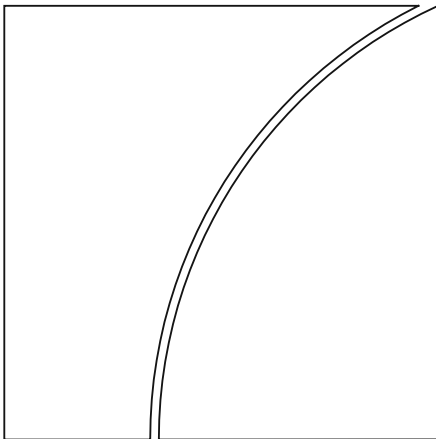


Basel Committee on Banking Supervision

Implementation

Range of practices in
implementing a positive
neutral countercyclical
capital buffer

November 2024



This publication is available on the BIS website (www.bis.org).

© *Bank for International Settlements 2024. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated.*

ISBN 978-92-9259-811-2 (online)

Contents

- 1. Introduction 1
- 2. Adoption of a positive neutral CCyB framework across jurisdictions 2
 - 2.1 Legal frameworks 3
 - 2.2 Institutional set-up 4
- 3. PNR calibration and interactions with the broader CCyB framework 4
 - 3.1 Target rates and risks covered by the positive neutral CCyB 4
 - 3.2 Calibration techniques 5
 - 3.3 Offsetting the positive neutral CCyB by releasing other buffers 10
- 4. Operation of the positive neutral CCyB 11
 - 4.1 Build-up of the positive neutral CCyB 11
 - 4.2 Release of the positive neutral CCyB 13
 - 4.3 Replenishment of the positive neutral CCyB after a release 14
 - 4.4 Recalibration of the PNR 16
- 5. Reciprocity 17
- References 18

1. Introduction

The Basel Committee on Banking Supervision (the Committee) introduced the countercyclical capital buffer (CCyB) as part of the Basel III reforms in 2010. These reforms are designed to promote a more resilient banking system, drawing from the lessons learnt during the Great Financial Crisis (GFC).

The CCyB aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate, in order to increase the resilience of the banking sector and maintain the flow of credit to the real economy during periods of stress. The CCyB can be raised by authorities in response to periods of excess aggregate credit growth, which have often been associated with the build-up of system-wide risk, and then released during downturns.

In 2010, the Committee published guidance that detailed the key requirements for operating the CCyB,¹ and in 2017 it published a paper discussing the range of practices in implementing the CCyB, which examined how jurisdictions have used the flexibility in the CCyB framework when designing their CCyB policies.² Since then, an increasing number of jurisdictions have chosen to use this flexibility to voluntarily introduce a positive neutral CCyB, ie a non-zero CCyB when risks are judged to be neither subdued nor elevated. In 2022, the Committee published a newsletter in which it supported and acknowledged the benefits of authorities' ability to set a positive neutral rate (PNR) for the CCyB on a voluntary basis.³

Authorities that have introduced a positive neutral CCyB have found it helpful for banks in their jurisdictions to have buffers of capital in place that can be released in the event of sudden shocks, including those unrelated to the credit cycle, such as the Covid-19 pandemic. This approach can help address concerns that banks in some jurisdictions may be reluctant to cross regulatory buffer thresholds in times of stress, but may be more willing to use their capital to support lending when buffers are explicitly released by authorities.

This document builds on prior Committee publications by examining the observed range of practices adopted by jurisdictions which have chosen to implement a positive neutral CCyB.⁴ The adoption of a positive neutral CCyB approach is not required by Committee members, and this document does not seek to discuss or opine on the merits or demerits of a positive neutral CCyB relative to other macroprudential measures or tools. Some jurisdictions may use tools other than the positive neutral CCyB to address similar risks, based on their specific jurisdictional circumstances.

The remainder of this document is structured as follows: Section 2 considers the different jurisdictional frameworks for implementing a positive neutral CCyB; Section 3 discusses different approaches to calibrating the PNR for the CCyB; Section 4 outlines the various approaches to operating the buffer; and Section 5 discusses reciprocity considerations. This document also includes the range of practices of 10 European Union jurisdictions which are not members of the Committee.

¹ See BCBS (2010).

² See BCBS (2017). In November 2019, the Committee also published its "Guiding principles for the operationalisation of a sectoral countercyclical capital buffer" (BCBS (2019)).

³ See BCBS (2022a).

⁴ Some of the information presented in this note is based on a survey conducted by the Committee in 2023 across jurisdictions that have implemented a positive neutral CCyB.

2. Adoption of a positive neutral CCyB framework across jurisdictions

While the Basel standard prescribes various aspects of the CCyB framework, several elements remain at the discretion of national authorities.⁵ Using this discretion, an increasing number of jurisdictions have chosen to adopt a positive neutral CCyB. Under this approach, authorities aim to set a positive CCyB rate when risks are judged to be neither subdued nor elevated.⁶ As is the case with CCyB activation, build-up and release, authorities can employ a broad range of indicators to determine the appropriate PNR. The key motivations for introducing a positive neutral CCyB are broadly similar across jurisdictions and include:

- increasing the share of buffers that can be released during crises;
- enhancing flexibility in using the CCyB, either to allow for the (gradual) build-up of capital earlier in the financial cycle or to respond to a wider range of shocks; and
- accounting for uncertainty in the identification of systemic risks, which may lead to a potential under-calibration or untimely build-up of the CCyB.

Jurisdictions that have implemented a positive neutral CCyB approach believe that it retains and reinforces the countercyclical purpose of the CCyB. They also expect it to dampen the procyclical reactions of financial system participants and improve macroeconomic outcomes if any shocks materialise.

At the time of writing, there are at least 17 jurisdictions that have a framework in place for the implementation of a positive neutral CCyB (Table 1) or that are in the process of implementing one.⁷

⁵ See Basel Framework [RBC30].

⁶ See BCBS (2022a).

⁷ Note that despite not having a target PNR, Denmark and Norway have adopted an approach involving an early activation of the CCyB.

Jurisdictions with a positive neutral rate (PNR) for the CCyB

Basel Committee members plus jurisdictions in the European Union

Table 1

BCBS jurisdictions	Target PNR	Effective date for target PNR
Australia	1.0%	1 January 2023
Hong Kong SAR	1.0%	1 April 2024
Netherlands	2.0%	31 May 2024
South Africa	1.0%	1 January 2026
Spain	1.0%	1 October 2026
Sweden	2.0%	22 June 2023
United Kingdom	2.0%	5 July 2023
Non-BCBS EU jurisdictions		
Cyprus	1.0%	2 June 2024
Czech Republic	1.0%	23 May 2019
Greece	0.5%	1 October 2026 (0.25% effective from 1 October 2025)
Hungary	1.0%	1 July 2025
Ireland	1.5%	7 June 2024
Estonia	1.0%	7 December 2022
Latvia	1.0%	18 June 2025
Lithuania	1.0%	1 October 2023
Poland	2.0%	24 September 2026 (1.0% effective from 24 September 2025)
Slovenia	1.0%	1 January 2025

Note: The South African Reserve Bank has issued a proposed directive for a positive neutral CCyB framework. A final directive has not been issued at the time of publication. In cases where the PNR was set more than once, the effective date for the target PNR refers to the most recent date when the PNR is to be met.

Sources: Basel Committee on Banking Supervision.

2.1 Legal frameworks

As with other elements of the Basel Framework, Committee members implemented the CCyB within their own jurisdictional laws and regulations. Jurisdictional frameworks may differ in whether the existing laws and regulations governing the CCyB are flexible enough to allow for the implementation of a positive neutral CCyB, which is not explicitly described in the Basel Framework. For example, there may be challenges in using a positive neutral CCyB in jurisdictions where the relevant CCyB legal framework strictly identifies the build-up of systemic risks and excessive credit growth as conditions for the activation of the CCyB, given that such an approach implies a positive CCyB when risks are judged to be neither subdued nor elevated. Conversely, there may be little or no legal challenges in jurisdictions where the relevant CCyB framework is less prescriptive on the conditions required to activate the CCyB.

In some cases, authorities have amended the relevant legislation when implementing a positive neutral CCyB framework. For example, in Hong Kong SAR, the relevant legislation was amended in 2023 to introduce the option of a positive neutral CCyB, stating that excessive credit growth is no longer a precondition for setting the jurisdictional CCyB above zero.⁸

⁸ See HKMA (2023).

2.2 Institutional setup

Jurisdictions have adopted different approaches regarding the institutional setup for activating and operating the CCyB. Decision-making powers for the CCyB may be assigned to (i) the central bank, supervisory authority or an authority which has both functions; (ii) a political authority (eg Ministry of Finance); or (iii) more than one authority through, for example, a designated committee.

3. PNR calibration and interactions with the broader CCyB framework

The introduction of a PNR may have implications for the evolution of the CCyB through the financial cycle. While jurisdictions have adopted various approaches to implementing a positive neutral CCyB, their frameworks generally consider: (i) target rates and the type of risk covered; (ii) calibration techniques; and (iii) interactions with other capital buffers.

3.1 Target rates and risks covered by the positive neutral CCyB

Jurisdictions implementing a positive neutral CCyB adopt a positive buffer level (ie the PNR) when risks are judged to be neither subdued nor elevated. Jurisdictions with a positive neutral CCyB framework have announced target PNRs that range from 0.5% to 2% (Table 1). Different approaches have been adopted to calibrate the default level of the buffer (see Section 3.2).

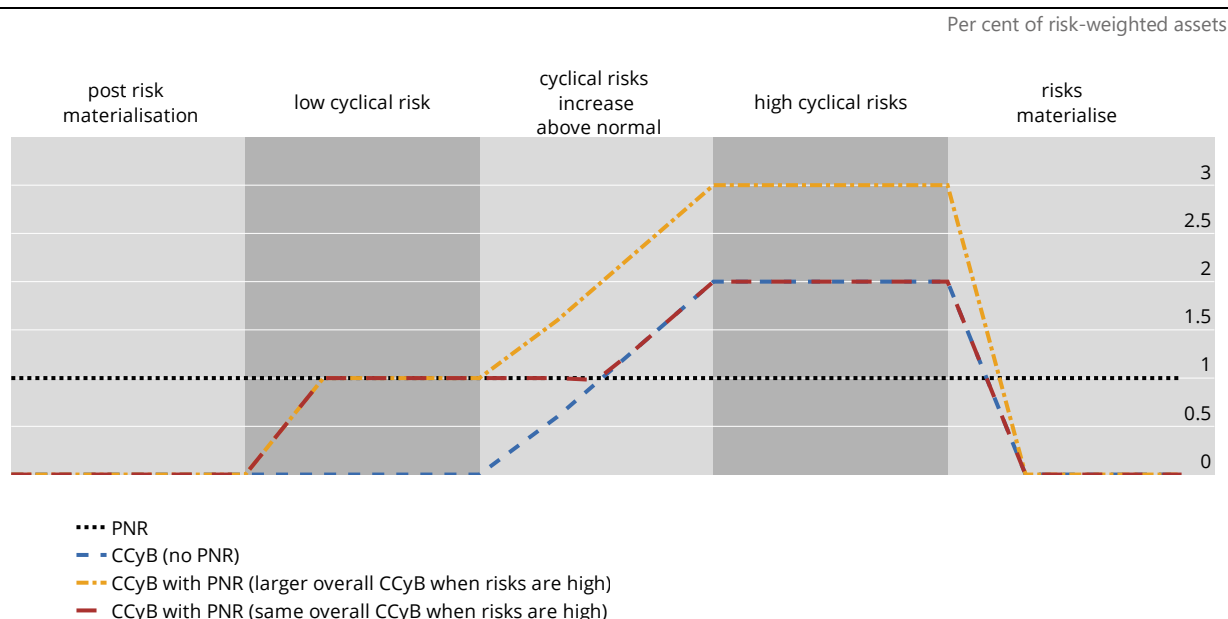
In some jurisdictions, the positive neutral CCyB has been designed to cover risks related to the domestic financial cycle as well as other shocks (eg geopolitical events, pandemics), while in others it is designed to primarily focus on covering risks unrelated to the domestic financial cycle. For some jurisdictions, the positive neutral CCyB may also account for the inherent uncertainty when measuring systemic risks.

In some jurisdictions, the introduction of a PNR increases the overall CCyB when systemic risks are elevated, all things being equal. This is because their standard implementation of the CCyB (ie without a PNR) only covers risks related to the credit cycle, and any additional risk coverage related to the PNR is accompanied by an increase in the volume of releasable capital and thus an increase in the overall CCyB rate when systemic risks are building up. In other jurisdictions, the introduction of a PNR does not directly result in an increase in the overall CCyB when systemic risks are elevated, with some of the cyclical risks related to the credit cycle being covered by the positive neutral CCyB. In this case, the introduction of a PNR can be seen as an “early activation approach” for the CCyB. In some jurisdictions, authorities do not explicitly mention whether the introduction of a PNR increases the overall CCyB when systemic risks are elevated.

Evolution of the CCyB with and without a PNR

Stylised example with PNR set at 1%

Graph 1



Note: The blue and red lines overlap under “high cyclical risks” and “risks materialise”. Under a positive neutral CCyB framework, the CCyB is activated before cyclical risks materialise, so that the buffer is available in case of unexpected shocks. When cyclical risks increase above normal, the CCyB is increased accordingly. In some jurisdictions the introduction of a PNR results in a higher overall CCyB when risks are elevated (yellow line) than there would be in the absence of a PNR (blue line), while in other jurisdictions the overall CCyB when risks are elevated would be the same (red line).

Source: Basel Committee on Banking Supervision.

3.2 Calibration techniques

The calibration of the PNR relies on the use of different quantitative techniques. Jurisdictions have mainly used two approaches to calibrate their PNR:

- an indirect calibration, where the macroprudential authority first determines the maximum CCyB rate (or an overall buffer level) that should be set in an environment with elevated risk and then uses this rate as the basis for determining the PNR in a standard risk environment; or
- a direct calibration, where the PNR is calibrated without first defining a maximum CCyB rate.

Under both approaches, the PNR may be calibrated using the same techniques that are used for the overall CCyB rate. These include techniques based on: (i) losses, either based on stress tests or historical losses; (ii) risk indicators; and (iii) cost-benefit structural models. Most jurisdictions use a combination of techniques to increase the robustness of the calibration (Table 2).

Expert judgment also plays a key role in the calibration exercises. First, expert judgment can be used to fine-tune the PNR based on various considerations (eg jurisdiction specificities, non-modelled risks). Second, expert judgment can be used to fine-tune the PNR based on regulatory considerations, for example the interaction of the CCyB with the other components of the capital stack (See section 3.3).

PNR calibration techniques		Table 2
Calibration technique	Indirect calibration	Direct calibration
Stress tests	AU, ES, UK, ZA	EE, IE, LT, LV, SI
Historical losses	AU, CY, CZ, HU, NL, UK	EE
Risk indicators	CZ, HU	PL, SI
Structural models	ES, ZA	IE, SI
Expert judgment/releasable capital target	CY, HK, HU, LV, NL, ZA	EE, GR, SE, SI

Sources: Basel Committee on Banking Supervision.

3.2.1 Techniques based on losses

Stress tests

The use of stress tests, which generate adverse macroeconomic scenarios using empirical macroeconomic models, is among the most popular techniques. Stress test models project banks' capital ratios and key balance sheet items conditional on the evolution of the macroeconomic scenarios. Buffers are then usually calibrated based on the projected capital shortfalls.

Some jurisdictions tailor the adverse macroeconomic scenarios to calibrate the PNR directly. For example, instead of using scenarios replicating the severity of the GFC, an average macroeconomic downturn scenario can be considered for a direct calibration of the PNR. Other jurisdictions use stress tests to calibrate the PNR indirectly, setting the PNR as a proportion of the maximum CCyB level obtained for a severe stress scenario. This proportion is determined by the risk tolerance of policy makers. In doing this, the authority considers the overall absorption capacity of the capital stack, thereby reducing the probability of covering the same risks with different buffers.

Box 1

PNR calibration in the United Kingdom

The calibration of the PNR in the United Kingdom is based on a series of different approaches: stress tests, historical losses and academic literature (BoE (2023)). The Bank of England (BoE) sets the CCyB within a two-step strategy. First, it assesses financial vulnerabilities, looking at core indicators measuring the evolution of private indebtedness and asset evaluations. Second, it assesses banks' capacity to withstand stress.

The CCyB is set at its PNR level when the risk indicators of financial vulnerability are at or around their long-term average. While the stress tests conducted by the BoE are not mechanically used to set the CCyB, their results provide key information on whether banks are resilient enough to withstand economic shocks given their current levels of capitalisation. Stress test exercises are conducted using scenarios whose severity is linked to the financial vulnerability level. The PNR is therefore set considering banks' resilience such that banks can absorb, rather than amplify, actual potential shocks. Once all the information is gathered, expert judgment plays a key role in determining the PNR and the overall CCyB level.

In line with previous analysis conducted by the Committee (BCBS (2022b)), analysis by the BoE suggests that in 2007 the UK CCyB rate would have needed to be set in the range of 3.5-5% in order for the UK banking system to have had sufficiently large usable capital buffers to absorb losses without severely restricting lending to the real economy. The BoE has released the CCyB in response to certain events, such as the United Kingdom's EU membership referendum and the Covid-19 pandemic, which it would not have been able to anticipate and for which it would not have been able to build up the CCyB.

Historical losses

Some jurisdictions calibrate the PNR based on the level of historical losses experienced during prior downturn periods. To do this, (peak) historical losses are linked to some event (eg the GFC) or to the mean of the historical losses during different recessionary periods. The PNR is then set to cover a fraction of the maximum losses under the indirect calibration approach or to cover losses under milder downturn scenarios (reflecting the materialisation of risk in a median phase of the financial cycle) under the direct calibration approach.

Box 2

PNR calibration in the Netherlands

The PNR in the Netherlands, set at 2%, is primarily calibrated on the basis of historical losses and experiences with previous buffer releases. As such, De Nederlandsche Bank (DNB) calibrated the buffer to be proportional to the peak accumulated losses (PAL) of Dutch banks in previous crises. PAL are calculated as the amount of a bank's total income in a given time interval that minimises profits (or maximises losses) within a certain period. The interval in which PAL are maximised differs across banks and may also include one or more quarters with positive income. For Dutch banks, De Haan and Kakes (2020) found that the PAL between 2007 and 2016 amounted to EUR 12 billion (which is by definition lower than or equal to the total losses in this period). The positive neutral CCyB was then set so that the required capital would be proportional to these PAL.

Other policy considerations also played a part when determining the PNR. For example, the PNR is calibrated such that the positive neutral CCyB is large enough for a release to be effective, while minimising the capital burden on banks. The PNR is also sufficiently high to allow for a partial release of the buffer, providing flexibility and policy space during a crisis. Moreover, DNB also considered its experience with the size and effectiveness of its previous buffer reductions in March 2020 to determine the appropriate PNR.

Losses-to-Buffer

The Losses-to-Buffer (LtB) approach is a novel approach being developed by the European Central Bank to provide model-based tools to inform discussion on the calibration of the PNR. The approach uses a bank-level panel model to estimate which portion of banks' losses should be covered by the PNR (see Box 3).

3.2.2 Techniques based on risk indicators

One jurisdiction calibrates its CCyB and PNR by mapping the level of certain risk indicators to target CCyB rates. This technique sets a risk level above which the CCyB is activated, as well as a maximum CCyB level. The CCyB is then calibrated with respect to the evolution of cyclical risks using an elasticity coefficient linking the evolution of the risk indicator to a CCyB level (similar to the credit-to-GDP gap indicator for the CCyB). This mapping can be based on theoretical and structural considerations, ensuring that the CCyB is set to some predetermined level when the indicators are at a certain level. The PNR is then set according to the CCyB level that is associated with a median reference risk level (indirect calibration).

Risk-to-Buffer

The Risk-to-Buffer (RtB) approach is another novel approach being developed by the European Central Bank to inform discussion on the calibration of the PNR. The approach combines elements of both the stress test and the risk indicator approaches to generate risk-dependent scenarios using a non-linear macroeconomic model (see Box 3).

Calibration techniques under development at the European Central Bank

“Losses-to-Buffer” calibration approach for the euro area

The Losses-to-Buffer approach (De Nora et al., forthcoming), developed at the European Central Bank, uses a panel model to identify which portion of banks losses could be covered by the PNR. A quantile regression model of banks’ return on assets (ROA) is estimated based on a representative sample of 318 euro area banks over the period 2005-2019. The PNR is calibrated to cover the losses that are left unexplained by the variables in the model (and thus less likely to be captured by the calibration of already existing prudential instruments) by using the coefficients of the time fixed effects of the model. The loss levels can be chosen by selecting a percentile of the historical distribution, depending on the severity of losses the policymaker wishes to target. Graph 2 (panel A) shows the buffer rates corresponding to the 50th, 25th and 10th percentiles of unexplained ROA realisations for the euro area. Lower percentiles of ROA (corresponding to severe losses) are not considered in order to avoid overlaps with the calibration of Pillar 2 Guidance, as this is based on the losses stemming from adverse scenarios. These results suggest that a PNR of 1% would be sufficient to cover up to the 25th percentile of ROA realisations, while a buffer rate of 1.5% would have been sufficient to cover losses up to the 10th percentile.

“Risk-to-Buffer” approach for the calibration of the PNR

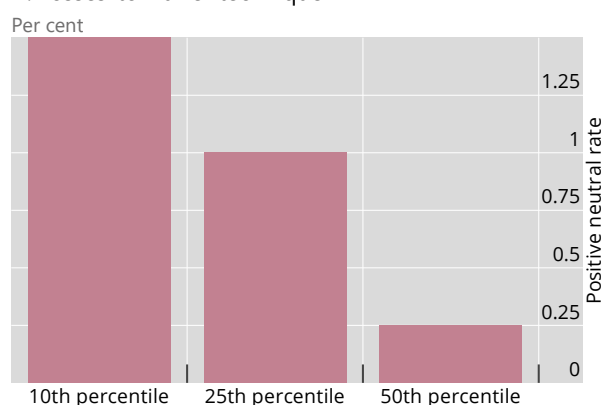
The Risk-to-Buffer approach (Couaillier and Scalone (2024)) calibrates the CCyB rate in different phases of the cycle, according to the prevailing levels of cyclical systemic risk (Lang and Forletta (2019)). First, an empirical non-linear macroeconomic model is used to estimate the impact on GDP of shocks under different risk levels. Second, these risk-dependent impacts are mapped into CCyB rates. Losses under high cyclical systemic risk scenarios are used to calibrate the CCyB rate at the peak of the cycle, while the PNR is calibrated to absorb losses occurring under median systemic risk. Graph 2 (panel B) shows the application of this model to the euro area. Three macroeconomic scenarios are simulated for low-, median- and high-risk scenarios. The relative impact of the shocks across the different scenarios can provide guidance on the CCyB calibration. Assuming that the GDP impact occurring under the high-risk scenario corresponds to a maximum CCyB rate of 2.5% and that the PNR is associated with the median risk level, the suggested positive neutral rate for the CCyB would then be around 1.3% (yellow bar).

PNR calibration techniques under development at the European Central Bank

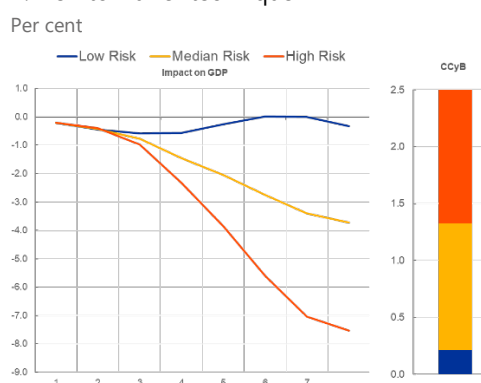
Illustration for the euro area

Graph 2

A. Losses-to-Buffer technique



B. Risk-to-Buffer technique



Panel A: The bar chart represents the different levels of PNR resulting from the estimation of the quantile model on the 10th, 25th and 50th percentiles of the ROA distribution. Panel B: Recessions under low (blue line), median (yellow line) and high risk (red line) simulated via the Cyclical Amplifier. The risk-related recessions are related to the CCyB capital stack via the Risk-to-Buffer approach. The median buffer can provide a level for the PNR.

Source: European Central Bank

3.2.3 Techniques based on cost-benefit structural models

Some jurisdictions use structural models to calibrate the PNR, computing the expected costs and the benefits associated with the introduction of a positive neutral CCyB.⁹ One approach consists of computing the net benefits associated with the phase-in of a given level of capital requirements when the PNR is also being phased in. Alternatively, the PNR can be calibrated as an additional capital requirement which can be used to partially cushion a recession when risks materialise. Concerning costs, a gradual build-up of the positive neutral CCyB under favourable banking sector conditions (eg high bank profitability) can limit the activation costs.¹⁰ On the benefits side, model simulations can show that: (i) the positive neutral CCyB can foster banking sector resilience early in the cycle; and (ii) a positive neutral CCyB can increase the macroprudential space to provide relief to the banking sector in the event of risk materialisation in the early phase of the cycle, reducing the probability that the macroprudential authority will be constrained in its action by the lack of releasable space.¹¹

Box 4

PNR calibration in Spain

In May 2024 the Bank of Spain (BdE) published revisions to its framework for setting the CCyB to better identify the different dimensions and the level of cyclical systemic risk. The revised framework sets a positive CCyB rate when cyclical systemic risk is considered to be at a standard level, ie neither particularly high nor low. Under the cyclical systemic risk monitoring framework in force prior to this revision, the CCyB was activated when a high level of systemic risk was signalled.

The identification of the risk level is based on 16 key indicators, which are grouped into four risk blocks: (i) macroeconomic indicators (economic activity and labour market indicators); (ii) macro-financial indicators (indicators concerning financial aggregates, such as bank credit, and their interaction with macroeconomic variables); (iii) financial market indicators (measuring the materialisation of risks in the financial markets); and (iv) banking system financial indicators (indicators calculated on the basis of the consolidated and individual accounting information reported by credit institutions to the BdE). Complementary indicators about credit institutions' solvency, liquidity, efficiency, and funding costs are also considered together with the credit-to-GDP gap, adjusted to the characteristics of the Spanish economy, and the output gap. Further, basic macro-financial metrics (GDP growth and house price growth) are also key monitoring indicators.

Qualitative information complements the analysis based on the indicators. This includes an assessment of the existing voluntary buffers and of banking sector profitability forecasts, together with additional information on bank lending to households and non-financial corporations (especially new loans) and on the current account balance of the Spanish economy.

Finally, the CCyB rate is determined based on the results of multiple simulations of the Spanish economy's response to various adverse cyclical shocks and the associated capital consumption of the Spanish banking system, estimated through stress tests in which the severity of the shocks is calibrated according to historical experience.

⁹ In standard macroeconomic models featuring banking frictions, capital requirement activations reduce lending and economic activity. On the benefits side, by reducing leverage, capital requirements increase bank resilience to shocks. When initial capital is low, an increase in capital requirements can substantially improve banks resilience, delivering higher net benefits than in the case where initial capital is already high (Mendicino et al (2020), De Bandt et al (2024)).

¹⁰ See Lang and Menno (2023), which calibrates a structural model to the euro area banking system and shows that the costs associated with an increase in capital requirements are low given that the CCyB is built up early, when banks tend to be profitable and are not capital constrained.

¹¹ See Herrera-Bravo et al (2024), who run a cost and benefit analysis of the positive neutral CCyB using a version of the 3D model (Mendicino et al (forthcoming)).

3.2.4 Other considerations

The amount of desired releasable capital can also guide the PNR calibration. The PNR can be calibrated to guarantee enough releasable capital in different phases of the financial cycle, ie including when cyclical risks are not yet elevated. The higher releasable capital would give the macroprudential authority more space to act in the case of risk materialisation not necessarily related to the evolution of the financial cycle (eg Covid-19-type scenarios). As such, the setting of the PNR can also be (partly) based on previous experiences with releasing buffers. The risk tolerance of each relevant authority may also affect the calibration and evolution of the buffer.

3.3 Offsetting the positive neutral CCyB by releasing other buffers

Most jurisdictions which have implemented a positive neutral CCyB framework have not offset the introduction of a PNR with a reduction in other existing capital requirements. For those jurisdictions offsetting the positive neutral CCyB by releasing other buffers, the offsets were motivated by a desire to: (i) avoid overlaps with requirements covering the same risks as the positive neutral CCyB; (ii) increase the amount of releasable buffers; and/or (iii) maintain the overall level of capital in the system.

In 2020, DNB lowered the 3% systemic risk buffer (SyRB)¹² which applied to the three main systemic Dutch banks in order to provide relief to the affected banks during the Covid-19 pandemic. Concomitantly, DNB committed to setting a 2% PNR when the crisis had sufficiently subsided. The positive neutral CCyB was then introduced in 2022.¹³ This shifted the composition of buffers in the Netherlands, reducing the large predominance of structural buffers and increasing the amount of releasable capital, which was seen by DNB as beneficial to strengthening banks' resilience in stressed periods while providing them with additional room to support the economy via financial intermediation.¹⁴ DNB expected the offset to be broadly capital neutral for the three largest Dutch banks, and noted that it would consider the extent to which the introduction of the positive neutral CCyB might justify further adjustments to the buffer for other systemically significant institutions (O-SIIs), as well as the possible overlap when determining the Pillar 2 Guidance.¹⁵

Similarly, in Estonia, Bank of Estonia released the 1% SyRB in May 2020 and replaced it with a 1% PNR in 2021 when reinstating the buffers post-pandemic, revising its macroprudential policy framework to adopt an early implementation approach to setting the CCyB. According to the new framework, the overall CCyB requirement includes a base PNR requirement which is meant to address the same risks as the previously applied systemic risk buffer.¹⁶

In Ireland, the Central Bank of Ireland announced in 2019 its intention to introduce a SyRB to mitigate the risks associated with the small, highly globalised nature of the Irish economy. The SyRB would have been in addition to the CCyB, which was set at a level of 1% at the time.¹⁷ However, the outbreak of the Covid-19 pandemic resulted in a change in stance, whereby the Central Bank of Ireland released the CCyB and forewent the plan to introduce the SyRB. Following a review of its macroprudential framework,

¹² The SyRB in the European Union aims to address systemic risks that are not covered by other instruments, including the CCyB or the buffers for global or other systemically important institutions. The level of the SyRB may vary across institutions or sets of institutions as well as across subsets of exposures.

¹³ See DNB (2020, 2022b).

¹⁴ See DNB (2022c).

¹⁵ See DNB (2022a).

¹⁶ See Bank of Estonia (2021).

¹⁷ The level of 1% was announced by the Central Bank of Ireland in July 2018.

it instead decided in June 2022 to mitigate macro-financial risks, including those associated with being a small, globalised economy, with a 1.5% PNR rather than a combination of the CCyB and SyRB.¹⁸

In Slovenia, the introduction of a 1% PNR in 2025 was accompanied by a simultaneous reduction of the sectoral SyRB from 1% to 0.5% due to lower systemic risk in the residential real estate market.¹⁹ In this case, the introduction of the positive neutral CCyB resulted in an increase in overall capital requirements.

In the United Kingdom, the introduction of a 1% PNR in 2016 was not offset against any requirements.²⁰ In 2019, the BoE announced that it would be increasing the PNR to 2%, and in 2020 it consulted on proposals to reduce minimum capital requirements to leave the overall loss-absorbing capacity in the banking system broadly unchanged.²¹ The PNR increase was offset by a downward calibration of the bank-specific microprudential Pillar 2 requirement (P2A) by 50% of the CCyB increase, while the additional 50% of the CCyB increase was offset by lower resolution requirements to be met by capital and bail-in-able debt.²²

4. Operation of the positive neutral CCyB

Once jurisdictions which have established a positive neutral CCyB framework have calibrated the PNR, they need to evaluate when risks are judged to be neither subdued nor elevated, so that the positive neutral CCyB can be built up. This is relevant for both the first-time activation of the positive neutral CCyB, as well as the replenishment of the buffer after a release of the CCyB. As is the case with the build-up and release of the overall CCyB, authorities can employ a broad range of indicators to determine the cycle-neutral level of risks. This section summarises the main determinants for the build-up and release of the positive neutral CCyB across jurisdictions.

4.1 Build-up of the positive neutral CCyB

4.1.1 Determinants for the build-up of the positive neutral CCyB

Broadly speaking, the determinants for the build-up of the positive neutral CCyB are similar to those used to set the overall CCyB. The key difference is that they are used with the goal of building up the positive neutral CCyB early and in a neutral or standard phase of the cycle. Across jurisdictions, the main determinants for the activation of the positive neutral CCyB are the *current* macro-financial and growth environment, together with the banking sector conditions, followed by *expectations* for the state of the economy and increasing cyclical risk. The fact that the outlook on cyclical risk is relevant for the build-up of not only the overall CCyB but also the positive neutral CCyB is consistent with the use of the positive neutral CCyB as an “early activation” approach, which can address issues related to the lack of data availability on a real-time basis and uncertainty in the measurement of cyclical risk in the early stages.

Jurisdictions have adopted different approaches to determining the appropriate timing for the build-up of the PNR. The approaches described below are not mutually exclusive and differ in terms of the

¹⁸ See Central Bank of Ireland (2022).

¹⁹ See Bank of Slovenia (2023).

²⁰ See BoE (2016).

²¹ See BoE (2020b).

²² See BoE (2019).

balance between the reliance on pre-determined indicators versus expert judgment. Most jurisdictions favour the use of a flexible approach where both inputs are considered.

Evolution of the financial cycle

Under this approach, macroprudential authorities focus on the evolution of the financial cycle when determining the overall CCyB rate, but with the goal of activating the positive neutral CCyB in the early phase of the cycle. This approach includes a range of quantitative risk indicators, generally complemented by expert judgment. For example, the BoE sets “a positive neutral rate for the UK CCyB of around 2% when indicators of underlying cyclical vulnerabilities are at or around their long-term historical average”.²³ Under this approach, the relevant authority first determines the phase in the cycle and, if it corresponds to “neither subdued nor elevated” cyclical risks, starts the build-up of the positive neutral CCyB (see also Box 1). Similarly, in May 2024, the BdE initiated the procedure to revise its CCyB framework to introduce a 1% PNR when there is a standard level of cyclical systemic risk, while “under the previous framework, the CCyB would only be activated in the event of high cyclical systemic risk” (see also Box 4).

Defined key indicators for the build-up

This approach relies on key indicators relating to the conditions for the build-up, rather than modelling the financial cycle to identify the high cyclical risk scenario. A number of jurisdictions that have activated a positive neutral CCyB requirement consider indicators on economic growth (eg output gap, real GDP growth) and on credit dynamics (credit growth). Some jurisdictions also consider real estate price or financial asset price indicators. Several jurisdictions also use banking sector conditions (eg bank profitability, solvency and non-performing loan (NPL) ratios) as key indicators when determining whether to build up the positive neutral CCyB. This is motivated by the fact that activating the positive neutral CCyB requirement can be less costly when banks are profitable and have more capacity to generate new capital internally to meet the new requirement. It also allows banks more time to reach the required CCyB levels, since they would start increasing their CCyB levels before cyclical risks become elevated. Overall, the use of this approach appears somewhat more flexible than the one based on the definition of the financial cycle, leaving more space for expert judgment but limiting the potential for forward guidance. This approach appears to be the most common across jurisdictions with a positive neutral CCyB framework.

Ad hoc expert judgment

Jurisdictions also use ad hoc expert judgment to determine the timing of the build-up. To complement indicators of financial and economic conditions, authorities consider specificities related to the conditions of the financial sector or other considerations that would affect the appropriate timing for the build-up of the positive neutral CCyB requirement. While authorities may use information provided by quantitative indicators, these are not necessarily made public or communicated to the market.

4.1.2 Pace of the build-up of the positive neutral CCyB to the PNR

To give banks time to adjust to a buffer level, the Basel Framework stipulates that jurisdictions will pre-announce their decision to raise the level of the CCyB by up to 12 months. However, for the activation of the positive neutral CCyB, most jurisdictions have adopted a stepwise approach, whereby the PNR level is to be met more than a year after it is announced and/or banks are expected to reach the PNR level in incremental steps of CCyB increases. These approaches were adopted to provide more time for banks to adapt to the new requirement, incentivising the use of retained earnings rather than deleveraging to meet the new requirement.

²³ See BoE (2023).

In the Netherlands and Sweden, the 2% PNR was to be reached via two steps of 1% over two years. In the Czech Republic, the 1% PNR was to be reached via four steps of 0.25% increments over two years. In the United Kingdom, the 1% PNR announced in April 2016 was to be implemented gradually in two steps over less than two years.²⁴ When the PNR was increased to 2% in 2019, banks were given one year to raise the extra capital, but the CCyB was cut in March 2020, reflecting the Covid-19 pandemic. The return of the CCyB rate to 2% was done in two stages: in December 2021, the BoE increased the rate to 1% and laid out the conditions in which it expected to raise the rate to 2%. It then raised the rate to 2% in July 2022. Similarly, in Australia, the 1% PNR announced on 29 November 2021 was to be implemented in one step by January 2023.²⁵ In Hong Kong, the announced PNR was at the same level of the prevailing CCyB rate at that time, so banks did not need to take additional measures to meet the requirement.

Across jurisdictions which adopted the stepwise approach to the build-up of the positive neutral CCyB, authorities took different approaches to the way the planned pace of build-up was communicated to stakeholders. In the Netherlands,²⁶ authorities committed (in principle) to a predetermined strategy for the pace of the positive neutral CCyB build-up to its PNR. This can give regulated entities clarity on the buffer build-up, allowing for more transparency in communication. However, this choice can limit the policy space if the conditions of the financial sector change substantially during the gradual activation period. In this regard, some authorities linked the course of the gradual build-up to the conditions of the banking sector in their communication and highlighted the possibility of changing the build-up path where warranted by external factors (eg external shocks).

In the remaining jurisdictions, authorities have adopted a case-dependent approach to the pace of the positive neutral CCyB build-up and have not communicated a specific pace in their policy strategies. This approach can provide more flexibility to consider specificities and the evolution of macroeconomic and financial conditions, but limits the scope for forward guidance, reducing the ability of the banking sector to expect and internalise the macroprudential authority's intentions early on. Many authorities also provide case-specific forward guidance on a case by case basis in their quarterly CCyB decisions.

4.2 Release of the positive neutral CCyB

The CCyB is meant to be released when system-wide risks crystallise or dissipate. Authorities can release the buffer gradually in situations where credit growth slows and system-wide risks recede in a benign fashion. In other situations, given that credit growth can be a lagging indicator of stress, promptly releasing the buffer may be preferable to reduce the risk of the credit supply being constrained by regulatory capital requirements.

In cases where a release of the CCyB is warranted, jurisdictions with a positive neutral CCyB in place can choose to release the CCyB (partially or fully) such that it remains above or below the PNR. In other words, the CCyB (above and below the PNR) could be released concurrently or gradually. In general, jurisdictions are not overly prescriptive on the prospective release of the CCyB, including the CCyB below the PNR, as future economic circumstances are difficult to specify *ex ante*. Box 5 summarises some jurisdictions' communication on positive neutral CCyB release and replenishment arrangements.

While several jurisdictions with a positive CCyB released the buffer following the start of the Covid-19 pandemic, there is so far limited experience with the release of the CCyB below the PNR, as most jurisdictions only built up some positive neutral CCyB after the pandemic. In March 2020, the CCyB in Sweden was released from 2.5% to zero to stimulate bank lending, and the positive effect of this release

²⁴ When the UK 1% PNR was first announced in April 2016, banks were asked to comply with a 0.5% CCyB. The BoE released the CCyB in full in July 2016. It then increased the CCyB to 0.5% in June 2017 and to 1% in November 2017.

²⁵ See APRA (2021).

²⁶ See DNB (2022b).

motivated the introduction of a PNR in March 2021.²⁷ Similarly, in March 2020, the UK CCyB rate stood at 1% and was due to reach the 2% PNR in December 2020, but the CCyB requirement was reduced to 0% following the onset of the pandemic.²⁸ The full release of the CCyB was meant to support banks' credit supply during a challenging period, and it reinforced the BoE's expectation that all elements of the capital and liquidity buffers can be drawn down as necessary.

Similarly, in March 2020, the Czech Republic's CCyB rate, which stood at 1.25% (above the 1% PNR), was first reduced to 1% and then to 0.5% in June 2020. In this case, the Czech National Bank (CNB) did not immediately release the CCyB below the PNR, and only partially released the CCyB below the PNR subsequently, before starting to replenish the buffer in 2021.²⁹ This was motivated by the CNB's expectations that the capital surplus at the time would be sufficient to absorb expected losses and to maintain some room for further easing of the capital requirements in the event of an increase in the risk outlook or credit losses together with a decline in spare lending capacity.

In October 2024, Hong Kong reduced its CCyB rate from 1% to 0.5%, which is below the 1% PNR. The reduction allowed banks to be more supportive to the economy and provided them with additional leeway to further facilitate the financing needs of the private sector. It was communicated that a gradual increase in the CCyB rate will only be considered in the future when data suggest that there is more broad-based growth in the domestic economy and when the credit and property market conditions suggest that a higher CCyB rate is warranted.³⁰

4.3 Replenishment of the positive neutral CCyB after a release

The Committee's *Guidance for national authorities operating the countercyclical buffer* recommends that when a decision is taken to release the buffer in a prompt fashion, relevant authorities should indicate how long they expect the release to last.³¹ Such forward guidance can reduce uncertainty about future bank capital requirements and give comfort to banks that the capital released can be used to absorb losses and avoid constraining asset growth.³² Consistent with this guidance, some jurisdictions have provided some information on the release of the CCyB below the PNR or the replenishment mechanisms they intend to use (see Box 5). Moreover, in the EU it is mandatory for authorities to indicate and justify the duration of the buffer release period.³³

²⁷ See FI (2021).

²⁸ See BoE (2020b).

²⁹ See CNB (2020a, 2020c).

³⁰ See HKMA (2024b).

³¹ See Principle 4 of: BCBS (2010).

³² See Couaillier et al (2022).

³³ See Article 136(7)(g) of the Capital Requirements Directive (CRD).

Jurisdictional communication on positive neutral CCyB release and replenishment arrangements

Estonia

In 2021, Bank of Estonia decided to change the principles for applying the CCyB (Bank of Estonia (2021)). The CCyB is comprised of the positive neutral CCyB (the so-called “base requirement”) and the CCyB used to address emerging cyclical systemic risks (the so-called “cyclical requirement”). Decisions on lowering the CCyB rate can separately consider the base and cyclical requirements. If cyclical risks are decreasing smoothly, Bank of Estonia can cut the CCyB rate gradually to the level of the PNR. If cyclical risks materialise and loan losses accumulate, or if large loan losses are highly likely to occur in the near future, this could lead to faster and larger sequential cuts to the CCyB rate, with the base requirement fully released if needed. If there is a deep recession or a large financial shock that could cause large loan losses to banks and threaten to interrupt the supply of credit, then the entire buffer requirement can be cut to zero immediately (Bank of Estonia (2024)).

Ireland

In its policy publication, the Central Bank of Ireland provides stylised representation of its strategy for the CCyB and shows how the CCyB rate would evolve over the course of the cycle (Central Bank of Ireland (2023)). The CCyB is partially or fully released when risks materialise and losses crystallise, and the full or partial release of the CCyB will continue during the period of recovery. The publication also discusses the factors that will be used to support the review of the CCyB rate, the role of stress testing to inform the outlook for the banking sector under the baseline scenario, and the timing and pace of the build-up of the CCyB to the PNR.

Czech Republic

When the CNB decided in March 2020 to partially release the CCyB from 2% to 1% during the Covid-19 pandemic, it communicated in its decision that, given the probably long-lasting economic consequences of the new coronavirus epidemic, it was highly probable that the CCyB rate would not be increased for at least 12 months (CNB (2020b)). It also stated its readiness to release the buffer fully should the banking sector’s unexpected losses rise, in order to support banks’ ability to provide credit to non-financial corporations and households without interruption. The communication did not include an explicit statement that the CCyB was reduced to its PNR level. The CNB followed with another partial cut of the CCyB rate to 0.5% in June 2020 (CNB (2020a)).

Poland

In its policy publication, the Financial Stability Committee of Poland discusses its principles on the release and replenishment of the CCyB (Financial Stability Committee of Poland (2024)). The release will depend on the nature and magnitude of the shock. The decision on whether there are grounds to decrease or release the buffer is based on the assessment of the nature and source of the shock, the analysis of indicators of stress in the financial system and the assessment of anticipated losses. Regarding the replenishment of the PNR, the committee states that, in principle, it would take place no earlier than two years after release, allowing for at least one year from the announcement for the replenishment of the buffer. Communication of the principle is intended to create predictable operating conditions for banks.

Spain

The revision of the framework for setting the CCyB in Spain, which introduced a PNR, classifies the level of cyclical risk into three categories (low risk, standard or intermediate risk, and high risk). If risks that entail losses and capital consumption for banks (low risk level) materialise, or in the event of an adverse shock to the banking system, the accumulated CCyB would be released immediately, normally in full. The BdE also communicated in a press release that, once the buffer was released, the BdE would announce its expectations for subsequent gradual reactivation of the buffer, which would in any case take place after cyclical systemic risks returned to a standard level. Banks would generally be given one year to meet any new requirement, starting from the date it was announced (BdE (2024)).

Sweden

Finansinspektionen (FI) published its framework for the CCyB in March 2021 (FI (2021)). FI will primarily lower the CCyB to make it easier for Swedish banks to maintain their supply of credit. There are two main scenarios that could threaten banks' ability to supply credit. The first scenario is a strong financial shock resulting from an expectation of widespread credit losses that affect the entire banking system, significantly impaired financing conditions or weakened bank profitability. The second scenario is a macroeconomic shock that temporarily increases the demand for credit among households and non-financial firms. In a situation where the CCyB has been lowered, an increase of the CCyB towards the PNR will become relevant when the situation that triggered the lower rate has stabilised, for example when the real economy is showing clear signs of recovery and the banks have either absorbed the losses incurred or satisfied a temporary increase in demand for credit. Also, the timing for when to start raising the buffer depends on the banks' capital situations and their ability to handle a higher capital requirement without creating negative side effects.

The Netherlands

DNB is of the view that clear communication and transparency is a key component of effective macroprudential policy. As such, DNB consulted on its revised framework for setting the CCyB with stakeholders and, after taking the received feedback into consideration, published its revised framework in February 2022. The framework outlines inter alia relevant policy considerations, the neutral rate, the build-up speed and a list of indicators (including their academic underpinning) on which decisions are based. It noted that the CCyB is fully or partly released when a substantial downside shock occurs in the real economy or the financial sector. Once released, the CCyB remains at 0% for as long as necessary so as not to impede recovery and as long as appropriate with regard to developments in the risk profile. The guiding principle is that DNB will initiate the CCyB build-up to the neutral 2% level as soon as it is responsible to do so. The CCyB is then, in principle, built up to 2% in annual steps of 1% (DNB (2022b)).

United Kingdom

The BoE reduced the UK CCyB rate to 0% in March 2020, at the onset of the Covid-19 pandemic. The BoE communicated that it expected to maintain the 0% rate for at least 12 months, and that subsequent increases would apply the usual 12-month implementation lag. The BoE's current strategy stipulates that, should the CCyB be cut to zero following a shock, the BoE would provide forward guidance over the period in which no increase to the CCyB is expected (BoE (2023)). Such forward guidance would allow banks to use the released space and plan their lending decisions, internalising the evolution of future capital requirements, with the final objective of helping to ensure smooth credit dynamics. The BoE would then consider the build-up of the positive neutral CCyB by looking at banks' conditions. In particular, the CCyB would remain at zero as long as capital constraints remained binding, eg banks are experiencing credit losses which push them to restrain credit in the economy in order to defend their capital position. To proceed to the build-up, the BoE would monitor a number of factors, such as the strength of the economic recovery, financial conditions and the outlook for bank capital. In doing so, the BoE would consider the potentially long time lag between the economic stress and banks' impairment appearance (BoE (2020a)).

4.4 Recalibration of the PNR

To date, the BoE is the only authority that has revised the calibration of the PNR. As described in Section 3.3, three years after its first implementation of a positive neutral CCyB, the BoE increased the PNR from 1% to 2%, offsetting the increase via the release of other capital requirements. This was motivated by a desire to shift the balance of capital requirements from minimum requirements towards buffers that could be drawn down as needed, thereby increasing banks' ability to absorb losses while maintaining lending to the real economy through the cycle.

5. Reciprocity

The Basel Framework states that CCyB rates up to 2.5% should be subject to automatic international reciprocity.³⁴ No authority has set a CCyB above 2.5% yet. Insofar as the overall CCyB rate set by jurisdictions with a positive neutral CCyB does not exceed 2.5%, reciprocity arrangements would be unaffected by the introduction of a PNR. However, they may be affected if the introduction of the positive neutral CCyB increases the overall size of the CCyB when it is above the PNR, lifting the overall CCyB rate at the peak of the cycle (ie when risks are most elevated) above 2.5%. No jurisdiction has implemented reciprocity arrangements specific to the positive neutral CCyB. This is consistent with the fact that the positive neutral CCyB approach results in the early activation of the CCyB and, as such, the reciprocity framework of the CCyB applies.

In the EU, the reciprocity of the CCyB for all other EU member states is automatic and mandatory up to a rate of 2.5%, and reciprocity is also recommended for CCyB rates above 2.5%. In Australia, banks must recognise the CCyB rates of other jurisdictions even if they are above 2.5%. However, it is not mandatory to apply a sectoral countercyclical capital buffer that only applies to a sub-set of risk-weighted assets.³⁵ In Hong Kong, the automatic international reciprocity of CCyB rates has been implemented; however, the authority may require a higher reciprocal CCyB rate for a specific jurisdiction (capped at the greater of 2.5% and that jurisdiction's CCyB) if it deems it necessary to adequately bolster banks' resilience in light of the risks posed to the banks due to the system-wide risks in that jurisdiction.³⁶ In the United Kingdom, the BoE expects banks to reciprocate any CCyB rate put in place by the authorities of UK trading partners.³⁷

Box 6

Reciprocity provisions in the European Union

In line with the provisions of the Capital Requirements Directive (CRD), CCyB rates ranging between 0% and 2.5% are subject to mandatory reciprocity. CCyB rates above 2.5% are subject to voluntary reciprocity among EU member states, in line with the provisions of Article 137 on the recognition of CCyB rates exceeding 2.5%. Considering the cross-border banking model in the EU and the integrated financial markets, the reciprocity of macroprudential measures is an essential element of the regulatory framework as it makes it possible to reduce cross-border leakages and regulatory arbitrage, avoid the distortion of competition and maintain a level playing field among banks operating in the internal market. The European Systemic Risk Board (ESRB) issued a recommendation on guidance for setting CCyB rates (ESRB (2014)), where the Recommendation A, Principle 6 calls for also recognising CCyB rates above 2.5% set by other EU member states. The ESRB regularly assesses the compliance of the EU member states with the recommendation. Member states not recognising the CCyB above 2.5% of another EU member state would have to duly justify their inaction. In practice, the recommendation of voluntary reciprocation of CCyB rates above 2.5% has not been applied so far, as the EU member states have not activated CCyB rates exceeding 2.5%.

Article 137 of the CRD also gives member states the legal possibility of reciprocating a CCyB above 2.5% set by a third country. The ESRB did not produce a corresponding recommendation in this regard.

³⁴ Specifically, the Basel Framework prescribes that internationally active banks must look at the geographic location of their private sector credit exposures and calculate their bank specific CCyB requirement as a weighted average of the requirements that are being applied in jurisdictions to which they have credit exposures. National authorities can implement a buffer in excess of 2.5% for banks in their jurisdiction, if this is deemed appropriate in their national context. However, the international reciprocity provisions set out in the standard treat 2.5% as the maximum CCyB.

³⁵ See APRA (2022).

³⁶ See HKMA (2024a).

³⁷ See BoE (2023).

References

Adrian T, N Boyarchenko and D Giannone (2019): "Vulnerable growth", *American Economic Review*, vol 109, no 4, April, pp 1263–89.

Aikman, D, J Bridges, S Hacıoglu-Hoke, C O'Neill and A Raja (2019): "Credit, capital and crises: a GDP-at-Risk approach", *Bank of England Staff Working Paper*, no 824, September.

Australian Prudential Regulation Authority (APRA) (2021): "An unquestionably strong framework for bank capital", *Information Paper*, November.

——— (2022): *Prudential Practice Guide: APG 110 Capital Adequacy*, July.

Bank of England (BoE) (2015): *Supplement to the December 2015 Financial Stability Report: The framework of capital requirements for UK banks*, December.

——— (2016): "The Financial Policy Committee's approach to setting the countercyclical capital buffer", *Policy Statement*, 4 April.

——— (2019): *Financial Stability Report*, no 46, December.

——— (2020a): "Pillar 2A: Reconciling capital requirements and macroprudential buffers", *Consultation Paper*, no 2/20, February.

——— (2020b): *Financial Policy Summary and Record*, March.

——— (2020c): "Pillar 2A: Reconciling capital requirements and macroprudential buffers", *Policy Statement*, no 15/20, 6 July.

——— (2023): "The Financial Policy Committee's approach to setting the countercyclical capital buffer", *Policy Statement*, 12 July.

Bank of Estonia (2021): "The countercyclical capital buffer: adjusting the principles for applying the requirement", *Financial Stability Review*, no 2, November.

——— (2024): *The countercyclical capital buffer: principles for assessing and applying the buffer requirement*, June.

Bank of Lithuania (2017): "Countercyclical capital buffer: background material for decision", December.

Bank of Slovenia (2023): "Banka Slovenije is changing over to more active macroprudential policy", 22 December.

Bank of Spain (BdE) (2024): "Revision of the framework for setting the countercyclical capital buffer in Spain: greater banking resilience in adverse phases of the cycle and macroeconomic stabilisation", speech at the 19th IESE Banking Industry Meeting on "Surfing the wave of uncertainty", Madrid, 16 May.

Basel Committee on Banking Supervision (BCBS) (2010): *Guidance for national authorities operating the countercyclical capital buffer*, December.

——— (2017): *Range of practices in implementing the countercyclical capital buffer policy*, June.

——— (2019): *Guiding principles for the operationalisation of a sectoral countercyclical capital buffer*, November.

——— (2022a): *Newsletter on positive cycle-neutral countercyclical capital buffer rates*, 5 October.

——— (2022b): *Buffer usability and cyclicity in the Basel framework*, October.

Central Bank of Ireland (2022): *The Central Bank's framework for macroprudential capital*, June.

——— (2023): *The Central Bank's framework for macroprudential capital – CCyB addendum*, June.

Couaillier, C, A Reghezza, C Rodriguez d'Acri and A Scopelliti (2022): "How to release capital requirements during a pandemic? Evidence from euro area banks", *ECB Working Paper*, no 2720, September.

Couaillier, C and V Scalone (2024): "Risk-to-Buffer: setting cyclical and structural capital buffers through banks stress tests", *ECB Working Paper*, no 2966, July.

Czech National Bank (CNB) (2020a): "CNB Board decision on setting the countercyclical capital buffer rate", 5 March.

——— (2020b): "Provision of a general nature on setting the countercyclical capital buffer rate for the Czech Republic No. I/2020", 6 March.

——— (2020c): "CNB partially relaxes mortgage limits and lowers countercyclical capital buffer rate", 18 June.

——— (2023): *The CNB's approach to setting the countercyclical capital buffer*, September.

De Bandt, O, B Durdu, H Ichiue, Y Mimir, J Mohimont, K Nikolov, S Roehrs, J-G Sahuc, V Scalone and M Straughan (2024): "Assessing the impact of Basel III: review of transmission channels and insights from policy models", *International Journal of Central Banking*, vol 20, no 1, February, pp 1–52.

De Haan, L and J Kakes (2020): "European banks after the global financial crisis: peak accumulated losses, twin crises and business models", *Journal of Banking Regulation*, vol 21, no 3, September, pp 197–211.

De Nora, G, A Pereira, M, Pirovano and F Stammwitz: "From losses to buffers – Calibrating the positive neutral CCyB rate in the euro area", forthcoming.

De Nederlandsche Bank (DNB) (2020): "DNB lowers bank buffer requirements to support lending", 17 March.

——— (2022a): "Consultation of the revised countercyclical capital buffer framework", February.

——— (2022b): *Analytical framework for setting the countercyclical capital buffer in the Netherlands*, February.

——— (2022c): "DNB response to the outcome of its consultation on the revised CCyB framework", February.

Drehmann, M, C Borio and K Tsatsaronis (2012): "Characterising the financial cycle: don't lose sight of the medium term!", *BIS Working Papers*, no 380, June.

European Systemic Risk Board (ESRB) (2014): "Recommendation of the European Systemic Risk Board of 18 June 2014 on guidance for setting countercyclical buffer rates" (ESRB/2014/1), June.

Financial Stability Committee of Poland (2024): "Methodology for setting the countercyclical capital buffer", March.

Finansinspektionen (FI) (2021): *Finansinspektionen's approach to setting the countercyclical capital buffer*, March.

Herrera-Bravo, L, M Pirovano and V Scalone (2024): "The importance of being positive: costs and benefits of a positive neutral rate for the countercyclical capital buffer", *ECB Macprudential Bulletin*, no 24, June.

———: "A Risk-to-Buffer approach to set the positive neutral counter-cyclical buffer", forthcoming.

Hong Kong Monetary Authority (HKMA) (2022): *Annual Report*.

——— (2023): "Gazettal of rules: Basel III final package and related updates", December, www.hkma.gov.hk/media/eng/doc/key-information/guidelines-and-circular/2023/20231229e1.pdf.

——— (2024a): *Supervisory policy manual: countercyclical capital buffer (CCyB) – approach to its implementation*, April.

——— (2024b): “Announcement by the Monetary Authority on applicable jurisdictional countercyclical capital buffer ratio for Hong Kong”, 3 May.

Lang, J and M Forletta (2019): “Bank capital-at-risk: measuring the impact of cyclical systemic risk on future bank losses”, *ECB Macprudential Bulletin*, no 9, October.

Lang, J and D Menno (2023): “The state-dependent impact of changes in bank capital requirements”, *ECB Working Paper*, no 2828, July.

Mendicino, C, K Nikolov, J Suarez and D Supera (2020): “Bank capital in the short and in the long run”, *Journal of Monetary Economics*, vol 115, November, pp 64–79.

Mendicino, C, K Nikolov, V Scalone and D Supera: “Inflationary shocks, monetary policy and the financial stability trade-off”, forthcoming.