

MEMORANDUM FOR MFC

COPIED TO PSD – Financial Policy

FROM Mike Thornley
Financial Systems Analysis

DATE 15/05/17

SUBJECT **The countercyclical capital buffer strategy**

FOR YOUR Discussion

This paper reviews strategies for setting the countercyclical capital buffer (CCB) over the course of the financial cycle. The intention is for this work to feed into the forthcoming macroprudential policy review and potentially inform the on-going capital review.

Section 1 outlines the role of the CCB within the current capital framework. Section 2 sets out the current CCB strategy and assesses two strategies: a *late strategy*, in which the CCB is raised when financial stability risks are judged to be high, and an *early strategy*, when the CCB is raised much earlier in the financial cycle. Section 3 outlines possible next steps.

We would appreciate the Committee's views on:

- Should the CCB still have a role in New Zealand's capital framework?
- If so, is there a preference for the type of CCB strategy that should be used?
- If so, should we begin work on any of the possible next steps?

Section 1: The role of the CCB

Capital requirements in our current capital framework

Currently, bank capital requirements in New Zealand can take three forms: minimum capital requirements, the conservation buffer and the CCB.¹

The minimum requirement is designed so that banks maintain a level of capital that is sufficient to ensure that investors, depositors and counterparties have confidence in their going concern viability. Banks must always maintain a minimum amount of CET1 capital equal to 4.5% of RWAs, Tier 1 capital of 6% and total capital of 8%. Operating with capital ratios below the minimum requirement is a breach of conditions of registration and can result in a severe supervisory response, including use of crisis management powers.

The conservation buffer is designed to ensure banks can survive a downturn without breaching the minimum requirement. Banks are incentivised to maintain CET1 capital of at least 2.5% of RWAs at all times, on top of the minimum capital requirements. Operating with capital ratios below the conservation buffer is not a breach of conditions of registration but banks may incur dividend restrictions and must submit a capital restoration plan for the

¹ Capital frameworks in most advanced countries include the same capital requirements, which have the same calibrations as in New Zealand. But they typically include additional requirements, which can be substantial, eg Pillar 2 add-ons to the minimum requirement, D-SIB and G-SIB buffers.

Reserve Bank's approval. The conservation buffer was calibrated by the BCBS on the basis that the median cumulative pre-tax loss of a broad sample of large international banks was 2.5% of RWAs in the GFC.

The CCB is a time-varying capital requirement designed to increase the conservation buffer when systemic risks are judged to be high. It reflects that some banking systems have faced very large losses in past financial crises. Banks that breach the CCB face the same penalties as when they breach the conservation buffer; indeed, in New Zealand the CCB is implemented by varying the size of the conservation buffer. BCBS guidance suggests automatic reciprocation of countries' CCB rates up to 2.5%, although countries may choose to reciprocate any CCB rate.

Comparison of capital buffers

The conservation buffer and the CCB are both primarily aimed at enhancing bank resilience by increasing banks' going-concern loss absorbing capital. But the buffers operate in different ways, as the CCB is time-varying and the conservation buffer is not. This means there is a potential trade-off between the CCB and conservation buffer i.e. it may be preferable to increase the size of the conservation buffer relative to the CCB or *vice versa*.

Benefits of the conservation buffer include:

1. it incentivises banks to have going-concern loss absorbing capital at all times, making it likely that the capital will be available when an unexpected crisis hits;
2. it is simple and transparent, making it easier for banks to manage their capital plans and easier for the Reserve Bank to operate; and
3. it may mitigate deleveraging in a crisis, if banks allow their capital ratios to fall into the buffer rather than cut back on lending.

Benefits of the CCB include:²

1. it may increase bank resilience by raising banks' loss absorbing capital when risks are judged to be high;
2. it may be more efficient, as banks can operate with lower capital ratios on average through the financial cycle and banks are encouraged to raise capital before a crisis when capital is not overly expensive; and
3. it may better support lending in a crisis, as cutting the CCB in a crisis removes the regulatory disincentive against banks operating with lower capital ratios.

The benefits of the CCB relative to the conservation buffer depend on the responsiveness of banks' capital ratios to changes in the CCB. In particular, the benefits only materialise if (a) raising the CCB increases banks' capital ratios and (b) reducing the CCB lowers banks' capital ratios by more than achievable using the conservation buffer.

It is likely that bank capital ratios would respond at least partly to changes in the CCB. Empirical evidence from the UK prior to the GFC shows that raising individual pillar 2 capital

² In theory, the CCB could also help dampen periods of excessive credit. But there is limited evidence that the CCB is effective at smoothing the credit cycle in this way. Studies on the impact of dynamic provisioning in Spain and changes in Pillar 2 capital requirements in the UK show that raising capital requirements, in good times, has a limited impact on individual bank lending (as the cost of capital is low) and has little impact on overall bank credit (as borrowers migrate to less capital constrained banks).

requirements caused banks to increase their actual capital ratios ([Francis and Osborne \(2011\)](#) and [Bahaj et al \(2016\)](#)). Studies also show that higher capital ratios enhance bank resilience ([Berger and Bouwman \(2013\)](#)). This evidence suggests that raising the CCB would increase the loss absorbing capacity of banks.

There is evidence that cutting the CCB could support lending in a crisis.³ Lowering regulatory capital requirements, increases the gap between banks' actual capital ratios and their regulatory capital requirements (ie banks' 'voluntary capital buffers'), which increases the capital that banks can use to absorb losses and support lending in a crisis. In pre-GFC years, French and UK banks demonstrated a positive relationship between loan growth and the size of their voluntary capital buffers ([Francis and Osborne \(2011\)](#) and [Labonne and Lame \(2014\)](#)). It is possible that this relationship will not hold in a financial crisis, as relaxing regulatory capital constraints may be offset by higher 'economic' capital requirements ie the capital ratio required by creditors. But economic capital requirements are unlikely to remain highly elevated for a long time, so a credible commitment to lowering capital requirements for a number of years after a crisis could help support lending.⁴

It is uncertain whether the CCB is better than the conservation buffer (or other buffers) at encouraging banks to supporting lending (and operate with lower capital ratios) in a crisis. Unfortunately, we have no direct evidence as both buffers are untested.⁵ But, in theory, the CCB should strictly dominate the conservation buffer as the CCB (and the restrictions associated with entering the CCB) can be removed in a crisis, whereas the conservation buffer cannot.

Section 2: Strategies for setting the CCB

The existing CCB strategy

A high-level description of the Reserve Bank's CCB strategy is set out in the [final policy position for the macroprudential framework](#) and the [MoU with the Minister of Finance](#). The primary objective of the CCB is to increase financial stability by enhancing the banking system's ability to absorb losses without cutting back on lending to creditworthy borrowers in a downturn. It is acknowledged that the CCB may have some influence on dampening extremes in the credit cycle but this is not a stated objective.

The existing strategy states that the CCB will be zero when risks to the New Zealand financial system are judged to be low. Where significant risks are judged to be emerging, a case for macro-prudential intervention will be considered. This judgement is informed by various macroprudential indicators. The CCB may be above zero in times of excessive

³ To ensure the increase in voluntary buffers is used to absorb losses or support lending, rather than paying out shareholders, it may be prudent to maintain dividend restrictions when cutting the CCB (see #5337930). For example, when the Bank of England cut the CCB after the Brexit vote it also "set a clear supervisory expectation that firms should not use any reduction in the UK countercyclical capital buffer to increase dividends or other distributions."

⁴ For example, outstanding issuance of US commercial paper by foreign financial institutions fell ~40% in the 2 months following Lehman's failure but the CP market began to recover by mid-2009. This is also evident in the 3-month BB-OIS spread, which spiked post-Lehman and recovered in 2009.

⁵ There is some indirect evidence that banks would deleverage to avoid entering the conservation buffer. During the GFC, some banks (eg Barcalys and Wells Fargo) refused the US and UK governments' offers to purchase preferred stock, which included restrictions on the distribution of banks' dividends and staff bonuses. The government offers were made with the stated intention of supporting lending to the real economy.

private sector credit growth, with the CCB rate expected to typically range up to 2.5 percent of risk-weighted assets but a higher CCB rate can be imposed.

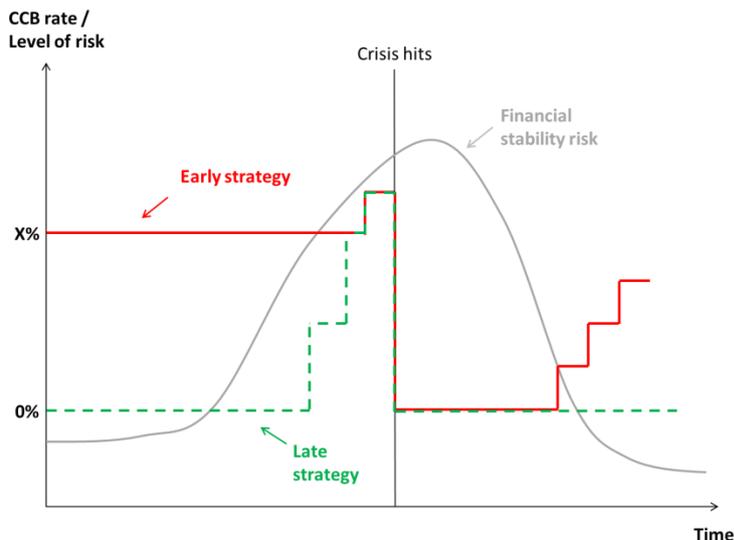
Assessment of broad CCB strategies

Below we assess two broad strategies for setting the CCB over the financial cycle:

- A **late strategy** in which the CCB is raised late in the financial cycle. As a result, the CCB would be zero for the majority of the financial cycle and would be raised when there are signs of significant risks to the financial system and reduced when those risks crystallise or dissipate. This is the strategy promoted by the BCBS, it is adopted in many countries including the US and Germany and it most closely reflects the Reserve Bank's existing CCB strategy.
- An **early strategy** in which the CCB is raised early in the financial cycle. The CCB would be X% unless the financial system is in, or recovering from, a crisis. It would be reduced to zero when financial stability risks crystallise and remain at zero for a number of years, eg until banks' profits and lending growth are stable and robust. The CCB would gradually increase to X% when the financial system has recovered from the crisis (a range of possible indicators for raising the CCB under this strategy are discussed in the annex). We would retain the option to raise the CCB above X% if the build-up of severe risks was evident. The UK and Norway have adopted strategies that are loose variants of this strategy.

To assess the strategies, we compare the strategies ability to achieve the stated objectives of (a) enhancing the resilience of the banking system and (b) acting against deleveraging in a crisis. We also outline other considerations that are relevant to the choice of strategy: efficiency and reciprocation issues.

Figure 1: Illustration of the broad CCB strategies over a financial cycle



Enhancing the resilience of the banking system

As shown in Figure 1, if risks can be perfectly measured, the CCB would be higher under the early strategy when risks are low to moderate but the CCB would be the same when risks are high. This suggests both strategies are equally effective at enhancing the resilience of the banking system, as the CCB is designed to increase banks resilience when risks are

high (the minimum capital requirements and the conservation buffer provide resilience when there are not significant risks). However, early identification of financial stability risks is extremely challenging.

To be effective, a positive CCB must be implemented at least one year before risks crystallise. It is widely accepted that no indicator or set of indicators are perfect at predicting crises and authorities must rely heavily on judgement when using macroprudential tools.⁶ The early strategy is likely to provide greater banking system resilience than the late strategy, as the decision to raise the CCB above zero would not be reliant on the identification of financial stability risks.⁷ The early strategy increases the likelihood that a positive CCB would be in place in the event of an unexpected crisis.

Decision makers must also be willing and able to raise the CCB before a crisis. The late strategy could potentially suffer from inaction bias if raising the CCB too late in the financial cycle could risk triggering or exacerbating a crisis. Difficulty in clearly identifying the build-up of systemic risks to banks and the public could also create a bias against raising the CCB before a crisis. The early strategy reduces inaction bias by making X% the 'normal' CCB setting.

Mitigating deleveraging in a crisis

Under both strategies, the CCB would be cut to zero in a crisis to allow banks to comply with regulatory capital requirements while absorbing losses and not deleveraging. As discussed in section 1, there is some evidence that removing the CCB could be effective at supporting lending in a crisis but it is uncertain as the CCB is a relatively untested tool.

To encourage banks to support lending and operate with lower capital ratios in a crisis, the CCB strategy should credibly commit to keeping the CCB at zero for some years. If not, banks could 'look through' a CCB cut and maintain capital ratios in anticipation of future CCB increases. The early strategy could partly address this by the Reserve Bank publically committing to keeping the CCB at zero for a number of years after a crisis and not raising it until there were signs of a healthy financial system eg lending growth is robust and banks are profitable. But the late strategy would still be more effective at mitigating deleveraging in a crisis, as banks would expect the CCB to remain at zero for longer under this strategy.⁸

Other considerations

The late strategy is likely to be more efficient than the early strategy, assuming Modigliani-Miller does not fully hold, as better aligning banks' regulatory capital requirements to their level of risk (by holding the CCB at zero for most of the financial cycle) reduces banks' cost of capital and boosts sustainable lending to the real economy. Of course, this is reliant on our ability to accurately identify the level of risk in the financial system.

The late strategy is also more likely to be reciprocated than the early strategy, as the late strategy is consistent with the approach described by the BCBS and has been adopted in most jurisdictions. Foreign authorities could consider that a CCB based on the early strategy

⁶ If the BCBS's proffered indicator, the credit-to-GDP gap, was followed, a CCB of 2.5% would have been in place in New Zealand by Q2 2007. However, the next crisis may not be well predicted by this indicator.

⁷ Indicators would need to be developed to guide when to raise the CCB after a crisis. But this is quite a different proposition from raising the CCB before a crisis (as in the late strategy) and the indicators could potentially be relatively simple eg banks' return on assets and credit growth.

⁸ As discussed earlier, this is contingent on risks being identified and the CCB being raised before the crisis begins. If the CCB is not raised pre-crisis, it cannot reduce deleveraging in the crisis.

is a form of conservation buffer, or some other macroprudential tool, for which there is no international reciprocation process. Without reciprocation, the CCB would apply only to banks locally incorporated in New Zealand, not to foreign banks with lending in New Zealand and/or foreign banks' branches registered in New Zealand. Reciprocation is important if lending from branches of foreign banks or cross-border lending is material for the domestic economy. APRA requires Australian banks to reciprocate all foreign countries' CCBs, explicitly including non-BCBS members such as New Zealand.⁹ But we would need to sound out APRA's view on whether they would require banks to reciprocate a CCB set using the early strategy or whether they would set the CCB on New Zealand exposures on the basis of their own assessment of financial stability risks in New Zealand.

Table 1: Summary of relative pros and cons of the broad CCB strategies

	Late strategy	Early strategy
Bank resilience	Bank capital buffers are increased when risks are high	Bank capital buffers are increased when risks are low to moderate
Mitigates deleveraging in a crisis	May be effective as it is likely to be a long time until the CCB is raised again	May be effective if there is commitment to keep the CCB at zero for some years after a crisis
Reliance on early warning indicators	Relies on early and accurate identification of risks	Raising CCB can be based on simple indicators of financial system health
Financial system efficiency	Aligning banks' capital requirements with their level of risk should provide the most efficient outcome	'Normal' CCB rate of X% means banks would be required to operate with higher capital ratios than may be justified from a risk perspective
Reciprocation	CCB rate is likely to be reciprocated by other countries	CCB rate may not be reciprocated by other countries
Use in other countries?	Standard BCBS strategy, used by US, Germany, etc	The UK and Norway use loose variants of this strategy

Section 3: Possible next steps

If the Committee has a preference for a broad CCB strategy, we would propose to develop the strategy further, including:

- Further analysis on the cases / situations in which the CCB would be raised or cut;
- Analysis on the speed at which the CCB rate would be changed;
- Developing indicators to guide the decision on when to change and how to calibrate the CCB;
- Working with PSD to consider the appropriate calibration of the CCB, linking into work on the capital review.
- Speaking to APRA about whether the choice of CCB strategy would change their intention to reciprocate our CCB.

⁹ See p.7 of APRA's [Prudential Practice Guide, APG 110 – Capital Buffers](#).

Annex: Assessing indicators for raising the CCB under the early strategy

The proposed conditions for raising the CCB under the early strategy is that the financial system is *not* suffering from a recent crisis. One of the main proposed benefits of the early strategy is that these conditions are easier to identify than the conditions for raising the CCB under the late strategy, ie when there is a build-up of systemic risks.

To assess this, we have considered just a few simple metrics over the GFC period. These metrics have been chosen as they can help indicate when the banking system would be able to comply with the higher capital requirements without stifling the provision of credit, a key requisite for the CCB to be effective at supporting credit after a financial crisis. They are:

- Credit growth
 - an indicator of the current strength of credit supply in the economy.
- Return on assets (ROA)
 - an indicator of the likelihood that banks would significantly deleverage to support profits if the CCB were increased.
- Ratio of a 2.5% CCB requirement to bank profits¹⁰
 - an indicator of whether banks would deleverage to support profits but also gives a guide on the speed at which the CCB should be raised.
- Impaired assets
 - an indicator of whether the effects of a financial crisis have begun to abate.
- Tier 1 capital ratios
 - an indicator of banks' ability to meet higher capital requirements without raising additional capital or reducing RWAs.
- Bank bill to OIS spread
 - an indicator of the credit and liquidity risk associated with lending to banks.

More work would be required to develop indicators and thresholds for guiding the use of the CCB under the early strategy. And indicators will only guide the use of the CCB, as the ultimate decision should be subject to discretion and be informed by other information, such as supervisory intelligence, the credit conditions survey, etc.

But for now, we suggest looking for signs of recovery or stability in each of the metrics. Whilst this is admittedly simplistic, it does suggest that the conditions for raising the CCB in New Zealand after the GFC, were present from around mid to late 2011.

¹⁰ This compares the amount of capital needed to meet a 2.5% CCB increase, holding RWAs and voluntary buffers constant, to banks' quarterly profit, averaged over the last 4 quarters. This can be read as the number of quarters needed to meet a 2.5% CCB increase by raising capital.

Figure 2: ROA and change in credit

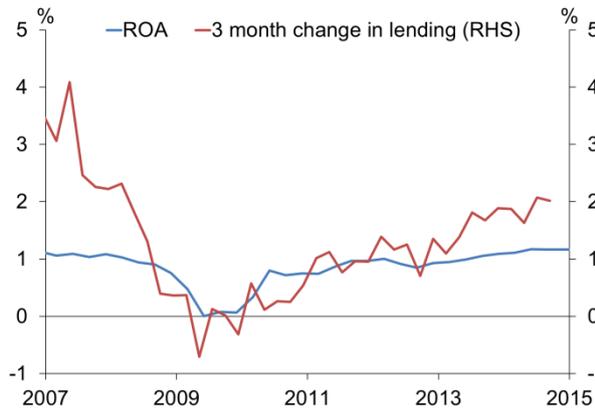
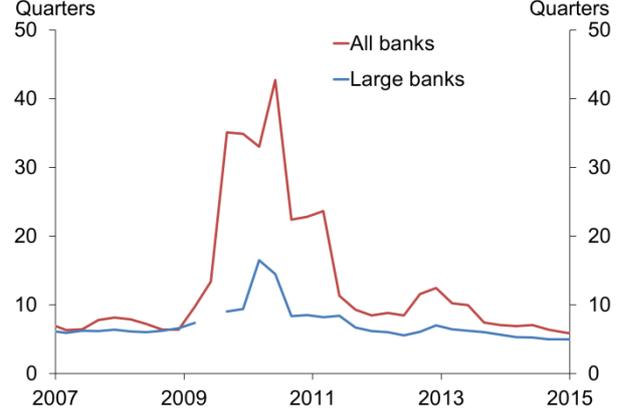


Figure 3: Ratio of CCB to bank profits



Note: The discontinuity in the large bank data is due to a period of losses at BNZ which caused the ratio to spike to 240 quarters.

Figure 4: Stock & flow of impaired assets (% of gross loans and advances)

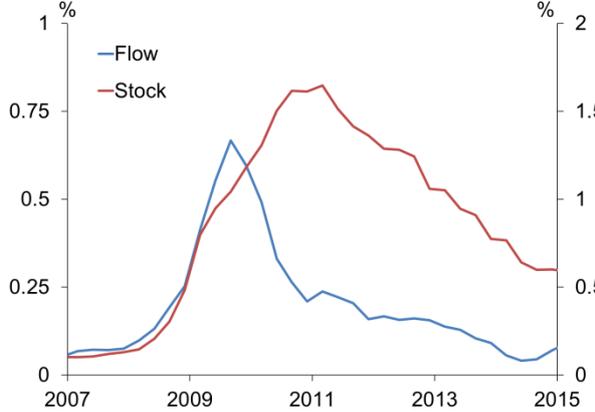


Figure 5: T1 capital ratios

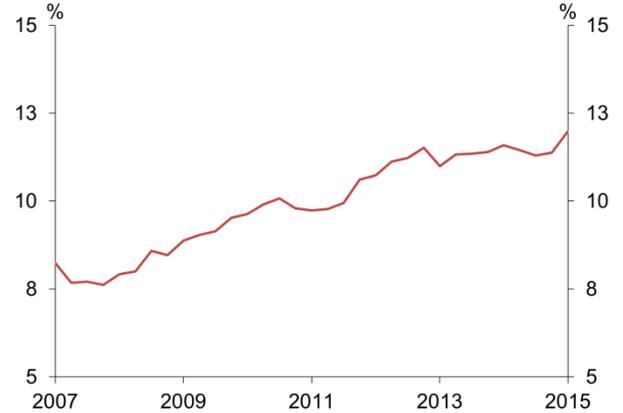


Figure 6: 3-month BB to OIS rate spread

