

14 June 2018



The Neutral OCR Could Be Below 3.5% - Implications For NZ Rates

- Last year, the RBNZ estimated the neutral OCR was around 3.5%, with a range of estimates between 2.6% and 4.6%.
- The estimated neutral OCR has been trending lower, similar to offshore. We compare the NZ experience to the US, Australia and Canada.
- One of the reasons for a lower neutral OCR post-crisis is structurally wider mortgage and funding spreads as well as higher debt levels.
- We look at the NZ household interest servicing ratio based on various combinations of the OCR and funding spreads. If funding spreads remain elevated, the neutral OCR is likely to be lower than the 3.5% estimated by the RBNZ.
- We use the neutral cash rate as one barometer of valuations for longer-dated swap rates. If the neutral rate is closer to 3% than 3.5% it implies 5y5y at current levels embeds some term premia.
- We can see the case for receiving 5y5y above 4%, but a more protected way of positioning for a lower NZ neutral rate is to own linkers outright.

The neutral cash rate – what is it?

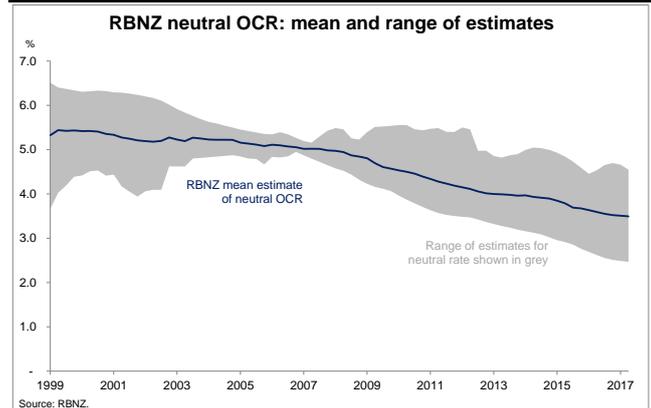
The neutral cash rate can be thought of as the level of the OCR that is neither stimulatory nor contractionary for the economy. In an idealized world, when the OCR is at neutral, growth should be about trend, the output gap zero and inflation stable at target.¹

The neutral cash rate can't be observed, but instead needs to be inferred ex-post from economic and inflation outcomes. For instance, a situation where growth is above trend, the unemployment rate is trending lower and inflation rising would suggest that the OCR was stimulatory (i.e. the OCR was below neutral). Conversely, when growth is slowing and inflation falling, it might indicate that the OCR was contractionary.

Given the shocks that hit the economy and the lags of monetary policy, estimating the neutral rate is difficult, even after the fact. For instance, in 2015 the RBNZ estimated the neutral OCR at the time was around 4.25% (specifically, a neutral 90 day bank bill rate of 4.5%). But the RBNZ's most recent estimates of the neutral cash rate now put the neutral rate at that time some 50bps lower, around 3.75%.

¹ An alternative definition of the neutral rate is one in which desired savings equals desired investment and so is influenced by those factors that drive saving and investment decisions.

Chart 1: RBNZ's estimate of neutral OCR has been falling

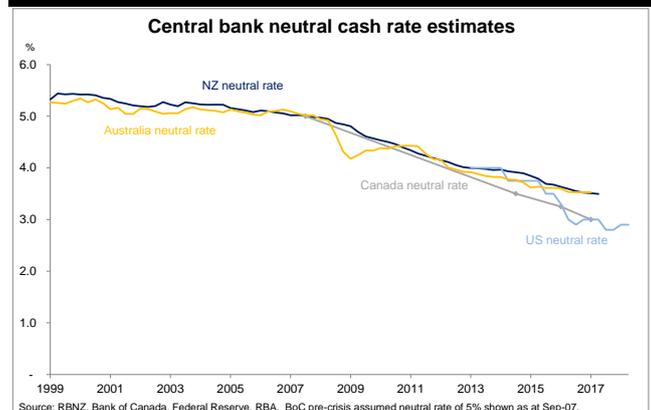


Trends in NZ and overseas

The RBNZ's last published estimate of the neutral OCR was in June 2017 at 3.5%, with a range of estimates around that between 2.6% to 4.6%. Like many other countries, the neutral cash rate in NZ is estimated to have been declining over many years.

In Australia, the RBA estimates the neutral rate has declined from around 5% before the GFC to around 3.5% now. In Canada, the BoC estimates the neutral rate is around 3% compared to 5% before the crisis. Since the Fed began publishing the Summary of Economic Projections in 2013, it has marked down its estimate of the neutral rate in the US by over a percent, from 4% to the latest reading of 2.9%. See Chart 2 below

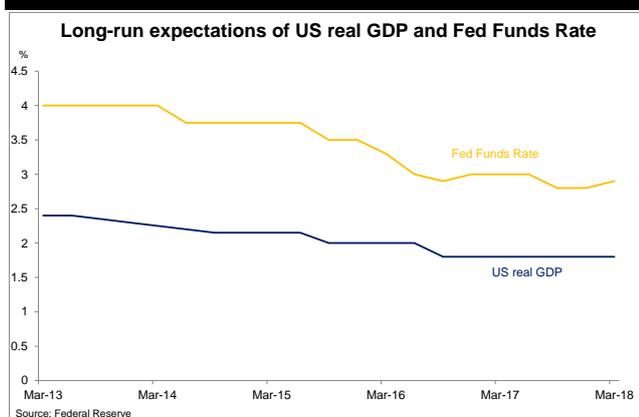
Chart 2: Central bank estimates of neutral have been falling



The decline in neutral cash rates globally has been linked to a combination of factors.² Some of the factors that are thought to have contributed to lower neutral rates include:

- Slower productivity growth and expectations of lower potential GDP growth in the future. This reduces the return to investment in the economy. Chart 3 shows the FOMC has downgraded both its estimates of longer-run potential growth and the neutral rate over the past five years. Likewise, our NAB colleagues downgraded their Australian potential growth and neutral rate estimates in 2016.³
- Relative to pre- GFC, a wider spread between the central bank rate and the interest rates faced by households and businesses (i.e. mortgages and business lending rates).
- An increase in global desired savings. For instance, demographic trends offshore have led to an increase in saving among the cohort of the population going through prime earning years (as they save for retirement). Likewise, increased income inequality is thought to increase desired savings, as top income earners typically have a lower propensity to consume.
- Higher debt ratios in some countries (including NZ) make the economy more sensitive to interest rate increases than before.

Chart 3: Declines in Fed's long-run GDP and neutral rate



A cross-country comparison of neutral rates

The RBA, Fed and BoC all estimate their respective neutral real cash rates are around 1%, below the RBNZ's neutral real rate estimate of 1.5%. For Australia, this implies a neutral nominal cash rate of 3.5% given the 2.5% midpoint of the RBA inflation target. Table 2 summarises some key economic statistics comparing NZ to the US, Australia and Canada.⁴

² See for instance [Shifting gear: why have neutral interest rates fallen?](#) by RBNZ Assistant Governor John McDermott, [Secular drivers of the global real interest rate](#) by BoE economists for an outline of the global factors affecting the real rate, and the two documents from footnote 4.
³ See [Australia's Changing Growth Potential](#) by NAB Group Economics.
⁴ See [The Neutral Interest Rate](#) from the RBA's September 2017 quarter Bulletin and [An Update on the Neutral Rate](#), from the Autumn 2017 Bank of Canada Review.

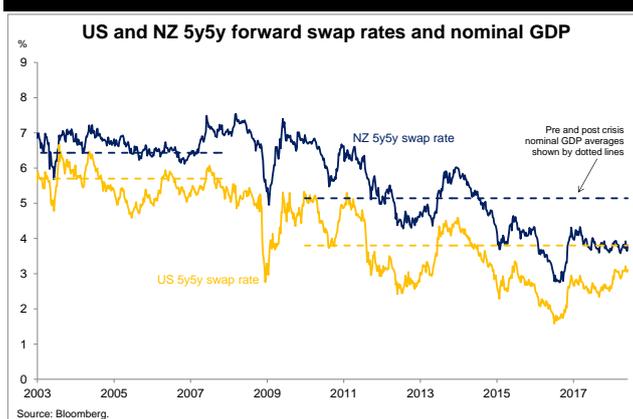
Table 2: NZ macro indicators compared to AU, CA and US

	NZ	Australia	Canada	US
Neutral real cash rate - midpoint	1.5%	1.0%	1.0%	0.9%
Neutral nominal cash rate - midpoint	3.5%	3.5%	3.0%	2.9%
Potential GDP	2.8%	2.8%	1.5%	1.8%
Post-crisis Real GDP average*	2.8%	2.7%	2.5%	2.2%
Pre-crisis Real GDP average**	3.7%	3.4%	2.7%	2.9%
Post-crisis Nominal GDP average	5.1%	4.6%	4.0%	3.8%
Pre-crisis Nominal GDP average	6.4%	7.7%	5.8%	5.7%
NIIP (% of GDP)	-55%	-55%	18%	-40%
Current account (% of GDP)	-2.7%	-2.3%	-3.2%	-2.4%
Household debt to disposable income	166%	188%	170%	106%
Total debt (% of GDP)	202%	237%	290%	251%
5y5y OIS***	3.53%	2.91%	2.43%	2.68%

* Post crisis period defined at start of 2010 to end of 2017 ** Pre crisis period defined at start of 2003 to end of 2007
 *** Assumes 5y5y OIS 25bps below NZ swap rate, 43bps below AU swap rate and 40bps below CAD swap rate
 Neutral rate and potential GDP expectations taken from most recent central bank communication

Our prior has always been that NZ should have a higher neutral cash rate than the US. For one, NZ has historically grown faster (both pre and post crisis) than the US. Nominal GDP in NZ has averaged more than a percent over the US since 2010 (see Chart 4 below) while NZ real GDP has averaged over 0.5% more over that same period.⁵

Chart 4: NZ and US 5y5y swap rates vs. nominal GDP



Second, NZ has a large stock of net foreign liabilities, suggesting there should be some risk premium attached to NZ interest rates. The NZ net international investment position is -55% of GDP and the current account has been in deficit for decades, although they have been getting smaller in recent years. Arguably the same could be said for Australia, which also has a negative NIIP and has historically grown faster than the US.

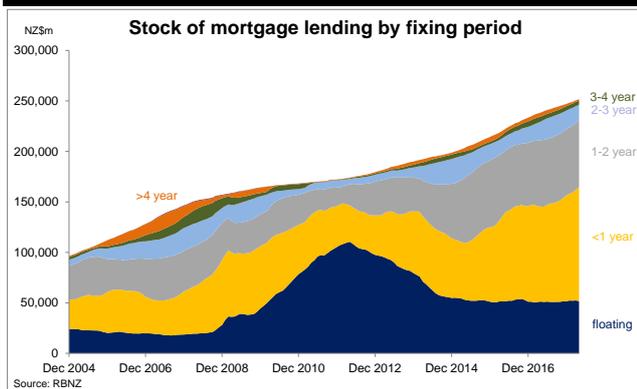
On this basis, if the Fed is right and the US neutral cash rate is close to 3%, this implies NZ's long-run neutral cash rate should be at least as high as this. The market agrees. Using the 5y5y forward OIS rate as an indicator of the market's pricing of the US neutral rate puts this at around 2.7%, similar to the median estimate of the Fed's Primary

⁵ Intuitively, interest rates should reflect the future rate of return in the economy, which is often proxied by nominal GDP. If interest rates are below nominal GDP growth, there should be an incentive to borrow and invest in the real economy to earn a higher return. The caveat is that households and businesses face higher borrowing costs than the OCR. In our view, the link should be between nominal GDP and the *economy-wide average* interest rate. Another reason why interest rates might be below nominal GDP is due to risk aversion among economic agents – see for instance [Real interest rates and risk](#) by BoE MPC member Gertjan Vlieghe.

Dealers.⁶ This is below the equivalent forward rate in NZ, which is around 3.55% (assuming 25bp BKBM-OIS spread).

The one caveat is that NZ has far higher household debt than the US. Moreover, a large proportion of US mortgages are 30 year fixed with free refinancing which makes US homeowners less directly sensitive to interest rate hikes than NZ households (most of which are on short-term fixed rates – see Chart 4). While the US may ultimately have a lower neutral rate than NZ in the long-run, the lags of US monetary policy are likely longer (i.e. it should take longer for Fed rate hikes to feed through to US households).

Chart 4: Most NZ mortgages are on short-term fixed rates



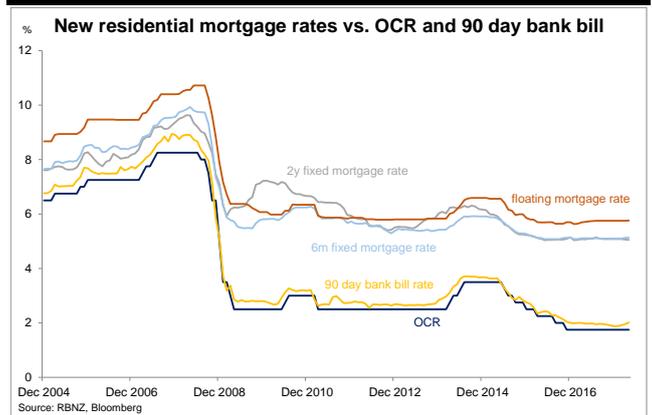
The Fed and Bank of Canada are currently in the midst of their tightening cycles and the verdict is still out on how far these central banks will raise rates, and what their respective neutral rates really are. The Canadian experience will be particularly relevant to NZ given that both countries have elevated levels of household debt and have seen comparable growth rates post-crisis. Even then, 45% of outstanding Canadian mortgages are five year, fixed rate and around 20% of these come up for renewal each year, meaning the lags of monetary policy are probably longer in Canada than in NZ.⁷ It might take some time before we are able to infer what the neutral rate in Canada really is.

A closer look at NZ funding and mortgage spreads

Here we focus on one specific factor that has lowered the neutral OCR in NZ – the structural increase in bank funding costs, which has driven a bigger ‘wedge’ between the OCR and mortgage and business rates (see Chart 5).⁸ For a given mortgage rate, the OCR now needs to be lower than what it would have been pre-crisis.⁹

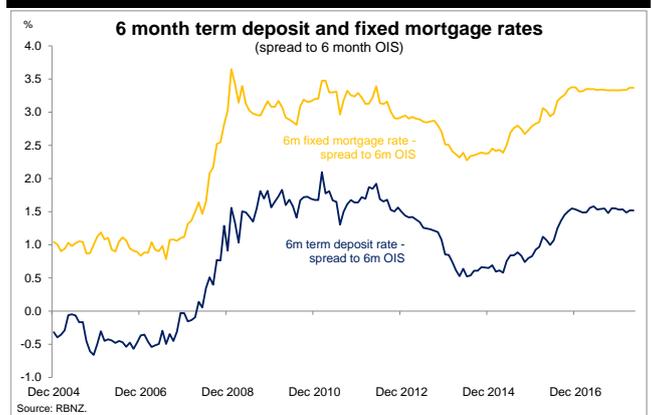
⁶ See Question 3b from the New York Fed’s survey of Primary Dealers [here](#).
⁷ The BoC’s [FSR](#) assesses the impact of higher rates on Canadian mortgage holders.
⁸ Bank regulations (i.e. Basel III) incentivize banks to raise more costly (but stable) sources of funding – i.e. deposits and long-term market funding. Pre-crisis, NZ banks relied to a far larger extent on short-term market funding, which is cheaper but makes banks more susceptible to strains in wholesale funding markets.
⁹ Indeed, in 2015 the RBNZ noted that it had assumed a 50bp wider spread between floating mortgage rates and the 90 day bank bill rate than it had done pre-crisis. The RBNZ assumed a post-crisis spread at 250bps vs. a pre-crisis assumption of 200bps. For reference, the current spread is close to 400bps.

Chart 5: New residential mortgage rates vs. OCR



Even post-crisis, there have been some big swings in bank funding costs and consequently the spread between mortgage rates and the OCR. For instance, ahead of the 2014 RBNZ tightening cycle, the spread between the 6 month term deposit rate and 6 month OIS rate (which embodies expectations of the OCR) declined by around 70bps – see Chart 6. Similarly, the spread between the 6 month fixed mortgage rate and the 6 month OIS rate declined by more than 50bps. This meant the 6m fixed mortgage rate was actually lower in 2014 (when the OCR was 3.5%) than it was in 2011 (when the OCR reached 3%).

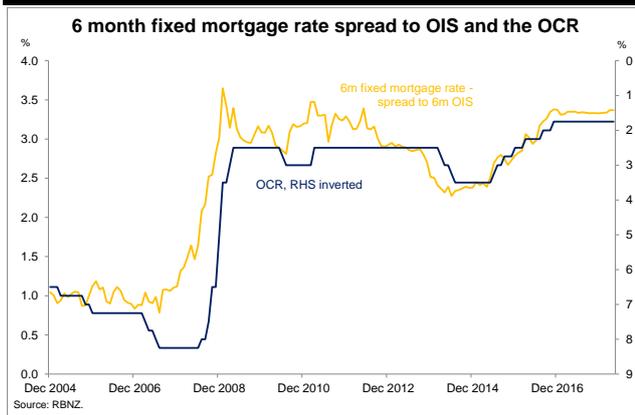
Chart 6: Mortgage and funding spreads can be volatile



The key point is that funding spreads can move significantly and sometimes of a magnitude that is comparable to tightening cycles themselves, which impacts the rates faced by households and businesses. At present, funding and mortgage margins are towards the wider levels seen post-crisis and there is uncertainty around how they will behave during a prospective RBNZ tightening cycle.

An optimistic view would be that mortgage and funding margins will compress as the OCR is increased, as happened during 2014 (see Chart 7). But given the multitude of factors that influence term deposit and mortgage spreads (including the cost of alternative market-

Chart 7: Mortgage spreads have been correlated with OCR



based funding), it's difficult to say with any certainty that this experience will be repeated.¹⁰ For instance, mortgage margins remained elevated during the 2011 'mini' tightening cycle.

Household interest rate payments – scenario analysis

One way to think about the risks around the RBNZ's neutral OCR estimate of 3.5% is to estimate household interest servicing costs based on various combinations of the OCR and mortgage market spreads. Chart 8 shows our back-of-the-envelope estimates of household interest payments as a percentage of disposable income (hereafter the interest servicing ratio) under various scenarios. We assume the ratio of household debt-to-disposable income remains static at 166%, implicitly assuming that household income growth and net borrowing will remain at similar levels to those over the past year.¹¹

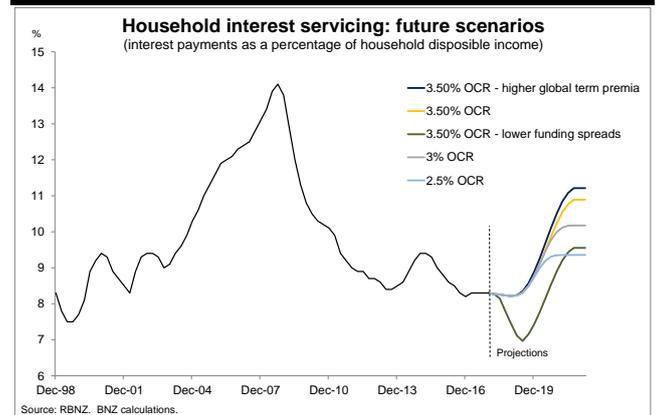
Based on the mortgage spreads prevailing today, a scenario where the RBNZ started raising the OCR in May 2019 in quarterly 25bp increments to a 'neutral rate' of 3.5% results in an interest servicing ratio shown by the yellow line. For this scenario, we use the RBNZ's neutral rate estimate of 3.5% rather than BNZ's forecast of a 3% peak in the OCR this cycle.

The yellow line shows the interest servicing ratio peaking at a much higher level than any of the 2000, 2011 or 2014 tightening cycles, a reflection of the higher starting point for household debt-to-income and wider mortgage market spreads. Only in the 'super cycle' of the mid-2000s, when credit growth was unsustainably strong, was the interest servicing ratio higher than in this scenario.

¹⁰ See [Diving in the deep end of domestic deposits](#) which analyses the drivers of deposit growth since the GFC. Amongst other factors, the authors note that there may have been increased supply of deposits during 2014 related to delayed insurance payments made to households from the Canterbury earthquakes.

¹¹ We project future swap rates based off our assumed OCR track and apply current mortgage spreads to generate mortgage rates. To generate an average mortgage rate we multiply mortgage rates for various maturities by the current distribution of mortgages by fixing period. We then use the weighted average mortgage rate over the preceding 12 months as the interest rate for the interest servicing ratio. Finally, we adjust that interest rate by -20bps to match the latest RBNZ estimate of the interest servicing ratio.

Chart 8: Household interest servicing scenarios



The green line shows a scenario where funding costs decline immediately to the levels seen in mid-2014 (the low for funding spreads post-crisis) and the RBNZ raises the OCR to 3.5% as per the scenario above. In this scenario, the interest servicing ratio peaks out at similar levels to the 2000 and 2014 tightening cycles. A similar outcome is generated if funding spreads remain at their current elevated levels and the RBNZ raises the OCR to 2.5%, as shown by the light blue line.

The above analysis of interest rate servicing is only supposed to be illustrative. It doesn't consider the potential for higher nominal income growth, which would allow for somewhat higher interest rates. On the other hand, it probably understates the impact of higher interest rates compared to the past because it doesn't factor in principal repayments (which are higher now due to the growing stock of debt) and the growing concentration of mortgage debt since the GFC (which increases the vulnerability of the most leveraged borrowers).¹²

But it certainly suggests to us that the risks around the RBNZ's latest estimate of the neutral OCR of 3.5% are to the downside. If funding spreads remain elevated, it's not difficult to envisage a 3% neutral OCR or even a neutral rate closer to 2.5% (which, to be fair, is still within the range of neutral estimates from the RBNZ, albeit towards the lower-end).

Another way of coming to the same conclusion would be to compare the RBNZ's 2015 estimate of the neutral floating mortgage rate, of 7%, to the current floating mortgage rate of 5.75%.¹³ At face value, this gap implies floating mortgage rates are 125bps below this estimate of 'neutral', which would translate to a neutral OCR of 3% (i.e. 1.75% + 125bps).

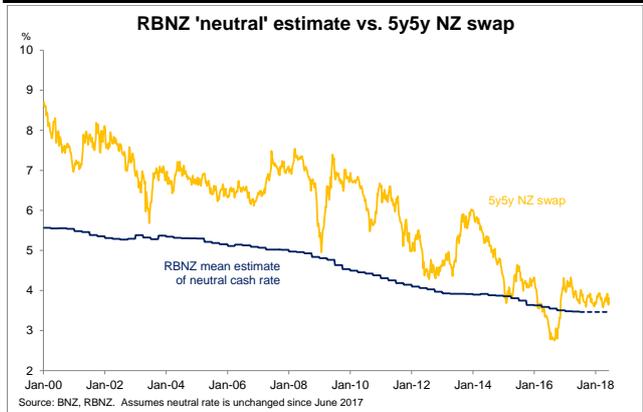
¹² According to the RBNZ, only 8% of households own investment properties but they are responsible for 40% of the housing debt. And 40% of new borrowers have a debt-to-income ratio of 5 according to the RBNZ's May 2018 [FSR](#), which is high by international standards.

¹³ See the 2015 Analytical note by the RBNZ, [Estimating New Zealand's neutral interest rate](#). One could potentially even argue that the neutral floating mortgage rate has fallen since that time, based on the trend lower in the neutral OCR estimates from the RBNZ.

Investment implications of a (possibly) lower NZ neutral rate

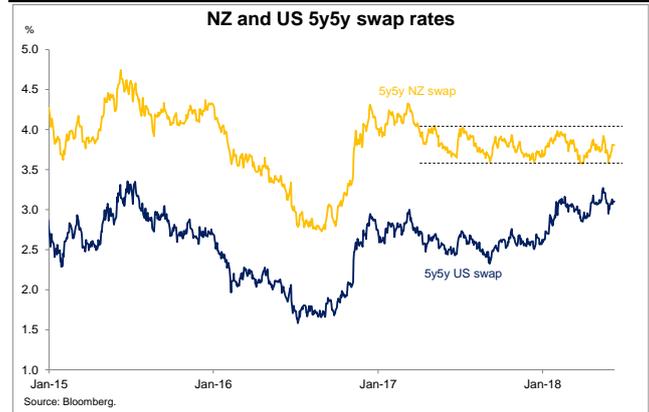
What are the investment implications if the neutral OCR is closer to 3% than the RBNZ's 3.5% estimate? We use expectations of the neutral rate as an anchor for longer-term NZ rate valuations. When the 5y5y swap rate implies a longer-run OCR below the RBNZ's neutral rate estimate, we have tended to see longer-term rates as expensive. Outside the period around Brexit, when the 10 year Treasury hit an all-time low of 1.32%, it has been very rare for the NZ 5y5y swap to trade below the RBNZ's neutral rate estimate – see Chart 9 below. Indeed, over the past 12 months, 3.55% on 5y5y swap has held on multiple occasions.

Chart 9: NZ 5y5y swap vs. RBNZ neutral rate estimate



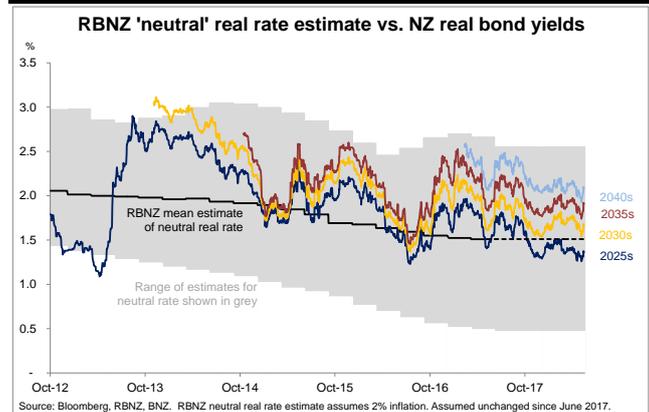
But if the neutral OCR is 3% or even lower, it implies a 5y5y swap at current levels (3.8%) embeds a term or risk premium. That's not to say that this risk premium can't increase further – for instance during the taper tantrum, the 5y5y swap reached around 6%, much higher than the neutral rate estimate at the time. And it could be the case that estimates of the neutral rate may eventually be revised higher – indeed, the Fed nudged its neutral rate estimate up from 2.75% to 2.9% in March. But in the near-term, it does add to the case for scaling into 5y5y towards the top of the recent trading range, around 4% - see Chart 10.

Chart 10: NZ 5y5y swap in a tight 3.55% to 4% range



Ultimately, we think a more protected way to position for a lower neutral rate in NZ is to own linkers, which embed forward real rates above the RBNZ's current neutral rate estimates. For instance, the forward real rate between the 2025 and 2030 maturity linkers is over 2% compared to the RBNZ's current 1.5% neutral real rate estimate. Linker valuations look even more appealing if the neutral OCR is closer to 3% and the neutral real rate is closer to 1%. Additionally, linkers provide some protection against a scenario of higher domestic inflation which could see the market build in more inflation risk premium into nominal rates (such as the 5y5y forward swap). This is something we think might come into focus later this year, as we forecast annual headline CPI inflation to exceed 2% by Q3.

Chart 11: NZ real yields vs. RBNZ neutral real rate



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