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The EU macroprudential review should prioritize removing regulatory overlaps and increasing the flexibility of the CCyB*

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During the current EU macroprudential review some policymakers have called for a capital-neutral increase of releasable macroprudential buffers by making the capital conservation buffer (CCoB) releasable. They base their case on the hypothesis that macroprudential buffers have not been used by banks due to stigma effects. In our SUERF Policy Note No. 219 of January 2021, we rejected this hypothesis. Almost two years later, it is time to re-visit our conclusions in the light of new evidence. We conclude that (i) our findings and policy conclusions have stood the test of time and that (ii) the recent empirical research cannot justify the call for the releasability of structural macroprudential buffers like the CCoB. Instead, we show that addressing regulatory overlaps and introducing a more flexible use of the cyclical macroprudential buffer (countercyclical capital buffer/CCyB) must have priority in the EU macroprudential review or any other legislative changes impinging macroprudential policy. Hence, making more buffers releasable cannot be capital neutral; rather, it must involve the proactive build-up of additional capital in normal times.

*The views expressed in this note are exclusively those of the authors and do not necessarily reflect those of the OeNB or the Eurosystem.

1. Introduction

In light of the experience gained during the Covid-19 pandemic, banks as well as some supervisors and policymakers at the international level claimed that macroprudential buffers were not usable because banks would be reluctant to use their buffers due to stigma effects. In our SUERF Policy Note No. 219 of January 2021 (Schmitz, 2021), we rejected this hypothesis, showing that there were no stigma effects. Our findings proved that using capital buffers and/or increasing capitalization would be more profitable for banks than deleveraging and losing profitable market share. Given that the macroprudential review of the European Commission is now underway, it is time to revisit the topic and look into whether new evidence on stigma effects or the non-usability of buffers has been published. This note summarizes and evaluates the following four recent papers on buffer usability published by the ECB (Couaillier et al., 2022), the Federal Reserve Board (Berrospide et al., 2022), the Bank of England (Saporta, 2021) and the Basel Committee on Banking Supervision (BCBS, 2022). Based on these papers, some policymakers call for a far-reaching reform of the macroprudential framework, e.g., increasing releasable buffers in a capital-neutral way by allowing for the release of the CCoB in times of system-wide stress.

Based on our evaluation of recent evidence, we draw conclusions for consideration in the ongoing review of the EU macroprudential framework. The existing macroprudential framework has helped to mitigate systemic risks during the pandemic. The empirical papers we review cannot justify the call for a far-reaching reform of the macroprudential framework. We show that instead, addressing regulatory overlaps and increasing the flexibility of the CCyB must have priority in the EU macroprudential review.

The note is structured along the following lines: In section 2, we show that providing a justification for yet another wide-ranging reform of the macroprudential framework is challenging. We also summarize the findings and conclusion of our 2021 SUERF Policy Note, in which we reject the hypothesis of the presence of stigma effects. In section 3, we review the papers published by the ECB, the Fed, the BoE and the BCBS. This section also includes a box on common methodological problems we have identified in these papers (Box 1). In section 4, we discuss the costs and risks of releases of structural buffers. In section 5, we derive the priorities for the EU macroprudential review from the available evidence. In section 6, we summarize our conclusions.

2. The justification of another reform of the macroprudential framework is challenging

To justify such a reform, the evidence would need to show that the expected benefits of yet another far-reaching reform outweigh the costs. Such a reform would have to be based on the following conditions: 1) The perceived impediments to buffer usability are significant and unintended. 2) Those who argue in favor of a far-reaching reform would have to show that these impediments are caused by how the framework is designed and that a reform yields significant system-wide positive effects. 3) The release of capital buffers is effective in removing the perceived impediments, and 4) the desired increase in lending (rather than distributions or investing) reduces systemic risk via the potential benefits of supporting the real economy so effectively that it would justify a reduction of buffers (possibly CET1 ratios) in times of stress. 5) Evidence shows that the current system creates problems is likely and severe enough to support yet another change to the macroprudential framework, which again imposes costs on banks, regulators, and supervisors. The four papers we review here focus only on whether (1) holds. We are not aware of papers that have already presented evidence on (2), (3), (4) and (5).

Our 2021 SUERF Policy Note rejects the hypothesis of stigma effects, i.e., significant adverse effects of capital buffers on bank funding costs. We analyze potential stigma effects associated with the breach of the combined capital buffer requirement (CBR). Our findings suggest that using capital buffers is more profitable for banks than deleveraging and losing profitable market share. From the funding perspective, additional tier 1 (AT1) hybrid bonds were most affected by coupon cancellations or non-call events since adapting the features of these capital instruments under Basel 3. However, examples in our note show that yield increases in these instruments were relatively minor and short-lived. Moreover, their impact on banks' aggregate funding costs, and, hence, on their weighted average cost of capital was very limited, as AT1 instruments typically account for less than 1% of bank funding. In addition, the note provided a series of empirical tests which reject the hypothesis that stigma effects are significant: A higher CBR reduces the funding costs of AT1 instruments. The distance to the maximum distributable amount (MDA) as well as the share of releasable buffers (in the CBR) do not have a significant effect on AT1 or unsecured debt funding costs. We then argued that even if we had found evidence of funding cost increases, they were prima facie intended: Stronger incentives for banks to raise equity are an integral part of the prudent regulatory regime that emerged in response to the financial crisis. The regulatory push for subordinated debt (AT1, T2, TLAC/MREL) and the introduction of macroprudential buffers aim to improve the risk-sensitivity of bank funding costs (particularly for too big to fail banks). This should incentivize banks to price capital more carefully well before capitalization approaches the minimum requirements and a debt overhang lurks. This in turn incentivizes borrowers to switch to better capitalized banks, which, prima facie, also increases financial stability.

3. Recent papers do not identify specific impediments to buffer usability and cannot justify the calls for releasing the CCoB in times of stress

In the following section, we discuss the findings of four recent papers on buffer usability.

3.1 The ECB paper: Caution: do not cross! Capital buffers and lending in Covid-19 times

The ECB authors (Couaillier et al., 2022) investigate whether banks closer to the MDA trigger adjusted their lending to NFCs during the pandemic relative to banks further away from the MDA.

The authors employ loan-level data, thus controlling for heterogeneity in firm-specific credit demand. The authors make use of the Covid-19 shock via a difference-in-difference (DiD) research design. They also match their datasets with bank- and loan-level information on banks' features, including reliance on central bank funding, payment moratoria and government-guaranteed loans. In this way, they try to isolate credit supply effects triggered by the proximity to the MDA threshold from other bank-specific features and from pandemic-related support measures which also have an impact on lending. For identification purposes, they follow two distinct approaches.

They exploit multiple bank-firm relationships to control for firm credit demand, i.e. data from firms that borrow from multiple banks and within-firm comparisons across banks at different distance to the MDA trigger. However, one shortcoming of this identification strategy is the exclusion of single-bank lending relationships, which are absorbed by firm fixed effects. Since the majority of single-bank relationships involve small and medium-sized enterprises (SMEs), which are predominant in most European countries, the authors control for demand by firm industry-location-size (ILS) fixed effects.

The DiD approach requires that several assumptions hold. First, the assignment of the treatment has to be exogenous, or in other words, the shock should affect the outcome variables but not vice versa. The DiD approach is only valid under the so-called "parallel trend assumption", whereby changes in the outcome variable prior to the shock would be the same in both the treatment (Low.D2MDA banks) and the control groups (High.D2MDA banks).

The authors regress the change of the pre-pandemic on the post-pandemic averages of loan growth from bank *i* to firm *k* on a dummy variable for the distance to the CBR. The dummy is 1, if the average distance to the CBR is below the first quartile of the distribution and 0 otherwise. The averaging approach reduces the number of observations and the information content of the data set compared to the underlying quarterly data set. However, the data set is quite short (2019Q1-2020Q4). In addition, the authors leave out 2020Q2, which means that the strong credit growth at the beginning of the pandemic does not feed into their results. The data set comprises 376 significant euro area banks. The sample shrinks to 76 treated and 76 untreated banks after propensity score matching.

The banks in the two groups differ along several characteristics, such as the overall capital requirement (Pillar 1 requirement plus combined buffer requirement), risk density, non-performing loans and provisions. To ensure that banks in both groups have similar characteristics, the authors employ a propensity-score matching strategy. The equations try to control for several other drivers of loan growth (public guarantees, moratoria). However, the authors do not control for Pillar 2 requirements (P2R) and the Pillar 2 guidance (P2G), which are bank-specific and, hence, vary more across banks than macroprudential buffers. The P2R shifts the CBR upwards and the P2G sits on top of the CBR. The neglect of the P2G and the P2R makes it hard to attribute potential effects to micro- or macroprudential buffers.

The paper finds that both groups of banks accelerated lending growth during the pandemic (Couaillier et al., 2022, Table 3). The acceleration of lending growth is lower for banks with a lower distance to MDA than for banks with a higher distance to the CBR. Loan exposure is reallocated from weaker to stronger banks. The effect is smaller when the dummy specification is replaced with one that uses the lagged continuous distance to the CBR as an independent variable. The effect is insignificant when the sample is enlarged to include single-bank relationships. The paper does not identify effects on aggregate loan supply, which grew strongly during the pandemic. With the onset of the pandemic in 2020Q2, the growth rate of NFC loans and debt securities on bank balance sheets jumped to long-term record levels.[1] In 2019, loans from euro area MFIs had only accounted for 18% of euro area NFC external financing, according to ECB flow of funds data, and trade credit, loans from the rest of the world, and debt securities had accounted for 45%. Against this backdrop, after the onset of the pandemic, credit could be substituted with other funding sources both within and outside the banking sector. Banks were not capital constrained, as CET1 ratios actually increased after the onset of the pandemic, and most banks planned to distribute dividends in 2020 (ECB FSR, 2021). The paper does not find stigma effects or other costs that would disincentivize banks from using their macroprudential buffers.

3.2 The Fed paper: The Usability of Bank Capital Buffers and Credit Supply Shocks at SMEs during the Pandemic

The Fed paper (Berrospide et al., 2022) uses a regression analysis based on data collected during the pandemic. The DiD approach compares business loan commitment growth for two different groups of banks.

[1] The y-o-y growth rate of loans to private non-financial corporations increased from +3% (Feb 2020) to +7.3% (May 2020). It remained very high until February 2021 (7.1%). Similarly, the y-o-y growth rate of NFC debt securities as M3 counterparts on MFI balance sheets increased from +1.9% (February 2020) to 6.6% (May 2020) and +10.9% in February 2021. Source: ECB press statements on monetary developments in the euro area of March 25, 2020 and June 25, 2020.

The main balance sheet variable separating the treatment and control group in the baseline specification is the lender's pre-pandemic distance to the stress test buffer (as of 2019Q4). The first group consists of banks with low capital headroom (below 2.14 percentage points as of 2019Q4, the median of the sample), the second group is composed of banks with a capital ratio well above supervisory/regulatory capital buffers when entering the pandemic.

The first binding buffer in the US is the stress test buffer, a bank-specific buffer that sits on top of the macroprudential capital buffers. In the US, the capital conservation buffer (CCoB) and the G-SIB buffer apply to all banks in the sample. On top of these, the Fed imposes bank-specific stress test buffers, which are a hybrid between macroprudential buffers and a complementary supervisory (Pillar 2) tool.[2]

For the regression analysis, the authors use novel loan-level information on C&I (commercial and industrial) credit lines and combine this with quarterly consolidated bank balance sheet information. The dependent variables in the respective specifications are: (i) the yearly growth rate of C&I loan commitments from bank *b* to firm *f*, (ii) the number of firms that ceased to have a credit line with a given bank, and (iii) the growth rate of aggregate employment in industry *i*, county *c*, in month *t*. The sample consists of 16 bank holding companies and about 44,000 SMEs with 526,449 bank-firm-time observations between 2018Q1 and 2020Q3. The analysis employs supervisory loan-level data (FR Y-14Q) between the largest US banks and their corporate borrowers. The authors compare lending by low vs high capital headroom banks to groups of similar borrowers based on the firm characteristics industry and county to control for changes in industry-county-specific loan demand.

The study finds that for banks with a lower distance to the CBR, the relative growth rate of C&I commitments for SMEs was higher before the pandemic but lower afterwards than for banks with a higher distance to the CBR (Berrospide et al. 2022, Figure 5, p. 35). Moreover, the number of private SMEs (unlisted and smaller than the median firm in the sample) that ceased to have a credit line is higher for low capital headroom banks. The results are robust when the authors look at firms with shorter lending relationships with their bank (below the median of 6 years) and for firms whose committed lines matured in 2020Q2. However, the number of SMEs that ceased to have credit lines with large headroom banks increases strongly in 2019Q4 and then returns to a longer-term average. The same holds true for new firms getting credit lines from large headroom banks. Finally, the authors find that employment growth in a county with aggregate non-zero exposure to low headroom banks is relatively lower. However, the difference is short-lived (May, June and July 2020). The authors conclude that "…balance sheet constraints and costs emanating from buffer usability were binding in the short term but not in the long term…". In addition, the results seem to be driven by one outlier with very low capital headroom of about 40 bps (Berrospide et al., 2022, Figure 4).

The 16 banks in the sample have different business models and showed different behaviour before the pandemic, so there is no reason to expect them to have behaved the same during the pandemic. First, the sample contains investment banks and retail banks. Hence, the main variable of interest – the annualized growth rate of commitments – differs very strongly. Its mean is 4.27%, with a standard deviation of 64.77 with a 10% percentile of -25.87% and a 90% percentile of +23.44%. Second, the parallel trend assumption is violated.[3]

[2] These buffers are determined in the Comprehensive Capital Analysis and Review (CCAR) stress tests.

[3] The firm dynamics between small and large headroom banks start to differ 2018Q4, well before the pandemic. The number of SME exposures of low headroom banks reaches a peak in 2018Q4 and decreases continuously (Berrospide et al. 2022, Figure 1). In contrast, the number of SMEs exposures of large headroom banks reaches a low in 2019Q1 and increases until 2019Q4. The respective lines cross in 2019Q3. The same applies to the dynamics of firm exit and entry (Berrospide et al. 2022, Figure 8). The blue lines (firm entrants) cross in the pre-pandemic sample (though, displayed in different graphs). The same holds true for the red lines (firm exits).

The study finds a difference in bank behaviour between the two groups for only a very small business segment, which accounts for less than 1% of their exposures. For the vast majority, the study does not find significantly different behaviour between low and high headroom banks. The sum of total assets of the banks in the sample amounts to roughly USD 17 trillion. The sum of C&I commitments of low headroom banks is USD 64 billion. The study finds that there are no differences in credit or credit commitments to larger borrowers. The system-wide effects are low as the estimated impact on SMEs commitments amounts to USD 3 to 10 billion. This compares to the outstanding stock of debt of the non-financial corporates of about USD 19 trillion of which it constitutes less the 0.05%. Aspects like high profitability and low leverage might suggest that the SMEs in the sample were creditworthy and that the results were driven by the supply side. However, these indicators might also suggest that these SMEs found it easier to fund themselves internally or to switch to bank funding sources outside the sample, such as trade credit, leasing/factoring or loans from other non-financial corporates along the value chain. Overall, the results show very low system-wide effects, even without taking into account credit substitution. Finally, higher combined buffer requirements reflect a bank's higher risks. Especially, the stress test capital buffer is bank-specific. It is based on individual bank stress test results and higher for riskier banks. As such, the results can also be interpreted as "riskier banks lend less when entering a system-wide crisis". After the lowering of the combined buffer requirements these banks would still be riskier and lend less, but with lower capital to address their higher riskiness.

The paper also looks at potential costs of buffer use: potential stigma effects of payout restrictions and rating downgrades. The authors run event studies to estimate the costs of dividend restrictions and of rating downgrades. Based on daily stock price data from 1990 to 2021, they find that these costs are insignificant in normal times; only during the great financial crisis of 2008 were the cumulative abnormal returns during a three-day event window around dividend cuts or rating downgrades significant at about -2.88% (dividend cut) and -2.65% (rating downgrade), respectively. Whether a three-day lower stock price performance justifies the costs of years of foregone profits due to restrictions on otherwise profitable lending, is questionable. Rating downgrades are associated with lower capitalization/higher asset risk and not with the use or release of buffers. At the beginning of the pandemic, Moody's issued a statement in which it commented favourably on G-SIBs' steps to maintain their capital positions by cutting dividends and suspending share buybacks, inter alia in response to supervisors' request (Moody`s, 2020). Hence, the authors correctly conclude that "…releasing regulatory buffers in a downturn may not necessarily lead to more usable capital, but rather may come with additional unanticipated costs." (Berrospide et al., 2022, The Usability of Bank Capital Buffers and Credit Supply Shocks at SMEs during the Pandemic, p. 28).

3.3 The BoE paper: Emerging prudential lessons from the Covid stress

The paper published by the BoE (Saporta, 2021) finds that "[t]here was no credit crunch: credit provision to businesses increased by more than 10% during 2020. Indeed, due in part to capital conservation measures [...] many banks' capital ratios improved during 2020." It also reports that the aggregate CET1 capital ratio for major UK banks increased from 14.8% to 15.8% from the end of 2019 to September 2020. In addition to supervisory support, banks also profited from fiscal and monetary policy support measures.

The analysis uses aggregate balance sheet and granular loan-level information on 158 PRA (Prudential Regulation Authority)-regulated banks at the highest level of consolidation, and a difference-in-difference approach. It separates the sample into banks with low and high pre-pandemic capital surpluses. The "pre-pandemic" period is defined as that from 2019 Q1 to 2019 Q4, and the "post-pandemic" period from 2020 Q1 to 2020 Q4. The authors also include a series of control variables in the regression specification that aim at accounting for fundamental differences across the two groups (differences in regulatory requirements, business models, profitability, liquidity resilience, and provisioning).

The methodology focuses on (i) the evolution of banks' CET1 ratios and lending to the real economy, which is based on (ii) banks' pre-pandemic exposure to the released CCyB and (iii) firms' pre-pandemic headroom to regulatory buffers. Regarding (i), the extent of relief from a domestic CCyB release varies across firms based on their relative exposure to UK credit risk-weighted assets. This information is used to split the sample of banks based on their position in the cross-sectional distribution of CCyB pass-through rates. The authors´ hypothesis is that banks with higher CCyB pass-through rates would have benefitted more from a CCyB cut (as a greater proportion of their capital stack would have been released into their voluntary surpluses), and therefore needed to increase their capital ratios by less in the face of the Covid-19 shock. Furthermore, these banks may have used this additional space to expand lending. Regarding (ii), the BoE hypothesizes that banks with low pre-pandemic surpluses were more concerned about potential regulatory buffer breaches triggered by the unanticipated impact of the Covid-19 stress.

Given the setup of the regulatory framework, there are a number of ways in which the authors could measure the headroom between a bank's capital ratio and its buffer requirements. The authors construct a CET1 measure of the surplus a bank has over its minimum requirements and regulatory buffers: "…CET1 resources (calculated from the public requirements) used, where applicable, to meet leverage ratio requirements, MREL requirements and lower quality capital requirements (i.e. where AT1 and Tier 2 instruments are allowed but not utilized)." (FN 19, p 11) The approach disregards the PRA buffer, which sits on top of the macroprudential buffers. Hence, an "omitted variable" problem emerges and it is unclear whether banks' reluctance to reduce capitalization at the beginning of a crisis stems from their reluctance to dip into PRA-buffers or macroprudential buffers.

The BoE is concerned about a stigma effect, as dipping into buffers could be interpreted as a sign of weakness by investors. The BoE argues that "[t]his is especially the case if no other firm in their peer group is subject to these measures, creating a collective action problem: firms, acting out of perceived individual interest, may choose to restrict their lending to the real economy rather than dip into their CCoB." (p. 7). This, in turn, may have induced these firms to undertake defensive actions pre-emptively to build up their capital surpluses by more, in subsequent quarters - potentially by constraining lending growth. Therefore, any evidence that low surplus banks significantly built-up capital at the expense of domestic lending would be consistent with the presence of limited buffer usability. However, the fallacy of composition does not allow for drawing conclusions from the results of individual stigma effects on the potential effects of system-wide buffer breaches.

First, both high and low pre-pandemic effective surplus banks increased their CET1 surpluses by around 1pp of RWAs after the onset of the pandemic. For low surplus banks, the CET1 surplus increased, on average, from 2.1pp to 3.3pp of RWAs from Q4 2019 to Q4 2020. And for high surplus banks, this increase was from 6.4pp to 7.5pp of RWAs over the same period. The observed increases are driven partly by a fall in requirements for both high and low surplus banks during the pandemic, and, for low surplus banks, an increase in CET1 resources as well. The latter shows that the buffer framework works as intended. Before the onset of the pandemic, the CET1 ratios of low (-16.7% of the surplus during 2019) and high surplus banks (-4.7% of the surplus during 2019) behaved differently (Chart 4, p 11).

Second, the BoE found that UK banks with a higher share of exposure to assets which are subject to the CCyB – which the BoE's Financial Policy Committee released at the onset of the crisis – saw a lower increase of their CET1 ratios during the pandemic (Table 1, p 14). But the impact on mortgage and corporate lending is not significantly different from zero.

Third, the BoE found no significant difference between low and high headroom banks for CET 1 ratios and mixed results on lending. The effects on mortgage lending were insignificant. Low headroom banks saw lower growth rates of credit card lending flows and non-government guaranteed private non-financial corporate lending flows than high headroom banks. Moreover, the BoE entirely omits government-guaranteed lending growth, despite the stringent leverage ratio requirement.

The banks in the treated and in the control group have different business models and showed different behavior before the pandemic, so there is no reason to expect them to behave the same during the pandemic.

3.4 The BCBS paper: Buffer usability and cyclicality in the Basel framework

The BCBS studies the effect of capital headroom on non-financial corporate and retail lending during the pandemic based on a sample of banks over the period 2017 H1 and 2021 H1 (BCBS, 2022). The sample consists of 126 to 152 banks in 20 countries. The BCBS' own Quantitative Impact Study (QIS) is the main data source. The dependent variable is the growth rate of lending to households and non-bank corporates (on- and off-balance sheet) in each half-year period. The independent variables consist of: (i) capital headroom in the previous period; (ii) the interaction between headroom in the previous period and a Covid-dummy (0 from H1 2017 to H2 2019 and 1 from H1 2020 to H1 2021); (iii) bank specific controls (RoA, total assets, deposits ratio, the LCR and whether banks are constrained by their leverage ratio); (iv) macroeconomic controls (inflation, GDP growth and the 10 year bond yield). The hypothesis is that banks with lower capital headroom lend less during the Covid-19 crisis, i.e., that the coefficient of the interaction term of $capital\ headroom_{t-1} \times Covid\text{-}19_t$ is significantly positive. The BCBS defines capital headroom as difference between the observed CET1 ratio and the sum of Pillar 1 and 2 minimum requirements as well as the combined buffer requirements. It applies three specifications to capture capital headroom: (i) its continuous value, (ii) a 50th percentile dummy and (iii) a 25th percentile dummy. For each of the three specifications of capital headroom, the BCBS presents results with and without bank-specific fixed effects. In sum, the BCBS publishes six estimates of the impact of lower capital headroom under Covid-19 on the growth of bank lending to the private non-bank sector (BCBS 2022, Table 1, p. 10).

The BCBS analysis rejects the hypothesis that lower capital headroom reduced lending growth during the Covid-19 stress period. The coefficient of interest - the coefficient of the interaction term of $capital\ headroom_{t-1} \times Covid\text{-}19_t$ – is statistically insignificant in five of the six specifications. In one specification, the coefficient is statistically significant but has the wrong sign – banks with lower capital headroom actually featured higher lending growth during the Covid-19 stress period. However, the explanatory value of the six specifications is low (R^2 of 10% to 18%), despite the inclusion of country, time, and bank business model fixed effects. Outside the Covid-19 stress period, the BCBS finds that low capital headroom is statistically insignificant for lending growth when lagged bank controls are included. When the sample period is shortened to H1 2019 to H1 2021, the number of observations shrinks from 913 to 100, the analysis also rejects the hypothesis when lagged bank controls are included. Only when in addition, capital headroom is fixed at the value for H1 2019 for all banks, the coefficient of the interaction term of $capital\ headroom_{t-1} \times Covid\text{-}19_t$ becomes statistically significant (BCBS 2022, Table A4, p. 47). Banks with a 100 bp higher capital headroom feature lending growth that is 1.49 ppt higher than that of other banks. This "…suggest a "credit boom gone bust" mechanism at the individual bank level." (BCBS 2022, p. 12).

In addition, the BCBS study presents various case studies of buffer use. The first one argues that the Prompt Corrective Action (PCA) framework in the US during the financial crisis featured similarities with the buffer framework. In 2009, a substantial number of banks dipped below the "well capitalised" threshold. These banks experienced somewhat similar supervisory treatment than banks that would dip into buffers. On average, these banks had had higher loan growth before the crisis, but lower loan growth afterwards than banks that did come close but remained above the threshold. The BCBS also ran a survey amongst supervisors. It found that 26 banks have dipped into their buffers since 2017. Most of these were small domestic institutions. On average, they operated within their buffers for 11 months (median 8.5 months) and about 200 bp (median 11 bp) below their combined buffer requirements. None of these cases led to negative effects on system-wide lending.

The analysis rejects the hypothesis of potential stigma effects of buffer use under stress. Capital headroom under Covid-19 stress was not statistically significant for (i) the bank's price to book ratio, (ii) its cost of equity, (iii) its funding costs (1-year or its 5-year CDS spreads) or (iv) its average stock price (BCBS 2022, Table 3, p. 14). In normal times, the impact of higher capital headroom improves (i) the bank's price to book ratio, (ii) its cost of equity, (iii) its funding costs (its 5-year CDS spreads) but (iv) leads to a lower average stock price. When capital headroom is measures against minimum requirements only, the results are similar. Whether this is a result of stigma or favourable market perception of better capitalized banks, cannot be inferred from the data.

The BCBS study shows that regulatory overlaps need to be addressed as a priority. About 10% of the banks in the sample would breach the leverage ratio minimum requirement when they tried to dip into buffers. Another 50% breach the leverage ratio minimum requirement when they use a portion of their buffer. The ratio of LR constrained banks is particularly high in Europe (74%). Lower risk density (via the leverage ratio), lower AT1 issuance, and higher risk weighted minimum requirements reduce buffer usability (BCBS 2022, Table A5, p. 50). Therefore, introducing macroprudential leverage ratio buffers would improve the ability of EU banks to use their buffers. This would not reduce their competitiveness vis-à-vis their US peers as they already feature significantly higher leverage ratios given that US GSIBs have to comply with the enhanced Supplementary Leverage Ratio (eSLR).[4]

Box 1: Similar methodological problems in all four papers

Banks actively choose management buffers, which leads to an endogeneity problem. More prudent managements hold higher buffers to protect their banks' franchise value under unforeseen shocks and to ensure better funding conditions under stress (Marcus, 1984). The reward for their higher weighted average cost of capital in normal times is their opportunity to outperform less prudent banks under stress. Banks that hold more capital are also more profitable (de Bandt et al., 2017). Relatively higher loan growth of banks with higher management buffers validates the benefits of the strategy of more prudent banks. From a financial stability point of view, this is prudent for two reasons: (i) the shift of risk exposure under stress from banks with a lower risk-bearing capacity to those with a higher risk-bearing capacity increases financial stability during stress and (ii) it provides incentives for prudent bank balance sheet management in normal times.

The analyses have a reverse causality problem. Banks that expect to expand profitable lending and expect higher loan growth hold more capital to fund that growth (Liu, 2018). Causality is reversed: higher expected loan growth causes higher ex-ante capitalization. The same board that takes the strategic decision for higher loan growth is responsible for the bank's balance sheet and capital management, i.e., the allocation of capital across business lines and countries via the distribution of dividends. Supervisors require banks to plan their balance sheet growth and capital in a forward-looking manner (SSM, 2018). In addition, bank managements finalized their 2019Q4 balance sheets and their capital headroom in March/April 2020, when the pandemic was already spreading across the world. More prudent banks that had a better understanding of the impact of the pandemic and/or that saw a chance to grow market share during the pandemic adjusted their balance sheet management accordingly, e.g., by adjusting distributions.

[4] Federal Register: Regulatory Capital Rules: Regulatory Capital, Enhanced Supplementary Leverage Ratio Standards for Certain Bank Holding Companies and Their Subsidiary Insured Depository Institutions

The micro-economic approach creates serious identification problems, as the correlation between the distance to the CBR variable and the CET 1 ratio is very high, and the variability of the CET1 ratio is much higher than that of the CBR. The variation in the overall capital requirement (OCR) or the combined buffer requirement (CBR) is low as most banks in the respective samples have similar macroprudential buffers. The capital conservation buffer (CCoB) is identical for all banks. The buffers for global systemically important financial institutions (G-SIFIs) are 1% and 1.5% for all but three banks (FSB, 2019). The buffers for other systemically important institutions in Europe are around 1 to 2% for most banks. The microprudential requirements and buffers (Pillar 2) are likely to differ more across banks but are not disclosed. The variation of the CET1 ratios is much larger.[5] Hence, the correlation between the distance to CBR (D2CBR) and the CET1 ratio is very high, most of the variation (especially cross-sectional) is in the CET1 ratio, not in the OCR or the CBR.[6] Thus, the allocations of banks to the treated/control groups are very similar when based on high/low distances to CBR or high/low CET 1 ratios. Ex-post matching or controlling for the CET1 ratio cannot resolve these problems, as it leaves the allocation to the treated/control groups unchanged. A DiD approach based on the pre-pandemic CET1 ratio – instead of the pre-pandemic headroom – would yield similar results. Banks with higher pre-pandemic capital gain market share during times of stress. This is well documented in the academic literature (Gambacorta et al., 2018).

The micro-econometric approach should separate the effects of the policy variable(s) (capital buffers) on bank behavior from the effect of the CET 1 ratio. In the current version, the approach focuses on a composite explanatory variable D2CBR (=CET1 ratio – CBR) instead of its components, of which one is the policy variable of interest (CBR) and the other is the CET1 ratio. The same applies to the treatment effect itself. Ex-post controlling for the CBR or the CET1 ratio does not solve this identification problem.

The results refer to microprudential rather than macroprudential capital buffers. In the euro area, the Pillar 2 guidance sits on top the macroprudential buffers.[7] In the US, the Fed imposes bank-specific (Pillar 2) stress test buffers, which sit on top of the macroprudential capital buffers. In the UK, the PRA buffer sits on top of the macroprudential buffers. The studies do not explicitly investigate the usability of the microprudential buffers. Many banks publish their P2G, the stress test buffer in the US is published and microprudential in nature, as is the PRA-buffer in the UK. A recent paper finds that the P2G is not usable, even when released (Couaillier et al., 2022).

The DiD approach yields relative results. By design, it cannot show more than the fact that low headroom banks and high headroom banks behave differently. This result is intended, as we argue above. The approach does not allow drawing conclusions on aggregate bank lending growth.

The studies do not show that the aggregate availability of funding for the real economy is significantly impaired by unintended consequences of the buffer framework. The recent literature cited above shows that many non-financial private sector companies can fund themselves internally or switch to bank funding sources outside the sample, e.g. credit, leasing/factoring or loans from other non-financial corporates along the value chain

The papers control for firm-level credit demand, but not for firm-level bank-specific credit demand. As capital becomes scarcer for banks closer to the CBR, their shadow price of capital increases. Hence, their hurdle rate for loans increase. As a consequent, firms with multiple bank relationships shift loan demand from the bank with the higher hurdle rate towards that with the lower hurdle rate.

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[5] https://www.bankingsupervision.europa.eu/banking/srep/html/p2r.en.html

[6] Based on data for significant institutions in the euro area for 2020 Q4, the (CET1) OCR has a standard deviation of 2pp and an interquartile range of 2.3pp, while the CET1 ratio has a standard deviation of 11pp and an interquartile range of 6pp. Hence, the reported standard deviation of the overall capital requirements (OCR) for the euro area is about 10% of the mean, while that of the distance to CBR is about 120% of the mean (Couaillier et al. 2022, Table 3). The mean and variance for the CET1 ratio are not reported.

[7] The ECB does not control for these. It controls only for a variable that consists of Pillar 1 requirements and macroprudential requirements.

4. The four papers do not present new evidence that justifies the release of structural macroprudential buffers

Releasing structural macroprudential buffers is a high-risk policy. The decrease of capital at the beginning of a severe system-wide crises decreases banks' shock absorption capacity when it is most needed, increases the risk of a banking crisis, and potentially damages the confidence in banks. Whether the potential positive effects materialize is highly uncertain and depends on a number of assumptions: (i) potential impediments to buffer use cause a system-wide bank credit crunch; (ii) a buffer release can remove potential impediments to buffer use; (iii) there is no credit substitution within the banking system, and there are no alternative funding sources; (iv) banks do not distribute capital but increase profitable, domestic lending to viable NFCs and households; (v) the repercussions of releasing a structural macroprudential buffer on economic growth would be so high that systemic risk decreases despite the decrease in shock absorption capacity in the banking system.

None of the four papers shows that the potential benefits of structural buffer releases at the beginning of a severe system-wide crisis outweigh their high risks. None of these papers was able to identify actual impediments to buffer usability (like, e.g. reputational effects). Hence, they do not present evidence that buffer releases would remove these impediments either. There is no evidence that banks are unable to raise equity or shift their activities from less profitable business areas (e.g. interbank lending) to lending to the real economy in a timely manner. There is also no proof that banks with a significant market share reduce lending simultaneously and thus behave in a manner that creates systemic risk.

The evidence regarding negative effects of buffers on bank behavior is insufficient: the ECB finds that low headroom banks saw a lower *acceleration of loan growth* in the pandemic. The Fed only indicates effects on a very small part of banks' off-balance-sheet SME commitments (<1% of total assets), and the BoE finds an impact on non-government guaranteed lending flows and credit card lending flows, but not on mortgages. The BCBS paper even rejects the hypothesis of potential stigma effects of buffer use under stress. None of the four papers finds effects of a significant size that would suggest the risk of system-wide effects on loan growth. In addition, the growing literature on credit substitution shows that a reduction in loan supply leads to an increase of funding from other sources, such as bonds, promissory notes, leasing/factoring, trade finance, fintechs, direct lending and loans from NFCs along the value chain (Adelino et al., 2021). In addition, all studies lack robustness checks with other potential critical drivers of a slowdown in lending, such as rating downgrades due to decreasing capitalization/decreasing asset quality and bank risk aversion. That said, the BoE finds that buffer releases strongly decreased capital without improving lending flows.

There is no analysis of negative effects triggered by a capital conservation buffer (CCoB) release. At the beginning of a severe system-wide crisis, the release of buffers might undermine market confidence and lead to increasing bank funding costs (Schmitz et al., 2019). The latter might even increase the costs of loans to the real economy.

The social costs and benefits of released capital are uncertain and differ across the US, the UK and across the euro area. The social costs are likely to differ across jurisdictions due to differences in the starting levels of solvency, the share of wholesale funding, initial ratings as well as potential rating downgrades and alternative funding sources for the real economy (such as market-based finance, leasing, factoring etc.). Similarly, the social benefits are likely to differ across jurisdictions. They are higher in jurisdictions with less diversified NFC funding and with banking sectors that distribute less of the released capital. Whether net benefits are positive or negative is likely to vary substantially across jurisdictions. Releases with longer duration (Couaillier et al., 2022) and payout restrictions imply higher benefits. Banks have little incentive to use the released capital, if they will have to rebuilt it soon anyway. The impact on lending is lower when banks distribute the released capital instead of increasing lending.

System-wide dividends and other payout restrictions would have to complement a release of the CCyB: they increase bank resilience and lending (Muñoz, 2020). Payout restrictions improve capitalisation and thus resolve any potential headroom problem (Gambacorta, 2018). However, dividend restrictions might entail private costs for shareholders in the form of higher cost of equity. The impact is small, though, and partly off-set by lower risk premia (Hardy, 2021).[8]

Banks tend to distribute significant shares of released capital. Andreeva et al., (2020) suggest that the overall effect of capital releases on capital targets was low during the pandemic. They study banks' reactions to buffer releases during the pandemic: only 9 out of 35 banks reduced their capital targets (mostly in the short term while medium-term targets remained unchanged), 18 banks kept targets close to their initial level, and another 6 banks maintained their regulatory capital target ratios, the rest withdrew their targets. Couaillier (2021) finds that the lion's share of banks' adjustment to reach their target capital ratios takes place via the adjustment of outstanding CET1 (two-thirds of the adjustment), but a third occurs through asset-side adjustments (Couaillier, 2021). In particular, banks tend to adjust their NFC security holdings (one-fifth of the adjustment) and their corporate loans (only one-twentieth of the adjustment). This is in line with the studies on bank behavioural reactions to changes in capital requirements and to negative capital shocks cited above and with banks' recovery plans.

Given that capital releases are used for payouts and reduce bank capitalisation as well as system-wide resilience (Muñoz, 2020)[9], payout restrictions at the onset of a severe system-wide crisis foster resilience and financial stability. However, the social benefits of payout restrictions would have to be weighed against the potential social costs of somewhat higher cost of equity in the short term.

5. The macroprudential review should address regulatory overlaps and increase the flexibility of the CCyB

The European Commission's 2022 macroprudential review should be guided by the following high-level goals: (i) reducing the complexity of regulation, (ii) increasing the resilience of the financial system, and (iii) facilitating flexibility across EU Member States to reflect heterogeneous financial cycles. Importantly, potential changes to the macroprudential framework must not lead to a dilution of internationally agreed standards and, thus, need to be compliant with the Basel 3 framework.

[8] On average, equity prices fell 3% over the following five days after the announcement.

[9] They might eventually also be used for higher credit provision, improve GDP growth, and generate a positive second -round effect on systemic risk in the longer-term.

First, the macroprudential review should address regulatory overlaps. The experience of the pandemic has underlined that the current approach is working well and provides for sufficient possibilities of coordination: most CCyB rates were released almost simultaneously in March and/or April 2020. However, regulatory overlaps affect the use of released and unreleased buffers alike. The European Systemic Risk Board (ESRB) published a report[10] in December 2021 which concludes that banks will not always be able to draw down released or unreleased capital buffers without breaching the leverage ratio requirement or the minimum requirement for own funds and eligible liabilities (MREL), both of which apply in parallel. The report shows that even if buffers were made releasable, 35% (for the CCyB) and 62% (for the CCoB) of capital, respectively, would effectively not be usable due to overlapping requirements. Therefore, the overlaps between capital buffers and minimum requirements need to be removed in parallel regulations within the macroprudential review. The ESRB Report presents mitigating options. Importantly, an improvement in buffer usability should not inhibit the achievement of the objectives of the parallel frameworks and, ideally, should also enhance consistency without further increasing the complexity of the regulatory system. Making more buffers releasable under stress requires the buildup of releasable capital in normal times.

Second, the macroprudential review should then increase the flexibility of CCyB activation. Cyclical macroprudential capital buffers are recalibrated on a regular basis as the systemic risk they are addressing changes over time. Thus, the CCyB could allow for releasing buffers without compromising the resilience of the system against structural systemic risk. The main reason for low macroprudential space was that few countries had activated the CCyB before the pandemic. The inherent time delay is substantial: about 18 months pass between the latest available data point for the calculation of the credit-to-GDP gap and the time of a CCyB entering into force. Data on the credit-to-GDP gap is often available with a lag of more than one-quarter. After the decision of activation, the CCyB generally enters into force with a lag of 12 months. The long total time span between the evidence used as the basis for activation and the coming into effect leads to an inaction bias. In addition to the potential time lag, estimates and indicators of cyclical systemic risk are subject to data, model (e.g. Schüler, 2020)[11], and forecasting uncertainty. Policymakers fear that their decision will turn out to be wrong by the time the CCyB enters into effect. Some (former) Member States have already made that experience and revoked previous CCyB decisions. Most countries employ additional indicators. The ESRB has recommended six categories: private-sector credit developments and debt burden, overvaluation of property prices, external imbalances, mispricing of risk, and strength of bank balance sheets (European Systemic Risk Board, 2014). However, Aikman et al (2021) argue that there is an inherent tension between complexity and simplicity. More complex models and additional indicators increase model risk and entail the danger of overfitting models to past crises. Financial systems are better characterized by uncertainty than by risk (European Systemic Risk Board, 2014). Using an empirical approach, van Oordt and Maarten (2018) estimate that the time-varying magnitudes of the cyclical capital add-on that is required to safeguard the resilience of banks for system-wide shocks is in the range of 2.8 to 3.4% of RWA. The costs of a type 1 error (no CCyB when it is necessary) are higher than that of a type 2 error – a CCyB when it is not necessary (Galan, 2020).

[10] https://www.esrb.europa.eu/pub/pdf/reports/esrb.ATFreport211217_capitalbuffers~a1d4725ab0.en.pdf

[11] For instance, Schüler (2020) finds that the one-sided Hodrick-Prescott filter leads to spurious cycles under the Basel III specification at medium-term frequencies and, hence, false signals for policymakers.

To overcome the inaction bias and to ensure sufficient macroprudential space, the CCyB should be activated early in the financial cycle. Ireland, Lithuania, the Netherlands and Sweden have already implemented a positive neutral rate. Many EU countries have activated the CCyB despite a negative Basel credit-to-GDP gap (e.g. Ireland, the Netherlands, Slovenia, Denmark). This kind of early activation requires a more extensive interpretation of the current legal framework as the main indicator – the credit-to-GDP gap – usually does not support such a decision. Hence, the macroprudential review should increase the flexibility of the CCyB and should encourage a positive neutral rate for the countercyclical capital buffer (CCyB) to increase macroprudential space.[12]

6. Conclusions

The four empirical papers we review cannot corroborate the call for a far-reaching reform of the macroprudential framework, such as making the CCoB releasable. First, the capital buffer regime was effective during the pandemic in its goals of safeguarding financial stability and of maintaining lending to the real economy. Second, releasing structural macroprudential buffers is a high-risk policy. Even if lowering capital buffers was beneficial for lending, there would be unintended consequences. The banking system would be more prone to systemic risks as banks would operate on lower capital levels, especially during times of stress. Freed-up capital could be used for payouts or investing in safe assets instead of lending. Hence, we call for the macroprudential review to give priority to addressing regulatory overlaps and to increasing the flexibility of the CCyB.

The twin shocks of the pandemic and the Russian war against Ukraine have shown how important it is to keep an adequate level of resilience even during stress. Furthermore, we know from the Global Financial Crisis that banks with a healthy capital base are paramount for maintaining financial stability and for the aggregate supply of lending. The experience of the pandemic underlines that the current approach and possibilities of coordination in the EU are sufficient. Against this background, the CCoB should not be made releasable as it would lower banks' resilience over the cycle. In addition, a released CCoB will not be fully usable because of overlapping capital requirements. Making more buffers releasable under stress is therefore incompatible with the objective of a capital-neutral reform of the macroprudential framework as the former requires the build-up of releasable capital in normal times. ■

[12] Press release: Basel Committee publishes evaluation of buffer usability and cyclicality in its regulatory framework; issues newsletter on positive cycle-neutral countercyclical capital buffer rates (bis.org).

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