

A structural model of capital buffer usability

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Under which conditions do usability constraints for regulatory capital buffers emerge? Our paper is the first to explicitly study capital buffer requirements (CBR) within a structural non-linear banking sector model and its implications for bank resilience and loan supply. We show that even very low costs of CBR usage induce large buffer usability constraints, i.e. when faced with losses banks will deleverage significantly to avoid their excess capital ratio [1] falling below the CBR. There are two important policy implications. First, introducing a CBR in "normal" times when banks make profits seems desirable to increase bank resilience and to reduce bank failure probabilities, while this should not constrain bank credit supply much. Second, a structural non-releasable CBR is unlikely to fully achieve its macro stabilisation objective to support aggregate loan supply when the banking sector faces losses due to buffer usability constraints.

As a response to the global financial crisis, the Basel III reform package for the banking system introduced a regulatory capital buffer requirement (CBR) on top of the minimum regulatory capital requirement. Compared to a minimum capital requirement, banks are allowed to "use" the CBR, i.e. they are allowed to operate with an excess capital ratio below the CBR, whereas banks are put into resolution if their capital ratio falls below the minimum capital requirement. However, when banks "use" the CBR they face increased supervisory scrutiny, they need to submit a capital conservation plan, and certain payout restrictions for dividends and AT1 coupon payments apply, and potential market stigma applies.

Since the Covid-19 pandemic a debate has started about the need for more releasable rather than structural capital buffers

Empirical banking papers have found indications of buffer usability constraints, i.e. that banks would rather reduce loan supply and deleverage when faced with adverse shocks rather than let their capital ratio fall below the minimum requirement plus CBR (Couaillier et al., 2022; Mathur et al., 2023). Others question whether impediments to buffer usability exist and whether it could have a significant effect on bank lending (Schmitz et al., 2021). If buffer usability constraints indeed exist, it would imply that structural capital buffers might not work as intended and that potentially a larger share of macroprudential capital buffers should be releasable to ensure that the CBR can fulfil its macro stabilisation objective during crises.

Stigma costs between 0.5 – 3 basis points (bps) sufficient to induce banks to fulfil the CBR

We take the inconclusive empirical evidence regarding the existence of buffer usability constraints as motivation to study in a structural model under which conditions buffer usability constraints can indeed emerge. We find that stigma costs between 0.5 to 3 bps are sufficient to induce banks to fulfil the CBR. These magnitudes can be explained with the help of a back of the envelope calculation. For bank default costs of 1 % of total assets and current credit risk of 50 bps, the model predicts that the CBR is 1.3 pp above the excess capital ratio of banks that "use" the CBR. Given an equity premium of 6 pp p.a. and a risk weight of around 50 %, the loan funding cost increases by merely 3.9 bps. At

the same time the model predicts that with CBR the bank failure rate decreases by 2 pp p.a., leading to a lower expected bank default cost of 2 bps. The net cost of fulfilling the CBR is therefore just 1.9 bps. If stigma costs exceed this value, it pays off for banks to fulfil the CBR.

A CBR significantly lowers bank default probabilities while keeping loan supply almost unchanged

The benefits of higher bank capital ratios and lower bank PDs in presence of a CBR come at arguably low economic costs in terms of reduced lending: for the benchmark calibration with a default cost of 1 %, the model predicts a decrease in lending of only 1-13 bps, while the capital ratio increases by 0.5-1.3 pp, and bank PDs go down by 1.25-2 pp p.a.

Low stigma costs induce large buffer usability constraints, even in crisis times

In states where high credit risk materializes and banks make losses the picture changes abruptly. The same small stigma costs of 0.5 – 3 bps prevent banks from letting their excess capital ratio fall below the CBR, even though they are equity constrained. Instead, banks start to deleverage significantly to still meet the CBR, with a deleveraging pressure of up to 10 % for ranges of credit risk considered in the paper. This indicates that non-releasable macroprudential capital buffers might not fulfil their intended objective of stabilizing aggregate loan supply in crisis times.

The latter finding could potentially suggest that the composition of the CBR within the regulatory framework should be rethought with a view to increasing the share of releasable capital buffers. Further analysis regarding this question would be needed.

References

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Couaillier, Cyril, Marco Lo Duca, Alessio Reghezza, and Costanza Rodriguez d’Acari, “Caution: do not cross! Capital buffers and lending in Covid-19 times,” Working Paper Series 2644, European Central Bank Feb 2022.

Schmitz, S. W., V. Nellessen, M. Posch, and P. Strobl (2021). Buffer usability and potential stigma effects. SUERF Policy Note 219.

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Footnotes:

1. We refer to “excess capital ratio” as the banks’ capital ratio above the regulatory minimum requirement.

<https://www.bundesbank.de/en/publications/research/discussion-papers/a-structural-model-of-capital-buffer-usability-957106>