.

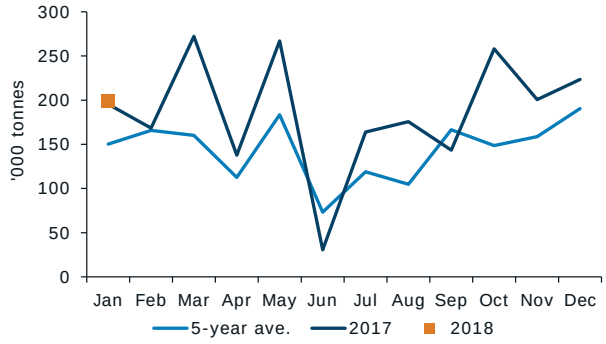
KEY COMMODITIES: GRAINS

Figure 1: Local grain yields



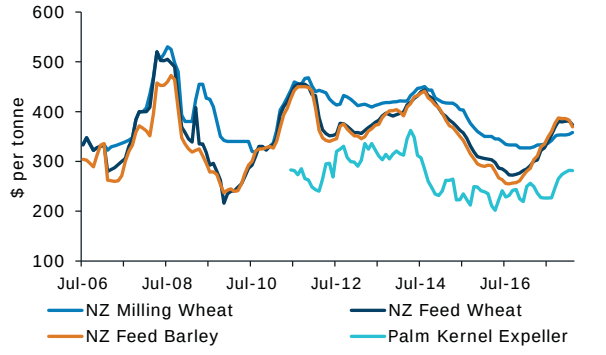
Source: ANZ, Foundation for Arable Research

Figure 2: Palm kernel imports



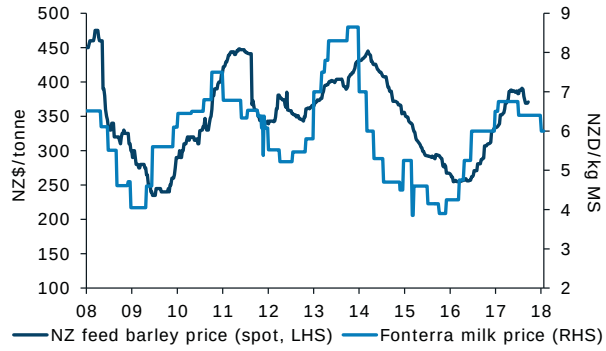
Source: ANZ, FCNZ

Figure 3: Local grain prices



Source: ANZ, USDA

Figure 4: Milk price & feed barley price evolution



Source: ANZ, USDA

The squeeze higher in grain prices has run its course with a further softening expected going into the autumn. New season harvests hitting silos, record-high grain imports, lower Australian prices and improving pasture conditions have tipped the balance.

The hot and humid conditions have led to an early harvest, stopped only by rain events. **Both wheat and barley have been good quality, but yields are lower than normal (and last year's records).** Dryland crops have been the worst affected, but even irrigated crops have seen mixed results as earlier dry conditions affected development.

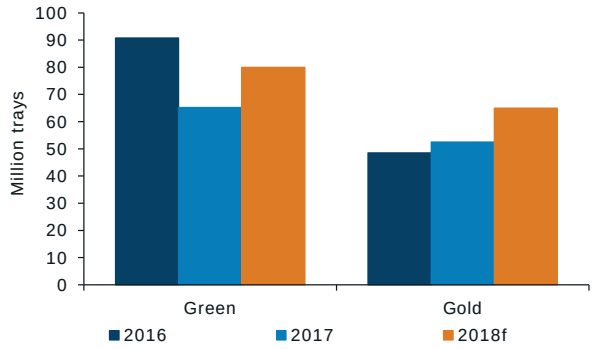
Assuming earlier grower planting intentions and average yields are both delivered, the supply of wheat and oats will remain tight, but there will be a large increase in feed barley (+45% y/y and +16% vs 5-yr avg). **The maize crop is generally in better condition than last year too, with heat and moisture being delivered at the right time. Combined with a larger growing area (+11% y/y) there should be an increase in both maize silage and grain supply.** Early indications are the national harvest of all grains could top 1.19 million tonnes (+18% y/y and +11% vs 5-yr avg), helping replenish silos.

The gap in local supply through 2017 was filled by cheaper imports, with some residual product still to work through. Palm Kernel imports hit a record high of 2.23 million tonnes in 2017 (+29% y/y) with this trend extending into January. However, demand has now fallen away with the improvement in pasture conditions. Grain imports also jumped to 407,600mt (+33% y/y, or 100,000mt). There was a large increase in wheat and barley imports from Australia. More recently, Australian grain prices have seen a degree of catch-up to global prices which tracked lower from October 2017 to January 2018.

Globally the picture remains one of ample wheat and corn supplies. However, prices have recently bounced off January lows with some weather concerns in the US and Argentina. End demand also appears robust, aided by higher livestock numbers, better exports and reasonable ethanol production/demand. US exports appear to have been aided by the October to January drop in prices, as well as the weakening in the USD over this period. This has recently seen the US stock-to-use ratios top out after three years of increasing. At present analysts are expecting only a small change in the US planted area in 2018, which would (assuming average yields) imply little change in 2018/19 supply-demand dynamics. However, if dry conditions were to affect 2018 crops and yields dropped below those achieved over the last four years, this would be a catalyst for a more meaningful lift in global wheat/corn prices.

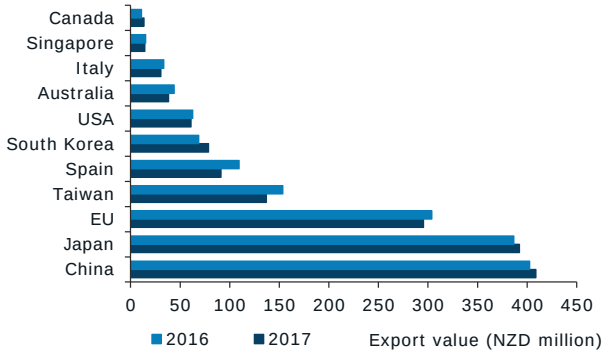
KEY COMMODITIES: HORTICULTURE

Figure 1: Kiwifruit crop



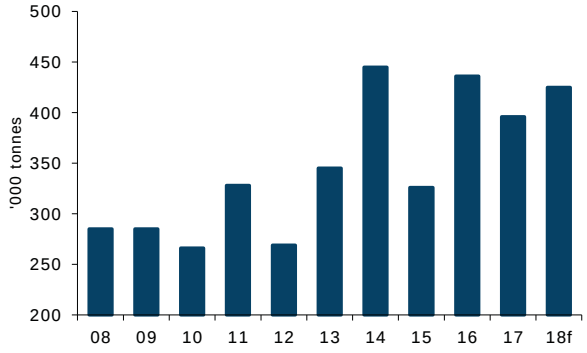
Source: ANZ, Zespri

Figure 2: Major kiwifruit export markets in 2017



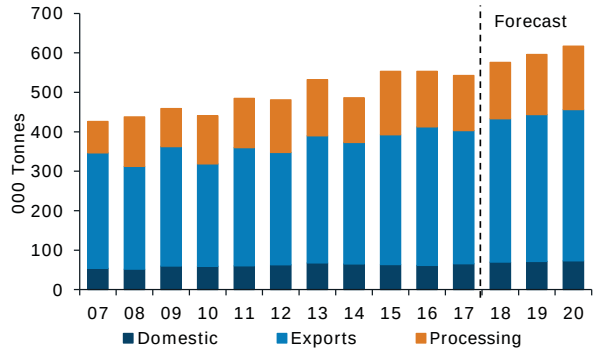
Source: ANZ, Statistics NZ

Figure 3: NZ grape production



Source: ANZ, NZ Winegrowers

Figure 4: Pipfruit crop



Source: ANZ, Pipfruit NZ

In the horticulture sector the current focus is on the size and quality of upcoming harvests. In general early harvests are on the cards due to the hot and humid summer conditions leading to early maturity. Average yields with reasonable quality are expected at this stage, but the overall kiwifruit, grape and pipfruit crops are expected to increase as the planted/growing area expands.

For kiwifruit, despite average winter chill and a wet spring, good pollination and more favourable conditions through summer will see volumes and yields return to normal ranges after a difficult season in 2017. The 2018 green crop is expected to reach 80 million trays (up from 65 million in 2017), while gold volumes will push towards 65 million trays as more vines reach maturity.

The low volumes in 2017 improved the marketing mix, lifting per tray returns to a record high of $6.54/tray for Green and pushing Gold prices back up to $10/tray. Despite lower volumes the high per tray returns lifted orchard revenue to record highs too. Green growers are set to receive $58,500/ha, which is 13% above the five-year average. Gold growers are set to receive $113,700/ha on average, which is an 8% y/y lift. A larger crop will see some reversal in per tray returns in 2018, but strong intermarket competition and an empty European market mean the pullback won't be substantial.

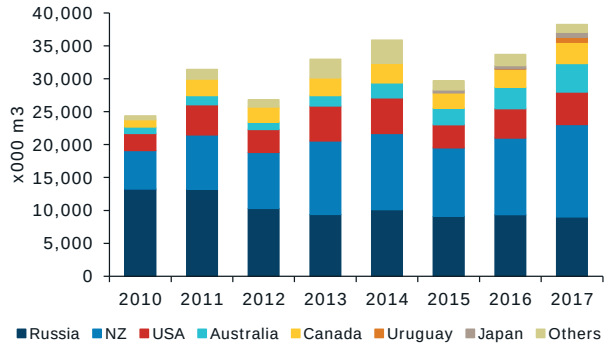
Vintage 18 in Marlborough and also in other growing regions appears likely to deliver a near-average crop volume on a per hectare basis. Combined with new plantings reaching maturity (with a circa 10% increase in area planted in Marlborough since 2012) this is expected to see the total crop lift back into the low 400,000t range in 2018.

The growing season has been excellent for canopy vigour with good heat levels and timely rains, and in general the flowering weather patterns were positive. The fruit set and reasonably material rains during fruit development have dictated an above-average level of canopy and bunch management has been necessary to ensure a quality crop and control disease pressures. **In general (and certainly in Marlborough) the outlook is for an early vintage, with some viticulturists of the view that it may be as much as 15-20 days earlier than normal.**

The pipfruit crop is expected to lift to 576,000mt (circa +6%) driven by a 4% increase in the planted area. The average fruit size is larger due to regular rainfall and heat during the growing season, particularly early on. The European markets are likely to be attractive early on with stocks 26% below normal due to frosts lowering domestic production in 2017. European export values should also be supported by a lower NZD/EUR (circa -12% y/y).

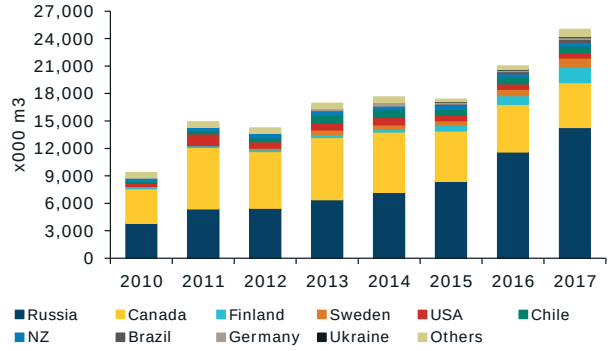
KEY COMMODITIES: FORESTRY AND OIL

Figure 1: China softwood imports



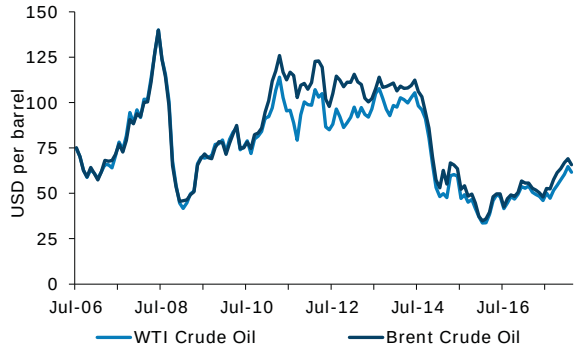
Source: ANZ, Wood Markets

Figure 2: China lumber imports



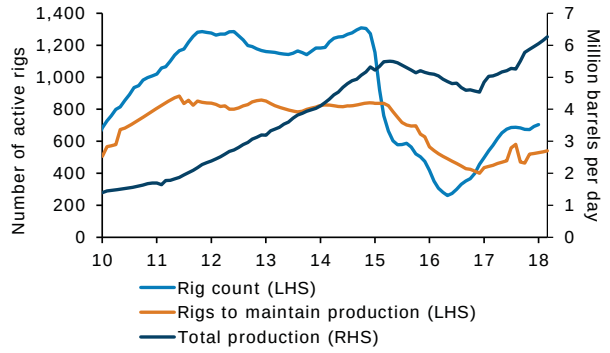
Source: ANZ, Wood Markets

Figure 3: Oil prices



Source: ANZ, Bloomberg

Figure 4: US drilling activity rising again in 2018



Source: ANZ, Baker Hughes

Domestic and export log and lumber prices remain well above last year, but upward momentum has flattened out in recent months. Structural log prices continue to trade at record highs of NZD130/t on solid domestic demand and a shortage of supply in some areas. Pruned log prices have dipped a touch to NZD170-185/t depending on exit port. This is slightly higher than last year, but some 15-20% above the five-year average. This was the case for most of 2017. A-grade logs remain in a USD140-144/t range.

NZ log production and export volumes are strong. Total log production is tracking 9% ahead of the five year average and log exports are 16% above their five year average. In China log stocks on port have ticked up as offtake slowed during the Chinese New Year period. Radiata pine stocks have increased back over 2.00 million m^3 for the first time since August 2017. Seasonal increases at this time of year are the norm. New Zealand softwood log exports continue to dominate China's imports. They increased by 21% in 2017 to 14 million m^3. This was followed by Russia (8.8m m^3), the US (4.9m m^3), Australia (4.3m m^3) and Canada (3.2m m^3). Russia was the only country in the top five softwood log suppliers with a decline in volume (-4% y/y). However, Russia has switched into more lumber exports to China (+23% to 14.3 million m^3 in 2017). This was partly stimulated by China's Belt & Road initiative to import Russian lumber by Return Block Trains.

Crude oil prices have retreated 5% in recent weeks, with Brent oil prices falling to USD62/bbl. In January we warned that with net long positions in WTI at an all-time high, prices were vulnerable to a correction in the short term. While the sell-off in equity and bond markets appears to be the catalyst, some weaker fundamentals – particularly greater-than-expected US production and inventories build – have exacerbated the fall in prices.

As expected, attractive oil prices have stimulated the US shale industry, with drilling activities increasing by 57 to 799 in recent weeks, after a few relatively quiet months. This could lead to higher US production, constraining OPEC's rebalancing process. Moreover, inventories have started to rebuild after recovering from a 12-month low of 412m barrels in late January. We believe the market will remain undersupplied by an average 0.86mb/d, this year, amid constrained OPEC production. Further, geopolitical disruptions are likely to stay in place and, given the low level of inventories, create an environment susceptible to price spikes. Therefore, **we see Brent prices returning to USD70/bbl over the next 12 months.**

BORROWING STRATEGY

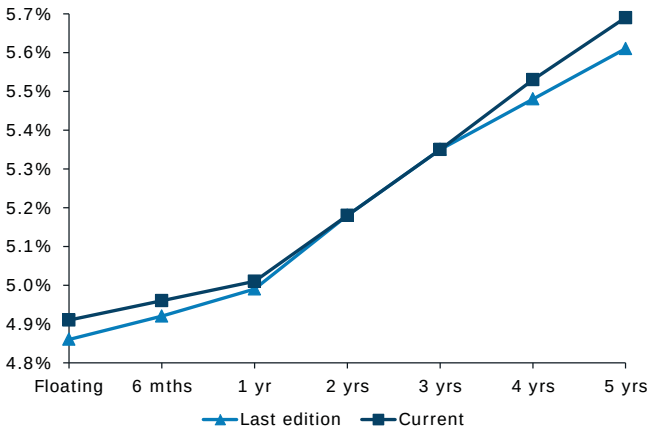
SUMMARY

Indicative rural lending rates have lifted slightly since our last edition. The floating rate remains the lowest, and continues to look attractive, especially as we have pushed out when we see the first OCR hike to the second half of 2019. In saying that, low long-term rates do offer some value for borrowers looking for more certainty. But with plenty of uncertainty over the global growth and inflation outlook, some ongoing caution regarding fixing is warranted.

OUR VIEW

There have only been modest changes to indicative rural interest rates since our last edition (Figure 1). On average, shorter-term rural rates (12 months and less) and longer-term rates (4- and 5-year) are slightly higher, while mid-term rates are unchanged. Overall, the curve is a touch steeper (0.78%pts separate the floating rate and the 5-year rate, compared to 0.75%pts previously).

Figure 1. Indicative rural lending rates



Source: ANZ, Bloomberg

Since our last edition, we have pushed out the timing for when we see the first RBNZ OCR hike. While the economy is performing reasonably well, the unemployment rate has continued to fall, capacity pressures are evident and firms continue to report difficulty in finding skilled staff, signs of a broadening in domestic inflation pressures remains limited as structural deflationary forces continue to have an influence. As such, we now do not see the first OCR hike until August 2019 (previously November 2018), and even then we toyed with the idea of flat-lining our OCR profile altogether.

All else equal, that suggests floating interest rates will remain steady for some time yet. In fact, it is possible that the move higher in floating rates experienced since our last edition, which appears to have been led by technical global factors, could unwind in the near term. The floating rate should therefore remain the lowest point on the curve for some time yet, and should continue to look attractive for borrowers. In addition, the fact that the tightening cycle is likely to be gradual and modest – if and when it does get underway – should continue to temper the desire to fix.

Even so, with longer-term interest rates still at low levels, it is worthwhile asking the question whether there is any value in adding to hedges (ie. fixing for 3-5 years). Break-evens still portray a message that interest rates would not need to rise by much over the next few years before one might regret not having fixed, and there are some clearer signs that global interest rates (a key determinant of our longer-term rates) have started to rise.

Rural Lending Rates (incl. typical margin)		Breakeven rates			
Term	Current	in 6mths	in 1yr	in 2 yrs	in 3 yrs
Floating	4.91%				
6 months	4.96%	5.05%	5.26%	5.61%	5.97%
1 year	5.01%	5.16%	5.35%	5.69%	6.06%
2 years	5.18%	5.34%	5.52%	5.88%	6.21%
3 years	5.35%	5.52%	5.70%	6.04%	
4 years	5.53%	5.69%	5.86%		
5 years	5.69%				

Consider, for example, the choice between fixing for two years or four years. Break-evens show that the 2 year rate would need to rise by 0.70%pts (from 5.18% to 5.88%) over the next two years before a pair of back-to-back 2-year fixes ended up costing more than a single 4-year fix. **That's not out of the question, given how low rates are in a historical context, and the reflationary signals being seen in the US.** The trouble is, expecting rates to rise just because they are low has been an expectation for some time now, and one that has been dashed time and time again!

Our forecasts do have New Zealand longer-term interest rates rising slowly from here. That reflects global forces more than anything else. But it does mean that for those looking for a little more certainty, there is perhaps some attractiveness in these rates. In saying that, with plenty of questions over the direction for the global economy and inflation, we'd caution against taking a strong view on where interest rates are heading right now.

We continue to favour a disciplined approach (ie. adding to cover on dips etc), but we are also mindful of the complex global economic picture. These complexities will not just impact interest rates, but business prospects too. When things change, flexibility can be as important as certainty.

ECONOMIC BACKDROP

SUMMARY

We retain a broadly constructive view of the medium-term growth picture, with support from stimulatory fiscal policy, accommodative financial conditions and elevated terms of trade. That said, while risks are arguably not as negatively skewed as they were, we remain a little more circumspect towards the near-term growth picture as the economy transitions in terms of its growth drivers and grapples with a softer housing market. We are still biased towards OCR hikes in time. However, with a lack of clear evidence of a lift in domestic price pressures, the OCR looks to be on hold for some time yet.

OUR VIEW

Recent data revisions imply the economy has been growing better than initially estimated. That said, we still anticipate something of a growth wobble in the near term and for activity to rebound after that – but not to the growth rates previously seen, with population growth set to slow and a productivity miracle unlikely.

We are seeing some typical late-cycle challenges (capacity pressures, housing excesses, stretched household balance sheets and margin pressure). However, cautious banks and a proactive central bank mean it hasn't been 2007 all over again – the current account is contained; credit growth is relatively subdued. But household debt is high and even in the best-case scenario this will dampen consumption growth and hence overall activity growth in the future.

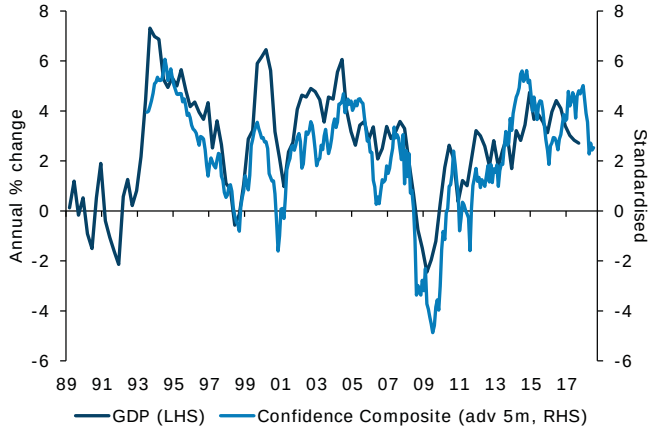
What we are watching:

- **The housing market.** This time is different? It is, in that the slowdown seen over the past 12 months has not been caused by higher interest rates. But the impact on consumption growth could nonetheless be marked as people reassess their strained balance sheets without the prospect of easy capital gains.
- **The impact of heightened policy uncertainty.** We are reasonably agnostic on the new Government's proposed policy platform overall, but change can be unsettling, leading to restrained spending and hiring decisions. We are assuming the decline in business confidence contains a protest element and that firms will eventually get on with it.

There are some broader growth headwinds. The labour market is maturing. Migration appears to have topped out. The construction sector is maxed out. But a strong fiscal impulse is looming and the prospects for household income growth are solid, given our expectation that wage growth is set to finally increase (albeit modestly). In addition, despite recent global financial market volatility, domestic financial conditions remain supportive. **All up, we remain reasonably constructive on the medium-term picture.** We are not seeing the same degree of imbalances or inflationary pressures that have often been the catalyst for a sharper downturn.

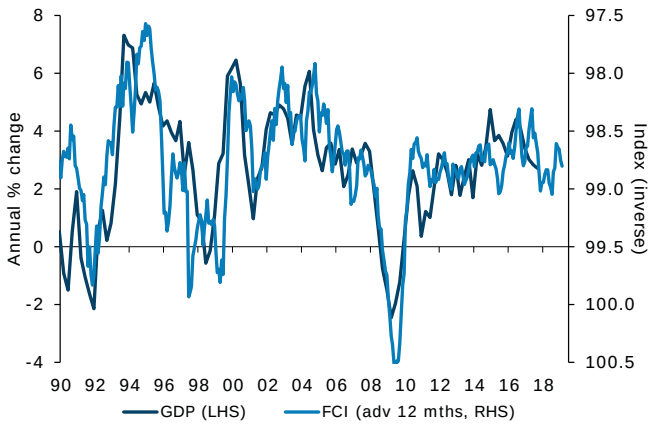
We are still biased towards OCR hikes in time. That is based on an expectation of a gradual lift in wage inflation as skill shortages bite, which should eventually see core inflation approach 2%. We also expect the NZD to face more downward pressure on narrowing interest rate differentials. However, neither of these forces are evident right now, meaning that the RBNZ will take an extremely cautious approach to tightening policy. We have pencilled in the first hike for August 2019.

Figure 1. GDP vs Confidence Composite



Source: ANZ, Roy Morgan, Statistics NZ

Figure 2. Financial conditions and GDP



Source: ANZ, Statistics NZ, Bloomberg

EDUCATION CORNER: THE RUBIK'S CUBE OF LIFTING BUSINESS PRODUCTIVITY

SUMMARY

Business productivity growth is crucial to remaining profitable in an ultra-competitive and constantly changing world. It makes doing business easier it helps overcome specific challenges, such as skill shortages or regulatory requirements.

The New Zealand primary sectors have led the charge on productivity gains nationally, but the competition never sleeps. This raises the question of where the next leg of productivity gains is going to come from. Many new innovations/technologies have increasing applicability to the primary sectors, but assessing their suitability and fit for a particular business can be challenging.

We suggest businesses follow a formal planning approach when assessing potential productivity improvements. This involves a number of steps:

- evaluation of a business's productivity performance against its peers and goals;
- identification of specific capital and operational innovations, initiatives, and investments that will drive improvement;
- analysis of options using business modelling software, partial budgets, investment analysis and good advice;
- implementation of chosen ideas;
- monitoring of performance; and
- improvement where expectations aren't met.

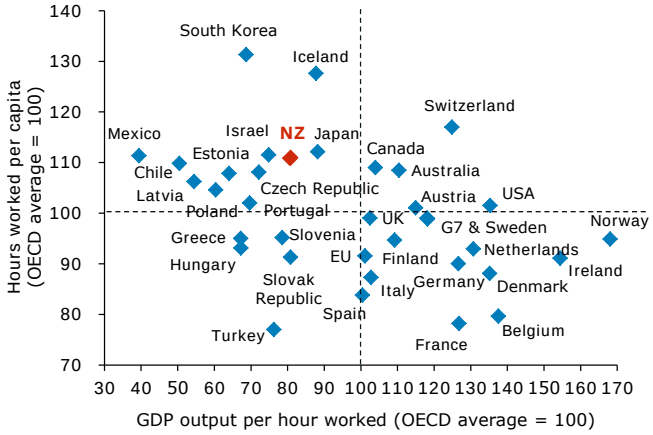
The formation of a list of productivity focused projects that consider risk, reward, investment requirement (both time and money), a realistic time horizon to delivery and the type of change (blue sky vs incremental) will help form a diversified portfolio approach to drive continuous productivity improvement. This will help keep a business ahead of the game.

THE BIG PICTURE FOR PRODUCTIVITY – WHAT DO WE WANT TO ACHIEVE?

From an economy-wide perspective, productivity growth – in all its different forms – is the 'Holy Grail' to sustainably improving living standards. In the big picture, New Zealanders work incredibly hard, putting in lots of hours. In fact, in terms of hours worked per person we are fifth equal in the OECD alongside Israel and Mexico. We work slightly fewer hours per person than the Japanese and Swiss, but are (thankfully) well below the pace-setters, the South Koreans and Icelanders.

But we don't achieve the best return for all this effort. In terms of GDP output generated per hour worked we rank 21st out of 34 countries. However, in terms of the 'harder-working' countries, only the Mexicans, South Koreans and Israelis fare worse on this metric. It's a long way up the leaderboard too, with Australians producing 37% more per hour than us, Germans 57% more and Americans a whopping 68% more!

Figure 1: New Zealanders' work/life balance and productivity performance relative to other OECD countries



Source: ANZ, OECD

We won't go into all the detail why New Zealand is lagging so badly behind. There are many views related to a range of things such as:

- distance to major markets;
- the small size of many businesses;
- too much capital allocated to housing/land;
- low research & development investment and resulting slow technology adoption;
- over-valued currency due to savings imbalances weighing on tradable sector performance;
- skill mismatches;
- New Zealanders work too much; and
- Auckland house prices discouraging labour mobility.

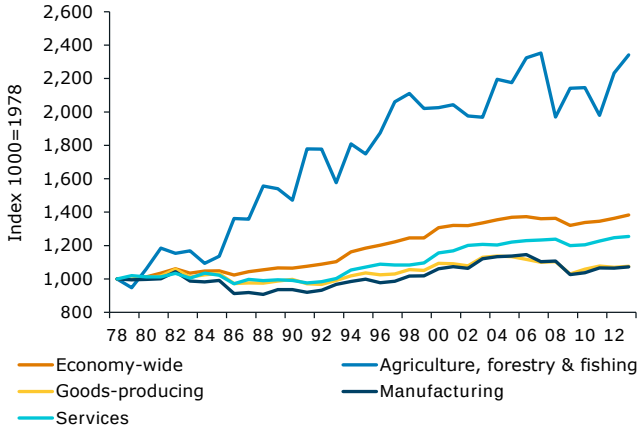
The list goes on (for more detail, see the Productivity Commission's research on this topic). **Of course, productivity growth isn't everything: ironically one of the easiest ways to boost measured productivity would be to instil a four-day working week!** But in the absence of productivity growth the only way to increase output is to linearly increase inputs, and New Zealand, and the world, is running into human, demographic, and natural capital (read environment) constraints in that regard.

EDUCATION CORNER: THE RUBIK'S CUBE OF LIFTING BUSINESS PRODUCTIVITY

The wide range of views on the reasons for New Zealand's productivity underperformance highlights the many challenges of creating a culture of continuous productivity improvement – it isn't easy or straightforward.

As we've highlighted before, the primary sectors have outperformed other parts of the New Zealand economy. On a multifactor productivity basis the agriculture, forestry and fishing sectors have improved their efficiency by 2.3% per annum since 1978. This has easily outpaced other parts of the economy, with New Zealand-wide productivity growth of just 0.9% per annum over the same period.

Figure 2: Multifactor productivity by major sector



Source: ANZ, Statistics NZ

For agriculture, forestry and fishing productivity growth has exhibited a number of cycles over the last four decades. Productivity growth was poor in the 1970s in a heavily regulated environment. It then improved substantially from the mid-1980s to mid-1990s as deregulation and economy-wide policy reform was undertaken. Things have become a bit bumpier since the mid-1990s, with two flattish periods, followed by short surges of productivity growth.

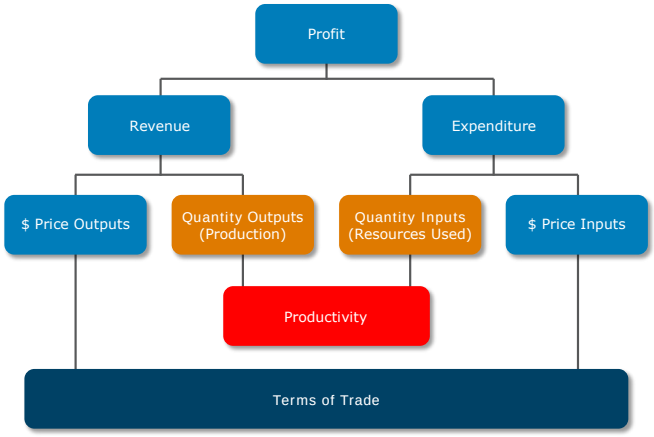
Examining the output and input components for the agriculture, forestry and fishing sectors shows the productivity performance has been driven by the mantra of 'more from the same'. Outputs have increased by 2.5% per annum over the last 37 years on average, whereas the resources used (inputs) have little changed (+0.1% pa) over this period. This is in stark contrast to most other parts of the economy, which have had to use more inputs to grow outputs.

The primary sector's challenge is how to keep this going.

THE WHY?

Productivity improvement should be a constant focus of all businesses, from the farm/orchard through to all the other supply chain partners that are involved in producing a final product to ship to consumers. **It is a surefire way to improve a business's long run resilience and odds of remaining competitive in an ever-changing and ultra-competitive world – particularly in an industry where one has very little control over the prices of inputs or outputs.**

Figure 3: The profitability tree



Source: ANZ, Dairy NZ

Productivity therefore forms a crucial part of the profit equation for all businesses and is one element of farming that management have a degree of direct control over, through both investment choices and day-to-day operational decisions. On-the-farm/orchard forces outside the direct control of management (such as climatic conditions, disease etc) can have an impact on the drivers of productivity. However, productivity is generally more controllable than many of the market forces (financial variables, specific market dynamics etc) outside the farm gate that determine the prices of outputs and inputs (or terms of trade). **This is why benchmarking data for a specific sector often shows the top performers are those who consistently achieve above-average execution of key management practices and risk mitigation.**

Investing in new innovations or completely revamping farm management practices to drive productivity improvements isn't solely about boosting long-run competitiveness and profit, however. There can be a range of motivations:

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1. **Helping facilitate succession plans (a profitable business is a key ingredient of a successful succession);**
2. **Overcoming labour shortages;**
3. **Reducing physical labour inputs** to extend time on the farm/orchard;
4. **An interest in technology and new innovations;**
5. **Natural replacement cycle** of outdated systems, practices, equipment and technology;
6. **Creating more leisure time** (or improving work/life balance);
7. **Making it easier to do business;** and
8. **Meeting increased regulatory/compliance requirements.**

The importance of each of these motivations will depend on one's reasons for being in business.

THE HOW? – A MIX OF BUSINESS PLANNING AND INVESTMENT ANALYSIS

Compiling a list of target capital investments and operational projects to boost productivity involves completing parts of both the business management and investment analysis cycles together. We've highlighted both before[1], but the key facets in this particular case are:

Figure 4: Planning cycle to boost productivity

Source: ANZ

Evaluation: Often the initial action is a need to take a step back. Part of this involves constructing a 'big picture' view of a business's current financial and productive performance. This involves benchmarking the key facets of a business against its peers. The second part of this involves setting the goals and priorities of what the business owners and key staff want to achieve. There can be both a long-term and operational aspect to both the benchmarking and goal/key priority setting.

Identification: This is somewhat intertwined with day-to-day business as usual (businesses are always trying to identify an edge) and the evaluation step. However, it's also about being more thorough around identifying specific capital and operational innovations, initiatives and investments that will drive productivity improvements and ensure future goals and key priorities are achieved.

The key areas that need to be focused on will be highlighted by the benchmarking and evaluation stage. The next step is a wider sweep for ideas and quality professional advice on how to improve these areas. The ideas should consider both operational adjustments and changes that might be more fundamental to the way a business operates, or what it actually does (ie. land use change, or diversification).

Analyse options: This involves using business modelling software, partial budgets, investment analysis and good advice to consider all the identified options. A refresh on the theoretical part of this process is in the December 2015 Agri Focus: Investment analysis to support on-farm decision making *(available on request)*.

One can go into a lot of detail assessing different options depending on how much time one wants to spend. For more fundamental changes that involve larger or more strategic investment decisions, more time is going to be spent on analysing the options due to the amount of money being spent, outside financiers wanting to see the business case, the likely complexity of the change and the overall influence it will have on a business. For smaller, more operational type changes, high level numbers and assumptions will often be adequate to gauge whether something is worthwhile pursuing.

Most owner-operator businesses presently conduct very little investment analysis. So we think doing something that is high level is better than nothing. Those who do conduct analysis on operational-type investments generally say the time spent is worthwhile. Making many small changes wisely adds up over time for a business.

[1] Investment analysis to support on-farm decision making – Agri Focus December 2015. Dairy sector recalibration of cost structures – Agri Focus April 2016

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Another barrier to more analysis is the complexity of many farming businesses and the numerous uncertainties faced. This can make it difficult to project the parameters that determine incremental cash flows for a particular productivity change. Again, striking the right balance for the effort put in and the importance/size of the change is critical for not wasting valuable time. Collecting the right data on the key financial and physical parameters that drive a business will help in providing insight and comfort around assumptions. So too will applying sensitivity analysis, benchmarks from other sources, and good old-fashioned 'nous' to the key parameters. Doing this helps raise confidence that the underlying assumptions are sound.

Implementation: Once a decision has been made on the list of new innovations and initiatives, these are implemented. For more fundamental changes to a business a project plan to stage the implementation might be required; otherwise new initiatives can be amalgamated into day-to-day activities straight away. The implementation stage is where New Zealand farmers/orchardists tend to be most comfortable. It is in fact of prime importance and should occupy most of one's time. But the time spent on evaluation, identification and analysing options is incredibly valuable too and increases the worth of time spent implementing a plan, as it ensures focus is in the right place with the right resources.

Monitoring: This can form part of normal operating reporting to reduce costs (time and data collection). The identification and analysis stages should have identified the critical factors and performance metrics that would make any business change successful. These critical factors and benchmarks should be closely monitored to ensure expectations are met.

Improvement: The monitoring stage should highlight any areas requiring further improvement, and where expectations aren't being met. A loop back through the evaluation, identification and analysis stages might be required if a change isn't working, or is falling well short of expectations. Any more fundamental business change is likely to require contentious tweaks initially to get it running smoothly.

OTHER OBSERVATIONS

Getting the mix right between the theoretical and practical is an important part of the process. It doesn't have to be too onerous.

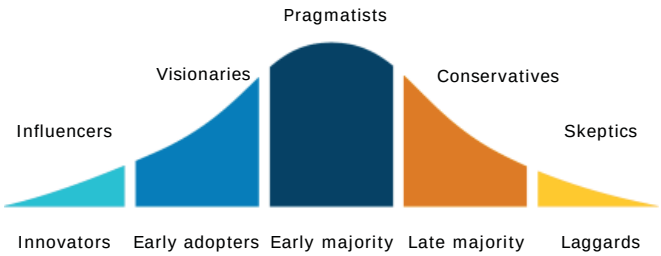
The evaluation stages are an important part of the process to ensure expectations are set and the focus is on the right place. The mix of productivity-enhancing initiatives also needs to consider different time horizons spanning the blue sky/long term versus the day-to-day. Part of this is considering whether a deep plunge on a blue sky type of initiative is required versus lots of smaller incremental changes that can add up. The chosen combination of initiatives will ultimately depend on a mix of the business's goals, competitive pressures, regulatory requirements, capital constraints, and technology/ innovation changes.

GETTING THE INVESTMENT MIX OF NEW INNOVATIONS RIGHT

In reality, every dollar spent on the farm/ orchard is an investment of one kind or another aimed at improving profitability. Most would classify capital expenditure as being an investment due to its time horizon, amount spent and general influence on a business. But a material portion of what is typically classified as a farm's operating expenditure to keep day-to-day operations ticking over has an investment component, as it generates benefits that last beyond the current financial year.

Where farmers and other shareholders sit on the adoption curve (Figure 5) for change and risk will likely dictate the annual mix of blue sky projects and operational enhancements. In the livestock sectors, most of the top investment areas farmers focus on are improving pasture/ forage performance, animal genetics, fertiliser and fencing. For the horticulture sectors it depends on the crop. For the likes of kiwifruit and pipfruit growers varietal choice and orchard design/layout are – and will continue to be – important strategic choices. On the other hand, operational investment choices in the horticulture sectors often focus on the use of machinery and equipment to replace or reduce certain labour inputs.

Figure 5: Stylised adoption curve



Source: ANZ

Given that a productivity investment, and/or a management change can cover a wide range of aspects in any business, it's a little difficult to narrow these down to a list of key areas by each sector. The operational opportunities should be fairly obvious, but what can often be more difficult to judge are the merits of blue sky thinking and fundamental business change. We've

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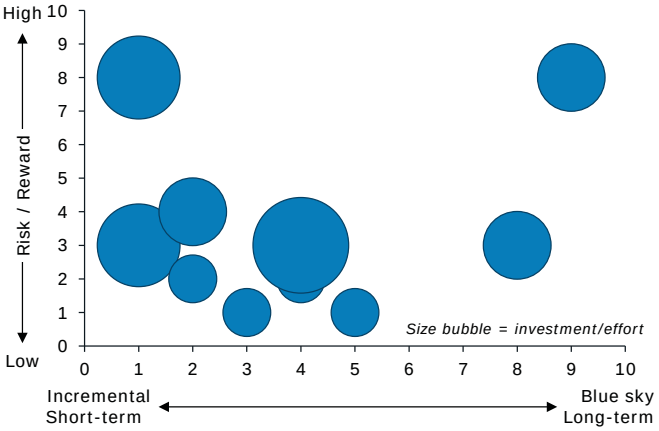
previously highlighted[2] new innovations in the fields of 3D printing, additive manufacturing; precision agriculture; robotics and automation; and genetic modification that have growing applicability to different businesses across the agriculture sector. This growing applicability is being driven by their adaption to our situation, technological advances, cost reductions, increasing societal acceptance, and better service support becoming available. The list doesn't stop here though, as big data, bioinformatics, the internet of things, artificial intelligence and other areas are all becoming increasingly relevant too. Then there are all the sub-branches of each area to consider.

Ultimately the chosen mix of productivity initiatives or projects will depend on a business's goals and key priorities, and where decision makers (owners/key staff) sit on the adoption curve. The innovators and early adopters are likely to lean more toward the blue sky end of the spectrum, whereas many others will be happy with incremental business change that adds up over time, keeping them slightly ahead of the curve without the need to take significant risk.

One way to think about getting the mix right is to consider a 'diversified investment portfolio' approach. This involves thinking about the risk, reward, investment amount (both time and money), the time horizon to delivery and the type of change (blue sky vs incremental) from a diversified portfolio angle.

An example of this thinking in action is shown below in figure 6. It shows a business which has 10 productivity investments/projects planned or on the go. Seven of these projects are considered incremental in nature, improving business as usual with a short-term delivery horizon (ie. less than a year). These projects are deemed to be low risk and low reward, but account for 65% of the business's investment/effort to improve its productivity performance. There is another investment/project that is also incremental in nature with a short-term delivery horizon, but it is much higher risk/reward. The remaining two investments/projects are more blue sky in nature, with a longer-term delivery horizon in mind. One is high risk/reward and the other lower on both fronts. These two projects account for 20% of the business's investment/effort to improve its productivity performance. Obviously the ideal is to have more low risk, high reward and short-term delivery investments/projects, but such perfect ideas typically fall into the 'if it were that easy, we'd all be doing it already' category.

Figure 6: Stylised 'diversified investment portfolio' for a business's productivity initiatives



Source: ANZ

A weighting toward 80% incremental and 20% blue sky is likely to fit a business with a continuous improvement approach. On the other hand, a business that is looking (or needing) to undergo more fundamental change is likely to entertain higher risk/reward investments and projects that could occupy anywhere from 50% to 100% of their time and capital commitment.

While this type of thinking doesn't necessarily need to be formalised, and indeed is likely to happen subconsciously when undertaking this planning cycle getting the mix of both the big picture and the pipeline right can be helpful for a business and its key goals.

[2] Breaking the mould – new innovations – Agri Focus October 2014.

KEY TABLES AND FORECASTS

FX RATES	ACTUAL			FORECAST (END MONTH)						
	Jan-18	Feb-18	5-Mar	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19
NZD/USD	0.740	0.721	0.724	0.71	0.70	0.69	0.67	0.66	0.65	0.65
NZD/AUD	0.914	0.924	0.932	0.92	0.92	0.93	0.93	0.94	0.93	0.93
NZD/EUR	0.595	0.590	0.587	0.57	0.56	0.54	0.52	0.51	0.50	0.50
NZD/JPY	80.53	77.26	76.47	76.7	74.2	71.8	69.0	66.0	64.4	63.1
NZD/GBP	0.523	0.520	0.524	0.53	0.52	0.50	0.49	0.48	0.47	0.47
NZ TWI	74.2	73.2	74.6	72.1	71.0	69.8	67.9	66.7	65.6	65.4

INTEREST RATES	ACTUAL			FORECAST (END MONTH)						
	Jan-18	Feb-18	5-Mar	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19
NZ OCR	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	2.00
NZ 90 day bill	1.89	1.92	1.91	1.89	1.92	1.95	1.97	2.00	2.08	2.34
NZ 10-yr bond	2.90	2.94	2.92	3.00	3.15	3.30	3.45	3.45	3.75	3.80
US Fed Funds	1.50	1.50	1.50	1.50	1.75	2.00	2.25	2.25	2.50	2.50
US 3-mth	1.78	2.01	2.03	1.88	2.05	2.20	2.45	2.45	2.70	2.70
AU Cash Rate	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.75	1.75
AU 3-mth	1.78	1.79	1.81	1.80	1.80	1.80	1.80	1.80	2.00	2.00

ECONOMIC INDICATORS	Sep-17	Dec-17	Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19
GDP (% q/q)	0.6	**0.7**	**0.6**	**0.9**	**0.9**	**0.8**	**0.7**	**0.7**	**0.7**	**0.6**
GDP (% y/y)	2.7	**3.1**	**2.9**	**2.8**	**3.1**	**3.2**	**3.3**	**3.1**	**2.8**	**2.6**
CPI (% q/q)	0.5	0.1	**0.5**	**0.3**	**0.6**	**0.2**	**0.6**	**0.6**	**0.7**	**0.1**
CPI (% y/y)	1.9	1.6	**1.1**	**1.4**	**1.5**	**1.6**	**1.7**	**2.1**	**2.2**	**2.0**
Employment (% q/q)	2.2	0.5	**0.5**	**0.4**	**0.4**	**0.3**	**0.3**	**0.3**	**0.3**	**0.3**
Employment (% y/y)	4.2	3.7	**3.2**	**3.6**	**1.8**	**1.6**	**1.4**	**1.3**	**1.2**	**1.2**
Unemployment Rate (% sa)	4.6	4.5	**4.3**	**4.3**	**4.2**	**4.2**	**4.1**	**4.1**	**4.1**	**4.2**
Current Account (% GDP)	-2.5	**-2.5**	**-2.1**	**-2.2**	**-2.3**	**-2.5**	**-2.5**	**-2.4**	**-2.4**	**-2.3**
Terms of Trade (% q/q)	1.3	0.8	**-1.4**	**-0.8**	**0.1**	**0.1**	**0.0**	**0.1**	**0.2**	**0.1**
Terms of Trade (% y/y)	12.6	7.3	**1.8**	**-0.1**	**-1.4**	**-2.1**	**-0.6**	**0.3**	**0.4**	**0.3**

Figures in bold are forecasts. q/q: Quarter-on-Quarter, y/y: Year-on-Year

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