

Economic Note

What to make of proposed bank capital requirements

16 April 2019

Tightening the screws

- The RBNZ has proposed increased capital requirements for NZ banks to bolster financial system resilience. Other global regulators are raising (or are proposing to raise) capital requirements.
- Higher capital ratios are expected to translate into a higher overall cost of NZ bank funding and higher customer borrowing rates. The range of estimates is wide, with our central estimates equating to about a 50bp impact by late 2023, with risks of a higher impact. Interest rate impacts will be also be uneven across the economy. Bank retail deposit interest rates may also fall.
- The imposition of higher capital requirements could significantly dampen economic activity and the supply of credit, particularly to sectors of the economy that have high regulatory bank capital requirements. Our estimates, based on the literature, suggest the changes could permanently dampen the economy by up to 1.1% of GDP.
- There could also be sizeable (and uneven) transition costs during the phasing in of higher capital requirements.
- The full impact of higher bank capital requirements will take time to percolate through the economy, but its pending imposition is another reason why we have changed our forecast profile for the OCR, including 50bps of cuts over 2019 and the OCR then on hold at 1.25% until 2022.

Summary and implications

The RBNZ has signalled that to bolster financial system resilience it will be increasing capital requirements for locally-incorporated NZ banks. The increases are significant for NZ, with the higher capital requirements equating to an extra \$19bn to \$22bn of capital holdings for locally-incorporated banks by 2023. The RBNZ is not swimming against the global tide, with other global regulators lifting (or proposing to lift) capital requirements. But the RBNZ has set a high benchmark of limiting bank failures to a 1-in-200 year event.

Higher capital requirements will have both *price* and *quantity* impacts, both of which could have significant economic implications. The impact of the cost of funds (*price impact*) will depend on the extent to which investors are willing to accept a lower return given the perceived increased soundness of the banking institution. The RBNZ has assumed this Modigliani-Miller Offset (or Offset) would largely offset the increase in bank funding costs that stricter bank capital requirements would bring. It is debateable how large this offset would be in practice given the existing soundness of the New Zealand banking system, and with NZ interest rates and bank credit risk premia already very low in a historical context. Our central estimates suggest that the changes would translate to an approximate 50bps increase in customer lending rates by

the end of the five-year transition period, with risks of a higher impact. Bank deposit interest rates could also be lower, reducing the interest incomes of depositors and potentially deterring saving. The interest rate impact may be uneven across the economy: lending to segments with proportionately higher capital requirements may experience larger increases in customer lending interest rates. Impacts on segments with milder additional capital requirements will likely be more modest.

The higher cost of funds will weigh on long-run GDP, partly via dampening the *demand* for credit. When banks are faced with the need to adjust their capital ratios quickly, studies show that the *supply* of credit gets constrained. The impacts on credit supply tend to be borne more by sectors that have high regulatory capital requirements (i.e. are deemed by bank regulators to be more risky). Lifts in capital requirements are also likely to bring greater scrutiny on lending types with low returns on bank equity. Applying economic literature results, we estimate the long-run costs to the NZ economy could be up to 1.1% of GDP.

But there could also be sizeable transitional costs to some economic sectors. Regulatory capital requirements (and capital costs) are high for lending types such as high loan-to-value housing lending, rural lending, and lending to growth businesses. In contrast, capital requirements are low for home lending where the borrower has a high deposit or equity contribution.

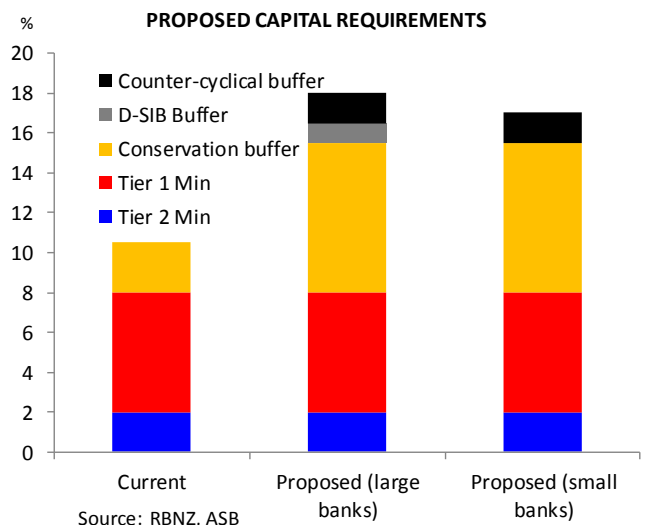
An important influence on the economy will be how quickly the proposed changes filter through and impact on lending and deposit rates and on lending activity. A swift transition in an environment of already-slow credit growth is likely to exert a greater economic impact. The RBNZ has signalled a 5-year transition period, but the risk is that the impacts on interest rates and lending activity occur sooner given that relatively short timeframe.

While the full impact of higher bank capital requirements will take time to percolate through the economy, its pending imposition is another reason why we have opted to change our forecast profile for the OCR, including 50bps of cuts over 2019 and the OCR then on hold at 1.25% until 2022. We have also lowered our estimates of the neutral Official Cash Rate (from 2.75% to 2.25% by late 2023).

RBNZ proposes higher capital requirements

Currently, New Zealand banks are required to hold Tier 1 (going concern or higher quality) capital equal to 8.5% of their risk-weighted assets (RWA), plus 2% as Tier 2 (gone concern or lower quality) capital. This is consistent with Basel III minimum requirements. Banks, both locally and globally, generally hold more capital than regulatory minimums.

Following a comprehensive review, in December 2018 the RBNZ proposed to significantly increase capital requirements for locally-incorporated NZ banks, and released an updated paper in January (see RBNZ (2019) and Bascand (2019)). **By 2023, the required Tier 1 capital ratio for the “Big-4” domestic systematically important banks (D-SIB), which constitute approximate 90% of banking system assets, will be increased from 8.5% to 16% of risk-weighted assets (RWA).** Tier 1 capital requirements for the smaller banks would increase to 15% of RWA. The RBNZ proposed to have a significantly enhanced role for capital buffers in the capital framework, in terms of their size, composition and operation.

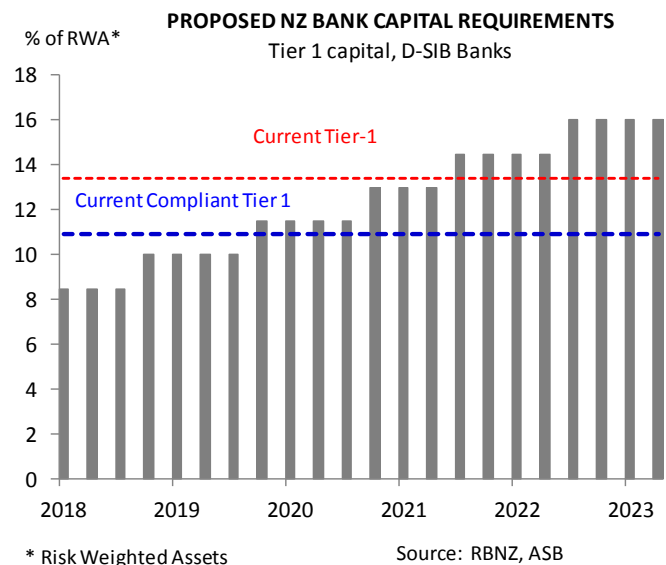


As part of this review, the RBNZ had earlier [signalled](#) it would also be standardising how banks calculate their risk-weighted assets (and capital requirements). The Big-4 banks currently use an internal ratings based (IRB) approach to calculate capital holdings. However, the RBNZ has proposed raising the risk-weighted assets (RWA) for the four IRB-accredited banks from approximately 75% to 90% of what would be calculated under the Standardised approach. This would raise the RWA of IRB banks by approximately \$40bn and capital required by around \$6bn in addition to that needed to meet the capital ratio changes.

The capital changes will be phased in over a five-year period (by late 2023), with the RBNZ signalling a staged transition of the different components of the revised framework. The extended deadline for feedback on the proposals is 3 May 2019, and the Reserve Bank expects to publish final decisions in the third quarter of 2019.

Other regulators are also proposing higher capital requirements. In recent years there has been a concerted push by regulators to increase capital requirements in various guises (see Bank of International Settlements [\(2018\)](#) and the Australian Prudential Regulation Authority (APRA, [2018](#))).

There is some debate over how NZ bank capital ratios stack up globally. In an October 2017 [paper](#), Price Waterhouse Coopers (PWC) found that New Zealand’s major banks were generally well capitalised relative to banks in many other overseas jurisdictions once adjustments were made to standardise the definition of Tier 1 capital¹. The RBNZ, however, took a countering view, with Spencer [\(2017\)](#) finding that Tier 1 capital ratios for the entire NZ banking system had been at the lower end of international comparisons made without any adjustments to standardise capital definitions. The Big-4 NZ banks were also found to have a weighted average Common Equity Tier 1 ([CET1](#)) ratio of 10.5%, putting them, on an unadjusted basis, in the bottom quartile of the CET1 ratios for large internationally-active banks. It should be noted, however, that NZ’s relatively higher risk weights on residential and rural lending relative to international guidelines leave our capital position more robust than the headline ratios suggest.



Irrespective of where we currently stand, the motivation for increasing capital requirements is that the banking system would be more resilient to economic shocks and downturns, which will benefit economic welfare. International evidence (predominantly obtained from US studies), has increasingly proposed higher capital requirements to limit the probability of banking crises. The RBNZ’s survey of the literature finds that a Tier 1 ratio of around 17% of RWA would lower the incidence of a banking crisis to a 1-in-200 year event (see Firestone et al [\(2017\)](#)) and we find studies proposing capital requirements of a similar magnitude (see Dagher et al [\(2016\)](#)). **However, our reading of the research suggests that one size does not fit all in terms of capital requirements. Institutional and regional factors might lead to variations in the appropriate levels of capital and loss-absorption capacity across jurisdictions.** NZ’s main banks have large highly-rated parents, and are supervised by the Australian Prudential Regulation Authority (APRA) as well as the RBNZ. Moreover, NZ banks already have relatively high credit [ratings](#) and, as Bascand [\(2019\)](#) noted, New Zealand’s history with bank failures has been limited.

¹ Mostly due to downward adjustments to risk-weighted assets for residential mortgages, farm lending and specialised lending to bring them closer to internationally-comparable measures.

Potential Impacts

According to RBNZ figures, in the December 2018 quarter the “Big-4” domestic systematically important banks (D-SIB) held Tier 1 capital of approximately \$35.3bn, equivalent to 13.8% of Risk-Weighted Assets. Of this, \$6.2bn of capital was no longer compliant with the new criteria, with **compliant Tier 1 capital at around \$29.1bn or around 11.4% of risk-weighted assets (9.9% of standardised risk-weighted assets)**. The smaller NZ banks had a Tier 1 capital at roughly 14%. Both ratios were well above the 8.5% regulatory minimum for Tier 1. Raising the Tier 1 capital requirements (to 15% for small banks, 16% for the Big-4) would increase the **capital holdings of locally-incorporated NZ banks by around \$19bn over the five-year period, a 54% increase**. If, say, Tier 1 capital holdings moved above regulatory minimums to provide banks with a buffer (to say 16-17% of RWA for both the smaller and larger NZ incorporated banks), this would equate to an additional \$22bn in capital holdings, a 63% increase.

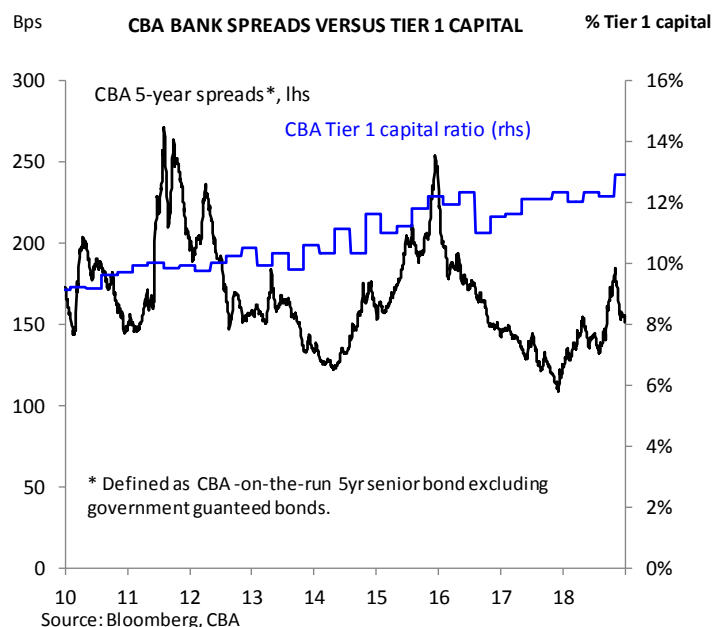
The increase in capital requirements will likely have both *price* and *quantity* impacts.

Price Impacts

In broad terms, **capital is the most expensive form of bank funding and higher capital ratios will likely increase the overall bank funding costs. However, requiring banks to hold higher capital may actually lower the cost of individual funding sources** through reduced likelihood of bank failure. This offsetting effect is known as the [Modigliani-Miller](#) Offset (Offset). The higher the Offset, the more modest the impact of higher capital requirements on overall funding costs. This is the view of the RBNZ (2019), which believes the higher capital requirements are likely to result in a “minor impact on borrowing rates for customers”. In other words, the RBNZ judges the Offset is likely to be towards 100%, with the cost of holding additional capital broadly offset by reduced risk premia for other sources of funding.

Despite its theoretical appeal, evidence on the size of the Modigliani-Miller Offset is mixed. Firestone (2017), found the Offset ranged from 36% to 100%, whereas Dagher et al (2016) reported a 2% to 20% range. Other studies – see Bridges et al from the Bank of England (2014) – do not find evidence supporting a Modigliani-Miller Offset.

It is also difficult to find supportive evidence when looking at Australian credit spreads. Comparing Tier 1 Australian bank capital requirements and Commonwealth Bank credit spreads (based on CBA’s on-the-run 5-year USD senior bond excluding government-guaranteed bonds) shows no clear relationship between the two (see chart). It was notable that credit spreads blew out in early 2016 despite bank capital ratios having earlier being raised. A simple linear regression indicates that the Tier 1 capital ratio “explains” only about one quarter of the variation in bank credit spreads. **Clearly there are other factors influencing the perceived risk of banks.**



Would this also be the case in NZ? The cost

of bank funding is typically higher for New Zealand banks relative to Australian banks given the smaller size of the NZ banking system, NZ’s lower credit ratings, and its greater perceived illiquidity. The historical differential between the trading levels of Australian major bank paper and that of their New Zealand

subsidiaries (credit spread) has averaged just 15bps in recent years. There is the likelihood that holding more capital would increase the creditworthiness of a NZ bank in the absence of extraordinary support from an overseas parent or government. **However, it is questionable whether the perceived credit worthiness of a NZ bank will exceed that of its Australian parent and, hence, whether NZ banks’ funding costs could trade at a lower risk premium than their Australian counterparts.** Moreover, given the small size of the NZ banking system, the higher NZ bank capital requirements are unlikely to significantly impact the ratings of the whole banking group. There is also a limit to how small the risk premium on NZ bank debt can reduce before investors would substitute to hold bank debt from other countries instead of NZ’s. For example, Australia, the US and Canada have larger economies and banking sectors, more liquid secondary markets, and AAA sovereign credit ratings.

RBNZ estimates (see [2018](#) and [2019](#)), which assume an Offset of 50%, suggest that a 100bps increase in the Tier 1 ratio increases the weighted average cost of capital by about 6.6bps (8.1 bps for lending rates). This is a similar ballpark to the studies we have looked at, although some studies (e.g. Dagher et al ([2016](#))) point to a wider range of potential impacts – anything from +25bps to +90bps from a 10 percentage point climb in capital requirements. Table 1 (below) shows the illustrative impact of higher capital requirements on funding and customer borrowing costs for NZ locally-incorporated banks, using RBNZ estimates adjusted for various Modigliani-Miller Offsets (see also [2019](#)). The higher the Offset, the lower the increase in the cost of capital and customer lending rates from an increase in bank capital.

Table 1: Steady state impact of higher capital requirements (Basis points*)

	Modigliani-Miller offset		
	75% offset	50% offset	25% offset
Cost of funds			
15-16% tier 1 ratio	15	35	50
16-17% tier 1 ratio	20	40	60
Lending interest rates			
15-16% tier 1 ratio	25	45	65
16-17% tier 1 ratio	30	50	75

Source: ASB calculations, based on RBNZ data. * Rounded to the closest 5bps

Assuming an Offset of 50%, a roughly 6 percentage point increase in the Tier 1 ratio (to 15% and 16% of RWA) **would translate into a 35bps increase in the cost of funds for locally-incorporated banks and a 45bps increase in customer lending rates by the end of the five-year transition period.** Banks would also likely hold more capital than the regulatory minimum. A 17% Tier 1 ratio would likely see funding costs and customer lending rates lift by 40bps and 50bps, respectively, over this period with a 50% Offset. Depending on the magnitude of the Offset, the range of plausible estimates is wide – anything from +25bps to +75bps for lending interest rates and +15bps to 60bps for the cost of funds.

Our reading of the evidence suggests that the Offset could be lower than 50% in a NZ context, as the benefits of holding more bank capital are likely to have only a mild offsetting impact on bank borrowing costs. Furthermore, banks are likely to hold more capital than the regulatory minimum. As such, the interest rate impacts are likely to be in the upper part of the range in Table 1. **Something in the region of 50-75bps looks broadly appropriate.** This is somewhat above the 20 to 40 basis point increase in lending rates cited by the RBNZ ([2019](#)).

Moreover, as the extra capital requirements will not be applied evenly across various categories of lending, the interest rate impact is likely to be uneven across the economy. Segments with relatively higher capital requirements are likely to experience a higher increase in customer interest rates. Conversely, the interest rate impacts to segments with milder additional capital requirements will likely be more modest.

Bank deposit interest rates are also likely to be lower. This will decrease interest income for households and could act to deter saving, both of which will work against the structural requirement in the economy to boost nationwide saving.

Quantity Impacts

Higher bank funding costs/customer lending interest rates will dampen economic activity, partly through dampening the demand for credit. Higher capital requirements may also lower the supply (or quantity) of credit, which will also dampen economic activity. **The RBNZ generally views that the long-run impacts of higher capital requirements on economic activity are likely to be moderate:**

- According to evidence cited by the RBNZ Capital Review Paper ([2019](#)), a one percentage point increase in the Tier 1 capital ratio could lead to a 3 basis point decline in the steady-state level of GDP. Assuming a six percentage point increase in the Tier 1 capital ratio (from around 10% to 16% of RWA), this would translate into about a 0.2 percentage point decline in GDP.
- The RBNZ Capital Review Background Paper ([2019](#)) suggest that a 1 percentage point estimate in the Tier 1 capital ratio would lead to a 8.1 basis point reduction in potential output. This would equate to about a 0.5% decline in potential GDP.

We believe the long-run impacts on economic activity are likely to be more significant. The higher capital requirements will likely result in more significant increases in the cost of funds/customer lending interest rates than the RBNZ asserts. Assuming a Modigliani Miller Offset of 25%, the output costs could easily rise to 0.7% of potential output rather than 0.5%. Our survey of the literature (see Dagher et al ([2016](#)) and D'Erasmus ([2018](#))), also highlights potentially large impacts on economic activity, although the range of estimates is wide. These studies suggest that the higher capital requirements could permanently lower NZ GDP by up to 1.1% relative to the baseline.

There could also be sizeable transitional impacts on the economy. When it comes to capital, loans are not created equally. Regulatory capital requirements for different loan types are set by local regulators, broadly along internationally-recognised guidelines for perceived riskiness of loan types. The amount of capital backing different loan types, and the return earned on that capital, can vary considerably. When faced with the need to adjust their capital ratios quickly, banks are likely to use their (scarce) capital as efficiently as possible. In a NZ context, rural lending, low-deposit residential lending and lending to higher-risk firms with strong growth prospects are sectors at most risk of being impacted by the transition to higher capital requirements. For example, an 80+% LVR (low-deposit) home loan requires around four times the amount of regulatory capital as a sub-60% LVR loan.

There is a wealth of international empirical evidence (see De Marco and Wieladek ([2016](#)) and Bridges et al ([2014](#))) suggesting that banks sharply curtail lending to firms with higher regulatory capital requirements.

Dagher et al ([2016](#)), note there could be fairly sizeable transition costs if banks quickly move to adopt the new capital requirements at a time of low credit growth, and where market conditions were less favourable. However, these short-run costs are likely to be lessened when the capital adjustment is staggered over a lengthy period, when it takes place in the upswing of the credit cycle, or when banks increase capital ratios via raising equity rather than reducing credit availability. Effects would also be smaller for healthy banks with access to equity market/parent bank funding. In his analysis, Cecchetti ([2014](#)) found a limited impact on the overall supply of bank credit or GDP from the increase in capital requirements in the US and Europe in the wake of the Global Financial Crisis, although this was a period when demand for credit was arguably weak.

Empirical estimates (see Dagher et al (2016) and Martynova et al (2015)), find a negative relationship between bank capital requirements and the supply of credit. However, the range of estimates is wide. A 1 percentage-point increase in the bank capital ratio is typically associated with a 1-5 percentage point contraction in lending growth, with the peak impact ranging from a few months to several years.

What could the transitional costs be for NZ? We note that NZ bank credit growth has slowed considerably compared to a few years ago, with the moderation being reasonably broad-based.

However, the NZ banking system is healthy and increasing Tier 1 capital ratios is unlikely to solely be achieved by restricting bank lending. **As such transitional impacts are likely to be in the lower part of this range.**

New Zealand private sector credit at the end of 2018 was approximately \$452bn, with growth in the calendar year at around \$23.1bn. Increasing the Tier 1 capital ratio to 16%, about a 6 percentage point increase, would translate into a 6% to 30% contraction in economy-wide credit growth. **Assuming that the impact lasts for 12 months only, the capital increases imply approximately \$1.4bn to \$7.1bn of lending that would not proceed.**

In the RBNZ's background papers, the estimates of the economic cost of higher capital requirements make no mention of transitional costs to the economy, nor of the potential for those impacts to be spread unevenly across the economy. **These apparent omissions reinforce that the RBNZ's 0.2%-0.5% of GDP estimates for the economic costs of the capital increases are likely to be on the low side**, in addition to it being at the low end of our estimate based on economic literature.

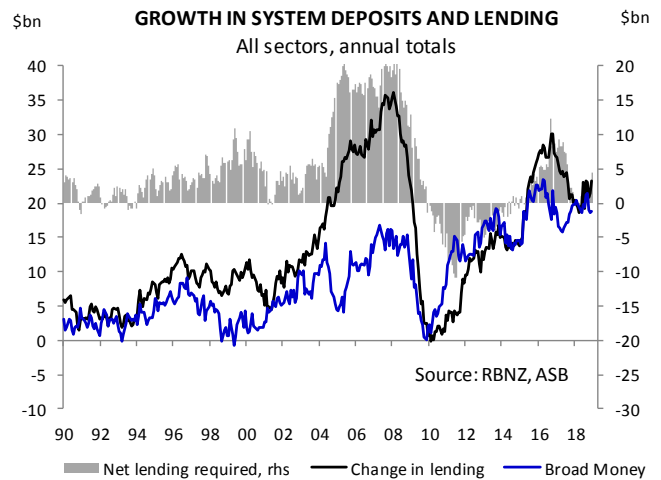
Market and policy implications

The proposed changes are likely to weigh on economic activity. The key will be how quickly the proposed changes filter through and impact customer lending and deposit rates and bank lending activity. The RBNZ has signalled a 5-year transition period, but the risk is that the impacts on customer interest rates and lending activity occur sooner.

Our work suggests that the higher bank capital requirements could push up customer lending interest rates, and could potentially decrease bank deposit rates. The long-run impact on interest rates is comparatively mild in a historical sense, but is sizeable in the context of 4% mortgage interest rates and sizeable household indebtedness. There is the risk that NZ bank lending volumes would be dampened as credit provision is constrained.

The change in capital requirements could impact some sectors (such as the rural sector and high-LVR mortgages) more than others. We believe the RBNZ may also need to consider relaxation in risk weights for rural and residential lending. A longer transitional period could mitigate the impact on lending in sectors that may bear the brunt of the higher capital requirements, hence reducing the economic impact of the transition.

The higher capital requirements would tighten domestic financial conditions, which would increase the likelihood of OCR cuts, and push out the timing of prospective OCR hikes. While the full impact of higher bank capital requirements will take time to percolate through the economy, their pending imposition is another reason why we have opted to change our forecast profile for the OCR, including 50bps of cuts over

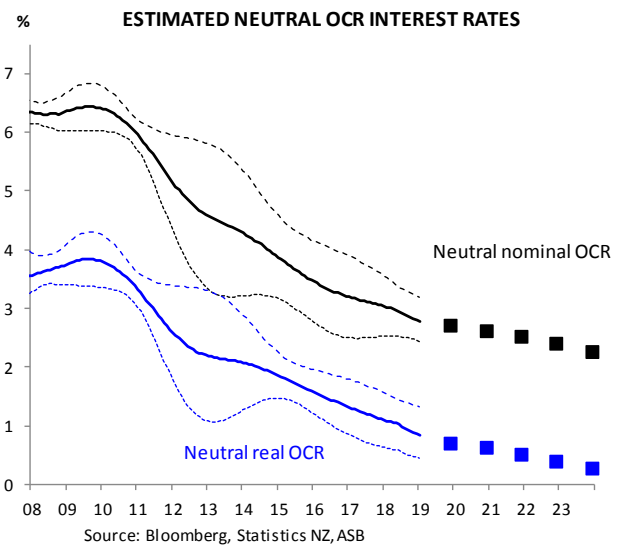


2019 and the OCR then on hold at 1.25% until 2022. The changes would marginally lower intermediate to long-end NZ wholesale interest rates, contain NZD swap rates across the curve and potentially dampen the NZD (which would give some monetary easing through that channel).

As the changes will have a persistent impact on the gap between the OCR and customer lending/deposit rates, the neutral OCR would be lower (as would deposit rates, which are broadly linked to the OCR and other wholesale interest rates). **Our estimates suggest that the higher bank requirements would lower the neutral OCR by up to 50 bps over the transition period (from 2.75% to 2.25% by the end of 2023).** The speed of transition to the lower neutral OCR would depend on how quickly the proposed changes filter through into customer interest rates and borrowing.

The RBNZ’s proposed increase in bank capital are likely to be marginally supportive of senior bank debt given the significant increase in banks’ capitalisation – a 16%+ Tier 1 capital ratio – may mean a much lower probability of default and a narrowing in CDS spreads. However, our analysis earlier in this note suggests the impact is unlikely to close the circa 15bp spread NZ’s major banks have over their Australian parents’ debt. If banks were to reduce wholesale funding, over time there would be less need for banks to hold liquid assets to meet outflows. This shift could place mild upward pressure on NZ Government bonds yields.

Higher capital requirements on banks may provide stronger incentives for regulatory arbitrage and increase the risk that activities might migrate to unregulated or less-regulated financial intermediaries (the so-called shadow banking system). This would counteract the aim of increasing financial system resilience. **Deposit interest rates are already very low, and a capital requirement-triggered fall in deposit interest rates could push investors towards riskier assets,** which would counteract the intention of the reforms to bolster financial system resilience. In that context, it is essential to ensure that the perimeter of prudential and macro-prudential regulation is wide.



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