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NEW ZEALAND ECONOMICS
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INSIDE

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THE YEAR OF THE RED MONKEY

FEATURE ARTICLE: UPDATE ON CHINA

With China front and centre this month's feature article provides an on-the-ground update from our China team. China is dealing with issues such as the risk of deflation, high government and corporate debt, equity market malaise, slowing domestic demand, capital outflows, and pressure on the currency, amidst a secular shift away from investment to consumption. It's a big list of challenges. A deleveraging process, while painful, is necessary. Even under ideal conditions, reforms will take time to implement and there will be further lags before the new policies can have a material impact on the economy. Overall we believe these issues are still manageable, but fully expect wobbles and volatility along the way.

THE MONTH IN REVIEW

Pasture and forage crop-growing conditions have improved in most areas with regular rainfall since the start of the year. The downside risks for milk supply have been reduced. Early-season sheepmeat slaughter has been high, but this is expected to be substantially lower over the remainder of the season. The main horticultural crops look on track to post some impressive yields in 2016.

RURAL PROPERTY MARKET

Higher seasonal turnover is providing more certainty that a softening in dairy-aligned land prices is occurring. All other farm types continued to see robust turnover and solid prices in December.

KEY COMMODITIES AND FINANCIAL MARKET VARIABLES

Global markets and commodity prices have had an extremely tough start to the year. Soft commodity price movements have been more mixed, depending on the fundamentals of each sector.

BORROWING STRATEGY

Indicative rural lending rates have fallen in a fairly uniform fashion. While this makes fixing for term more attractive, the start of the US Federal Reserve tightening cycle has not led to higher yields. Borrowers face another quandary too. While on the one hand a bias for the OCR to go lower makes it more attractive to stay floating (despite term interest rates being at record lows), rising credit margins increase the incentive to fix to lock in your margin where possible.

ECONOMIC BACKDROP

The economy ended 2015 on a positive note. Leading indicators augur well for 2016. While we expect solid growth over 2016, the risk profile is elevated. Global nuances and signals are poor with China and commodity prices at the epicentre. The risk profile remains skewed towards the OCR falling further still.

EDUCATION CORNER: PRODUCTIVITY EQUATION

Productivity forms a crucial part of the profit equation for all businesses and is one element of farming that management have more direct control over through investment choices and day-to-day operational decisions. We find overall the primary sectors shape up well in the productivity growth stakes, with gains of 2.6% per annum over the last 35 years. This compares with just 0.9% per annum economy-wide. The improvement has been driven by "more from the same".

FEATURE ARTICLE: WHERE DOES THE CHINESE ECONOMY STAND TODAY?

SUMMARY

This month's feature article was written by our China economics team to give an on-the-ground perspective of what is currently happening in China, which is at the epicentre of some of the volatility we are seeing across global financial and commodity markets at present.

China has already become the world's second-largest economy, with total GDP of USD11.4 trillion in 2015, roughly equal to two-thirds of the US economy, nine times the Australian economy and 67 times the New Zealand economy. While the growth rate has slowed significantly in 2015 to just 6.9%, it is still among the fastest-growing economies in the world and we project that the economy will grow 6.4% in 2016, compared with a 2.3% growth for the recovering US economy.

China is dealing with challenging issues such as the risk of deflation, high government and corporate debt, equity market malaise, slowing domestic demand growth, capital outflows, and pressure on the currency, amidst a necessary secular shift away from investment to consumption.

It's a big list of challenges. A deleveraging process, while painful, is necessary. Even under ideal conditions, reforms will take time to implement and it will take time for the new policies to have a material impact on the economy.

Overall we believe these issues are still manageable but fully expect wobbles and volatility along the way.

IS CHINA'S GDP DATA RELIABLE?

Before going further into the numbers and statistics, one key question needs to be answered: **are Chinese economic statistics reliable?**

There has been an ongoing scepticism about the reliability of China's GDP figures. Recently, some have claimed the "true" growth rate could be 5% or lower, compared with the official release of 6.9% for 2015. We have constructed our own ANZ Real Activity Index, which compiles a number of different indicators to estimate the GDP growth rate. Our index indicates that China's GDP growth was around 6% in Q3.

Our feeling is that the official GDP figures are within a reasonable margin of error, particularly given the measurement challenges when an economy is going through such rapid structural change like China is. Nevertheless, scepticism of the data is likely to persist.

But stepping back – and irrespective of the whether one focuses solely on the official figures or looks at various other indicators – what is clear is that the Chinese economy has decelerated. Official GDP growth has shown the economy cooling from over a 12% pace in 2010, to less than 7% now. Industrial production growth has more than halved over the same time period, electricity production has cooled and trade volumes have slowed. Of course, there are all indicators of the "old" economy. Some service sector indicators (such as movie ticket sales, retail spending, and tourism outflows) have been more resilient. Nevertheless, the economy is a collective entity so slowing growth in some of these industrial sectors could impact on employment and the broader economy more generally.

Another feature of the economy has been an extended period of low inflation and deflation risks. This is discussed below.

TABLE 1. CHINA 2015 GDP BY INDUSTRY

	Nominal values RMB billion	Share to GDP	Real growth y/y%	Contribution to GDP % point
Gross Domestic Product	67,671		6.9	
Primary Industry	6,086	9.0	3.9	0.35
Secondary Industry	27,428	40.5	6.0	2.43
Manufacturing	22,897	33.8	5.9	2.00
Construction	4,646	6.9	6.8	0.47
Tertiary Industry	34,157	50.5	8.3	4.19
Wholesale and retail	6,620	9.8	6.1	0.60
Transport, storage and post	3,036	4.5	4.6	0.21
Accommodation and catering	1,216	1.8	6.2	0.11
Financial intermediatory	5,750	8.5	15.9	1.35
Real estate	4,131	6.1	3.8	0.23
Other	13,083	19.3	9.2	1.78

Source: ANZ, NBS

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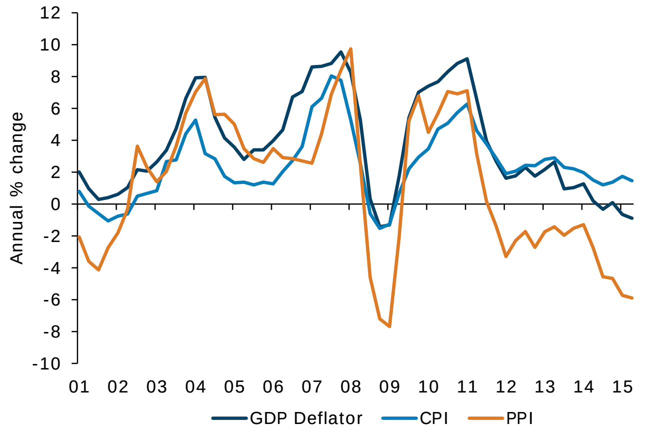
WHY IS DEFLATION BAD FOR CHINA?

China's CPI inflation remained subdued in 2015 due to overcapacity, falling commodity and energy prices, and weak domestic demand. CPI inflation eased to just 1.4% y/y in 2015, much lower than the official inflation target of 3.0%. In Q3, the CPI picked up modestly, due to an upward swing in pork prices. However, the upward cycle of pork prices appears to have been short-lived and has subsequently started to peter out.

Meanwhile, the PPI, which gauges factory gate prices of producer goods, declined sharply by an average of -5.1% in 2015. The drop in the PPI was largely the result of falling global oil and commodity prices since 2014, overcapacity in some property-related sectors, and weak domestic demand.

The GDP deflator, a broader measure of price changes in the economy than the CPI, slipped into negative territory in 2015. In Q4, the GDP deflator declined 0.9% y/y, indicating that China has entered a deflation era, where the average price of all items has become lower.

FIGURE 1. CHINA'S CPI, PPI AND GDP DEFLATOR



Source: ANZ, CEIC

Typically, cheaper prices benefit the average consumer. So why is deflation a worry? The simple explanation is that if prices are falling and expected to fall further, **consumers will tend to save more now in anticipation of still-lower prices in the future, leading to lower demand in the meantime.** In turn, lower demand will lead to further price falls and deflation expectations, which could lead to a self-fulfilling spiral of deflation and deflation expectations.

Moreover, **when consumers save more and buy less, companies often respond by cutting production.** This results in lower employment and lower income growth, further driving down consumption in the economy.

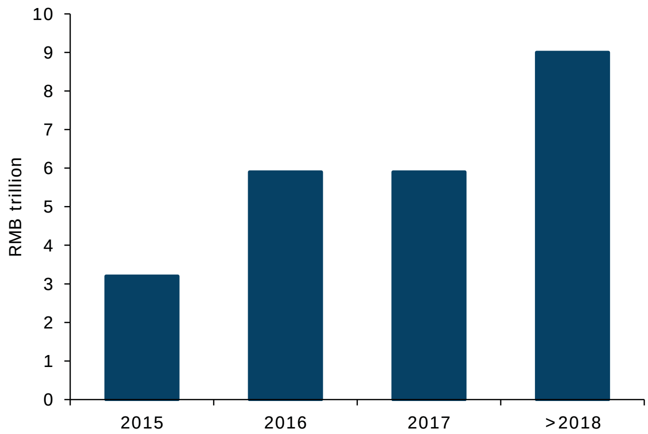
Luckily, the central bank still has the power to turn the tables, by cutting interest rates and lowering the reserve requirement ratio (RRR). We expect the People's Bank of China (PBoC) to ease monetary policy further by lowering the RRR and using other policy tools to lower market interest rates, to prevent the economy from falling into a vicious cycle of deflation.

LARGE DEBTLOAD AND HIGH REAL FINANCING COSTS, EXACERBATED BY FALLING PRICES WILL WEIGH ON GROWTH

Another issue with deflation is that it increases the real value of debt. And China has a lot of it.

China's local government and corporate sector accumulated a significant amount of debt after a period of rapid investment growth post the 2008 Global Financial Crisis. The huge fiscal stimulus package of 2008-2009 led to the mushrooming of local government financing vehicles (LGFVs), which used their corporate entities to issue corporate debt. LGFV debt surged to 38% of GDP in 2014, from 16% in 2008. In addition, most of the LGFV debts are high yield, often with an interest rate of 8% or higher.

FIGURE 2. LOCAL GOVERNMENT REPAYMENT SCHEDULE



Source: ANZ

To mitigate the risk of widespread defaults among LGFVs, China revised its Budget Law and allowed provincial governments to issue local government debt. The Ministry of Finance (MOF) approved a local government debt swap quota this year of RMB3.2trn. Attracted by low yields, Chinese provinces have quickly taken up the quota. However, sluggish fixed asset investment growth suggests that the debt swap quota is too small for local governments to honour their maturing LGFV debts while engaging in a fresh investment program at a time when fiscal revenues are declining due to falling land sales and industrial profitability.

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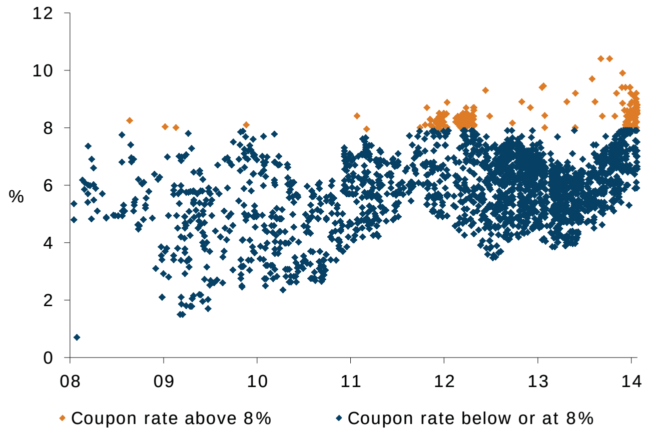
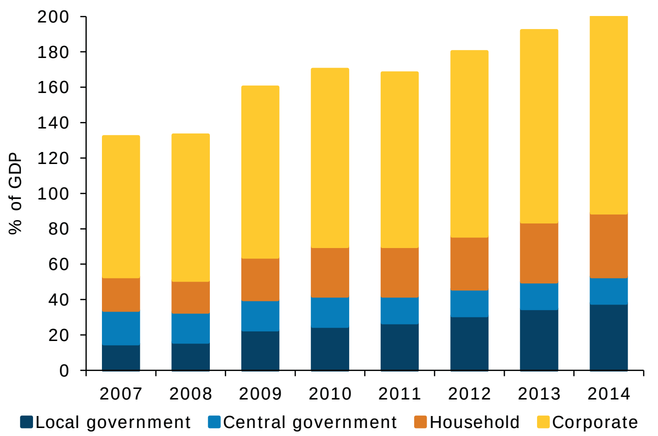
FIGURE 3. CHENGTOU BOND ISSUANCE



Source: ANZ, WIND

The MOF will therefore likely increase the debt swap quota next year. Indeed, it has been reported that the MOF has decided to cap the programme at around RMB15trn from 2015 to 2017. We think allowing provincial governments to issue debt using their provincial government status is a good policy move. This allows provincial government to finance their debt cheaply and lengthen their debt maturity to ensure no maturity mismatches.

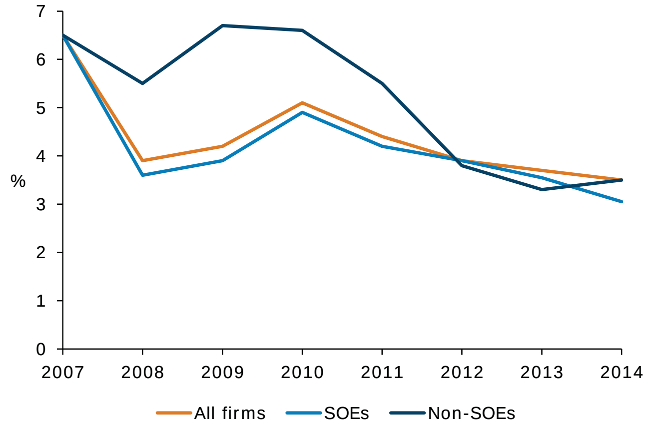
FIGURE 4. FIRM AND LOCAL GOVERNMENT DEBT HAS SHOT UP



Source: ANZ, IMF, CEIC

Meanwhile, corporate debt levels have also surged. China's corporate debt is estimated to be about 111% of GDP as of 2014, compared with around 77% in 2007. **At the same time, corporate profitability has deteriorated** and default risks have increased, as shown in Figure 5 and 6. About 12% of firms were making losses at the end of 2014, which means that it will be very difficult for some listed Chinese firms to use their own earnings to meet their liabilities in the banking system. **The rising default risk will also make the banking system cautious about lending to the real economy**, even with further easing of monetary policy.

FIGURE 5. RETURN ON ASSETS



Source: ANZ, World Bank

FIGURE 6. SHARE OF FIRMS MAKING LOSSES

Source: ANZ, World Bank

While the reported non-performing loan (NPL) ratio in China's banking system remains low (1.6% at the end of Q3 2015), it has steepened sharply. NPL growth rose from 42.3% y/y in Q4 2014 to 54.7% in Q3 2015. **Rising bad debt will cause commercial banks to play safe** and become overly cautious in extending loans, even under a relaxed monetary policy environment. **This then renders the PBoC's monetary policy easing via the banking channel less and less effective.**

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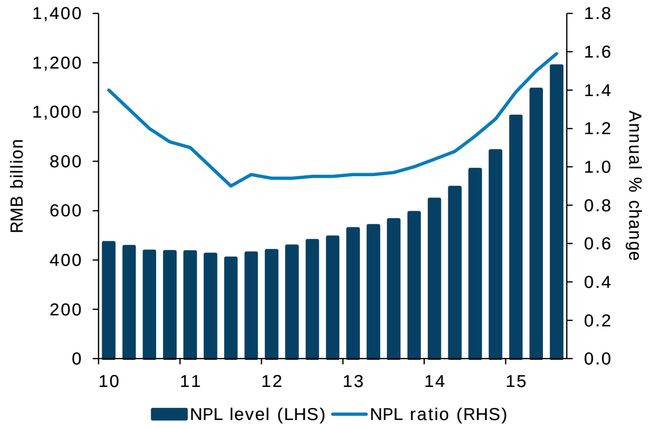
FIGURE 7. COMMERCIAL BANK NPL RATIO

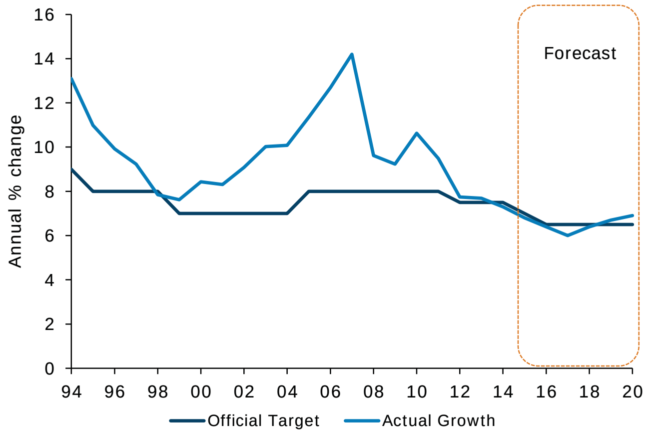


Source: ANZ, CEIC

ECONOMIC GROWTH WILL CONTINUE TO SLOW ON DELEVERAGING NEEDS

As the economy continues to trim its debt levels (deleveraging), growth will inevitably slow. We forecast that GDP growth will slow to 6.4% in 2016, and hit a trough of 6.0% in 2017. From 2018, as the deleveraging process is more or less completed, a recovery could start to shape up. If government policies are implemented correctly, we believe that China should be able to achieve a 6.5% average growth rate over 2016-2020.

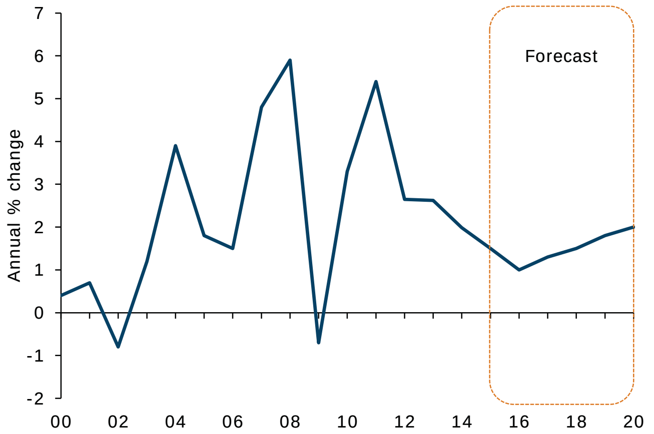
FIGURE 8. GDP FORECAST



Source: ANZ, CEIC

CPI inflation will likely continue to slide in 2016 on depressed commodity prices and a lack of domestic price drivers. Ongoing overcapacity in key industries will also lead to further price declines. Therefore, CPI should remain moderate in the next 12 months as growth remains weak. We forecast CPI to fall further to around 1% in 2016, before slowly trending up from 2017.

FIGURE 9. CPI FORECAST



Source: ANZ, CEIC

WHY HAS THE RMB DEPRECIATED AND WILL IT CONTINUE?

Last year, China announced a change to its exchange rate regime. On 11 August, the People's Bank of China (PBoC) announced a change in the calculation method of the RMB central parity rate, also known as the PBoC daily fixing. The onshore RMB rate (CNY) is allowed to fluctuate within a +/-2% range of this daily fixing each day. According to the announcement, the new daily fixing will be referenced to the closing exchange rate of the previous trading day at 4:30pm local time, while considering supply and demand conditions of the foreign exchange market (the "wiggle room") and the foreign exchange rate of key international currencies.

Three factors may have prompted the change:

1. **Fundamentally, the previous exchange rate regime ran the risk of losing monetary policy independence.** China has committed to allowing its capital account to be basically convertible. The previous RMB stability against the USD is thus inconsistent with the seminal "Trilemma Theory", which states that a central bank can only target two of three policy objectives out of exchange rate stability, freedom of capital flows, and monetary policy independence (Figure 10). As China's capital account liberalisation is irreversible, and an independent monetary policy is indispensable given China is a large economy, the PBoC can no longer maintain its currency fix. Thus, a more flexible exchange rate system will allow China to retain policy independence.

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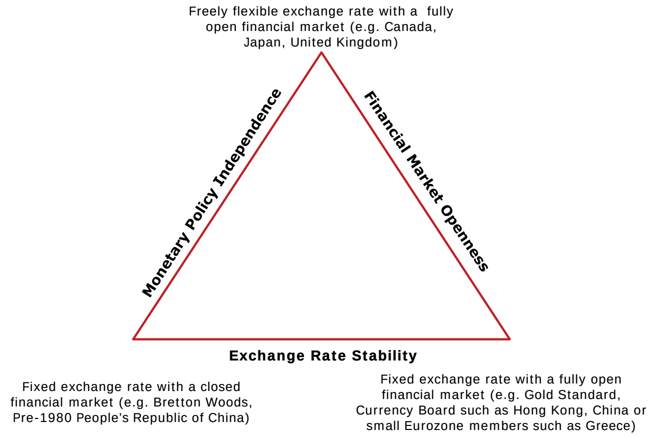
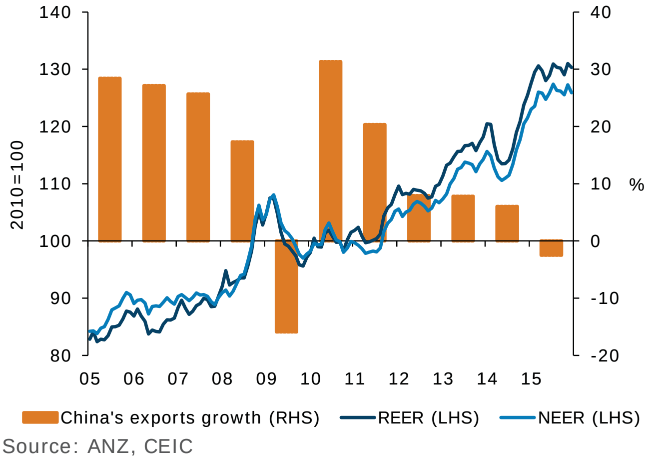
FIGURE 10. THE TRILEMMA TRIANGLE



Source: ANZ, Ito and Kawai (2014)

2. **Practically, at the time, the USD was expected to strengthen** further in anticipation of US fed interest rate hikes (which began in December 2015). The RMB would strengthen further in tandem were the USD fix to be maintained. The path for the USD has subsequently become less certain as the Fed's tightening path has become less certain. But according to the Bank of International Settlement (BIS), China's trade weighted nominal effective exchange rate (NEER) has already appreciated by 13.5% since June 2014. This has resulted in a heavy loss in China's trade competitiveness, as shown by China's negative export growth (Figure 11).

FIGURE 11. RMB NEER AND EXPORTS GROWTH



Source: ANZ, CEIC

3. Third, the **exchange rate reform could have helped strengthen the case for RMB's inclusion in the SDR basket**, a decision made last year. The IMF staff paper published on 4 August specifically mentioned the central parity rate "is not based on actual market trades, and can deviate by up to 2 percent from the onshore market exchange rate". Thus, a more market-representative rate was needed. When the fix was first introduced in 2005, it was an important signaling tool used by the PBoC to manage market expectations. But in recent years, the fixing has largely lost its relevance as the onshore spot rate has consistently deviated from the fix.

Since the beginning of 2016, both the onshore and offshore RMB exchange rate (CNY and CNH respectively) have depreciated sharply due to rapidly changing market sentiment, concerns over the economy, a narrowing of the onshore and offshore interest rate gap, capital outflows, and an unexpected plummeting of the equity market. Following the new RMB fixing regime, the daily fixing continued to follow the spot rate lower. While we believe the willingness of the central bank to allow the fixing to depreciate was based on its intention to adopt a more market-based and flexible exchange rate regime, the market reacted by expecting further RMB depreciation. The weak fixings looped back into depreciation expectations like adding oil to fire.

In response to the resulting market volatility and rising instability, the PBoC appears to have reverted back to a stable fixing regime. Since reaching a new high of 6.56 against the USD on 7 January, the PBoC has kept a stable fixing at around 6.56 in January. At the same time, the central bank has intervened in the FX market, through administrative measures, jawboning and direct intervention, to curb depreciation pressures. This appeared to have calmed the market somewhat and stabilised the spot rates.

Looking ahead, we believe that depreciation pressure on the RMB will persist. As the US Fed has entered a cautious upward policy rate cycle while the PBoC continues to loosen monetary policy, the gap between onshore and offshore interest rates will narrow further. Capital outflows will continue. Accordingly, our strategists forecast that the USD/CNY will weaken to 6.70 by the end of this year. However, it would be dangerous for the PBoC to allow one-way depreciation expectation to form, as it could lead to capital flight, which in turn could destabilise China's financial stability. We believe that the PBoC will also need to encourage capital inflow by opening China's capital markets, in addition to relying on currency intervention and capital controls.

IS THE STOCK MARKET TURBULENCE A BIG WORRY?

In January 2016, the Chinese stock market dropped significantly, with the Shanghai Composite Index falling over 10% in the first week of trading. Unlike the stock market rout in the summer of 2015, which was caused by rapid deleveraging of margin-lending activities, the drop in January was driven by a prevailing negative sentiment in the market and was triggered by sharp RMB depreciation. Meanwhile,

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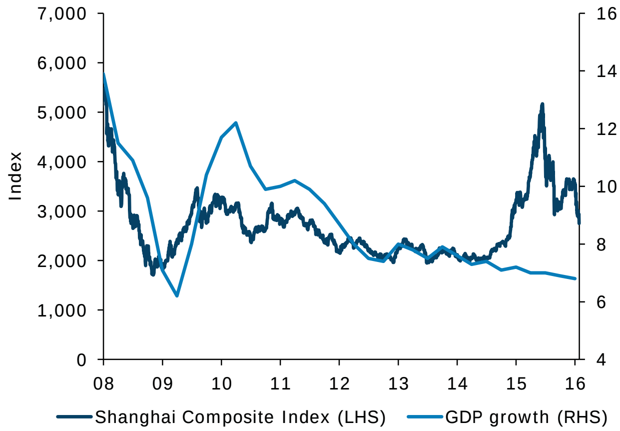
ongoing concerns over the weak economy, rising geopolitical risks, and the upcoming end of the embargo on share sales by large shareholders also contributed to the negative sentiment.

We do not think the equity market turbulence will lead to significant systemic risks at this juncture for the following reasons:

- One of the legitimate concerns was the involvement of banks in the equity market, since commercial banks form the backbone of China's financial system, accounting for two-thirds of the latter's total assets. **Even allowing for margin lending, banks' equity market lending remains small at around 2.5% of total deposits.** While banks accept shares as collateral for loans (typically by owners of listed companies), regulators (CBRC) limit these loans to up to 60% of the pledged share value. Anecdotally, banks typically extend loans to the shareholders at a ratio of about 40%, lower than the cap of 60%, due to credit and risk concerns.
- Stock market volatility usually has only a small impact on China's real economy, largely because the equity market only plays a small role in financing China's corporates. China's stock market performance usually does not have any correlation with consumption, investment, and economic growth. For example, even with the stock market rally in 2014, GDP continued to trend down, decoupling from the stock market moves.

FIGURE 12. STOCK MARKET VS GDP GROWTH



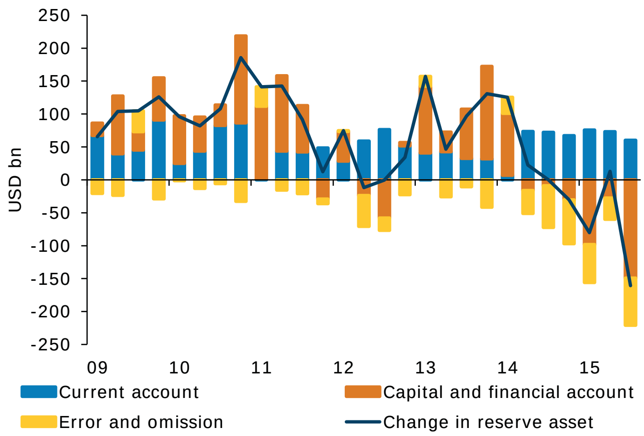
Source: ANZ, CEIC

WILL CHINA EASE MONETARY POLICY FURTHER?

Despite concerns that easier monetary policy could exacerbate downward pressure on the currency, **rising deflation risk and continuous capital outflow suggest that China's monetary policy is bound to ease further.** As commodity prices are still under downward pressure, China's PPI deflation is likely to continue for another year, dragging down CPI inflation.

More importantly, China has seen sizeable capital outflows since Q3 2014, and these outflows have intensified as RMB depreciation pressure has increased in recent months. Capital outflows tighten the domestic money supply, equivalent to tightening monetary policy. This may prompt the PBoC to cut the reserve requirement ratio (RRR), despite the risks, in order to maintain ample liquidity in the market.

FIGURE 13. BALANCE OF PAYMENTS

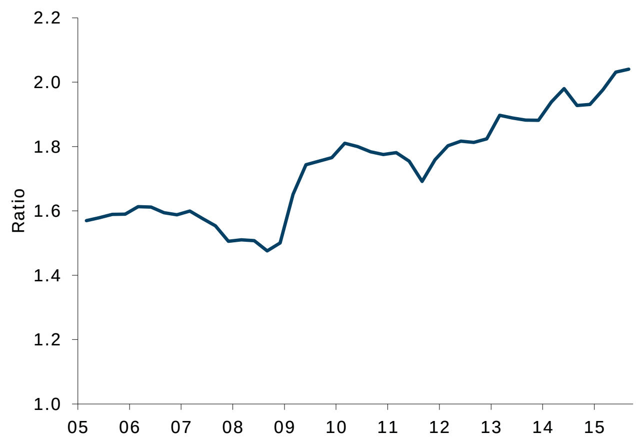


Source: ANZ, CEIC

Balance of payments data suggest that in the past four quarters, capital outflow has averaged about USD95bn (RMB600bn). If outflows continue at this pace, China would likely need to cut the RRR by 50bps each quarter – which will release about RMB600bn to RMB650bn of liquidity – to offset this drain.

On top of managing capital outflows, we expect the PBoC to maintain the growth target for the M2 money supply at 12% in 2016, which is same as the target in 2015, to accommodate a GDP growth objective of around 6.5%. In Q3 2015, China's M2 to GDP ratio reached over 205%, from 193% at the end of 2014. Assuming the trend continues, and M2 to GDP rises to around 215% by the end of 2016, we estimate that M2 would need to grow at least 12%.

FIGURE 14. M2 MONEY SUPPLY AS A PERCENTAGE OF GDP



Source: ANZ, CEIC

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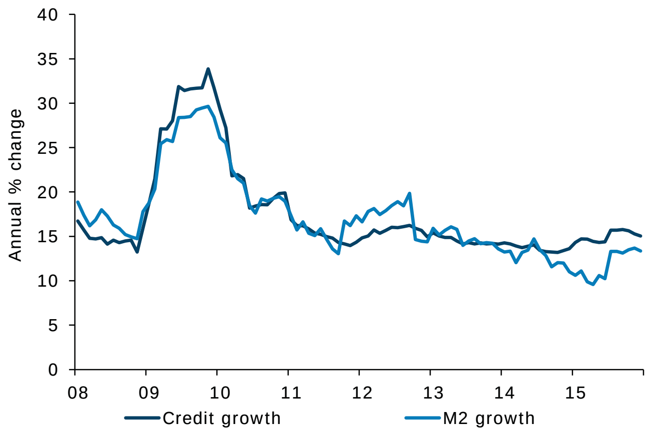
FIGURE 15. M2 AND CREDIT GROWTH



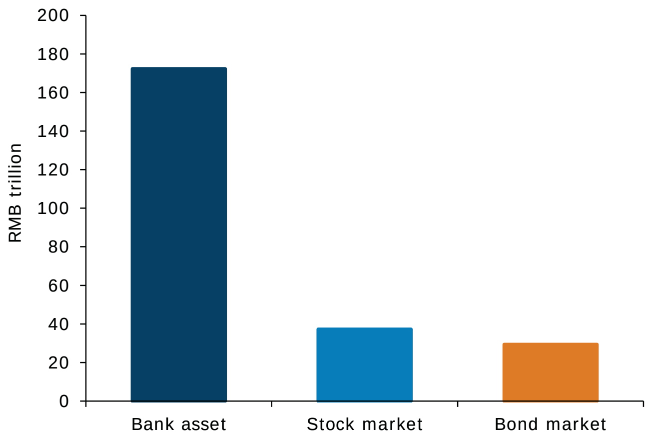
Source: ANZ, CEIC

We expect the PBoC to cut the RRR by a total of 200bps in 2016. As China's interest rate liberalisation has been completed, with the cap on deposit rates and floor on lending rates removed, the previous benchmark interest rates are no longer relevant.

SIMPLY EASING MONETARY POLICY WILL NOT BE SUFFICIENT

The monetary policy transmission mechanism has become less effective because of the pro-cyclical nature of banks' lending activity. That is, banks tend to lend more during an economic boom and refrain from extending credit during an economic downturn, making the price of credit, interest rates, less important as a driver of credit growth. Thus, we think authorities should encourage both Chinese corporates and local government to tap into the bond market for funding so as to use the capital market to better facilitate the deleveraging process in the corporate and local government sectors.

FIGURE 16. CHINA'S MARKET STRUCTURE



Source: ANZ, CEIC

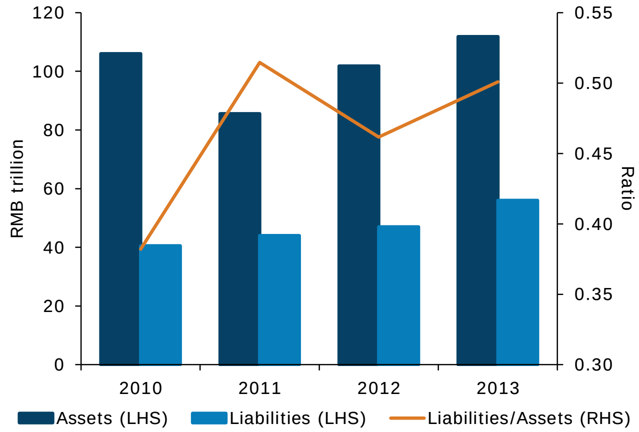
FISCAL POLICY WILL ALSO BECOME MORE PROACTIVE

China's fiscal spending has accelerated in recent months. In October, fiscal revenue increased 8.7% y/y, slower than the 9.4% pace in September. Fiscal expenditure surged 36.1% y/y in October, from 26.9% previously. As the economy has continued to slow despite monetary easing since late 2014, it appears that authorities are stepping up fiscal policy implementation. This increasingly active fiscal spending should be a positive for growth in the coming months, lifting infrastructure investment. In 2016, we expect that fiscal policy will become even more proactive. The fiscal deficit is likely to be lifted to 2.5% of GDP or higher, from the 2.3% in 2015.

PRIVATISATION IS CRITICAL TO TACKLE THE HIGHLY INDEBTED CORPORATE AND LOCAL GOVERNMENT SECTORS

In the medium term, Chinese authorities will need to get the privatisation agenda back on track. While the SOE sector and provincial governments are highly indebted, the state still owns a huge amount of assets in the form of the central government and provincial government-controlled SOEs and city commercial banks. As long as the Chinese government is willing to engage in a "debt to equity" swap, allowing privatisation to take place, the high leverage problem facing China's firms and local governments can still be successfully addressed.

FIGURE 17. CHINA'S SOVEREIGN BALANCE SHEET



Source: ANZ, CASS

AN EFFECTIVE POLICY PACKAGE COULD EASE THE PACE OF THE SLOWDOWN BUT CAN'T CHANGE THE TREND IN THE NEXT TWO YEARS

Even under ideal conditions, reforms take time to implement and even longer to have a material impact on the economy. Policy makers will need to have patience to tolerate a period of slower-than-desired growth while pushing forward urgent reforms, such as SOE restructuring and privatisation, land reform, and relaxation of the hukou system.

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A deleveraging process, while painful, is necessary. A recent IMF working paper[1] found that on average, deleveraging episodes last roughly five years. Regression results showed that a 1ppt decline in private sector debt ratio per year is associated with 13-24bps increase in the average annual real GDP growth rate in the five years following the end of the episode. In order for China to achieve a "V-shaped" rebound in the medium term and meet the target of average growth of 6.5%, deleveraging will need to start in earnest in 2016 and 2017.

Medium-term reforms announced during the Third Plenum and the 13th Five Year Plan should be carried through. Policies will need to be put in place to allow structural reform, rebalance the economy, further deregulate markets, and encourage competition in the economy. Structural reform will help steer the economy back to a more sustainable long-term growth path and avoid falling into a "balance sheet recession". However, successful implementation will require strong political will on the part of the Chinese leadership.

WILL CONSUMPTION DRIVE THE ECONOMY IN THE MEDIUM TERM?

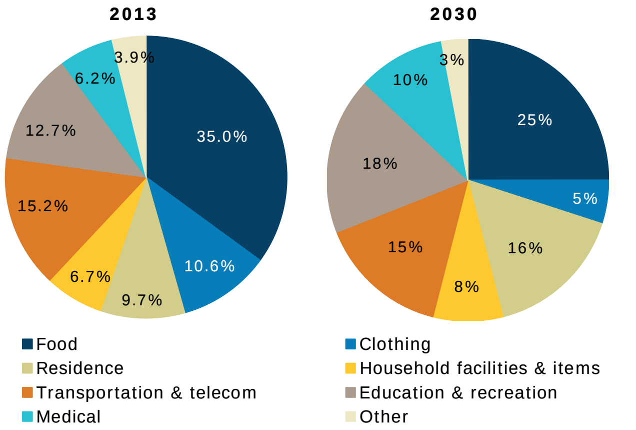
China's private consumption reached approximately USD3.8trn in 2014, which is equivalent to the size of Germany's GDP. However, private consumption, at 38% of GDP, remains very low by both OECD and emerging market standards. Middle-income countries at equivalent stages of development to China have – on average – consumption ratios almost 17ppts higher. This represents an enormous opportunity.

The Chinese leadership has placed significant emphasis on rebalancing the economy by shifting from an export and investment-led economy to a more sustainable consumption-driven one. As the urbanisation ratio rises, and earnings by urban dwellers continue to rise at a rapid rate, the burgeoning middle class population will provide the impetus for China to shift into a consumption-led economy. By 2030, we estimate that 27% of households will be in the "mid" middle class, and another 59% of households will be affluent. Together, the middle class will make up 93% of the urban population by 2030. Given China's urbanisation ratio will most likely be over 65% by 2030, our projection suggests that 857 million urban dwellers in China will be middle class by that time.

Meanwhile, as incomes increase, spending patterns will also gradually shift towards more discretionary items and higher-quality products.

Given the cultural and geographic similarity between Mainland China and Taiwan and Hong Kong, the consumption patterns in these two economies can provide some guidance as to how China's consumption will evolve by 2030, especially with regard to affluent consumers.

FIGURE 18. AGGREGATE FINANCING



Source: ANZ, China Statistical Yearbook, Sleeping Giant: China's Consumer

Based on our projections, the following sectors will benefit most from the emergence of China's urban middle class by 2030:

- **Auto industries and telecommunications:** Total spending in transportation and telecommunication will rise 225% to USD2.1trn (PPP) by 2030. This will be driven by higher car ownership, higher spending on telecommunications services, and more travelling. China's passenger car sales were 19.7 million units in 2014, over five times sales in 2004. Sales of communication appliances by large enterprises reached RMB269bn in 2014, a six-fold increase from a decade ago.
- **Real estate sector:** Housing-related expenditures will likely surge four-fold to USD2.2trn (PPP) due to demand for better and bigger housing as incomes increase. The latest data show that residential floor space per capita was about 33 square metres in 2012, up from 26.4 in 2004. In addition, related upstream (i.e. construction material) and downstream (furniture and household appliances) sectors will see similar benefits.
- **Education and recreation:** Consumption of education and recreation services will increase over 3.7 times to USD2.5trn (PPP). Chinese parents will continue to spend vast amounts of money on education for their children, while leisure spending will also grow rapidly. Currently, the average expected years of schooling for Chinese residents is still much lower than those in OECD economies. But as incomes rise, we expect domestic demand

[1] Sally Chen, Minsuk Kim, Marijn Otte, Kevin Wiseman, Aleksandra Zdzienicka, 2015, "Private Sector Deleveraging and Growth Following Busts", IMF Working Paper No. 15/35

FEATURE ARTICLE: WHERE DOES THE CHINESE ECONOMY STAND TODAY?

for education services, including private-funded schools and private classes, to lift substantially. Students going abroad will continue to grow in the meantime. Recreational spending will also become more important for Chinese consumers. The sharp rise in movie box office revenue – by 36% y/y in 2014 and 48% in H1 2015 – is a case in point.

- **Medical:** Despite healthcare reforms, the amount spent on medicine and medical services will increase four-fold to USD1.4trn (PPP), reflecting better and more expensive medical treatments for the well-off, together with an ageing population. China's dependency ratio (i.e. the population of age above 65 per 100 people) rose to 13.0 in 2015, from 10.3 in 200513, and this trend is expected to continue. By 2030, the dependency ratio will reach 25.3%, further raising the need for drugs, medical services and hospital treatments.
- **Other industries:** While the growth in other industries may not be as prominent as in the ones we have just mentioned, the increase in middle class population and rising incomes will still broadly benefit almost all sectors. For example, the share of expenditure on food will fall 10ppts from roughly 35% to 25% in the next decade, but the total amount spent will still more than double, even in terms of PPP.

CONCLUSION

The Chinese economy faces both near-term and medium-term challenges. However, we believe that if the reform policies outlined in the 5-year plan are successfully implemented, the Chinese economy will emerge much stronger from a necessary slower period of growth as the economic house is tidied up after marked excesses in both real investment and debt accumulation.

THE MONTH IN REVIEW

SUMMARY

Pasture and forage crop-growing conditions have improved in most areas, with regular rainfall since the start of the year. The downside risks for milk supply have reduced, and given the resilience shown so far, we expect supply for the season will be back just 3-4% y/y. Early-season sheepmeat slaughter has been high, but this is expected to be substantially lower over the remainder of the season. The main horticultural crops look on track to post some impressive yields in 2016, but the quality could be variable.

MOTHER NATURE

Since the start of the year, regular rainfall events have seen seasonal conditions improve in most areas. A dry December had many areas on tenterhooks and pasture covers/growth tracking well below normal. As January progressed, regular rainfall events and summer temperatures saw pasture and forage crop growth improve. In the driest areas, such as North Canterbury, the recovery is only just starting though and further rainfall is required. In other areas that have had better seasons, pasture quality has still deteriorated, leading to other management issues. The improvement in soil moisture and pasture conditions, as well as early offloading in finishing/excess breeding livestock in anticipation of El Nino conditions, is now seeing a lift in demand for livestock for restocking. This will have implications for meat markets over 2016.

DAIRY

Year-to-date milk supply is tracking just 2.6% behind the same period last year. This is impressive given the slow start to the season, a near-4% decline in the number of cows in-milk this season, and challenging financial conditions for the sector. It implies a very strong productivity performance (i.e. high per-head performance) especially given the cost cutting and revamp of production systems that is taking place.

Industry forecasts remain a 5-6% y/y decline in milk supply for this season. From here, this implies a 9-11% y/y drop in milk supply over the last five months of the season. This seems unlikely given the improvement in pasture/forage conditions, high palm kernel imports, low domestic grain prices, and year-to-date performance. At this stage it seems more likely there will be a 3-4% decline for the entire season. The last five months of the season are always more variable given the management choices that can be undertaken, but year-to-date results highlight the resilience of New Zealand dairy farmers and their production model under challenging conditions.

MEAT AND FIBRE

There has been a large early season lamb turn-off and excess breeding ewes this season due to dry conditions in some areas and in anticipation of El Nino conditions. Early season lamb slaughter was up 12-15% over the first quarter of the season, with average weights 0.5kg lighter. While there will be an increase from earlier industry forecasts of an 8% y/y decline in 2015/16 export supply, the high early season turn-off, smaller 2015 lamb crop and improvement in seasonal conditions still implies a significant 2 million head (-13% y/y) drop in supply over the remaining quarters of the season. **It's been a similar story for excess breeding ewes, with first quarter slaughter up 35% y/y.** If seasonal conditions continue to improve in areas that have reduced stocking rates and the outlook for farm-gate prices picks up, then a large drop in mutton slaughter over the remainder of the season is also expected.

In contrast, early season cattle turn-off hasn't lifted and overall is little changed compared with the same period last year. Very high cull cow and excess heifer turn-off during the June-September quarter has reduced the number of culls available in the early part of this season. Beef breeding cow numbers have steadily dropped in recent years also. This is having an impact on the supply of prime steer and heifer, which have started the season softer. Bull beef is the only class of cattle to show an increase so far, with farmers choosing to turn-off early due to good prices and in anticipation of El Nino.

HORTICULTURE

The main horticultural crops look on track to post some impressive yields in 2016. Quality could be a bit more variable than recent crops, however.

The 2016 grape vintage is on track to bounce back above 400,000 tonnes (last year's vintage was 312,000 tonnes). Quality strategic decisions regarding management of heavy crop loads and disease pressures/risks will be required. While export market demand, fruit prices and the general outlook remain positive, appetite for a 2016 national harvest materially above average levels appears limited amongst wine businesses.

The total pipfruit crop is expected to be slightly smaller than last season. Nelson lost a significant amount of fruit (1.3 million TCEs, or 22% of the potential crop) in December to a hail storm. However, a heavier crop to start with and an expected 9% increase in the Hawke's Bay crop provide an offset. **Export supply is expected to be up 5%** due to good in-market prospects – less fruit will be processed.

For kiwifruit, the Green crop is expected to be a similar size to the 80 million trays produced last year. Gold volumes are expected to see a significant increase from 30 toward 45 million trays. This will make it a new record crop and largely complete the bounce-back from Psa.

RURAL PROPERTY MARKET

SUMMARY

Sales activity continues to point to a two-speed rural property market. Dairy cash flow forecasts flag continued financial stress into 2017, which will weigh on buyer expectations. The flipside is elevated vendor expectations (which usually take a while to adjust), confidence in the medium-term outlook, interest rates at record lows (though watch credit spreads), a resilient milk supply productivity story, and cost efficiency gains. These offsets are providing an orderly adjustment, but confidence and the availability of credit remain key. Prospects for a tough 2016/17 payout could tighten both the demand and supply of credit. Arable land prices have also been under pressure recently due to lower domestic grain prices. All other farm types continued to see robust turnover and solid prices in December. Similar factors to dairying are providing support, as well as generally stable-to-better earnings prospects at present.

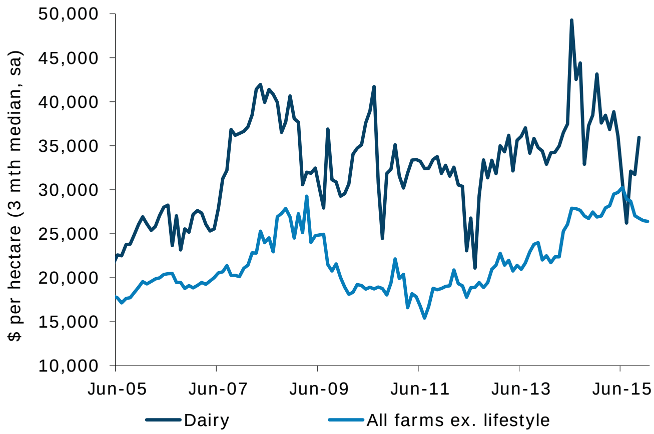
At an aggregate level the latest REINZ data paints a picture of relative calm. But under the surface there are a number of cross currents. The latest activity data shows total turnover has improved in recent months and is running above the same time last year, as well as 15% above the 10-year average. Average prices, while slightly back (-2 to -4%) on the same period last year, have been relatively stable and are still 20% above the 10-year average.

However, the high level aggregates hide the underlying cross currents. Year-to-date turnover for dairy properties in 2015/16 is lower, and average prices are back 10-15% over the same period a year earlier. However, the latest transactions at the end of 2015 showed a pick-up in prices with higher turnover in the more expensive regions of the Waikato and Taranaki (nearly 50% of turnover in three months to December). Outside of dairying, year-to-date turnover in 2015/16 of all other farm types has been higher, apart from grazing, which fell slightly (-7%). Price direction is a little more mixed, with finishing and arable prices down, but both are off very elevated levels. This seems to be part compositional, in terms of where sales are occurring as well as some limited knock-on impact from soft dairy prices to other supporting land uses (i.e. supplementary feed and grazing).

FARM SALES BY FARM TYPE

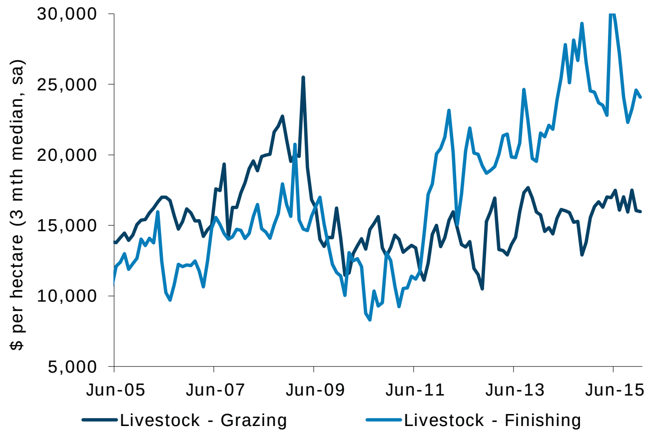
3-Month Seasonally Adjusted		Current Period	Previous Period	Last Year	10-Year Average	Chg. P/P	Chg. Y/Y	Chg. P/10yr
Dairy	Number of Sales	63	54	71	65	↑	↓	↓
	Median Price ($ per ha)	36,000	31,700	37,300	32,800	↑	↓	↑
Livestock – Finishing	Number of Sales	100	112	66	67	↓	↑	↑
	Median Price ($ per ha)	24,100	24,600	24,500	17,000	↓	↓	↑
Livestock – Grazing	Number of Sales	200	193	197	200	↑	↑	↑
	Median Price ($ per ha)	16,000	16,000	16,000	15,700	↔	↔	↑
Horticulture	Number of Sales	70	65	55	43	↑	↑	↑
	Median Price ($ per ha)	227,200	183,700	206,600	155,000	↑	↑	↑
Arable	Number of Sales	41	44	25	20	↓	↑	↑
	Median Price ($ per ha)	41,600	30,900	59,800	31,000	↑	↓	↑
All Farms ex. Lifestyle	Number of Sales	494	491	442	427	↑	↑	↑
	Median Price ($ per ha)	26,400	26,500	26,900	21,900	↓	↓	↑
Lifestyle	Number of Sales	2,211	2,228	1,721	1,532	↓	↑	↑
	Median Price	544,000	551,000	519,000	461,000	↓	↑	↑

FIGURE 1. FARM SALES, MEDIAN PRICE



Source: ANZ, REINZ

FIGURE 2. FARM SALES, MEDIAN PRICE

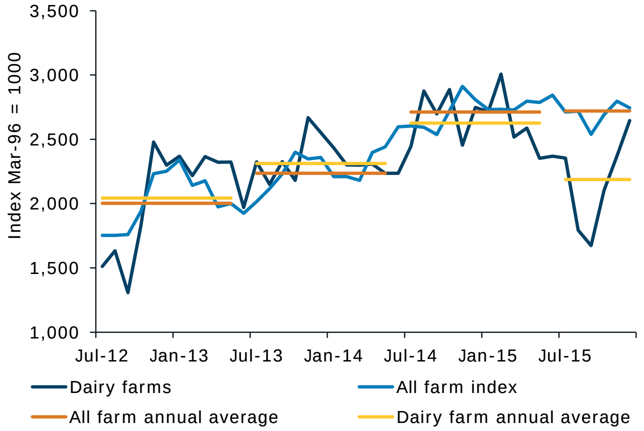


Source: ANZ, REINZ

RURAL PROPERTY MARKET

While the data on monthly farm sales is volatile at the best of times, it is the trends in prices that are of more interest. **The REINZ all-farm measure, which adjusts for compositional differences, has shown very little change over the 2015/16 season. However, the dairy component has shown a sharp dip followed by recovery over the back end of 2015.**

FIGURE 3. REINZ ADJUSTED FARM PRICE INDEX ($/HA)



Source: ANZ, REINZ

A lot of the "wild" price movement can be explained by very low turnover in the July to September quarter and then an increased number of sales in the more expensive areas of Taranaki and Waikato over the last quarter of 2015.

Nevertheless, year-to-date dairy property prices have so far been on average 10-15% (depending on the measure) below those achieved over the same period a year before. However, **transactions from the December period suggest average prices are back only 4% y/y now.** So what should one believe?

Turnover has been a lot higher in recent months, providing a better picture of underlying price trends. However, **a high proportion of this has been in the Waikato and Taranaki areas, which accounted for nearly 50% of turnover in the December period.** As we have noted before, these two areas are traditionally the more expensive areas to purchase a dairy farm. In 2014 the average price in these areas was close to $45,000/ha, or around the $50/kg MS mark. Anecdotal evidence and looking at the REINZ data for the December period suggests prices are continuing to hold around these levels in these areas. **This supports the notion that quality dairy properties in more desirable locations will face a smaller price reduction compared with lower-quality properties in less desirable areas.**

The question remains – how much lower could prices go? Cash flow forecasts are now flagging continued stress into 2017 and this will weigh further on buyer expectations over coming months. But vendor expectations usually take a while to adjust, confidence in the medium-term outlook seems to remain, and there are other support factors in the form of record low interest rates, a resilient milk supply productivity story, and cost efficiency gains. **For now these factors are delivering an orderly adjustment, but confidence and the availability of credit remain key.** This is where prospects for cash flow pending guidance for the 2016/17 season come into play. A forecast payout sub $5.50/kg/MS would be unwelcome.

Elsewhere, year-to-date finishing property prices in 2015/16 are back 7% on the same period a year before. However, this is a reduction from very elevated levels and in part appears to be compositional, with more sales in the lower North Island and Otago. **Overall turnover has improved in recent months and prices remain well above long-run averages despite the moderation in 2015/16.**

Arable property prices appear to have seen a bigger knock-on impact from lower domestic grain prices and dairy support revenues. Part of this appears to be compositional, however, due to a lower proportion of sales in the Canterbury region.

Grazing property prices remain in the recent range of $16,000-$17,000/ha, which matches the highs seen over the last couple of years. **Monthly turnover remains around the 10-year average.** While sheepmeat prices and dairy support activities are applying some pressure to budgets, the offset is better beef, wool and deer revenues. Generally stable earnings prospects (depending on livestock split), combined with other supportive factors such as low interest rates, are behind the firm prices.

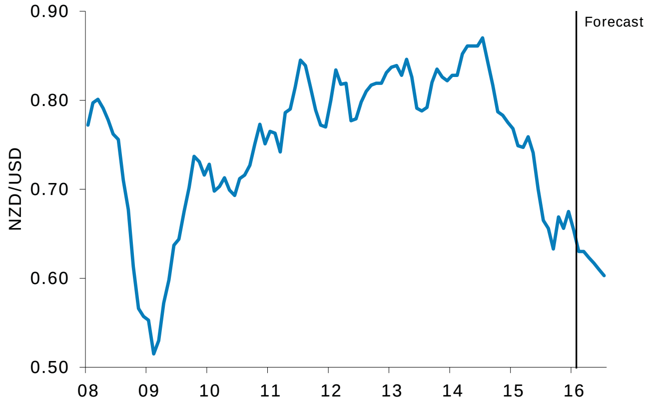
Turnover of horticultural property businesses has remained near recent highs. Much of the activity has been driven by kiwifruit orchard sales in the Bay of Plenty and fresh produce businesses that service the Auckland market. Some of the Auckland transactions will involve future commercial development opportunities.

As we mentioned in December's *Agri Focus*, kiwifruit orchard prices look to have taken another step up. There are reports of Green orchards trading in the $350,000-$400,000/canopy hectare bracket and producing Gold orchards/areas for $500,000-$600,000/canopy hectare. Both are a step-up from the year before when Green orchards registered $300,000-$350,000/canopy hectare and producing Gold $425,000-$500,000/canopy hectare.

ECONOMIC INDICATORS

EXCHANGE RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
NZD/USD	0.65	0.67	0.77	↓	↓
NZD/EUR	0.60	0.61	0.66	↓	↓
NZD/GBP	0.46	0.44	0.50	↑	↓
NZD/AUD	0.92	0.93	0.95	↓	↓
NZD/JPY	78.5	81.0	90.5	↓	↓
NZD/TWI	70.5	72.7	78.3	↓	↓

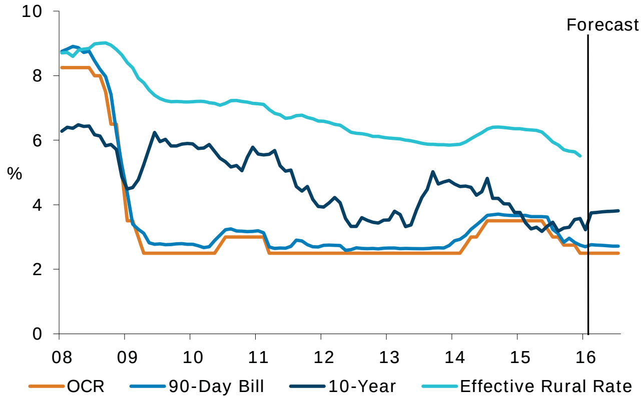
NZD BUYS USD



Source: ANZ, Bloomberg

NZ INTEREST RATES					
	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Official Cash Rate	2.50	2.67	3.50	↓	↓
90 Day Bill Rate	2.70	2.85	3.67	↓	↓
2 yr	2.41	2.57	3.54	↓	↓
3 yr	2.51	2.65	3.56	↓	↓
5 yr	2.73	2.89	3.63	↓	↓
10 yr	3.22	3.47	3.76	↓	↓
Effective Rural Rate	5.52	5.67	6.36	↓	↓
Agricultural Debt ($b)	58.70	58.70	54.06	↑	↑

KEY INTEREST RATES



Source: ANZ, RBNZ

The outlook for the NZD/USD is more balanced. While material downside currency pressures remain (China, commodity prices), the RBNZ is on hold (for now anyway), the New Zealand economy has stabilised/improved (despite the outlook for dairying being weak) and prospects for a firmer USD are fading with the US and global economy looking wobblier.

We are still siding with a lower NZD/USD 12 months ahead on the grounds that 1) the Fed will continue to tighten (albeit gradually) and 2) New Zealand cannot remain decoupled from global nuances; and 3) weaker emerging market growth is a negative for commodity currencies.

The NZD should certainly adjust lower based on some domestic considerations, such as the current account and terms of trade (commodity prices). But the most important fundamental is economic performance. Despite challenges across dairying, the New Zealand economy is performing remarkably well. Currency flows reflect growth, just like equity flows chase financial performance. So absent a full-blown China event or massive turn in the domestic economy, **we can't see the NZD heading down too far or aggressively.**

Other key currencies themes are:

- **The NZD to outperform Asian currencies;** growth challenges mean that region needs lower currencies.
- **The NZD/EUR to remain bid in early 2016 but fade into 2017 as Europe starts to recover.**

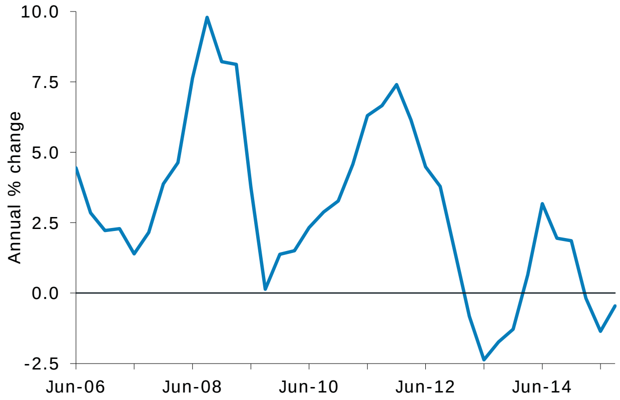
On the interest rate front, the RBNZ is on hold (though the risks remain tilted toward further easing in 2016); this should keep short-end rates low and biased lower.

Longer-term rates face more divergent pressures. The US Federal Reserve's tightening cycle has begun, and recent market volatility does not change our view that it is likely to continue in 2016. While the pace is expected to be gradual, we expect that we have seen the low-point in yields for long-term US rates, and with that, global rates should be biased up too. Where US rates go, the rest of the world follows. However, there are clear economic realities of which to be mindful. Large parts of the global economy are struggling and cutting rates where they can, or engaging in even more QE, and inflation is low. That means lower interest rates. How can the Fed and US rates be decoupled from the rest of the world? They can't.

ECONOMIC INDICATORS

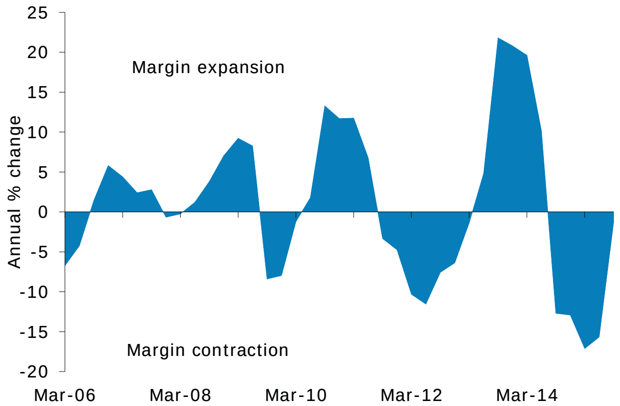
INFLATION GAUGES					
Annual % change	Current Qtr	Last Qtr	Last Year	Chg. Q/Q	Chg. Y/Y
Consumer Price Index	0.1	0.4	0.8	↓	↓
Farm Input	-0.5	-1.4	1.9	↑	↓
Net Imp. Margins PPI	-1.3	-15.7	-12.7	↑	↑

FARM INPUT INFLATION GAUGE



Source: ANZ, Statistics NZ

ANNUAL NET IMPLIED MARGINS PPI AG/FORESTRY/FISHING (OUTPUTS – INPUTS)



Source: ANZ, Statistics NZ

Domestic and global inflation trends remain subdued for now. An offset from broad-based falls in global commodity prices is lower prices for many operating farm inputs, from supplementary feed to fuel. The magnitude of the downturn is also impacting on expansion plans for many competitors and sectors. This is reducing demand for capital inputs, such as farm machinery and equipment, which could lead to more favourable pricing down the track. And another key offset is the lower NZD. The balance between the two is critical as to whether or not there is a reduction in farm-gate prices.

The time it takes for these dynamics to feed through varies depending on the extent of FX hedging, the frequency at which contracts are renegotiated, the degree of competitive pressures, and how pricing decisions are made in each sector. The speed of pass-through from a lower NZD is reasonably swift for imported feed and fuel costs, but it is more gradual for general farm merchandise and larger capital goods.

Closer to home, some service providers (vets, contractors, accountants etc) to the dairy sector will continue to face pressure with cash flow issues set to continue for a second year. This indicates emerging spare capacity and benign pricing pressure for some services. Depending on the type of business and concentration of dairying within a region it will have varying effects on the prices of different services for dairying and other primary sectors.

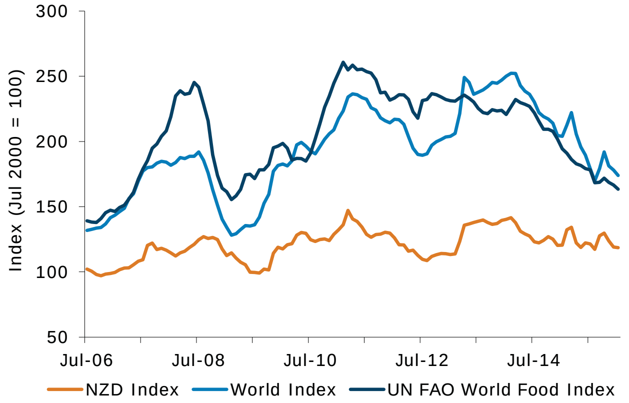
The substantial fall in the NZD/USD during the third quarter helped to offset the decline in international commodity prices. The NZD/USD fell nearly 10 cents, or 13%, during this period, leading to a 5.4% q/q increase in PPI margins though margins are flat on a year ago. This was the first real quarterly lift since the first quarter of 2014.

Output prices rose by 5.8% q/q and input prices rose by 0.4% q/q during the September quarter. On an annual basis PPI margins were still down 1.3% y/y, but the main area of softness was in the dairy sector (-9.4% y/y). Annual fishing PPI margins were back 3% and horticulture/fruit growing unchanged. However, the rest of the sub-sectors were up 2-4% y/y. On a quarterly basis the livestock sectors led the improvement for output prices, rising by 9-10% q/q. The only sector to register a quarterly decline in output prices was horticulture/fruit growing (-2% q/q). On the input price side things remained very benign with movements of between -0.3% and 0.7% for the sub sectors.

KEY COMMODITIES: OVERALL INDEX AND DAIRY

SOFT COMMODITY PRICE INDICES	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
ANZ NZD Index	119	124	120	↓	↓
ANZ World Index	174	184	204	↓	↓
FAO World Food Index	163	169	194	↓	↓

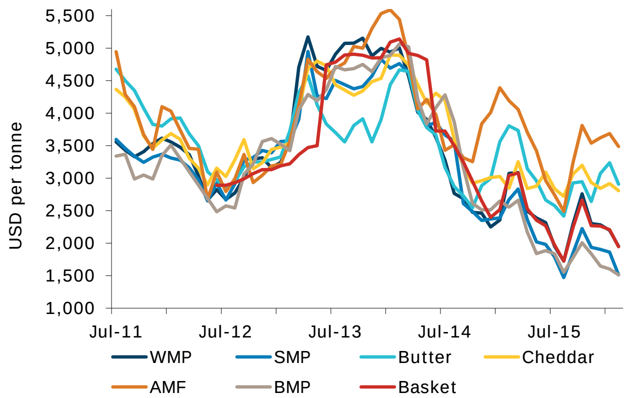
SOFT COMMODITY PRICE INDEXES



Source: ANZ, FAO

OCEANIA DAIRY PRICE INDICATORS USD per tonne	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Milk Price YTD ($ per MS)	4.05	na	4.40	na	↓
Milk Price Forecast ($ per MS)	3.95	4.60	4.70	↓	↓
Whole Milk Powder	1,952	2,260	3,073	↓	↓
Skim Milk Powder	1,513	1,901	2,671	↓	↓
Butter	2,905	2,984	3,803	↓	↓
Anhydrous Milk Fat	3,485	3,614	4,190	↓	↓
Butter Milk Powder	1,513	1,695	2,555	↓	↓
Cheese	2,807	2,896	2,845	↓	↓

DAIRY PRODUCTS – NZ EXPORT MARKET PRICES



Source: ANZ, GlobalDairyTrade

Global commodity prices have started the year on the backfoot, led by oil and industrial metals. **Soft commodity price movements have been mixed.**

China's economic fortunes and supply dynamics remain front and centre. While the likes of milk powder and sheepmeat have continued to see pricing pressure out of China recently, this hasn't been universal. Log and wool exports, which are some of New Zealand's most highly exposed sectors to China (accounting for over half of total exports in each case) have seen stable to better in-market pricing recently. Within dairy there is export growth outside milk powders for the likes of whey and cheese. Other sectors such as beef, kiwifruit, pipfruit, and venison, which are less exposed, are continuing to see strong sales growth in China too. So it's far from one-way traffic.

The short-term outlook for dairy prices, especially milk powders, remains challenging. The main pressure is coming from seasonal dynamics and continued milk supply growth offshore. Europe is the focal point with volumes up 2.2% (3.2m tonnes) over the past year, equivalent to 15% of New Zealand's milk supply. Much of the excess continues to be turned into skim milk powder (+8.6%), butter (+4.3%) and cream (+3.4%). Prices are currently below intervention levels for SMP. At the start of the year intervention levels are reset, soaking up 100,000t (~7% of annual production) of excess product. However, this is unlikely to improve prices given the upcoming seasonal supply uptick. There is some emerging evidence of processing capacity constraints and farm-gate price reductions in key areas, but more is needed to slow supply.

US supply has been stronger than anticipated. Improved seasonal conditions and low grain prices are raising the prospect of more SMP and butter from California. Here at home, seasonal conditions have improved, implying more milk than earlier anticipated. It remains to be seen what this will be turned into and how it will be sold. Increasing GDT auction volumes would likely apply additional pressure given buyers' short-term needs seem fairly well covered. **On a more positive note, Chinese milk powder imports picked up at the end of 2015 for the tariff-free window.** Seasonally higher milk supply within China will limit short-term import demand, but some normalisation appears to have begun. Combined with steady import demand elsewhere it highlights a slightly better backdrop for later in the year. But much will depend on how supply evolves.

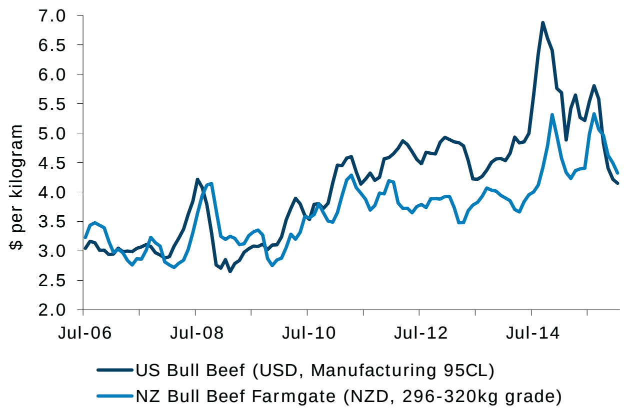
We have revised our milk price forecasts to $3.95/kg MS for 2015/16 and at this early stage $5.00/kg MS for 2016/17. Further downward pressure on prices is expected in the short-term and forward contracted prices have dropped for both NZ and competitors. This combined with a resilient NZD are the main reasons for our reduced forecasts. It is difficult to maintain higher forecasts with both key determinates heading in the wrong direction.

KEY COMMODITIES: BEEF AND LAMB

BEEF PRICE INDICATORS					
$ per kg	**Current Month**	**3 Mth Trend**	**Last Year**	**Chg. M/3M**	**Chg. Y/Y**
NZ Bull Beef[1]	4.32	4.69	4.58	↓	↓
NZ Steer[1]	4.75	5.28	4.71	↓	↑
NZ Heifer[1]	4.18	4.71	4.14	↓	↑
NZ Cow[1]	3.02	3.41	3.40	↓	↓
US Bull Beef[2]	4.15	4.48	5.69	↓	↓
US Manu Cow[3]	3.85	4.16	5.35	↓	↓
Steer Primal Cuts	7.53	7.84	8.37	↓	↓
Hides[4]	58.3	58.6	67.7	↓	↓
By-Products[4]	46.4	51.4	61.7	↓	↓

[1] (NZD, 296-320kg Grade Bull & Steer), (NZD, 195-220kg Grade Heifer) (NZD, 160-195kg Grade Cow)
[2] USD, Manufacturing 95 CL [3] USD Manufacturing 90 CL [4] USD$ per Hide

BEEF INDICATOR PRICES

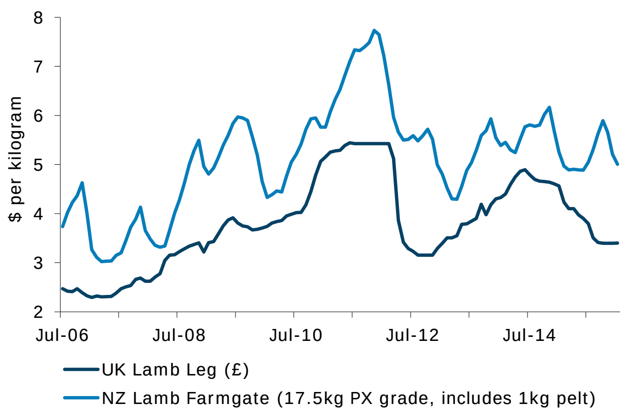


Source: ANZ, Agrifax

LAMB PRICE INDICATORS					
$ per kg	**Current Month**	**3 Mth Trend**	**Last Year**	**Chg. M/3M**	**Chg. Y/Y**
NZ Lamb[1] (NZD)	5.01	5.59	5.25	↓	↓
UK Lamb Leg (£)	3.40	3.40	4.56	↔	↓
Rack US (USD)	14.7	15.0	16.6	↓	↓
Flaps (USD)	4.02	4.26	5.48	↓	↓
Skins[2]	3.77	3.75	1.98	↑	↑

[1] 17.5kg PX grade, including 1kg pelt [2] USD per skin

LAMB INDICATOR PRICES



Source: ANZ, Agrifax

Close to home supply dynamics are likely to have a bigger say in the direction of beef prices over 2016. Key is Australia where Meat & Livestock Australia are forecasting a 16% y/y fall in adult slaughter to 7.6 million head – one of the largest drops ever recorded. Improved seasonal conditions, a large reduction in breeding cow numbers over the last two years and high farm-gate returns are expected to see turn-off normalise. Exports are expected to be back 339,000 tonnes, equivalent to around 60% of New Zealand's annual exports. In addition, New Zealand's supply is expected to drop back toward more normal levels this season after a spike up last year. After the large cull of excess dairy stock over the past 18 months this rate of turn-off is expected to slow somewhat. There is also expected to be a lower number of prime steers and heifers available due to the steady decline in the number of beef breeding cows.

This tightening in Australasian supply is expected to go head-to-head with improved market access for South American beef into the US, some increase in US beef supply (2-4%) and fierce competition from competing meat proteins. US prices have recently stabilised with end demand exceeding expectations in December (Foodservice sales increased 7.5% y/y in the month). This has helped reduce beef inventory levels back to 14% above the five-year average. So while some challenges remain on the horizon, the ability of the market to find its feet with a tightening supply backdrop provides some positive signals for 2016.

China continues to be the major drain on sheepmeat markets. This is having a major impact on forequarter, flap and mutton prices, which are back 20-25% on the three-year average. The liquidation of the China flock due to disease issues boosted supply through 2015, increased inventories and reduced import demand. When these conditions might improve is difficult to judge, given the lack of accurate information. However, **many believe the backlog could be cleared by May after the main consumption period of winter** – New Zealand's main exports to China are used in thinly sliced "yang" rolls for traditional hotpot cuisine.

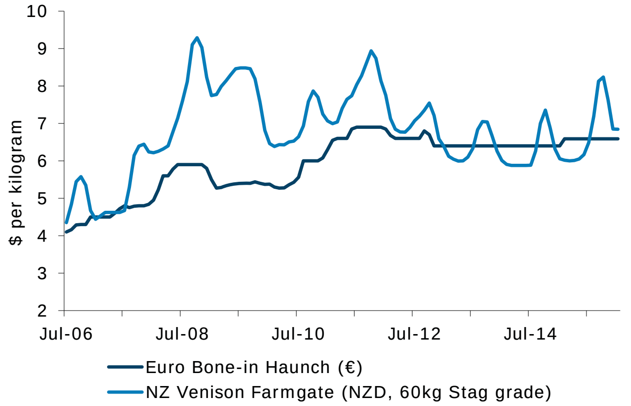
The other dynamic expected to help rebalance the market is lower New Zealand and Australian supply. If industry forecasts are correct then New Zealand supply is set to reduce by 2 million head (-13% y/y) over the remainder of the 2015/16 season. **These dynamics suggest the schedule outlook for the late autumn/winter period is better than the short term in which there could be some more pain outside the Easter procurement window.** In Europe sentiment is slightly better than China, with UK leg prices stabilising (although they are still 25% down on last year) and negotiations for Easter chilled prices reportedly similar to the year before.

KEY COMMODITIES: VENISON AND WOOL

VENISON PRICE INDICATORS					
$ per kg	**Current Month**	**3 Mth Trend**	**Last Year**	**Chg. M/3M**	**Chg. Y/Y**
NZ Stag[1]	6.85	7.57	6.06	↓	↑
NZ Hind[1]	6.72	7.47	5.95	↓	↑
Euro Bone-in Haunch (€)	6.59	6.59	6.40	↔	↑
Boneless Shoulder (€)	4.91	4.92	4.73	↓	↑
Loin (€)	16.0	16.0	15.5	↔	↑

[1] (60kg Stag AP grade), (50kg Hind AP grade)

VENISON INDICATOR PRICES



Source: ANZ, Agrifax

CLEAN WOOL INDICATOR PRICES					
$ per kg	**Current Month**	**3 Mth Trend**	**Last Year**	**Chg. M/3M**	**Chg. Y/Y**
NZ Mid Wool (24-31m)	9.52	9.42	7.85	↑	↑
NZ Strong Wool (>32m)	5.70	5.87	4.83	↓	↑
USD Mid Wool (24-31m)	6.23	6.28	6.03	↓	↑
USD Strong Wool (>32m)	3.73	3.91	3.71	↓	↑

WOOL INDICATOR PRICES (CLEAN)

Source: ANZ, Beef + Lamb NZ, Wool Services International

Venison prices have seen their normal seasonal fall, but to still-high levels. Schedule prices have fallen into the high-$6/kg range, as opposed to the high-$5/kg to low-$6/kg range of recent years. **In-market frozen venison prices are expected to be supported by lower New Zealand supply over 2015/16. Combined with a contained NZD this is expected to lift schedule prices over the first half of 2016** above those achieved during the same period last year. The one competitive pressure that could erode end-demand is the fall in European beef prices.

Domestic venison production finished at 391,000 head (-7%), or 21,400 tonnes in 2014/15. This was the lowest on record since the 1998/99 season. **Current industry expectations are for a further 6% decline in 2015/16** taking production back toward the 360,000 head mark. **Lower supply has reduced frozen inventory levels, supporting slightly higher prices.** Chilled prices have been supported by better demand for quality game meats in Europe and expanding alternative markets such as North America and China. Chinese exports have increased to over 400 tonnes in the last year – a four-fold increase from the year before.

Higher seasonal supply, even lower synthetic fibre prices and China's economy continuing to face a number of challenges are expected to pressure coarse micron wool prices in the short term. A large fall isn't expected though with wool supply set to be tighter than recent years and European demand appearing to have improved. In NZD terms prices are likely to remain fairly stable with further depreciation in the NZD/USD expected to provide an offset. Finer micron types should be supported more, with tighter supply conditions expected in Australia.

Year-to-date wool exports tell a similar story. Overall export volumes are back nearly 9% on the same period last year. **Just about all of this can be attributed to a decline in exports to China. However, these were very strong throughout** 2014/15, suggesting perhaps China is running down inventories, rather than consuming less – it's hard to gauge. The slack is being picked up by Southern Asia and Europe. In particular there has been an improvement in exports to two of the better-performing European economies, Germany and the UK.

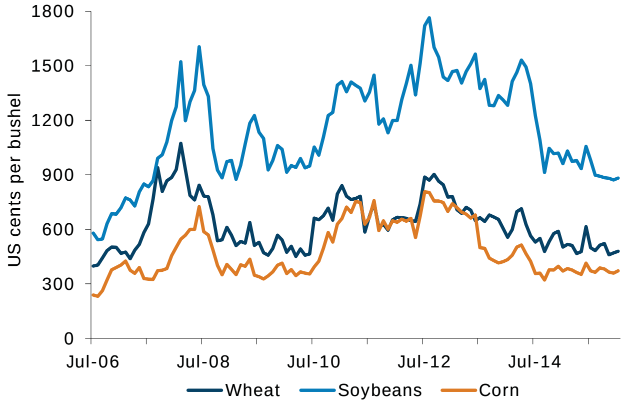
Supply dynamics are expected to provide price tension against affordability/demand pressures. Australia has recently revised lower its shorn wool production for 2015/16 with a 7% fall to 322 million kgs expected. This follows six seasons of relatively stable production. Domestic year-to-date auction volumes are trailing and the continued fall in ewe numbers and a tougher winter period (lower yields) suggests lower supply over the next two seasons.

KEY COMMODITIES: GRAINS

GRAIN & OILSEED PRICE INDICATORS	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
NZ Milling Wheat[1]	350	361	419	↓	↓
NZ Feed Wheat[1]	306	312	396	↓	↓
NZ Feed Barley[1]	290	297	397	↓	↓
Palm Kernel Expeller[1]	239	246	241	↓	↓
US Wheat[2]	4.79	4.84	5.03	↓	↓
US Soybeans[2]	8.82	8.79	9.61	↑	↓
US Corn[2]	3.72	3.69	3.70	↑	↑
Australian Hard Wheat[1]	359	371	404	↓	↓

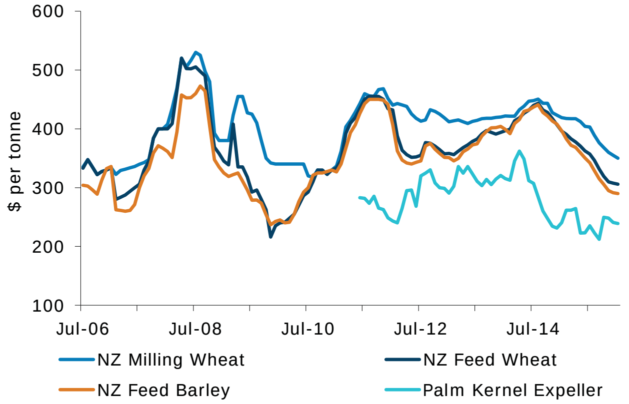
[1] NZD per tonne
[2] USD per bushel

CBOT FUTURE GRAIN & OILSEED INDICATOR PRICES



Source: ANZ, Bloomberg

KEY NZ GRAIN PRICES



Source: ANZ, Agrifax

Local grain prices have found a base, but little improvement is expected over the first half of 2016. A downgrade in the milk price outlook, improved seasonal conditions, high palm kernel imports and a grain surplus from last year suggest there could be some further downward pressure on prices as the 2016 harvest hits silos. Many farmers turned off excess stock early and planted additional crops in anticipation of El Nino conditions. With El Nino not hitting as hard as anticipated, many now have excess feed. However, grain prices have fallen a long way since the end of 2014, anecdotally local stocks don't seem overly burdensome, and international grain prices appear to have based.

The local barley harvest has commenced. Reports on dryland yields are mixed, which isn't unusual for the early part of the harvest; variable seasonal conditions have been experienced across the Canterbury area. The regular rainfall through January is likely to delay harvesting and make it start-stop. The recent rain has given later crops a boost after some earlier heat stress.

Palm kernel imports have remained high and prices have recently softened with the downgrade in the milk price and improvement in seasonal conditions. Annual imports of PKE hit 2.2 million tonnes in 2015 – an increase of 10%. This was despite Fonterra releasing guidelines that PKE intakes for dairy cows should be limited to no more than 3kg/cow/day. Prices are expected to remain under pressure in the short term even though it's the seasonal low for Malaysian production, which tends to increase prices.

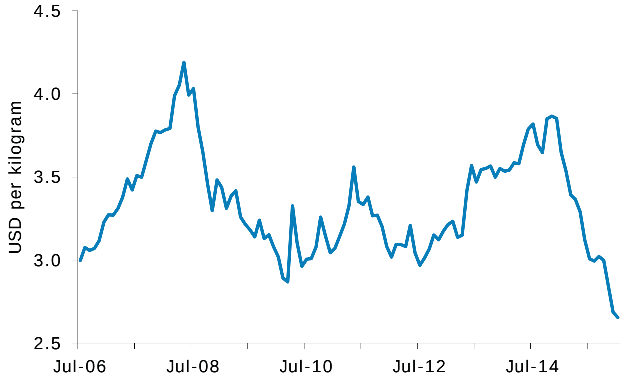
International grain prices continue to trade in a sideways fashion. The focus has been on winter wheat crops in the US, Russia and Ukraine. Each has had periods of concern, but any damage is difficult to assess until crops emerge from winter dormancy. The most recent USDA World Agricultural Supply and Demand Estimates report showed that estimates of winter wheat plantings are back by 2.7 million acres, or -7% y/y. This is attributed to a delay in planting and switching to other crops due to low wheat prices. However, despite potential crop damage and reductions in the planted area, there is still ample supply, meaning prices are unlikely to improve for some time to come. Wheat ending stocks estimates for the 2015/16 season in the US have been raised by 30 million bushels, while global wheat supplies have been raised 1.2 million tons due to increased beginning stocks and production. Global wheat stocks are at 30 year highs in absolute terms, and in stock to use terms 15 year highs.

KEY COMMODITIES: HORTICULTURE

HORTICULTURE PRICE INDICATORS	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
Kiwifruit (USD per kg)	2.7	2.8	3.6	↓	↓
Apples (Weighted Index)	244	244	201	↔	↑
Average Wine Price[1]	4.66	4.77	5.47	↓	↓
Packaged White Wine[1]	5.28	5.63	6.40	↓	↓
Packaged Red Wine[1]	8.84	8.16	10.19	↑	↓
Bulk wine[1]	2.69	2.81	3.04	↓	↓

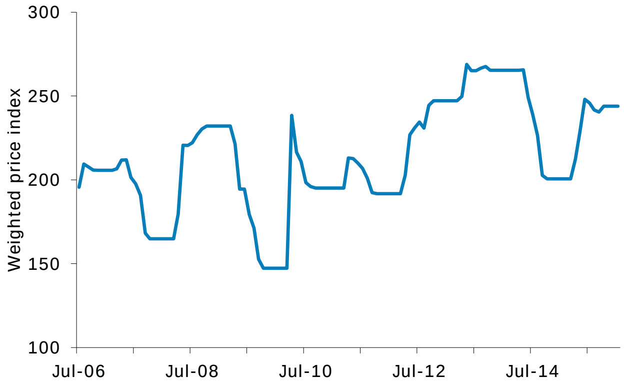
[1] USD per litre

GREEN KIWIFRUIT INDICATOR PRICE



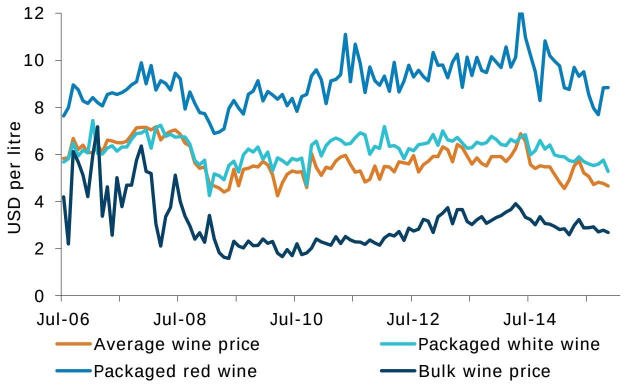
Source: ANZ, Zentrale Markt- und Preisberichtstelle

APPLE INDICATOR PRICE INDEX



Source: ANZ, Zentrale Markt- und Preisberichtstelle

WINE INDICATOR PRICES



Source: ANZ, NZ Winegrowers

The 2016 grape vintage is on track to bounce back above 400,000 tonnes (last year's vintage was 312,000 tonnes). Bunch size and berry numbers are variable in the Marlborough area. Disease pressures have been higher too (botrytis infection periods and powdery mildew), which has led to more intensive crop and spray management to maintain quality. Quality strategic decisions regards management of heavy crop loads and disease pressures/risks will be required. While export market demand, fruit prices and the general outlook remain positive, appetite for a 2016 national harvest at materially above-average levels is viewed as limited amongst wine businesses.

In the market year-to-date exports of Sauvignon Blanc are up 4% and the other styles are generally positive too, with sales up 10%. Average packaged wine prices (NZD terms) are up 12% and non-packaged 10%. Non-packaged sales are back slightly to 33% of total exports. **Of the "big three" markets the US and UK continue to perform best. Australia remains more lacklustre** with earnings slipping as other markets are prioritised.

The total pipfruit export crop is expected to be up 5% on last year. Nelson lost a significant amount of fruit (1.3 million TCEs, or 22% of the potential crop) in December to a hail storm that affected the Motueka, Moutere, Mariri and Waimea areas. Many hail-damaged crops may not even be picked for juice due to the severity of the damage. However, a heavier crop to start with in the Nelson area, and an expected 9% increase in the Hawke's Bay crop, provide offsets. The average fruit size in the Nelson area is expected to be similar to 2015, but down half a count in Hawke's Bay. While export supply is expected to be up 5%, the size of the total crop is expected to be slightly lower than 2015. **Solid export markets are expected to see more fruit packed for export and less fruit directed to processing.**

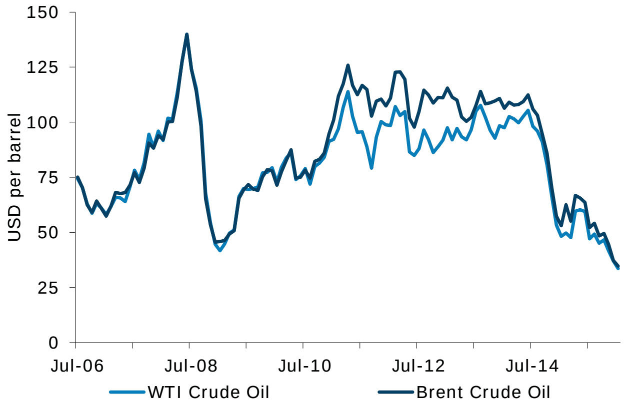
For kiwifruit the Green crop is expected to be a similar size to the 80 million trays produced last year. Gold volumes are expected to see a significant increase from 30 toward 45 million trays. This will make it a new record crop and largely complete the bounce-back from Psa. Zespri's Northern Hemisphere orchards are on track for sales of around 3.5 million trays of gold (SunGold and Gold) and nearly 10 million trays of Green. Non-NZ gold volumes are also set for strong growth.

KEY COMMODITIES: OIL, FREIGHT AND FERTILISER

OTHER COST INDICATORS	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
WTI Oil[1]	34	42	48	↓	↓
Brent Oil[1]	35	44	53	↓	↓
Ocean Freight[2]	317	594	608	↓	↓

[1] USD per barrel, grade WTI
[2] Baltic Dry Index

CRUDE OIL INDICATOR PRICES



Source: ANZ, Bloomberg

We expect crude oil prices to remain under pressure in the short term as a risk-off environment and further supply growth keeps investor sentiment weak. **However, in the back half of 2016, we expect the decline in US supply to accelerate, which should see some price recovery emerge.**

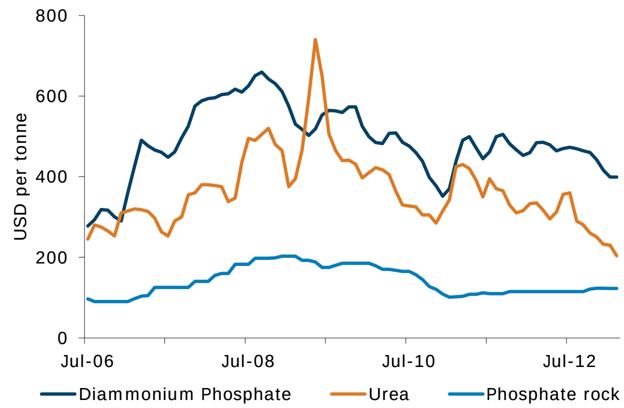
The suspension of some Western nuclear-related sanctions on Iran is largely factored in. However, the market is still unconvinced Iran can boost exports by 1Mb/d this year. Therefore, if it exceeds expectations, prices could come under further pressure. Heavy discounting could also weigh on prices.

Balance sheets of US shale producers are expected to come under severe stress in 2016 as profits fall sharply and funding costs rise. This should see US supply outages accelerate later this year. A lack of investment in new wells could also have an impact.

The global freight index has dropped to multi-decade lows as a trade recession in Asia, excess shipping capacity and the decline in oil prices weigh heavily. This is helping reduce shipping costs in many sectors.

FERTILISER PRICE INDICATORS					
USD per tonne	Current Month	3 Mth Trend	Last Year	Chg. M/3M	Chg. Y/Y
DAP (USD)	399	419	484	↓	↓
Urea (USD)	204	237	335	↓	↓
Phosphate Rock (USD)	123	123	115	↓	↑
Farm-gate DAP (NZD)	835	862	815	↓	↑
Farm-gate Urea (NZD)	525	558	590	↓	↓
Farm-gate Super phosphate (NZD)	330	330	316	↔	↑

INDICATIVE INTERNATIONAL FERTILISER PRICES



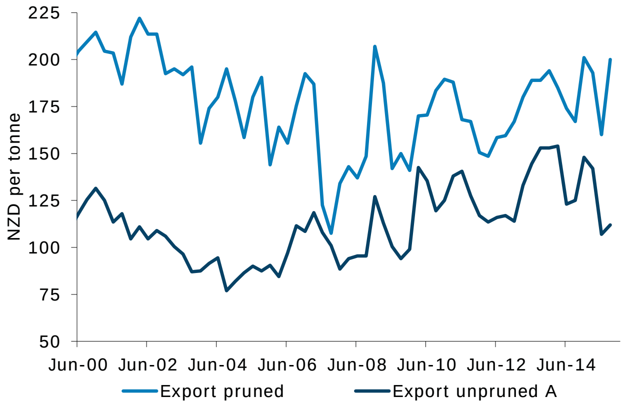
Source: ANZ, Bloomberg

International fertiliser markets have remained under pressure and this is translating into lower farm-gate prices. Ballance and Ravensdown have both announced price cuts across all their products. Urea has dropped by $50 to $525/t, the lowest level since 2007. Diammonium phosphate (DAP) has reduced by $25 per tonne, granular ammonium sulphate by $15, and potash by $10.

KEY COMMODITIES: FORESTRY

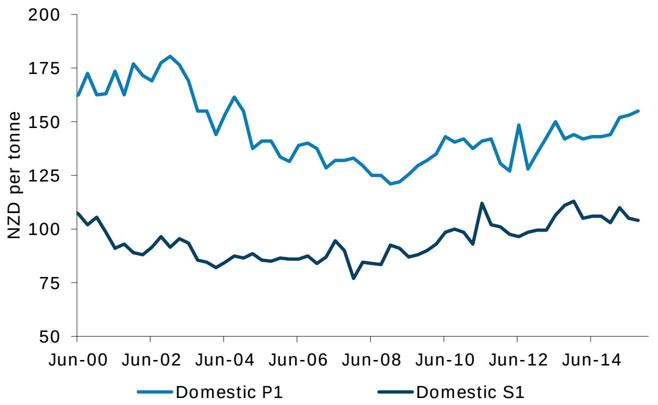
FORESTRY PRICE INDICATORS	Current Quarter	3 Period Trend	Last Year	Chg. P/3P	Chg. Y/Y
Export: (NZD per JAS m³ f.o.b.)					
Pruned	200	185	167	↑	↑
Unpruned A Grade	112	132	125	↓	↓
Unpruned K Grade	108	129	118	↓	↓
Pulp	112	119	100	↓	↑
Domestic: (NZD per tonne delivered at mill)					
P1	155	150	143	↑	↑
P2	125	126	126	↓	↓
S1	104	106	106	↓	↓
S2	95	101	106	↓	↓
Pulp	43	49	50	↓	↓

NZ FORESTRY INDICATOR PRICES – EXPORT



Source: ANZ, MPI

NZ FORESTRY INDICATOR PRICES – DOMESTIC



Source: ANZ, MPI

The export log market continued the November improvement into the New Year before stabilising. While in-market prices have stabilised, lower shipping rates and a favourable NZD have boosted wharf gate prices to $115/t. Shipping rates are at multi-decade lows as a trade recession in Asia, excess shipping capacity and the decline in oil prices weigh heavily.

The outlook is for prices to remain around current levels before seasonally dropping in the autumn period. While uncertainty remains, Chinese in-market prices appear to be relatively stable around the US$115/JAS level. Inventory levels on Chinese ports remained steady through December and into January at around 2.4-2.7 million cubic metres. Chinese New Year will see offtake reduced – however in contrast to 2015, inventory levels are not expected to increase significantly. High inventory levels post Chinese New Year weighed heavily on the market from April to October last year. Elsewhere, demand out of other key export markets, such as India, Australia and the US, has been stronger too.

Domestically, structural log prices have held steady, but sellers have reportedly started to lift prices. Strong domestic housing activity is expected to see continued timber demand. Nationally, the monthly trend in building consent issuance has lifted to its highest level since mid-2004 (although the rate of growth is slowing modestly). This growth has largely been led by Auckland, but the positive trend is also evident in other areas, such as the Waikato and regional North Island. Canterbury issuance is now broadly flat-lining. But considering the rebuild "peak" this is also a decent result. The high level of forthcoming building activity bodes well for timber demand.

For pruned domestic logs demand continues to outweigh supply, particularly in the Central North Island. The average New Zealand price has increased to $168/t, but as always there is some regional variation around this. The higher prices are changing market dynamics, with some mills now taking log lengths they weren't previously. There are reports of mills now accepting logs up to 6.1m where they had previously only accepted lengths of 4.4-4.5m. This is allowing forest owners to get the maximum yield out of pruned stands.

BORROWING STRATEGY

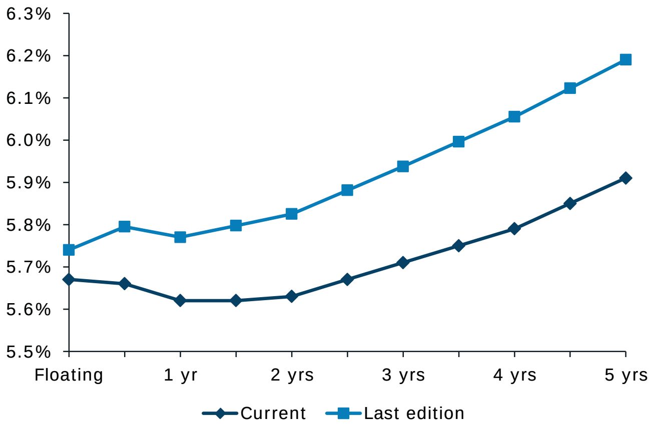
SUMMARY

Indicative rural lending rates have fallen in a fairly uniform fashion since our last edition, with interest rates between 1 and 5 years down 0.1% to 0.2%. The curve has also flattened. While this makes fixing for term more attractive, the start of the US Federal Reserve tightening cycle has not led to higher US bond yields, and amid a fickle global scene we are cautious about assuming New Zealand long-term interest rates will rise. Borrowers face another quandary too. While on the one hand, a bias for the OCR to go lower rather than higher makes it more attractive to stay floating (despite term interest rates at record lows), rising funding costs increases the incentive to fix to lock in your margin where possible.

OUR VIEW

Indicative rural rates have all declined since the last edition of the Agri Focus, with slightly larger falls at the long end delivering a mild curve flattening.

FIGURE 1. INDICATIVE RURAL LENDING RATES



Source: ANZ, Bloomberg

At face value, the "flatter and lower" yield curve makes term borrowing more attractive, for it costs less to fix in both an outright sense, and relative to floating. However, as often is the case, there is a caveat, and that's that the risk profile around future floating rates is also lower. As we discuss in the Economic Overview section on page 24, while we are not forecasting another OCR cut, the fickle global scene, weakening export prices and low inflation backdrop has seen the Reserve Bank move to a formal easing bias. It's not yet a case of cuts being more likely than not, but it is certainly moving in that direction, with the end result being lower short-end interest rates. All else equal, for borrowers, this makes fixing a less attractive prospect, as the alternative (staying floating) looks like it may get cheaper.

But while we are mindful of the risk that floating rates could fall, we are equally mindful that funding costs are on the ascent. Wholesale credit costs faced by corporates and banks have risen sharply in recent weeks. This reflects regulatory-related changes, a turn in the global credit cycle, and growing unease regarding the global scene. **For some borrowers, the incentive to fix now to lock in a margin may well outweigh any desire to participate in falling floating rates, should the RBNZ cut the OCR.**

Looking beyond the lower floating rate/higher margin quandary, we are also less confident that long-term interest rates will rise compared to how we felt two months ago. The direction of New Zealand interest rates depends crucially on US interest rates, as we have stressed many times in past editions. And whereas in November, most were gearing up for US long-end interest rates to rise gradually as the Fed embarked on its first rate hike in 9 years, in what was the first step in a gradual tightening cycle; many now fear that future hikes will be delayed – if they get delivered at all. This largely stems from renewed concerns about global debt levels, Chinese growth prospects, a lack of inflation – in part driven by falling commodity prices, increased market volatility, and more recently, the prospect of more easing by the Bank of Japan and the European Central Bank. This matters because the more these central banks ease, the harder it is for the Fed to go against the flow and tighten. As a consequence, we have seen US 10-year bond yields move back below 2%, and New Zealand 10-year swap rates move to fresh record lows. With less confidence that US (and by implication, New Zealand) interest rates will rise, we are cautious about fixing despite the apparent value now on offer at the long end.

So what should borrowers do? As always, this depends on individual circumstances. While our breakeven analysis (see table) suggests that rates don't need to rise by much in order for it to be worthwhile fixing, for most borrowers, it is likely to be a question of certainty (of both rate and margin) against flexibility (and the possibility that floating rates may fall, or will stay lower for longer).

Rural Lending Rates (incl. typical margin)		Breakeven rates			
Term	**Current**	**in 6mths**	**in 1yr**	**in 2 yrs**	**in 3 yrs**
Floating	5.67%				
6 months	5.66%	5.59%	5.63%	5.82%	6.00%
1 year	5.62%	5.61%	5.63%	5.86%	6.04%
2 years	5.63%	5.67%	5.75%	5.95%	6.21%
3 years	5.71%	5.76%	5.85%	6.09%	
4 years	5.79%	5.87%	5.98%		
5 years	5.91%				

ECONOMIC BACKDROP

SUMMARY

The economy ended 2015 on a positive note. Leading indicators augur well for 2016. While we expect solid growth over 2016, the risk profile is elevated. Global nuances and signals are poor, with China and commodity prices at the epicentre. The risk profile remains skewed towards the OCR falling further still.

2015 ended on a positive note and our forward-looking indicators continue to point to above-trend growth.

Our proprietary leading indicators augur well for 2016. Confidence has lifted sharply off lows, firms' own activity expectations are recovering and our Truckometer surged in Q4. Job ads have started to rise once again, flagging an improvement in prospects for the labour market.

Key factors supporting the economy include:

- **Notable strength in some key sectors.** Construction activity is strong. Auckland house prices have levelled off but regional house prices are starting to move higher. Tourism numbers are very strong. Migration inflows are surging.
- **The lower OCR** following the 2015 cuts, and associated loosening in financial conditions. The NZD has eased.
- **Dairy prices are off their lows.** The outlook for the dairy payout is still poor but less of a catastrophe relative to when powder prices were trading at USD$1500 per tonne. That's removed some of the mid-2015 extreme negativity. But we're watching this one closely.
- **An economy that has better microeconomic foundations** and resilience. We continue to place considerable importance on small dynamics across the economy, that whilst are hard to quantify and are often subjective, add to the economy's economic muscle. This includes fiscal competency and credibility.
- **Some natural "bounce"** from overcooked bearishness. The New Zealand economy is interlinked with prospects for the dairy industry but not universally dependent on it.

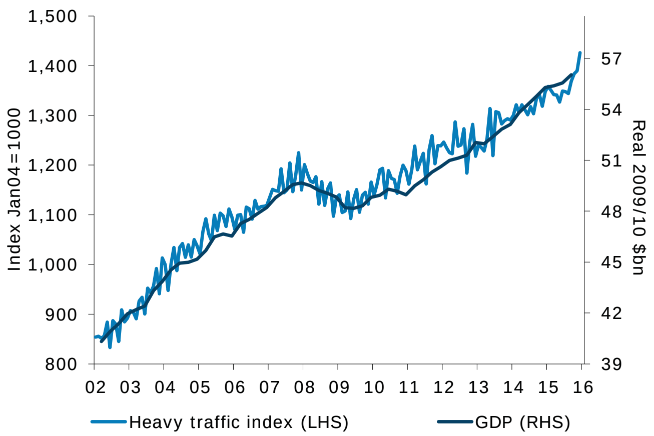
However, we start 2016 with a more elevated risk profile.

- **Export prices are weakening.** Dairy prices are front and centre but red meat and others commodities have tilted sharply lower of late too. Prospects for a meaningful recovery in dairy prices look to be a way out and price action across broader commodities is poor. However, a lower NZD has helped provide some offset.
- **A host of the world's problems have not been addressed post the global financial crisis.** The global economy remains on a knife-edge amid concerns over Europe (sovereign risk), commodities (heavily financialised during the boom times but with prices low now) and China, to name but a few.
- **Greater uncertainty surrounds China.** The RMB and equities are under pressure, and capital outflows are substantial. Partial indicators tell a different story growth-wise relative to official statistics. We hold concerns about how capital has been allocated (over-investment), the degree of corporate leverage and the pricing of risk.
- **The New Zealand economy continues to show evidence of borrow-and-spend style growth**, which is manageable as a temporary phenomenon but unsustainable medium-term given the backdrop of high leverage and house prices.
- **A possible correction in the Auckland property market.** We put a low probability on such an outcome given housing shortages, but it's a risk nonetheless. The key challenge is restoring demand-supply balance to the market.
- **Fallout from the El Nino event** although recent rainfall has helped alleviate this risk.

We expect reasonable GDP growth of 2.5% over the coming year but volatility to remain high.

Inflation remains low and although there are pockets of price pressure and capacity is tight, there is a generalised lack of inflation pressure. Along with the fragile global scene and widening credit spreads, **the inflation outlook may warrant OCR cuts later in the year.** However, despite the downside skew to the OCR risk profile, at this stage we see no urgency for cuts, and our base case scenario has the OCR on hold over 2016.

FIGURE 1. GDP AND ANZ HEAVY TRAFFIC INDEX



Source: ANZ, NZ Transport Agency, Statistics NZ

EDUCATION CORNER: THE PRODUCTIVITY EQUATION

SUMMARY

Productivity forms a crucial part of the profit equation for all businesses and is one element of farming that management have more direct control over through investment choices and day-to-day operational decisions.

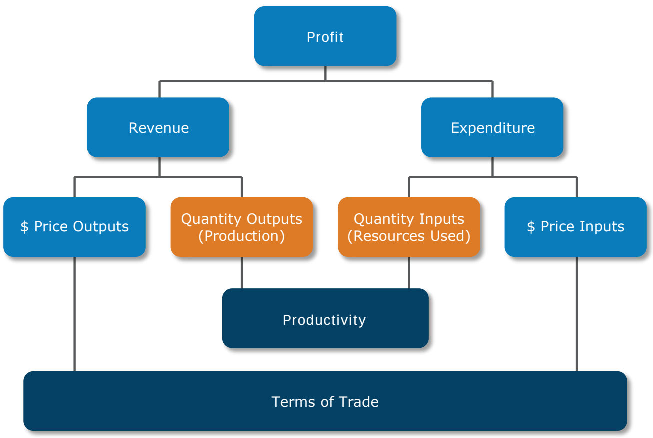
Primary sectors shape up well in the productivity stakes with gains of 2.6% per annum over the last 35 years. This compares with just 0.9% per annum economy-wide. The improvement has been driven by "more from the same" with outputs increasing by 2.7% per annum over this period and inputs little changed. This is in stark contrast to most other sectors within the economy, which have had to use more inputs (especially capital) to grow outputs.

WHY FOCUS ON PRODUCTIVITY?

Productivity improvement is a constant focus of all businesses, from the farm through to all the other supply chain partners that are involved in producing a final product. **It is seen as a sure-fire way of improving a business's long-run resilience and remaining competitive** in an ever-changing and ultra-competitive world.

Productivity thus forms a crucial part of the profit equation for all businesses and is one element of farming that management have more direct control over through investment choices and day-to-day operational decisions. On the farm/orchard forces outside the direct control of management (i.e. climatic conditions, disease etc) can still have an impact on the drivers of productivity. However, these are considered directly manageable and therefore more controllable than many of the market forces outside the farm-gate that determine the prices of outputs and inputs.

THE PROFITABILITY TREE



Source: ANZ, Dairy NZ

Economy-wide productivity improvements are a major driver of economic growth and contributor to improving living standards. Economies can grow by using more resources, such as people, land and capital – or they can grow by creating more value out of those resources, which is why productivity improvement is high on the list of most countries' priorities. Ultimately it is the efficiency of how you use inputs that determines wealth.

WHAT IS PRODUCTIVITY?

Conceptually, productivity is a measure of how efficiently resources (inputs) are utilised to produce outputs. If all resources are accounted for it provides an indicator of innovation and technological change within an economy or business. Productivity is a term that can apply to a wide range of situations though.

On the farm, typically it is a measure of how well a business converts input resources such as land, labour, infrastructure and other natural resources into production (outputs).

$$\textit{Typical productivity equation} = \frac{\textit{Physical outputs (production)}}{\textit{Physical inputs (resources)}}$$

For farmers to become more productive they need to improve the marginal performance in their use of resources to produce outputs. This can take several forms:

1. Produce more output, while utilising the same quantity of inputs;
2. Produce more, or the same output, while utilising fewer inputs;
3. Produce less output, providing inputs decrease by more than outputs; or
4. Increase inputs, providing outputs increase more than inputs.

The metrics that are used to define outputs and inputs depends on the sector. For a dairy farm the main focus on the output side is the quantity of milksolids, but also includes some beef in the form of cull cows/heifers. On the input side for a dairy farm are factors such as labour, farm working inputs and capital employed in the form of land, livestock, infrastructure (irrigation etc) and machinery. On a kiwifruit orchard the output side is obviously fruit, but could even get more technical to include a measurement of the "quality" of fruit, as this forms a vital part of business competitiveness and profit. The input side of a kiwifruit orchard is similar to a

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dairy farm, but instead of livestock, includes things such as license rights/intellectual property for Gold varieties and vines/rootstock. A meat & fibre farm is more complex with multiple outputs in the form of wool, sheepmeat, beef, venison, dairy grazing and crops. The inputs are similar in nature to a dairy farm, but need to be appropriately attributed between the different outputs from a farm to assess the productivity of each enterprise.

There are a number of different productivity measures and methodologies

Total factor productivity, also known as multifactor productivity, compares total outputs relative to the total inputs used in production. Growth of total factor productivity is usually derived by dividing an index of total outputs by an index of the total inputs used to produce the outputs.

Alternatively, there are **partial factor productivity measures** where output relative to a single input factor such as labour, capital, or land is assessed.

However, partial factor productivity measures need to be correctly interpreted. By their very nature they don't account for all the resources that affect production. They effectively credit one resource with the productivity gains that may be caused by another resource. For example, consider a dairy farm where milking has been automated. If only the labour resource is considered there would be a very large productivity improvement. But the real gains have come from the addition of extra capital to automate milking, making labour more efficient, not from labour being inherently more productive.

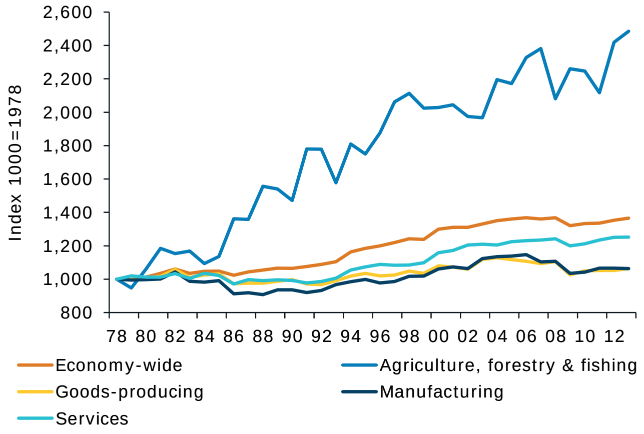
HOW THE PRIMARY SECTOR SHAPES UP

The big picture view

Throughout the years there have been a number of productivity studies done on the primary sectors using different measures and methodologies. **A consistent theme is the primary sectors' outperformance versus other parts of the New Zealand economy.** Statistics New Zealand has the most up-to-date measures, but the sectoral breakdown for the major primary industries is limited.

On a multifactor productivity basis the agriculture, forestry and fishing sectors have improved their efficiency by 2.6% per annum since 1978. This has easily out-paced other parts of the economy and New Zealand-wide productivity growth of 0.9% per annum over the same period.

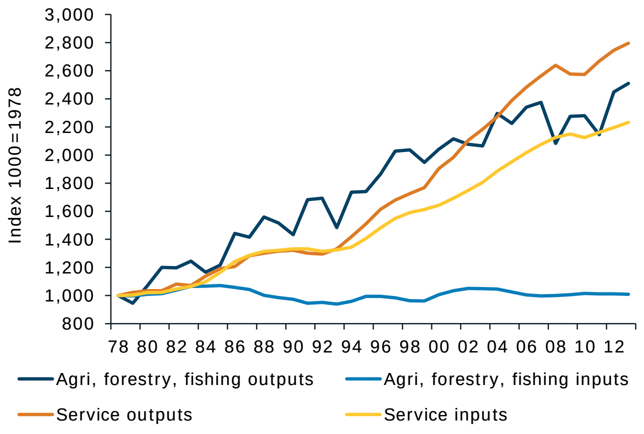
FIGURE 1. MULTIFACTOR PRODUCTIVITY BY MAJOR SECTOR



Source: ANZ, Statistics NZ

For agriculture, forestry and fishing productivity growth has exhibited a number of cycles over the last 35 years. Productivity growth was poor in the 1970s under a heavily regulated environment. It then improved substantially in the mid-1980s to early 1990s as de-regulation and economy-wide policy reform took place. Things have become a bit bumpier since the mid-1990s with three flattish periods, followed by short surges of productivity growth.

FIGURE 2. COMPONENTS OF PRODUCTIVITY GROWTH



Source: ANZ, Statistics NZ

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".** Indeed outputs have increased by 2.7% per annum over the last 35 years, whereas the resources used (inputs) are little changed 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. If we take the service sectors as an example, outputs have grown by 3.0%

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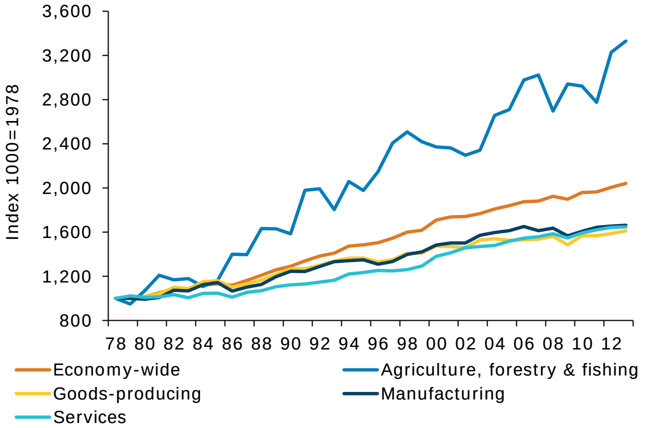
per annum over the last 35 years, which is more than the agriculture, forestry and fishing sectors. However, the inputs the service sectors have used grew by 2.3% per annum, meaning productivity growth was just 0.6% per annum.

What do the partial measures of productivity tell us?

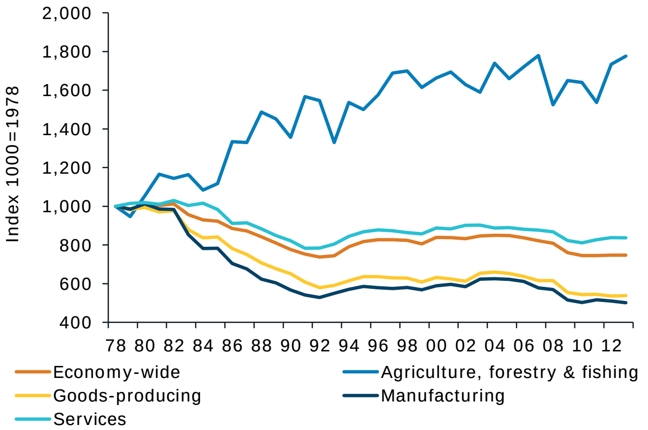
For the agriculture, forestry and fishing sectors both labour and capital productivity have improved. Over the last 35 years labour productivity has led the charge increasing by 3.5% per annum, followed by capital productivity at 1.7% per annum. When compared with other parts of the New Zealand economy the primary sectors have again performed differently. In the other sectors labour productivity has improved – albeit at a slower rate – but capital productivity has declined.

FIGURE 3. LABOUR PRODUCTIVITY BY MAJOR SECTOR



Source: ANZ, Statistics NZ

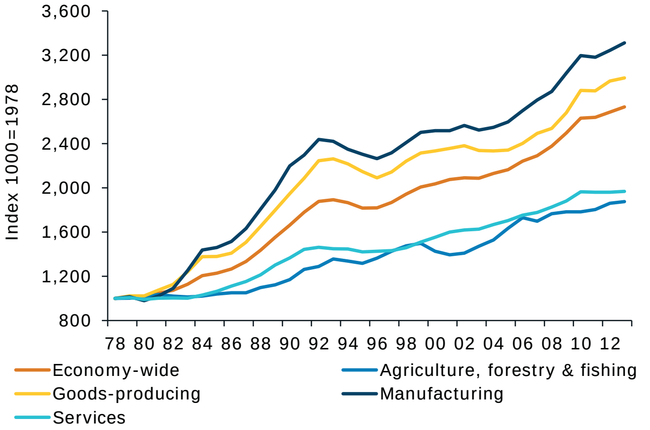
FIGURE 4. CAPITAL PRODUCTIVITY BY MAJOR SECTOR



Source: ANZ, Statistics NZ

Looking at the capital-to-labour ratio for each sector appears to show "capital deepening" has occurred (i.e. labour productivity outperforms capital productivity). This is where the application of additional and better capital makes labour more efficient, as per the earlier example of the automated milking system. Agriculture, forestry and fishing capital input growth has been 1% per annum, which is less than other sectors, with economy-wide capital input growth of 3% per annum. However, labour inputs have shrunk by -0.8% per annum in the agriculture, forestry and fishing sectors, boosting productivity measures. For the other sectors labour input changes have been mixed, but economy-wide they have grown slightly (+0.2% per annum). This suggests the capital deepening process hasn't been quite as successful in other parts of the economy as in the agriculture, forestry and fishing sectors.

FIGURE 5. CAPITAL-TO-LABOUR RATIO BY MAJOR SECTOR



Source: ANZ, Statistics NZ

Unfortunately there is no robust, up-to-date official breakdown of the productive performance of individual sectors within "agriculture, forestry and fishing". This makes it difficult to determine which sectors and regions might have outperformed, or the main determinants of improving productivity. Productivity improvements can come in many forms, including better applications of science and technology, improved management practices, efficient exploration of economies of scale, and allocative efficiency (efficiency improvements achieved by shifting land use and other resources into more productive businesses or industries).

All New Zealand's primary sectors look to have exploited economies of scale, with the average farm and orchard having grown substantially over the last 35 years. **There has been a lot of land use change to dairying since the early 2000s.** This demonstrates the allocative efficiency of the

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agriculture sector in shifting resources (i.e. land, water and capital) from less-productive activities into more efficient ones. The same occurs on meat & fibre properties each year through chosen stocking policies. **On-farm a combination of better genetics, nutrition and best-practice feed-budgeting and farm management practices has fuelled impressive efficiency gains for livestock production. On viticulture, kiwifruit and pipfruit orchards it is a similar story** with the adoption of new, more productive varieties and improved management practices as well. We could go on, but these give a high-level flavour of some of the factors that have driven the overall primary sectors productivity gains. Previous Agri Focus research topics, such as The Great Growth Frontier for Livestock in October 2012, have provided more detailed analysis of productivity gains by different sectors.

Data sources and other research material used to help compile this article included: The measurement and meaning of primary sector productivity by NZIER, Dairy NZ Economic Survey, ABARE Measuring of Productivity, Statistics New Zealand data and definitions.

KEY TABLES AND FORECASTS

FX RATES	ACTUAL			FORECAST (END MONTH)						
	Dec-15	Jan-16	5-Feb	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17
NZD/USD	0.685	0.648	0.673	0.63	0.61	0.59	0.59	0.60	0.61	0.63
NZD/AUD	0.937	0.915	0.934	0.94	0.94	0.92	0.92	0.92	0.92	0.93
NZD/EUR	0.628	0.599	0.600	0.60	0.60	0.55	0.54	0.54	0.53	0.53
NZD/JPY	82.52	78.55	78.56	73.7	70.2	67.9	67.9	67.2	67.1	69.3
NZD/GBP	0.463	0.455	0.461	0.45	0.44	0.41	0.39	0.39	0.39	0.39
NZ TWI	73.7	70.5	73.1	69.7	68.4	65.3	64.6	64.8	64.9	65.8

INTEREST RATES	ACTUAL			FORECAST (END MONTH)						
	Dec-15	Jan-16	5-Feb	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17
NZ OCR	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.75
NZ 90 day bill	2.75	2.70	2.67	2.80	2.70	2.70	2.70	2.70	2.80	3.10
NZ 10-yr bond	3.57	3.22	3.14	3.80	3.80	3.80	3.90	3.90	3.90	3.90
US Fed Funds	0.50	0.50	0.50	0.50	0.75	1.00	1.25	1.25	1.50	1.75
US 3-mth	0.61	0.61	0.62	0.83	1.08	1.33	1.33	1.33	1.33	1.33
AU Cash Rate	2.00	2.00	2.00	2.00	1.75	1.50	1.50	1.50	1.50	1.50
AU 3-mth	2.38	2.29	2.29	2.10	2.30	2.40	2.40	2.40	2.40	2.40

ECONOMIC INDICATORS	Sep-15	Dec-15	Mar-16	Jun-16	Sep-16	Dec-16	Mar-17	Jun-17	Sep-17	Dec-17
GDP (% q/q)	0.9	**0.5**	**0.5**	**0.7**	**0.7**	**0.7**	**0.7**	**0.7**	**0.6**	**0.6**
GDP (% y/y)	2.3	**1.9**	**2.2**	**2.6**	**2.5**	**2.6**	**2.8**	**2.8**	**2.7**	**2.7**
CPI (% q/q)	0.3	-0.5	**0.2**	**0.4**	**0.4**	**0.0**	**0.6**	**0.4**	**0.7**	**0.3**
CPI (% y/y)	0.4	0.1	**0.4**	**0.4**	**0.5**	**1.0**	**1.4**	**1.4**	**1.7**	**1.9**
Employment (% q/q)	-0.4	0.9	**0.6**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**
Employment (% y/y)	1.5	1.3	**1.2**	**1.6**	**2.6**	**2.1**	**1.9**	**1.8**	**1.7**	**1.7**
Unemployment Rate (% sa)	6.0	5.3	**5.8**	**5.7**	**5.6**	**5.4**	**5.3**	**5.3**	**5.2**	**5.1**
Current Account (% GDP)	-3.2	**-3.1**	**-3.5**	**-3.9**	**-4.4**	**-4.8**	**-4.9**	**-4.9**	**-4.9**	**-4.8**
Terms of Trade (% q/q)	-3.7	**-2.0**	**-3.0**	**-2.4**	**-0.3**	**0.2**	**0.2**	**0.2**	**0.1**	**0.1**
Terms of Trade (% y/y)	-3.4	**-3.0**	**-7.1**	**-10.7**	**-7.6**	**-5.5**	**-2.3**	**0.2**	**0.7**	**0.5**

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

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