TECHNICAL

NOTES & MANUALS

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Abbreviations

AT1	Additional Tier 1
BCBS	Basel Committee on Banking Supervision
BCP	Basel Core Principles
CAR	capital adequacy ratio
CCB	capital conservation buffer
CCyB	countercyclical capital buffer
CET1	Common Equity Tier 1
CP	Core Principle
D-SIB	domestic systemically important bank
G-SIB	global systemically important bank
HLA	higher loss absorbency
ICAAP	Internal Capital Adequacy Assessment Process
IRB	internal ratings based
IRRBB	Interest Rate Risk in the Banking Book
RBS	risk-based supervision
RWA	risk-weighted asset
SRP	Supervisory Review Process
SyRB	systemic risk buffer
TLAC	total loss-absorbing capacity
Tier 1	T1
Tier 2	T2

I. Introduction

The global financial crisis exposed significant weaknesses in the capital adequacy frameworks used by banks and underscored the need for stronger regulatory tools, as well as a fit-for-purpose bank liquidity framework to ensure the resilience of the financial system. The Basel III framework was introduced as a more comprehensive and risk-sensitive approach to capital and liquidity regulation. Central to the Basel III capital adequacy framework is a combination of components, notably: increasing the quality and level of required capital; enhancing the scope of supervisory assessments under Pillar 2; and introducing macroprudential elements in the form of additional capital buffers, a comprehensive treatment of large exposures, and a leverage ratio backstop to the risk-based capital framework. Together, these elements seek to safeguard bank safety and soundness, as well as financial system stability, by better ensuring that banks maintain capital levels commensurate with their risk exposures and avoid the buildup of systemic vulnerabilities.

This note aims to support bank supervisors, resolution authorities, central banks, and finance ministries—particularly in emerging market and developing economies—on the use of Pillar 2 capital add-ons and Basel III capital buffers, highlighting their respective purposes, complementary roles, and implementation challenges. The Basel framework[1] permits considerable flexibility and discretion in respect of these various capital elements. Consequently, authorities strengthening their capital adequacy regimes face choices regarding the design and implementation of various aspects of the framework. So, in practice, this flexibility has led to a range of implementation approaches.

Different elements of the capital framework serve complementary purposes. Buffers are designed to provide additional loss protection during the periods of stress and limit procyclicality and externalities created by systemically important banks. Pillar 2 allows for a more idiosyncratic, granular, and forward-looking evaluation of risks that may not be fully captured under Pillar 1 rules. Amid postpandemic debates over capital flexibility and increasing divergence in risk profiles, many emerging market and developing economies are reevaluating how best to deploy Pillar 2 tools and capital buffers to enhance resilience.

This paper outlines the objectives, design features, and implementation challenges of capital buffers, such as the capital conservation buffer (CCB), the countercyclical capital buffer (CCyB), sectoral buffers, and higher loss absorbency (HLA) requirements for global systemically important banks (G-SIBs) and domestic systemically important banks (D-SIBs). It also discusses the practical application of the Pillar 2 Supervisory Review Process (SRP), including its role in promoting sound risk management, enhancing forward-looking supervision, and addressing jurisdiction- and bank-specific risks. Particular attention is given to how these components can be tailored and operationalized in jurisdictions that are not members of the Basel Committee on Banking Supervision (BCBS), taking into account their unique economic, institutional, and supervisory contexts. The objectives of these elements of the capital stack are discussed in the context of the evolution of risk-based capital requirements and supervisory standards.

[1] See the Basel framework at https://www.bis.org/basel_framework/index.htm?m=97.

II. Overview of Risk-Based Capital Requirements

Years of experience with the causes of bank failures and financial crises prompted the development of prudential regulation to ensure that banks hold capital commensurate with the risks that they assume. The regulatory approach to capital has continued to evolve since the first international standard was established in 1988 and has become more complex as supervisory expectations have continued to build dynamically on experience-based understanding of risks and their management. This section provides a brief introduction to the international regulatory standards affecting capital adequacy.

The first formalized global standard was the 1988 Basel Accord (Basel I; BCBS 1988), which established a minimum Capital Adequacy Ratio (CAR) requirement of 8 percent of Risk-Weighted Assets (RWAs), both on- and off-balance sheet, for internationally active banks. BCBS member jurisdictions agreed to implement the Capital Accord for their internationally active banks by 1993. Basel I marked a significant step forward in strengthening banking stability, but its reliance on broad risk categories with fixed risk weights eventually raised concerns that it did not fully capture the complexity of banking risks.

The first Basel Core Principles for Effective Banking Supervision (BCP) soon followed, in 1997 (BCBS 1997).[2] As a comprehensive supervisory standard, the BCP had a broader scope than pure capital adequacy, and it applied to supervisory authorities globally and to all of their banks. The BCP emphasized adequate capital levels to protect depositors and maintain financial stability. The BCP recognized from the outset that capital adequacy needed to go beyond compliance with minimum quantitative thresholds, requiring supervisors to consider the quality of capital and to impose capital ratios that reflected the risk profile of individual banks.

Refinements to Basel I began in 1991, although the first significant change was the introduction of a framework to capture market risk (the Market Risk Amendment, 1996).[3] The publication of Basel II in 2004 (BCBS 2004) was a major revision that refined the overall risk-based capital framework. Basel II was built on three pillars. Pillar 1 sets minimum capital requirements for credit, market, and operational risk, with each risk category containing both standardized and advanced approaches, such as internal models for risk measurement to be used in the calculation of capital.[4] Pillar 2 introduced an SRP (BCBS 2019c, 2019d) to better align banks' capital with their specific risk profiles, so that bank-specific capital requirements adequately capture risks idiosyncratic to each bank's business, rather than relying solely on regulatory formulas. This pillar emphasized banks' own responsibility for assessing their capital needs and supervisory discretion to impose additional capital requirements on banks with heightened or idiosyncratic risks, promoting a more forward-looking and institution-specific approach to capital adequacy. Pillar 3 focused on transparency and market discipline, introducing disclosure requirements for internationally active banks.

2 The impetus for the Basel Core Principles came from a 1996 report by the G7 finance ministers that called for effective supervision in all important financial marketplaces, including those of emerging market economies. It set forth 25 principles (https://www.bis.org/bcbs/history.htm).

3 "An important aspect of the Market Risk Amendment was that banks were, for the first time, allowed to use internal models (value-at-risk models) as a basis for measuring their market risk capital requirements, subject to strict quantitative and qualitative standards" (https://www.bis.org/bcbs/history.htm).

4 Advanced approaches required explicit supervisory approval.

Despite its well-understood weaknesses, not least in the quality of capital instruments recognized, Basel II reflected banks' enhanced ability, over time, to measure, manage, and mitigate their risks. As the capital framework acknowledged advances in risk management, the BCP was also revised to reflect enhanced expectations for both banks and supervisors in terms of the assessment of individual risks and of risk management more generally. The Core Principle (CP) on capital adequacy established that the supervisor should have the power to impose a specific capital charge and/or limits on all material risk exposures; require banks to adopt a forward-looking approach to capital management and set capital levels in anticipation of possible events or market changes; and require an individual bank or banking group to maintain capital above the minimum to ensure that individual banks or banking groups are operating with the appropriate level of capital.

Basel II had not been fully implemented before the global financial crisis hit in 2008.[5] Nevertheless, Basel III was developed to address the weaknesses exposed by the crisis, particularly in capital quality, leverage, liquidity, and governance and risk management. Basel II focused on refining risk sensitivity, and Basel III emphasized capital resilience by treating common equity as the bedrock of capital adequacy, revising the frameworks that set minimum capital requirements across the main risks, and introducing additional capital layers via buffers to make banks more resilient through the cycle. It is important to note that whereas the BCBS aimed to calibrate Basel II to deliver, in aggregate, the same amount of regulatory capital as Basel I, Basel III intended to increase overall capital levels and to enhance the quality of capital. Basel III fundamentally strengthened the regulatory capital structure by introducing Common Equity Tier 1 (CET1) as the core, highest-quality capital, formalizing Additional Tier 1 (AT1) instruments with strict loss-absorption features,[6] and enhancing Tier 2 (T2) capital through clearer eligibility criteria and mandatory point-of-nonviability loss absorption.

In addition, the 2009 Supplemental Pillar 2 Guidance enhanced the existing Basel II framework by strengthening supervisory expectations around banks' firm-wide risk management and capital planning in response to weaknesses revealed by the financial crisis. It emphasized the need for active board and senior management oversight and better identification and control of risk concentrations, off-balance-sheet exposures, reputational risk, and securitization-related risks. The guidance also introduced stricter standards for valuation practices, liquidity risk management, and stress testing and required banks to maintain capital beyond Pillar 1 minima to cover all material risks, particularly those not adequately captured under existing rules, such as interest rate risk in the banking book (IRRBB) or legal and reputational risk.

BCBS member jurisdictions are expected to fully and consistently implement the Basel III framework as part of their commitment to global financial stability and regulatory cooperation (see Table 1 for the capital definitions and minimum requirements of Basel III). The BCP, in contrast and as noted earlier, serves as the minimum prudential standards applicable to all jurisdictions, regardless of BCBS membership. Notably, the BCP states that capital requirements for internationally active banks should not fall below the minimum standards set out in the Basel framework. However, they do not mandate full implementation of Basel III across all jurisdictions; instead, they allow for a proportionate and context-specific application of the Basel framework, particularly in developing countries where full adoption of Basel III may not be appropriate or feasible. This flexible approach, which is consistent with the principle of proportionality that underpins the

[5] Implementation started in 2006, but most elements had a three-year transitional period, and several waivers were in place.

[6] For more information on the composition of Additional Tier 1 (AT1), please refer to Table 1 and footnote 13.

entire BCP, enables jurisdictions to align with global standards while adapting capital requirements to the size, complexity, and risk profile of their banking systems.[7]

The BCP has been updated to reflect the evolution of capital and liquidity standards. For example, in response to the global financial crisis, the 2012 update to the BCP strengthened expectations for capital adequacy assessments. It explicitly stated that capital requirements may vary across banks, to reflect their individual risk profiles and systemic importance, and that capital should reflect the macrofinancial environment in which banks operate. In addition, the BCP reinforced the need for supervisors to have a suite of powers, including the authority to increase prudential capital requirements where risks are not adequately captured under capital rules. The BCP emphasized that capital must be of high quality (that is, ensuring that emphasis is given to those elements of capital permanently available to absorb losses on a going-concern basis), sufficient to absorb losses, and structured to reflect both bank-specific (microprudential) and systemwide (macroprudential) risks. The BCP also emphasized the importance of stress testing, scenario analysis, and overall capital and liquidity adequacy assessments as tools to determine whether banks' capital levels are adequate beyond regulatory minima.

The most recent revision of the BCP, in 2024, added an aspirational criterion on the availability of a releasable capital buffer to respond to systemwide risks.[8] The wording is sufficiently broad that it does not require jurisdictions to adopt the Basel III buffer regime to meet the additional criterion. In addition, one of the Essential Criteria now explicitly emphasizes the potential effect of the business cycle on capital.

Table 1. Basel III Capital Definitions and Minimum Requirements

Capital Requirement	Composition or Calculation	Minimum Requirement	Observations
CET1	• Common shares • Stock surplus (share premium) resulting from the issue of CET1 • Retained earnings • Accumulated other comprehensive income and other disclosed reserves • Common shares issued by consolidated banks and held by third parties • Regulatory adjustments	4.5 percent of total RWAs	• Going-concern capital[1] • Key features are permanence and loss absorbency • Predominant form of regulatory capital • Refer to footnote 2 on deductions[2]
AT1 capital	• Instruments meeting the criteria[3] • Stock surplus (share premium) resulting from AT1 instruments • Instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria[4] • Regulatory adjustments	–	• Going-concern capital • The terms and conditions of AT1 instruments must include a write-off or conversion provision activated at the option of the relevant authority upon a trigger event[5]

(*Continued*)

7 The document "High-Level Considerations on Proportionality" (https://www.bis.org/bcbs/publ/d534.pdf) discusses how proportionality can be used by non–Basel Committee on Banking Supervision (BCBS) member countries in implementing international prudential standards.

8 The concept was introduced in the form of a new additional criterion—as opposed to an essential criterion—to reflect its aspirational nature for most jurisdictions, while fulfilling the intention to provide additional flexibility and ensure that supervisors have the ability to introduce countercyclical requirements in the specific form of a buffer should such an approach be deemed feasible and desirable (as compared with, or in addition to, other approaches that could serve the same goal).

Table 1. Basel III Capital Definitions and Minimum Requirements (*Continued*)

Capital Requirement	Composition or Calculation	Minimum Requirement	Observations
T1 capital	CET1 + AT1	6 percent of total RWAs	• Going-concern capital • Total T1 must be 6 percent or more, with at least 4.5 percent as CET1. The remaining 1.5 percent can be met by either, or both, AT1 or CET1 instruments
T2 capital	• Instruments meeting the criteria[6] • Stock surplus (share premium) resulting from T2 instruments • Instruments issued by consolidated subsidiaries of the bank and held by third parties that meet the criteria[4] • Certain loan-loss provisions[7] • Regulatory adjustments	—	• Gone-concern capital
Total capital	T1 + T2	8 percent of total RWAs	• Total capital must meet 8 percent. Up to 2 percent may be met by T2 instruments
Leverage ratio (LR)	(*Tier 1 capital*) / (*exposure measure*) • Exposure measure = on-balance sheet exposure + derivative exposures + securities financing transaction exposures + off-balance sheet items	3 percent	• Reinforces the risk-based capital requirements with a simple, non-risk-based "backstop" measure • Restricts the build-up of leverage to avoid destabilizing deleveraging
LR buffer	50 percent of the G-SIB's higher loss-absorbency risk-based requirements	$\frac{\text{G-SIB buffer}}{2}$	• Applies to G-SIBs

Sources: BCBS and Basel III framework: CAP10, CAP30, RBC20, LEV20, and LEV40.

Note: AT1 = Additional Tier 1; CCB = capital conservation buffer; CCyB = countercyclical capital buffer; CET1 = Common Equity Tier 1; D-SIBs = domestic systemically important banks; G-SIBs = global systemically important banks; HLA = higher loss absorbency; LR = leverage ratio; RWA = risk-weighted asset; T1 = Tier 1.

[1] Going-concern bank capital absorbs losses while the bank continues to operate, funding its daily operations and avoiding insolvency.

[2] The composition of capital elements should also consider deductions. For Common Equity Tier 1, the main deductions are goodwill and other intangibles; deferred tax assets; cash flow hedge reserve; shortfall of the stock of provisions to expected losses; defined-benefit pension fund assets and liabilities; investments in own shares and other own capital instruments; reciprocal cross-holdings in capital of banking, financial and insurance entities; and investments in the capital of banking, financial and insurance entities that are not consolidated and where the bank does not own more than 10 percent of the issued common share capital. For the full list of deductions and further clarifications, refer to CAP30.

[3] An instrument must meet the criteria set out in CAP10.11.

[4] The criteria are set out in CAP10.20–CAP10.26.

[5] For the trigger event, see CAP10.11(16). The write-off or conversion provision is not required if the criteria in CAP10.12(1) and (2) are met.

[6] The criteria are set out in CAP10.16.

[7] As specified in CAP10.18 and CAP10.19.

III. Basel III Capital Buffers

A. Capital Conservation Buffer

The capital conservation buffer (CCB) was introduced in response to the experience during the global financial crisis, in which many banks continued to pay dividends and bonuses despite facing significant losses.[9] The purpose of the CCB is to ensure that banks' capital reserves can be used during times of financial stress, thereby allowing banks to continue extending essential credit, liquidity, and payment services. The CCB, which is set at 2.5 percent of total RWAs, increases the overall capital adequacy requirement, though it must be met entirely with CET1 capital. When a bank's capital ratio falls into the *capital conservation range*,[10] automatic restrictions on capital distributions, such as dividends, share buybacks, and discretionary bonuses, will be triggered. These restrictions ensure that capital remains available to support the bank's ongoing operations during stressful periods.[11]

Under the CCB, if the CET1 ratio of a bank falls between 4.5 and 7 percent—that is, above the CET1 minimum of 4.5 percent but not meeting the additional 2.5 percent of the CCB—the bank is subject to progressively stricter capital distribution restrictions. The CCB is divided into four bands, and restrictions range from 40 percent of earnings to 100 percent of earnings as capital levels approach the 4.5 percent minimum CET1 requirement. If CET1 is in the lowest band of 4.5–5.125 percent of RWA, a 100 percent *capital conservation ratio* is applied, meaning the bank is not permitted to make any capital distributions such as dividends, discretionary bonus payments, or share buybacks. If CET1 is in the highest band of between 6.375 and 7 percent of RWA, a 40 percent capital conservation ratio is applied, allowing up to 60 percent of earnings to be distributed.

Since CET1 capital is used first to meet the minimum requirements for Tier 1 (T1)[12] and total capital, only the residual CET1 above these minima can be counted toward the CCB. For example, if CET1 is being used to meet minimum capital requirements, it should not be double-counted for CCB. A bank with an 8 percent CET1 ratio, but with no AT1[13] or T2 capital instruments in its portfolio, is meeting its CET1, T1, and total capital requirements, but since all CET1 is used to meet these requirements, no buffer is left over to count toward meeting its CCB requirement. Therefore, a 100 percent capital conservation ratio will be applied to this bank. If, on the other hand, the bank had CET1 equal to 9 percent of RWAs (with no AT1 or T2 capital), it would continue to meet minimum requirements and have 1 percent of RWA left over as its CCB. This means the bank would fall within the conservation range and be subject to partial restrictions on capital

9 As of 2023, 123 countries have established a Capital Conservation Buffer (CCB) framework. Source: IMF, Macroprudential Policy Survey.

10 The conservation range corresponds to the portion of capital between the minimum Common Equity Tier 1 (CET1) requirement and the 2.5 percent CCB buffer (that is, CET1 capital that is between 4.5 and 7 percent of risk-weighted assets [RWAs]).

11 Independent of whether stress is generated by a systemwide or bank-specific shock.

12 Please see Table 1 for details of Tier 1 capital.

13 AT1 needs to meet extensive criteria (see Basel framework, CAP10.9–CAP10.13). These requirements include that AT1 must be issued, paid up, subordinated, and perpetual, with no maturity date or incentive to redeem (such as a step-up). Moreover, dividends must be purely discretionary. The instrument may be callable at the initiative of the issuer only after a minimum of five years *if* there is supervisory approval *and if* the issuer replaces the instrument with capital of the same or better quality. Critically, if a defined trigger event occurs, the instrument can either be written off or converted into common equity at the option of the relevant supervisory authority.

distributions until its CET1 ratio reaches the full 10.5 percent total capital threshold or it adds an equivalent amount of AT1 or T2 eligible assets to its capital reserve.

B. Countercyclical Capital Buffer

Another response to the global financial crisis was the introduction of the countercyclical capital buffer (CCyB) regime under Basel III. This buffer contributes to financial stability by adding a layer of capital to ensure the continued operation of essential banking services in a downturn. The buffer, sometimes described as "releasable," is designed to ensure that capital requirements reflect the macrofinancial outlook and risks within which banks operate. This regime requires banks to hold additional capital during periods of excess aggregate credit growth and other indicators associated with a buildup of systemwide risk. This buffer can contribute to sustaining the flow of credit to the economy in the event of an adverse shock by ensuring that banks are resilient through the cycle.

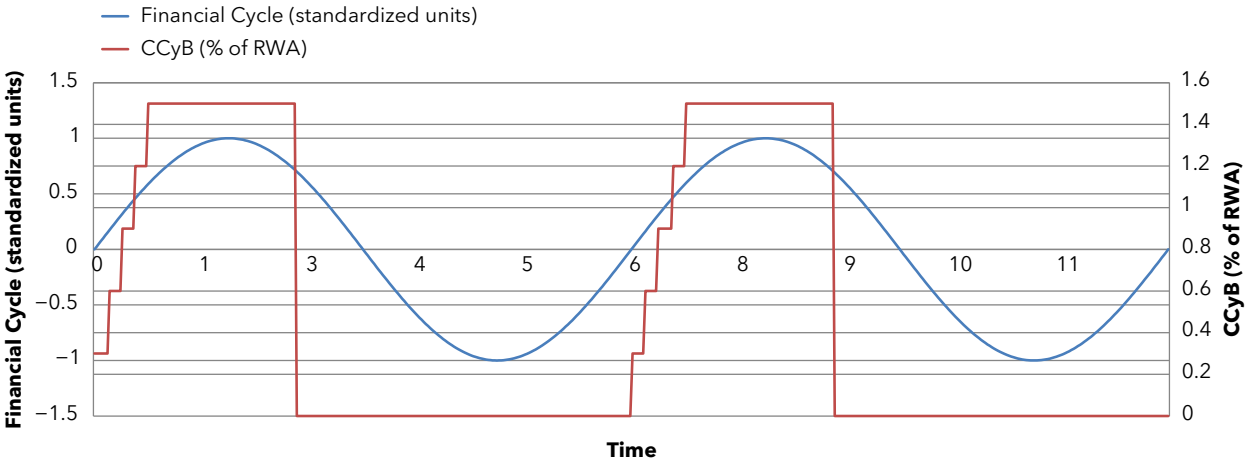
Structurally, the CCyB is designed as an extension of the CCB and is subject to capital distribution restrictions. This means that the CCyB increases the size of the buffer zone above the minimum CET1 requirement (4.5 percent), and when activated, it raises the threshold at which capital conservation requirements apply. For example, if a 2.5 percent CCyB is in effect, the full buffer requirement becomes 5 percent (2.5 percent CCB + 2.5 percent CCyB), and capital distribution restrictions apply unless the bank maintains a CET1 ratio above 9.5 percent. The national CCyB can range from 0 to 2.5 percent of total RWAs, although national authorities can implement a buffer of more than 2.5 percent for banks in their jurisdiction, if deemed appropriate. For internationally active banks, the CCyB also includes the principles of reciprocity, up to a level of 2.5 percent, so that if a bank has credit exposures in a nondomestic jurisdiction, through a branch or subsidiary, it will apply the CCyB requirement that is in force in that jurisdiction to these exposures.[14] Under the Basel standard, banks should be given at least 12 months to meet a new or adjusted buffer level.

The implementation of the CCyB is typically achieved through calibration to the financial cycle. During boom periods, when risks are accumulating and banks' risk appetite is high, some key indicators deviate from their long-term fundamental levels. At this stage, the CCyB should be activated or increased to align with the buildup of cyclical systemic risks and the assessment of the financial and economic situation.[15] Conversely, during downturns or shock events when previously accumulated risks materialize and market participants become risk averse, the CCyB is released (Figure 1).

[14] Reciprocity is not required under the Basel standard for a Countercyclical Capital Buffer (CCyB) higher than 2.5 percent.

[15] The BCBS keeps a dashboard with information on CCyB implementation (https://www.bis.org/bcbs/ccyb/index.htm). All 26 BCBS member countries have implemented the CCyB, and 12 have activated it. Of the eight non-BCBS member countries that have voluntarily informed the BCBS that the CCyB has been implemented, two have not activated it.

Figure 1. Financial Cycle and Countercyclical Capital Buffer Implementation



Source: IMF staff.
Note: CCyB = countercyclical capital buffer; RWA = risk-weighted asset.

The BCBS left it to the discretion of member jurisdictions to decide which authority would be responsible for determining the size of the CCyB, with an understanding that all relevant supervisory and macroeconomic information would be assessed by the designated authority. Although in most jurisdictions, banking supervisors are responsible for operationalizing the CCyB, there are a few examples in which this responsibility has been assigned to other authorities.[16] Where a nonsupervisory authority is responsible for setting the CCyB, either alone or in coordination with the supervisor, the quality of cooperation, communication, and information exchange is paramount.

According to BCBS guidance on operationalizing the CCyB, authorities should assess a range of indicators to identify excessive credit growth and emerging systemic risks. Although the credit-to-GDP gap remains a key reference, it should be complemented by other measures such as real credit growth, asset price deviations (particularly in real estate and equities), funding and credit default swap spreads, credit condition surveys, real GDP growth, and debt service capacity of corporations. A multi-indicator approach provides a more robust basis for buffer decisions, especially when credit expansion may not align with underlying economic fundamentals.

C. Positive Neutral CCyB

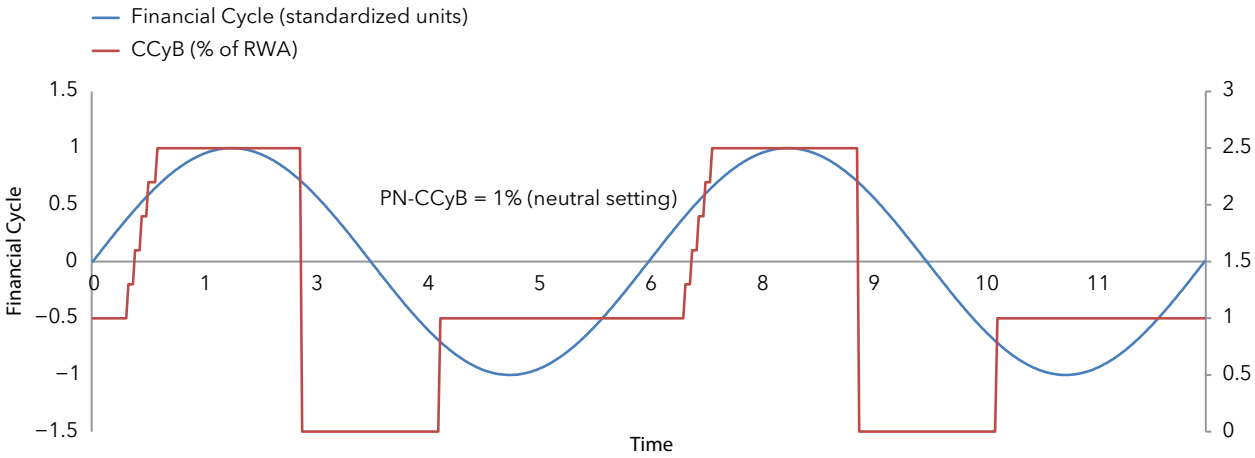
As originally designed in the Basel framework, the CCyB was to remain at zero in the absence of cyclical imbalances (that is, in the cycle-neutral state, being activated to positive levels only when systemic risks were assessed as having become more pronounced). However, in recent years, a number of jurisdictions have adopted a preannounced positive default setting for the CCyB (BCBS 2024). The BCBS supports voluntary adoption while noting that other approaches can help address similar risks (BCBS 2022c). Setting a positive CCyB rate under normal risk conditions creates a baseline buffer that can be released during periods of

[16] For example, in Denmark, the Minister for Industry, Business, and Financial Affairs, acting on advice from the Systemic Risk Council, is responsible for setting the CCyB rate on a quarterly basis. In the United Kingdom, the Financial Policy Committee of the Bank of England sets macroprudential tools—including the CCyB—while the Prudential Regulation Authority has embedded this within its rulebook and can enforce it through supervision. In France, the CCyB is set by the High Council for Financial Stability (chaired by the Minister of the Economy, Finance, and Industrial and Digital Sovereignty) upon a proposal of the Governor of the Bank of France.

stress or in the face of abrupt shocks exogenous to the domestic credit or financial cycle. This approach also reduces the risk of authorities delaying action during the financial cycle's upswing by committing in advance to maintain a minimum CCyB.

A positive neutral CCyB translates in practice into an early activation of CCyB. All aspects of the two approaches are the same, including their objectives, the reasons for increasing the CCyB, and the notice period of up to 12 months for rate increases, although some countries are providing longer notice periods.

Figure 2. Financial Cycle and Positive Neutral CCyB Implementation



Source: IMF staff.

Note: CCyB = countercyclical capital buffer; PN-CCyB = positive neutral countercyclical capital buffer; RWA = risk-weighted asset.

When a positive default buffer rate is in place in the neutral state—set at 1 percent in Figure 2—it provides a capital cushion that can be released in response to adverse shocks, even when those shocks are exogenous—that is, unrelated to the credit cycle, providing a level of insurance against unforeseen periods of stress (see Nier and Miettinen 2025). In Figure 2, this is illustrated by the CCyB increasing to 2.5 percent during boom periods and falling to 0 percent at times of stress, specifically during the marked shocks at time points 4.5 and 11, which represent sudden downturns. In recent years, the COVID-19 pandemic represented a shock, and only jurisdictions that had maintained positive CCyB levels before the shock were in a position to release it to support credit supply and absorb losses (IMF 2020; Caldara and others 2021; Behn and others 2022; Fernández and others 2023). Box 1 adds considerations and describes some practices in implementing a positive neutral CCyB.

Box 1. Positive Neutral CCyB: Country Practices

There are two broad considerations that support the case for setting a positive neutral Countercyclical Capital Buffer (CCyB). First, it aims to ensure that the system is better prepared to absorb large adverse shocks that may occur in the absence of prior domestic financial imbalances—for instance, exogenous shocks or abrupt shifts in global risk sentiment. Second, activating the CCyB early may provide an additional cushion while mitigating practical challenges associated with relying on early warning indicators, including the uncertainty of forecasting crises, the limitations of real-time data that are later revised, and the inherent time lag—typically around 12 months—between the buffer decision and its effective implementation (see Nier and Miettinen 2025).

A total of 17 out of 30 countries in the European Economic Area[1] and other jurisdictions such as Australia, Chile, Canada, Hong Kong SAR, New Zealand, and South Africa have adopted a positive neutral CCyB, with cycle-neutral buffer levels typically ranging from 1 to 2 percentage points of risk-weighted assets.

National authorities' public communications on the adoption of a positive neutral CCyB indicate that the motivation is ensuring that capital buffers are in place before financial stress emerges, thereby enabling a timely and effective release when needed. This preemptive 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.[2] Countries, such as Denmark and the United Kingdom, emphasize an "early and gradual" approach to buffer accumulation to mitigate the risk of delayed activation and reduce potential procyclicality in regulatory responses.[3] By building capital in advance, these frameworks aim to preserve the flow of credit during downturns and avoid abrupt policy adjustments. Ireland, Australia, and Chile note that their positive neutral CCyB is part of a steady-state approach to resilience;[4] the buffer is maintained even in normal risk environments, given that higher structural uncertainty characteristic of small open economies justifies precautionary capital levels.[5] Collectively, these practices reflect forward-looking capital frameworks that prioritize readiness and the effective usability of buffers through the financial cycle (BCBS 2022b; Köhler-Ulbrich and others 2022; Mathur and others 2023).

Methodologies for calibrating a positive neutral CCyB vary across jurisdictions but generally combine quantitative indicators, stress testing, and supervisory judgment to determine an appropriate buffer level under "normal" risk conditions. Some countries, such as the Czech Republic, rely on indicator-based approaches using credit-to-GDP gaps and financial cycle metrics to guide a neutral rate of around 1 to 2 percent. The European Central Bank has developed the losses-to-buffer and risk-to-buffer approaches, relying on historical loss data and macro time series models to inform the calibration of a target positive neutral CCyB rate for the Euro Area, suggesting a CCyB rate ranging from 1 to 1.8 percent.[6] The calibration of the current positive neutral CCyB in Lithuania was conducted using a stress testing exercise, with the scenario representing a moderate risk environment. In Hungary, a hybrid framework blends multiple indicators, including overheating and vulnerability signals, to define a 1 percent neutral CCyB. Denmark and Norway have adopted a gradual, judgment-based approach, proactively building the buffer without anchoring it to a fixed rate, whereas Australia and

(*continued*)

Hong Kong SAR have implemented a straightforward 1 percent neutral rate based on forward-looking assessments of systemic resilience.

Source: IMF staff elaboration.

[1] See "ECB And ESRB Issue Joint Report on Experiences of Using the Countercyclical Capital Buffer Early in the Cycle," (https://www.ecb.europa.eu/press/pr/date/2025/html/ecb.pr250131_3~f57297ee7f.en.html)

[2] Pablo Hernandez de Cos, "The Role of Macro Prudential Policy in the Stabilization of Macro-Financial Fluctuations," Conference on Financial Stability, Banco de Portugal, 2 October 2023.

[3] Norges Bank (2023), "Decision Basis for the Countercyclical Capital Buffer"; UK Financial Policy Committee (2023), "The UK Financial Policy Summary and Record—March 2023"; and Danish Systemic Risk Council (2023), "The Countercyclical Capital Buffer," https://systemicriskcouncil.dk/Media/638222431041975650/DSRR41—ENG revideret metodenotat.pdf

[4] Central Bank of Ireland (2023), "Macroprudential Policy Statement—CCyB Framework"; Australia Prudential Regulatory Authority (APRA) (2021), "Information paper—An Unquestionably Strong Framework for Bank Capital," and Banco Central de Chile (2024), "Implementation Framework for the Countercyclical Capital Buffer."

[5] Central Bank of Ireland (2023), "Rationale for 1.5% Neutral CCyB in Standard Risk Environments"; APRA (2023), "Statement on Maintaining Resilience Through the Cycle"; and Banco Central de Chile (2023), "Explanatory Note on the Structural Role of the Buffer."

[6] ECB working papers: De Nora and others (2025) for the losses-to-buffer and Herrera, Pirovano, and Scalone (2025), for the risk-to-buffer.

D. Sectoral CCyB

Although not included in the Basel framework, the BCBS introduced, in 2019, the concept of the sectoral CCyB (BCBS 2018) for voluntary adoption to complement the Basel III CCyB (BCBS 2019b). Although the latter applies to banks' total RWAs, where private sector excess credit growth is judged to be associated with the buildup of systemwide risk, it can lead to unintended consequences if credit exuberance is confined to specific credit segments. For instance, applying a uniform CCyB across all sectors can result in uneven distribution effects and increase the cost of lending in sectors experiencing moderate or low credit growth. To mitigate these concerns, the sectoral CCyB allows for more targeted interventions. By focusing on specific sectors where credit risks are building up, regulators can more effectively manage systemic risks without imposing unnecessary costs across all sectors. The sectoral CCyB would target cyclical risks that, although being contained within particular credit segments, could have adverse effects on the broader financial system and the real economy. The 2024 revision of the BCP has ensured the inclusion of an additional (that is, optional) criterion for supervisors to have the authority to ask banks to maintain additional releasable capital, including sectoral capital requirements. However, the BCBS notes that there are challenges in designing and using sectoral CCyBs, associated with the complexity of the resulting framework, which will be more pronounced depending on the structure of the banking system and of the broader financial system (BCBS 2019e).

In operationalizing a sectoral CCyB, national authorities are encouraged, by the guiding principles, to define a limited number of target segments that are both potentially significant from a financial stability perspective and susceptible to cyclical imbalances. A segment can be considered significant if it represents a material share of the banking system, whether measured by volume, RWAs, inherent riskiness, or other relevant metrics. To avoid overlapping with the CCyB, these segments should not be defined too broadly. In practice, total real estate lending, broken down into residential (for example, mortgages) and commercial real estate, alongside non-real-estate-related lending to private nonfinancial corporations and households (such as consumer lending), meets these criteria in most jurisdictions.

Because of limited internationally consistent sectoral data, the BCBS acknowledges that the Basel III CCyB common reference guide may not be suitable for the sectoral CCyB; instead, national authorities should use a broader set of indicators, including credit volumes, asset prices, and risk metrics, applying greater discretion based on the best available information. BCBS work suggests that the sectoral CCyB may need to exceed 2.5 percent of sectoral RWAs at the peak of the credit cycle to be effective, though this would represent a much smaller share of total RWAs and could vary by jurisdiction and segment.

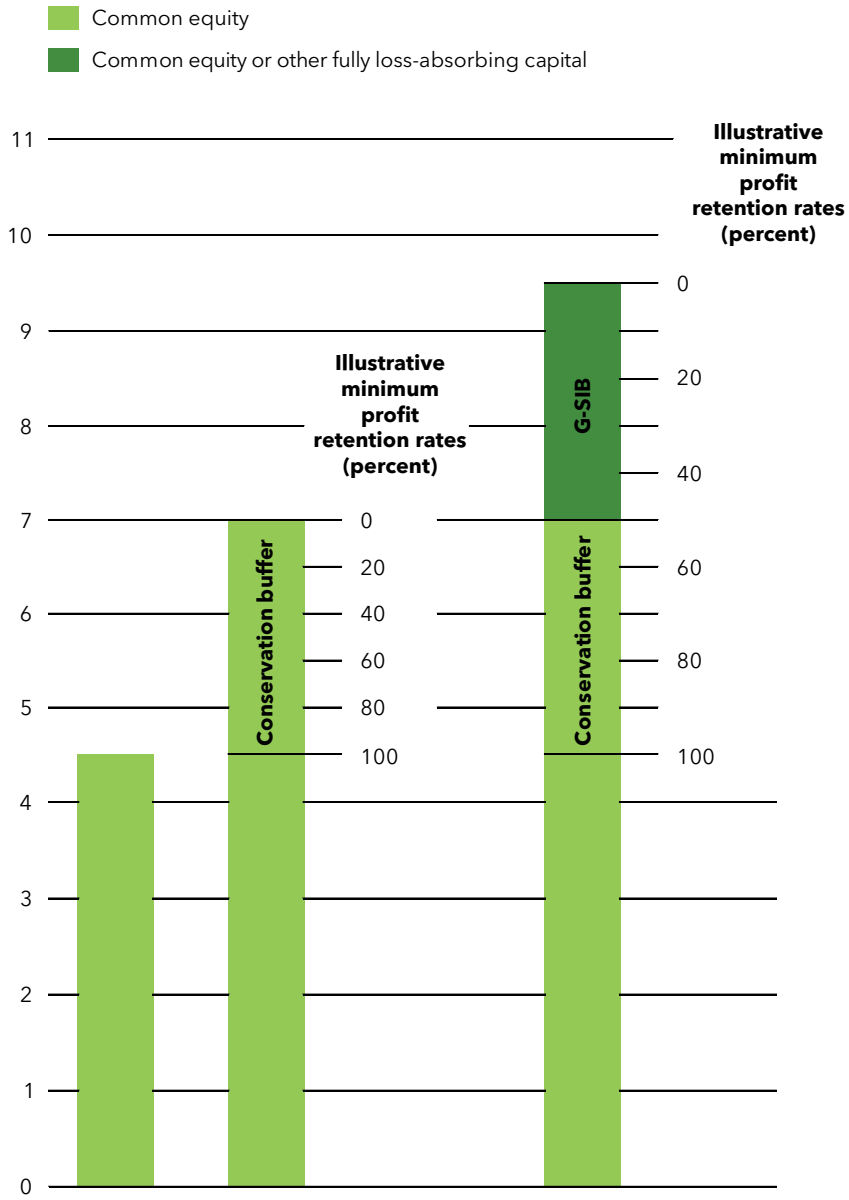
E. Systemic Institutions Risk Buffers

Another component of the Basel III macroprudential framework was the introduction of systemic institutions risk buffers into the Basel capital framework to strengthen the loss-absorbing capacity of G-SIBs and D-SIBs, aiming to reduce spillover risks across the financial system. Therefore, systemically important banks are subject to HLA requirements as an additional buffer. G-SIB buffers and, where applicable, D-SIB buffers are an extension of the CCB, maintaining the division of the buffer into four bands. For G-SIBs, an HLA requirement ranging from 1 to 3.5 percent was introduced to ensure that these institutions maintain sufficient capital.[17] In cases where a G-SIB breaches this requirement, it must coordinate with its supervisor on a capital remediation plan to restore compliance within a defined time frame. During this period, the bank faces restrictions on dividend payouts and may be subject to additional supervisory measures.

Recognizing the potential effect of a domestic bank's failure on its national economy, the BCBS also introduced HLA requirements for D-SIBs. Unlike the general approach for G-SIBs, the committee grants national authorities discretion in determining the methodology and level of HLA applicable to D-SIBs. However, in alignment with the G-SIB framework, the HLA requirement for D-SIBs must be met entirely with CET1 capital, ensuring that these buffers effectively enhance financial stability at both the global and domestic levels. The BCBS emphasizes that the D-SIB buffer is not the sole instrument for addressing risks associated with D-SIBs. Other policy measures, particularly enhanced supervisory intensity, also play a crucial role in managing D-SIB-related risks. Figure 3 illustrates how the restrictions work with a CCB of 2.5 percent and a G-SIB buffer of 2.5 percent.

[17] For the definition of the higher loss-absorbency (HLA) requirement, please see Basel framework RBC40 for systemically important bank buffers (https://www.bis.org/basel_framework/chapter/SCO/40.htm?inforce=20211109&published=20211109#paragraph_SCO_40_20211109_40_22). See also Box 2 for a discussion of the Financial Stability Board's Total Loss-Absorbing Capacity (TLAC) standard for global systemically important banks (G-SIBs).

Figure 3. Global Systemically Important Bank Buffer and Expansion of the Capital Conservation Buffer



Source: IMF staff.
Note: G-SIB = global systemically important bank.

Box 2. Total Loss-Absorbing Capacity and Its Interaction with the Basel Capital Framework

The total loss-absorbing capacity (TLAC) standard, issued by the Financial Stability Board in 2015, applies to global systemically important banks. It requires them to hold sufficient instruments that can absorb losses in resolution, ensuring that critical functions continue without taxpayer support. TLAC covers both external TLAC (issued to unaffiliated investors) and internal TLAC (intragroup instruments issued to parent entities by material subsidiaries).

Global systemically important banks must meet TLAC of at least 18 percent of risk-weighted assets and 6.75 percent of leverage exposure. TLAC can comprise regulatory capital (Common Equity Tier 1, Additional Tier 1, Tier 2) plus other eligible long-term debt meeting criteria such as subordination, minimum one-year maturity, and ability to be written down or converted to equity in resolution. At least one-third of the minimum TLAC requirement should consist of eligible long-term debt instruments (nonregulatory capital liabilities), ensuring that a sufficient share of loss-absorbing capacity can be bailed in without eroding regulatory capital.

For internal TLAC, host authorities require subsidiaries deemed "material" to preposition between 75 and 90 percent of the equivalent external TLAC they would hold as standalone entities. The Basel Committee requires banks to deduct from their own capital any holdings of TLAC instruments of global systemically important banks to prevent contagion across the banking system.

Basel III capital rules cover going-concern loss-absorbency (that is, the ability of a bank to absorb losses and continue operating as a viable entity), whereas TLAC extends the framework to gone-concern situations (that is, when a bank has failed and needs sufficient resources to support resolution without taxpayer bailouts), bridging Basel's Pillar 1 capital adequacy standards and the Financial Stability Board's resolution regime. The Financial Stability Board explicitly states that TLAC should not interfere with Basel capital buffers, which remain usable in stress without triggering resolution. In other words, an 18 percent TLAC requirement does not include any applicable regulatory capital (Basel III) buffers, which must be met in addition to the TLAC risk-weighted assets minimum.

Together, the TLAC and Basel standards create an integrated prudential-resolution framework. Basel III capital requirements support the viability of banks; TLAC ensures orderly resolution if viability is lost. Supervisors under Pillar 2 assess both capital adequacy and loss-absorbing capacity, whereas resolution authorities use TLAC to allocate losses between equity and debt holders in a predictable, transparent manner.

Sources: BCBS 2019a; and FSB 2015, 2019.

F. Other Practices

In the European Union, a systemic risk buffer (SyRB) was introduced through the 2013 Capital Requirements Directive with the aim of preventing and mitigating long-term noncyclical systemic and macroprudential risks not addressed by other capital requirements (such as the CCyB and D-SIB or G-SIB buffers[18]) in a specific member state.[19] The SyRB is not an international standard but a regional tool designed to address the specific needs of Euro Area countries, which, because of the maximum harmonization transposition of the Basel framework, are not permitted to impose more than the minimum requirements under the Capital Requirements Directive, which are set out in European Union (EU) legislation.[20]

[18] D-SIB and G-SIB buffers are named other systemically important institution (O-SII) and global systemically important institution (G-SII) buffers in the European Union (EU) legislation.

[19] The systemic risk buffer (Article 133) of the Capital Requirements Directive (CRD), 2013/36/EU became applicable on December 31, 2013. Other buffers imposed by the CRD were phased in from January 1, 2016.

[20] In EU law, maximum harmonization signifies that national laws cannot be more stringent than the standards set by EU legislation.

In December 2020, the scope of the SyRB was modified so that it became possible to impose the SyRB not only on all exposures but also on domestic sectors, or subsets within those sectors. The SyRB can also be used to address cyclical risks, provided they are not already covered by the CCyB. The level of the SyRB may vary across institutions or sets of institutions, as well as across subsets. According to the EU framework, not meeting the SyRB will result in capital distribution restrictions similar to those of Basel III capital buffers.

Table 2 summarizes all capital requirements under Basel III, including Pillar 1, Pillar 2 add-ons and capital buffers.

Table 2. Basel III Capital Requirements: Pillar 1, Pillar 2, and Capital Buffers

Capital Requirement[1]	Regulatory Minimum Requirement	Consequences of Nonobservance	Observations
Pillar 1 Minimum Capital Requirements			
CET1	4.5 percent of total RWAs	Breach of minimum requirement[2]	–
T1 capital	6 percent of total RWAs	Breach of minimum requirement	–
Total capital	8 percent of total RWAs	Breach of minimum requirement	–
Backstops to Risk-Weighted Capital Requirements			
Leverage ratio (LR)	3 percent of total exposure to assets and off-balance sheet items	Breach of minimum requirement	• Composed of T1 (CET1 and Additional Tier 1 instruments)
LR buffer	$\frac{\text{G-SIB buffer}}{2}$	Capital distribution restrictions[3]	• Composed of T1 • Applies to G-SIBs
CCB and Extensions			
CCB	2.5 percent of total RWAs	Capital distribution restrictions	• Composed of CET1 • Can be drawn down as losses are incurred, and the bank continues to conduct business as normal • All banks
HLA for G-SIBs–G-SIB buffer	1, 1.5, 2, 2.5, or 3.5 percent of total RWAs	Capital distribution restrictions and capital remediation plan	• Composed of CET1 • G-SIBs are allocated into five buckets based on their scores of systemic importance[4]—the fifth bucket (3.5 percent requirement) is empty • Maximum requirement increases by 1 percent each time the former empty bucket is populated
HLA for D-SIBs–D-SIB buffer	Calibrated by country authorities, with four bands of equal size, a percentage of total RWAs	Predetermined by the national authorities	• Composed of CET1 • Principles-based, commensurate with the degree of systemic importance, consistent with the G-SIB regime, focusing on the domestic economy
CCyB	0 to 2.5 percent of total RWAs	Capital distribution restrictions	• Composed of CET1 • Activated when authorities judge that aggregate credit growth is excessive and associated with a buildup of systemwide risk • When previously activated, authorities release the buffer for the banking system in times of stress to reduce the risk of the supply of credit being constrained • Considers jurisdictional reciprocity

(*Continued*)

Table 2. Basel III Capital Requirements: Pillar 1, Pillar 2, and Capital Buffers (*Continued*)

Capital Requirement[1]	Regulatory Minimum Requirement	Consequences of Nonobservance	Observations
		Pillar 2 Add-Ons	
Pillar 2 capital add-ons	Defined by the supervisor: a percentage of RWA or a given monetary amount	The consequences will vary depending on how Pillar 2 is structured and implemented within the jurisdiction's enforcement framework	• Complements Pillar 1 capital requirements • Result of the Supervisory Review Process

Sources: BCBS; and Basel III Framework: SCO10, SCO 40, SCO50, CAP10, RBC20, RBC30, RBC40, LEV20, and LEV40.

Note: AT1 = Additional Tier 1; CCB = capital conservation buffer; CCyB = countercyclical capital buffer; CET1 = Common Equity Tier 1; D-SIBs = domestic systemically important banks; G-SIBs = global systemically important banks; HLA = higher loss absorbency; LR = leverage ratio; RWA = risk-weighted asset; T1 = Tier 1.

[1] The Basel framework is applied on a consolidated basis to internationally active banks.

[2] In spite of early supervisory action taken before the breach of regulatory requirements, the breach of a minimum capital requirement gives rise to supervisory actions, such as restricting the activity of the bank, requiring a reduction of the bank's exposures, imposing a range of sanctions, revoking the bank's license, and triggering resolution.

[3] Minimum capital conservation ratios, expressed as a percentage of earnings, are set in four bands of equal size, according to the quartile representative of the Common Equity Tier 1 ratio or leverage ratio buffer deficiency: 40, 60, 80, and 100 percent conservation ratios may be applied.

[4] The methodology identifies five broad categories of factors that influence global systemic importance, which are size, cross-jurisdictional activity, interconnectedness, substitutability or financial institution infrastructure, and complexity.

G. Drawdown or Release of Buffers

Basel capital buffers are intended to provide additional safeguards to absorb losses. The purpose of buffers is to absorb losses during periods of stress, thereby facilitating the continuous provision of critical banking services—credit, liquidity, and payments—through the cycle. As a general principle, buffers are designed to be available for use during periods of stress, and, whether applicable to all banks or specific banks, they must be replenished within a time frame set by supervisors. Although both the CCB and the CCyB serve to enhance banks' resilience, the key distinction lies in their objectives: the CCB is a permanent buffer aimed at ensuring that banks maintain a conservative, baseline level of capital at all times, whereas the CCyB is a time-varying buffer intended to build up additional capital during periods of excessive credit growth, which can subsequently be released to support lending during downturns. The buffers for G-SIBs or D-SIBs are add-ons reflecting the elevated systemic risk posed by large, interconnected institutions.

- The CCB is always in place and can be drawn down during periods of stress (whether it is a systemwide shock or bank-specific stress), but distribution restrictions (on dividends, bonuses, and so on) apply until it is replenished.
- The CCyB can be *released* during cyclical downturns, giving banks extra room to absorb losses, and supervisors are expected to be proactive in releasing the CCyB.[21] They can also issue bank-specific or system-level dividend restrictions when releasing the CCyB to encourage the use of capital headroom for lending.

[21] During the COVID-19 pandemic, several countries—including the United Kingdom, Canada, France, Ireland, Lithuania, Belgium, Germany, Slovakia, India, and South Africa—released, reduced, or revoked previously announced increases in their CCyBs (or similar usable buffers) to support credit supply and absorb systemic shocks (BCBS 2021; Berrospide and others 2024).

- The G-SIB and D-SIB buffers do not need to be triggered and are not releasable; they are permanent extensions of the CCB for systemic banks. They are intended to ensure that the largest and most important banks always hold more capital. If these buffers are breached, the same capital distribution restrictions and other measures required by supervisors as for the CCB would apply, at the higher thresholds.

During the COVID-19 pandemic, supervisors who had not activated the CCyB encouraged banks to draw down the CCB while imposing capital distribution restrictions and capital replenishment plans, hoping to maintain credit flow to the economy during periods of stress. Banks were reluctant to do so because of concerns regarding unfavorable market perception, the need to rebuild those buffers in the future, and the possibility of triggering restrictions on capital distributions. Authorities that have introduced a positive neutral CCyB view it as helpful for banks in their jurisdictions to have capital buffers 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 (BCBS 2024).

IV. Capital Assessment under Pillar 2

A. Conceptual Framework and Assessment Methodology

Pillar 2 is a critical component of capital adequacy assessments, not only allowing supervisors to require additional capital where risks are not fully captured elsewhere in the framework but also serving as a tool to encourage banks to maintain good risk management. It is at the heart of the capital adequacy challenge as it requires banks to undertake their own assessment of their business (risk) profile and, correspondingly, consider their capital needs. Furthermore, Pillar 2 incorporates a dialogue between the supervisor and the bank to identify vulnerabilities and enhance capital resilience. Although the Pillar 1 capital framework has evolved over time to incorporate greater granularity and risk sensitivity, it does not promise optimal capital adequacy, and Pillar 2 is an important step toward addressing material shortcomings. Supervisors' implementation of the principles-based approach to Pillar 2 illustrates the wide range of possible practices.

The Pillar 2 framework complements the minimum regulatory requirements of Pillar 1 and the disclosure requirements of Pillar 3. Unlike Pillar 1, Pillar 2 is principles-based, relying on supervisory judgment to ensure that banks have robust internal processes and risk management techniques. It can be tailored to the specific risks and needs of different jurisdictions and banks, with supervisory cooperation helping address jurisdictional differences.

There are three main areas particularly well suited for treatment under Pillar 2. First, risks considered under Pillar 1 that are not fully captured by its processes and methods, for example, credit concentration risk, or where Pillar 1 methods, such as internal ratings-based (IRB) models for credit risk, could result in underestimation of risks.[22] Second, factors not taken into account by Pillar 1, such as IRRBB, business or strategic risk, or qualitative assessments of weaknesses in banks' governance or risk management frameworks. Third, external factors, such as business cycle effects.[23]

Pillar 2 predates the introduction of macroprudential buffers, and not all countries had fully implemented Pillar 2 by the time of the global financial crisis and Basel III. The Basel framework does not prescribe or detail how Pillar 2 should be implemented, or how Pillar 2 capital add-ons interact with other components of the framework. Over time, this has led to different practices emerging for both capital assessment and capital add-ons.

The framework is built on four principles. Principle 1 requires banks to have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels. This process is commonly referred to as the Internal Capital Adequacy Assessment Process (ICAAP) and is intended as a holistic assessment to capture capital needs relative to all risk exposures, including risks not fully captured under Pillar 1. Principles 2 to 4 are directed at supervisors, who must review and assess banks' ICAAPs, ensure that banks operate above minimum capital requirements, including setting Pillar 2

[22] Although internal ratings based (IRB) methods are highly suitable for a Pillar 2 treatment, it is also important to avoid double counting. For example, the permanent output floor in the capital adequacy framework aims to reduce the variability of RWAs because of the use of internal models, so a Pillar 2 treatment of the shortcomings of IRB models needs to avoid double counting with this factor. Equally, the existence of the RWA floor cannot be assumed to compensate sufficiently for all potential weaknesses in a bank's IRB approach.

[23] We note that although the Pillar 2 framework was created by Basel II before the introduction of the macroprudential components of Basel III, the introduction of buffers has not replaced any component of Pillar 2. The Pillar 2 framework needs to cover external factors that are not fully captured by the buffers.

capital add-ons when necessary, and intervene early to prevent capital shortfalls.[24] Supervisors use a range of tools, including on-site examinations, off-site reviews, and stress testing, to implement these principles. The approach should be proportionate, varying with a bank's size, complexity, and risk profile, emphasizing forward-looking, risk-based supervision (RBS).

Principle 3 of the Pillar 2 framework emphasizes the importance of maintaining adequate capital levels to ensure the stability and resilience of banks. Supervisors typically require banks to maintain a buffer above Pillar 1 minima to ensure higher creditworthiness, manage requirements that fluctuate with changing activities and risks, mitigate the high cost of raising additional capital quickly, avoid legal breaches and mandatory corrective actions, and address specific or broader economic risks not covered by Pillar 1. This principle does not mandate automatic capital add-ons for all banks but requires supervisory authorities to have sufficient statutory powers to enforce these expectations.

Principle 4 emphasizes the importance of early supervisory intervention to prevent a bank's capital from deteriorating below levels appropriate for its risk profile. When concerns arise, supervisors should have the discretion to deploy a broad set of tools, such as enhanced monitoring, dividend restrictions, requiring a capital restoration plan, or demanding immediate capital increases, to stabilize the situation. Although raising capital may not always be the ultimate solution, it can serve as a temporary safeguard while longer-term corrective measures (for example, strengthening systems and controls) are implemented. Once those permanent improvements prove effective, any temporary capital add-ons can be withdrawn.

Table 3. Pillar 2 in the Basel Framework

Principles	Objectives	Considerations	Tools or Actions
Principle 1 (bank responsibility)	Banks should have a process to assess their overall capital adequacy relative to their risk characteristics, as well as a strategy to maintain capital.	Banks' assessments of their capital adequacy should reflect the application of the principle of proportionality—that is, appropriateness in relation to a bank's size, risk profile, and complexity.	• Board and senior management oversight • Sound capital assessment • Comprehensive assessment of risks • Forward-looking stress testing • Monitoring and reporting • Internal control
Principle 2 (supervisory responsibility)	Supervisors should review a bank's internal capital adequacy assessment and follow up as needed.	Supervision of banks requires supervisory discretion and involves the application of a variety of tools. This principle can reflect the application of proportionality. The supervisory review should be undertaken in a transparent and accountable manner. Supervisory action should require banks to address any deficiencies in a timely fashion.	• On-site examinations • Off-site reviews • Reviews of work by external auditors and other parties • Periodic reporting by the banks • Discussions with bank management

(*Continued*)

[24] Minimum capital requirements here refer to the systemwide Pillar 1 requirements, but in many jurisdictions, supervisors operationalize this principle by imposing Pillar 2 capital add-ons, which may be structured either as binding additional minimum requirements or as supervisory expectations to ensure that banks hold adequate buffers above the baseline ratios.

Table 3. Pillar 2 in the Basel Framework (*Continued*)

Principles	Objectives	Considerations	Tools or Actions
Principle 3 (supervisory responsibility)	Supervisors should specify their expectations for banks to operate above the minimum regulatory capital ratios.	Supervisors must make sure that nonfinancial risks and risks not fully captured under Pillar 1 are included in the requirement for banks to operate at capital levels above those implied by Pillar 1 minima. This principle can reflect the application of proportionality.	• Supervisory authorities need sufficient statutory powers
Principle 4 (supervisory responsibility)	Supervisors should intervene at an early stage to prevent capital from falling below the level required to support a bank's risk profile.	This principle reflects the application of proportionality, with supervisory actions tailored to a bank's size, risk profile, and complexity. Basel III capital buffers must be adequately reflected.	• Intensifying the monitoring of the bank • Restricting current business activities • Prohibiting new activities or acquisitions • Restricting or prohibiting dividend payments • Requiring banks to restore capital • Requiring banks to raise additional capital

Source: BCBS Pillar 2 Framework: SRP20.

Through supervisory review and dialogue, Pillar 2 ensures that banks proactively identify, measure, and manage their risks, while supervisors retain discretion in enforcing additional capital requirements, setting expectations for banks to operate above regulatory minima, and intervening early to prevent capital erosion. This forward-looking approach allows supervisors to adjust capital requirements based on a bank's size, complexity, and risk profile, thereby reinforcing the principles outlined in CP 1 (Responsibilities and Powers) and CP 16 (Capital Adequacy).

It is important to note that although Pillar 2 is primarily designed to focus on bank-specific risks and risk management, its flexibility and forward-looking nature enable supervisors to account for risks beyond those that are specific to individual banks. Unlike the Pillar 1 methodology, Pillar 2 allows for a more tailored approach, ensuring that capital and risk management expectations evolve in response to emerging vulnerabilities. By creating the expectation that supervisors should impose additional capital requirements or other prudential measures based on a bank's unique risk profile, Pillar 2 enhances the resilience of both individual institutions and the financial system as a whole.

Although Pillar 2 discussions often focus on capital, the Basel framework is clear in that "capital should not be regarded as a substitute for addressing fundamentally inadequate control or risk management processes." The Pillar 2 framework encompasses a range of other supervisory tools and measures—such as intensified supervision, restrictions on certain business activities, and requirements to strengthen risk management practices—to ensure the resilience of banks.

Authorities around the world have adopted various methods for determining Pillar 2 capital requirements, reflecting differing supervisory philosophies, banking system structures, legal contexts, and resource constraints. The approaches discussed in this section are based on information from authorities' websites and are intended to illustrate the range of solutions authorities have adopted. Inclusion in this paper

should not be interpreted as a recommendation or endorsement, as the quality of implementation and suitability for country-specific circumstances are critical in determining effectiveness and adherence to the Basel principles.

The Basel Pillar 2 framework expects supervisors to assess a bank's overall risk profile, using a combination of supervisory judgment and stress testing results to determine capital needs.[25] The Pillar 2 framework should reflect an integrated view of risks, taking into account governance, risk management, and the bank's ability to withstand shocks. Different authorities place greater emphasis on different components of the process. For example, in the Euro Area, the European Central Bank's Pillar 2 requirement process includes supervisory scoring combined with risk-by-risk assessments,[26] whereas in the United States, the Stress Capital Buffer uses stress test outcomes to calibrate bank-specific capital requirements for large institutions.

Although not part of the Basel Pillar 2 framework, some jurisdictions have implemented a nonbinding Pillar 2 mechanism that reflects supervisory "expectations," in parallel with the binding Pillar 2 capital add-ons. For the purposes of this note, we refer to such nonbinding mechanisms as "Pillar 2 recommendations" and to binding measures as "Pillar 2 requirements." Most practices related to Pillar 2 recommendations are based on stress testing results.[27] These reflect supervisors' expectations in addition to banks' capital requirements to ensure that banks can absorb potential losses resulting from adverse stress scenarios. The consequences of nonadherence to these expectations will depend on jurisdictions' frameworks; for instance, supervisors can initiate enhanced supervisory action and ask for a capital restoration plan in case of nonadherence.

Some jurisdictions have opted for more prescriptiveness in the calculation of add-ons, assigning specific capital add-ons for some identified risks, such as concentrated exposures, IRRBB,[28] pension risks, commercial real estate exposures, or deficiencies in IRB models, where the supervisors have assessed that these risks are not adequately covered in Pillar 1. Such an approach may provide greater clarity to banks by linking capital requirements directly to specific risk factors, but it may also lack the flexibility to address risks that are either qualitative or emerging in nature. For example, Sweden's Finansinspektionen formally assigns capital add-ons for risks that are general (applying to most banks), recurring, and material—according to published methodologies. Other risks have been covered in Pillar 2 on a case-by-case basis. The Finansinspektionen also communicates supervisory expectations for additional capital (Pillar 2 guidance) to cover residual or stressed scenario risks (Finansinspektionen 2015, 2023; IMF 2023).

Some jurisdictions determine Pillar 2 capital requirements through a mix of formula-based calculations, stress testing outcomes, and supervisory discretion. In Georgia, for example, specific risk buffers are applied for currency-induced credit risk for unhedged borrowers, name and sector portfolio concentration, and credit risk adjustment, which was introduced after the transition from local Generally Accepted Accounting

[25] Supervisory judgment is formed using all the tools in Principle 2 of Table 3. Supervisory experience is a key contributor to sound judgment based on the supervisory assessment.

[26] The European Central Bank's Pillar 2 requirement methodology is available at https://www.bankingsupervision.europa.eu/activities/srep/pillar-2-methodology/html/index.en.html.

[27] The Pillar 2 recommendation component is called the "PRA buffer" or "Pillar 2B" in the United Kingdom (Bank of England 2021) and "Pillar 2 guidance" in the Euro Area (European Central Bank n.d.-a, n.d.-b). According to Basel Pillar 2, Principle 1, banks should perform forward-looking stress testing to identify possible events or changes in market conditions that could adversely affect them. The supervisory review process also highlights stress testing as a core tool for banking supervisors.

[28] The BCBS has issued detailed principles on the treatment of IRRBB, which are part of the Basel framework under Pillar 2 (SRP31).

Principles (GAAP) to International Financial Reporting Standards (IFRS) (National Bank of Georgia n.d.). Additional Pillar 2 add-ons are derived from supervisory assessments and stress test results.[29] Canada's Office of the Superintendent of Financial Institutions considers a variety of qualitative and quantitative inputs to inform the institution's Pillar 2 capital add-ons, including vulnerability and near-term indicators, results from stress testing exercises, and supervisory judgment (IMF MCM 2025). Indonesia calibrates Pillar 2 capital requirements based on banks' risk profiles, with clear thresholds linked to supervisory ratings.

These wide-ranging practices reflect different supervisory goals and capacities. Some authorities emphasize prescriptiveness and formula-based calculations; some emphasize qualitative factors; and others emphasize stress resilience. Most supervisors adopt a combination of approaches, adjusting capital requirements in response to both specific risk exposures and broader assessments of financial soundness and risk management.

These practices are not mutually exclusive or necessarily interchangeable. The choice of approach depends on multiple factors, including legal supervisory powers, the legal and regulatory framework, the complexity and structure of the banking sector, the development of supervisory tools, and the availability of data and resources. Ultimately, each implementation path has its own strengths and limitations, and effective supervisory oversight requires adapting the Pillar 2 framework to national circumstances while aligning with the overarching Basel principles.

B. Supervisory Implementation Considerations

The Pillar 2 principles-based framework is highly flexible, allowing considerable discretion in terms of implementation. In addition to the range of approaches developed to address Pillar 2, as discussed in the previous section, jurisdictions also need to make supervisory and regulatory decisions regarding elements on which the framework is silent. For example, the Basel framework prescribes neither the stacking order of Pillar 2 relative to other components of the capital stack nor the type or quality of capital required to satisfy Pillar 2 requirements. Authorities' decisions in these areas will be shaped by their supervisory powers, legal framework, other supervisory tools that are in place or available,[30] and specific country circumstances.

The consequences of failing to meet the Pillar 2 capital assessment must also be clear. If Pillar 2 is designed as an add-on requirement that addresses bank-specific risks not covered by the minimum Pillar 1 requirements, then it should provide adequate incentives for the bank to adhere to them. Hence, the consequences of noncompliance could be expected to be determined in accordance with the country's enforcement framework and subject to supervisory approval in the absence of (systemic) stress. If the Pillar 2 capital is intended purely as a buffer above the minimum capital requirement, then the consequences for failure to meet the buffer could be different (Table 4).

[29] Which may result in a net GRAPE buffer (see https://nbg.gov.ge/en/page/grape).

[30] Supervisory tools are the instruments and techniques that banking supervisors can deploy, other than capital requirements themselves, to ensure that risks are being managed. These can include, but are not limited to, supervisory rating systems; restricting the current activities of the bank; imposing more stringent prudential limits and requirements; withholding approval of new activities or acquisitions; restricting or suspending payments to shareholders or share repurchases; restricting asset transfers; and enforcement actions such as sanctions.

Eligible Capital Instruments for Meeting Pillar 2 Requirements

The Basel framework does not prescribe the instruments to be used to satisfy Pillar 2 requirements. Eligibility of capital instruments and the minimum permitted proportions of certain instruments (CET1) have changed since Pillar 2 was first introduced. Amendments under Basel III, which focused on the importance of maximizing permanent loss-absorbing instruments within the capital structure, had an effect on overall regulatory capital and thus how banks could fund any Pillar 2 requirement, but unlike the Basel III capital buffers, which must be satisfied by CET1, the capital required for Pillar 2 was left to national discretion. As a result, practices regarding the composition of capital for Pillar 2 purposes differ, often shaped by national regulatory frameworks and legacy structures.[31] From a prudential perspective, it may be advisable for Pillar 2 requirements to be met with capital instruments of no lower quality than those used to satisfy the Pillar 1 minimum ratios—that is, with at least 56.25 percent CET1 and 75 percent T1 capital. This would be consistent with the objective of ensuring that additional capital provides genuine loss-absorbing capacity beyond the regulatory minima.

Stacking Order

The Basel framework does not specify whether Pillar 2 capital should be applied before or after the capital buffers that sit above the minimum Pillar 1 capital requirements applicable to all banks, whether this is set at 8 percent of RWAs or higher.

However, considering CP 1 and CP 16, and for reasons noted earlier in this subsection, authorities should be mindful that where Pillar 2 add-on capital requirements are designed to cover a bank's risk profile, they should be considered minimum requirements from a prudential perspective rather than a buffer that can be released or drawn down in times of (systemic) stress.[32] In such cases, it should sit above the Pillar 1 minimum capital requirement. Whether a Pillar 2 capital add-on is a minimum requirement should be clearly stated in national laws or regulations. On the other hand, the flexibility in Pillar 2 design allows it to be structured not only as a bank-specific requirement but also as a tool to address broader economic risks, particularly when Basel capital buffers do not adequately capture them. In this case, Pillar 2 can be designed as a supervisory expectation or target to address risks that extend beyond those covered by standardized capital buffers and by Pillar 1 requirements.[33]

In some jurisdictions, Pillar 2 includes both a requirement and a recommendation for additional capital. In these cases, the consequence for a bank breaching its Pillar 2 requirements would be determined in accordance with the jurisdiction's enforcement framework, which may apply the same supervisory response as for a breach of minimum Pillar 1 capital requirements. Hence, when Pillar 2 is set as a requirement, it can effectively alter the minimum capital requirement for that individual bank. Sanctions would not typically apply when a bank fails to meet a Pillar 2 add-on recommendation, unless the jurisdiction has a policy of imposing sanctions

[31] In the EU, under the CRD V, the Pillar 2 capital requirement should have the same composition as Pillar 1—that is, at least 56.25 percent should be in CET1 and at least 75 percent should be in Tier 1 capital as a minimum requirement. Swiss bank disclosures explicitly show FINMA Pillar 2 add-ons set as extra CET1 ratio (and CET1 leverage ratio) requirements, according to the legal framework in Art. 4 of the Banking Act and Arts. 45/131b of the Capital Adequacy Ordinance.

[32] As treated under Pillar 2, the risk profile of a bank reflects not only its current risk exposures but also forward-looking risks and the bank's capacity to manage these risks effectively.

[33] According to the Supervisory Review Process of the Basel framework (Section 20.42), Pillar 1 capital requirements will include a buffer for uncertainties surrounding the Pillar 1 regime that affect the banking population as a whole. This means that if the Basel Pillar 1 framework is not adequately capturing the risks of the banking system in a given jurisdiction, the minimum capital adequacy ratio would need to be increased to address these risks.

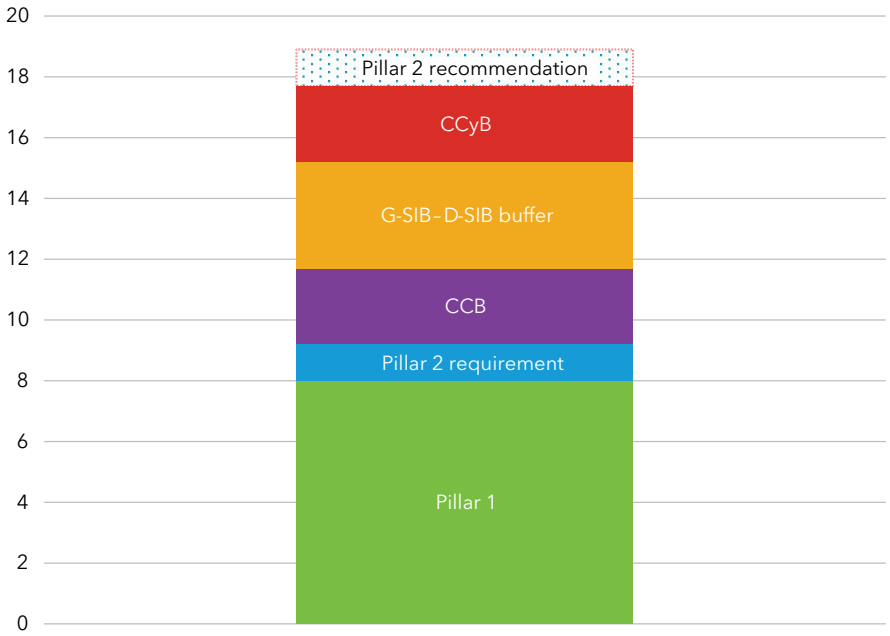
for failure to adhere to supervisory recommendations.[34] However, the Pillar 2 framework does establish that supervisors are able to require banks to hold capital in excess of the regulatory minimum, and there is a range of tools that could be taken to ensure that banks have sufficient incentives to adhere to the higher level of required capital, including intensifying the supervisory monitoring of the bank, restricting dividend payments, and requiring the bank to prepare and implement a satisfactory capital adequacy restoration plan.

Interaction of Pillar 2 with Capital Buffers

Each component of the capital stack serves a distinct objective: Pillars 1 and 2 aim to ensure solvency through the cycle, buffers absorb stress losses in a going-concern state, and total loss-absorbing capacity enables orderly resolution. The coexistence of overlapping ratios, stacking orders, and eligibility criteria increases the overall conceptual and operational complexity of the prudential regime. To ensure consistent implementation across banks, national frameworks should clearly articulate the respective roles of Pillar 2 capital add-ons and capital buffers, the capital stacking order, and the distinction between Pillar 2 recommendations and requirements. Without such clarity, there is a risk of either double counting risks, covering some risks inadequately, or creating inconsistencies in supervisory expectations, any of which could undermine the effectiveness and usability of capital resources.

Figure 4 depicts an illustrative capital stack. The actual size of the buffers may vary across jurisdictions and banks, and most countries do not include the Pillar 2 recommendation in their frameworks. Figure 4 indicates the possible components of a capital stack and the key requirements as set out in the Basel framework.

Figure 4. Capital Stack



Source: IMF staff interpretation.

Note: CCB = capital conservation buffer; CCyB = countercyclical capital buffer; D-SIB = domestic systemically important bank; G-SIB = global systemically important bank.

[34] In some jurisdictions, the component of the Pillar 2 add-on that is not a requirement may be called "nonbinding," "expectations," "guidance," or "target." As noted earlier, in this paper, we will use "Pillar 2 recommendations."

Higher capital requirements mechanically increase banks' cost of capital, as equity funding is more expensive than debt. However, empirical evidence suggests that Basel III strengthened banks' risk profiles and reduced the risk premium demanded by investors, leading to a decline in the cost of equity, especially for banks more affected by the reforms (Belkhir and others 2021; BCBS 2022a). This indicates that a stronger and more credible capital stack can offset the higher cost of equity by lowering the risk premium. Evidence presented by these papers further indicates that the effect of higher capital requirements on lending costs has been modest and largely concentrated in the adjustment phase.

Although banks may initially respond by widening lending spreads to reflect higher marginal funding costs, cross-country evidence does not point to a sustained increase in lending rates or a persistent contraction in aggregate credit supply. Over time, lower funding spreads and reduced risk premiums associated with stronger capital and liquidity positions help mitigate pass-through to borrowers. In parallel, stronger capital buffers are associated with earlier and more forward-looking provisioning practices, which reduce the volatility of earnings and capital over the cycle. The IMF analysis suggests that this supports more stable credit conditions by enabling banks to price expected credit losses more accurately, rather than responding to shocks through abrupt reductions in lending. Further discussion is in Annex 1.

Disclosure

The Basel framework does not require detailed disclosure of Pillar 2 capital add-ons. Some regulators have implemented additional disclosure standards—for example, in the EU, where large and significant banks disclose their Pillar 2 requirements on an annual basis.[35]

Table 4. Illustrative Capital Stack

Pillar 1 **8 percent**	• Minimum legal requirement • At least 4.5 percent to be composed of CET1 eligible capital instruments • Tier 1 ratio of 6 percent • Supervisory measures when breached or if at risk of breach	
Pillar 2 requirements	Risks not covered by Pillar 1 (for example, IRRBB, business or strategic risk, model risk) Risks not fully covered by Pillar 1 (for example, credit concentration, IRB model underestimation) Institution-specific or external factors (for example, governance weaknesses, business cycle effects)	• Minimum legal requirement • Supervisory measures if not met • No prescription for the composition of Pillar 2 capital in terms of CET1, Additional Tier 1, or Tier 2 capital. Supervisory expectations and practices provide guidance, which varies by jurisdiction and the purpose of the Pillar 2 requirement
Capital conservation buffer **2.5 percent**	• Must be met by CET1 eligible capital instruments • Sliding scale of capital distribution restrictions when not met	

(*Continued*)

[35] In practice, the European Central Bank publishes a consolidated table of Pillar 2 requirements—including any additional capital add-ons—of all the banks it supervises. (Banks designated as significant must consent to the publication of these figures, and while they can withdraw their consent, in most cases they do disclose this information.) This has also facilitated some recent empirical research on comparing the short-term and long-term determinants of Pillar 2 requirements in Europe (Alves, Citterio, and Marques 2023) and on estimating the potential effect of bank-specific capital requirements on lending to nonfinancial corporations by European banks (De Jonghe, Dewachter, and Ongena 2020).

Table 4. Illustrative Capital Stack (*Continued*)

G-SIB buffer 1–3.5 percent **D-SIB buffer—jurisdiction specific**	• Must be met by CET1 eligible capital instruments • Capital distribution restrictions if not met when it is in force	
Countercyclical capital buffer 0–2.5 percent	• Must be met by CET1 eligible capital instruments • Capital distribution restrictions if not met when it is in force	
Pillar 2 recommendation	At the jurisdiction's discretion (for example, early warning trigger)	• Not binding • Supervisory actions based on the jurisdiction's framework (for example, intensified supervision, other remedial measures)

Source: IMF staff.

Note: CET1 = Common Equity Tier 1; D-SIB = domestic systemically important bank; G-SIB = global systemically important bank; IRB = internal ratings based; IRRBB = interest rate risk in the banking book.

V. Implementation Issues in Emerging Market and Developing Economies

A. Establishing Capital Thresholds

Although not mandatory for non-BCBS members, many emerging market and developing economies aim to adopt Basel III to strengthen their banking systems.[36] The Basel framework is designed as a minimum set of requirements based on the assumption that banks are internationally active and well diversified, and is calibrated using data from such banks, most of which are headquartered in advanced economies. The Basel standards encourage all jurisdictions to set requirements above the minimum level of 8 percent of RWAs, in line with country-specific risk levels.

Emerging market and developing economies experience higher macroeconomic volatility because of greater exposure to external economic shocks, such as commodity price fluctuations and lower shock-absorption capacity, stemming from a range of factors, such as shallow domestic financial markets, weaker regulatory frameworks, and limited supervisory capacity. Against this backdrop, higher CARs can mitigate the potential effects of volatility and institutional weaknesses, reflecting a more fit-for-purpose approach to enhancing the resilience of banks and banking systems against potential shocks. Moreover, these countries represent a broad universe, ranging from jurisdictions with relatively simple banking systems to those with more complex financial system structures. Hence, the sophistication of the bank capital framework should be commensurate with the size, complexity, and risk profile of the domestic banking system, as well as the capacity of the supervisor.

B. Transition to Basel III

Many emerging market and developing economies maintain CARs above the 8 percent Basel minimum, and any transition to the Basel III capital framework should ensure that these safeguards are not weakened. The introduction of Basel III innovations, such as capital buffers, does not justify diluting previously established Pillar 1 minimum requirements, nor should the introduction of a Pillar 2 approach. The core issue is to ensure that any revised framework reflects a careful assessment of risk coverage, maintains an appropriate balance between simplicity and risk sensitivity, and achieves a sound calibration that supports both resilience and usability. In some countries, the legal and regulatory framework may have buffers embedded into capital requirements (that is, the buffers are not explicitly articulated, but they have been incorporated in the form of higher capital requirements). Over the medium term, these jurisdictions could consider the benefits of explicitly designing their capital standards to incorporate capital buffers that can be used more readily in times of stress. However, sometimes authorities have introduced higher minimum capital requirements to reflect structural or institutional issues (for example, higher market volatility, weak risk management, difficult collateral enforcement, and so on). In such cases, the minimum requirements under Pillar 1 should not be reduced.[37]

[36] Emerging market countries that are members of the BCBS should implement the Basel framework fully. In this technical note, emerging market and developing economies refer to non-BCBS member countries.

[37] When considering changes to the capital framework, including the capital stack and quantum of capital banks must hold, jurisdictions may find the staff report from the New York Federal Reserve on the evolution of equity capital in the US banking industry over the past 35 years to be useful to compare or contrast with their own experience (https://www.newyorkfed.org/research/staff_reports/sr1174.html).

Jurisdictions will differ in terms of their starting points when deciding how to implement and sequence the Basel buffer framework or Pillar 2 capital add-on requirements and recommendations. Countries that already have an operational Pillar 2 approach and wish to introduce the buffer framework should assess which risks are covered by Pillar 2 capital add-ons. It is important to ensure that risks are not left uncovered, while at the same time avoiding duplication and complexity in the framework. While sequencing the introduction of the various components of the capital framework, jurisdictions should ensure that all risks remain adequately covered and that the purpose of each component is clear.

For jurisdictions that maintain a systemwide minimum Pillar 1 capital adequacy requirement above the 8 percent Basel minimum, the supervisor should identify which risks this higher minimum is intended to cover. Such identification would help ensure that Pillar 2 capital add-ons address only residual risks. For instance, if a jurisdiction applies a minimum CAR of 10 percent to compensate for operational and market risks that are not explicitly included in its capital framework, the Pillar 2 requirement should then be designed to address other bank-specific risks that are not covered by the higher Pillar 1 minimum, such as IRRBB or concentration risk.

Moreover, during the transition to the Basel III framework, any recalibration of capital composition (for example, the introduction of the CET1 ratio requirement)[38] should not result in a de facto relaxation of the total capital standard. Where higher minimum CARs are in place, the distribution among capital components (CET1, AT1, and T2) should scale proportionally to preserve the overall level of resilience (see Annex 2 for an illustration of recalibrating CET1, T1, and CAR minima when the existing CAR exceeds 8 percent).

Jurisdictions should assess whether short or long transition pathways will be needed to reach the fully implemented Basel III standards. The appropriate length of the transition should reflect country-specific circumstances, such as banks' current capital positions, data availability, supervisory capacity, and the state of financial development, while ensuring that the overall level of prudential protection is not weakened during the adjustment period.

C. Implementation of the CCB

The implementation of the CCB is relatively straightforward in developing economies, as it involves applying a fixed additional layer of common equity above the minimum requirement without requiring complex calibration or countercyclical adjustments, provided that the automatic restrictions on capital distributions come into place in the event of a breach. Once implemented, the CCB can help mitigate the effect of volatility on capital adequacy by ensuring that banks build and maintain sufficient capital to absorb losses during periods of stress. Consequently, where the CCB is in place and effectively enforced, it may already address part of the volatility-related risks that previously justified maintaining higher minimum CARs.

D. Implementation of the D-SIB Buffer

The implementation of the D-SIB buffer is important to increase the resilience of significant banks in a jurisdiction, contributing to the stability of the financial system. The flexibility of the Basel III D-SIB standard, which allows authorities to determine the methodology and level of HLA, makes it suitable for the diverse

[38] Basel III introduced a minimum CET1 requirement of 4.5 percent, ensuring that banks hold higher-quality capital composed primarily of common shares and retained earnings. In addition, the Tier 1 capital requirement increased from 4 to 6 percent of RWAs, whereas the total capital requirement remained at 8 percent but with additional buffer requirements.

characteristics of emerging market and developing economies. In particular, jurisdictions with more limited data availability or supervisory capacity may need to adopt simpler methodologies to identify D-SIBs. This is because the Basel framework refers to an indicator-based measurement approach for assessing systemic importance in a domestic context, identifying four categories of systemic importance: size, interconnectedness, substitutability, and complexity.[39] The Basel framework also sets principles for the definition of the calibration of the HLA requirement.[40] It is key that supervisors have adequate powers to operate the restrictions derived from breaches of D-SIB buffers.

In countries where the financial system is concentrated and dominated by a few large institutions, asset size, though less risk sensitive than composite indicators, can serve as a pragmatic proxy for systemic importance, especially considering the role of national discretion. However, reliance on size alone may not capture all dimensions of systemic importance, and authorities should not overlook the value of qualitative assessments in the designation process. For instance, a bank that plays a critical role in the payment, clearing, and settlement infrastructure, or serves as a fiscal agent for the government, may be systemically important despite not being among the largest institutions by assets. Incorporating such considerations is vital to ensure that institutions whose distress could have significant systemic repercussions are appropriately identified and subject to enhanced loss-absorbency requirements.

E. Implementation of the CCyB

There are some challenges in the implementation of the CCyB in some emerging market and developing economies. First, practical implementation of the CCyB is predicated upon reliable measurement of cyclical risk, which may be more challenging in some emerging market and developing economies. Although the credit-to-GDP gap—a reference point for the BCBS—aims to capture excessive credit growth, it may yield misleading signals in those countries where significant structural financial deepening is underway. In such cases, credit naturally expands with economic development, causing the gap to appear positive even in the absence of financial excess. In some jurisdictions, directed lending programs and "zombie" loans (nonperforming, but not classified as such) further cloud the informational value of credit aggregates. These structural features introduce significant noise into credit-based indicators, undermining their reliability as proxies for financial cycles. A lack of high-frequency, high-quality data often precludes the construction of robust cyclical indicators altogether, which compounds these challenges. There are significant benefits for jurisdictions that invest in enhancing their historical data collection efforts. External factors, such as portfolio inflows or exchange rate volatility, can also distort the relationship between credit and GDP, making it harder to distinguish sustainable financial development from excessive risk taking.[41]

In addition, because of resource constraints, some countries may face difficulties in establishing the macroprudential infrastructure, including expertise, necessary to implement capital buffers. Furthermore, it may not be optimal for some countries to invest in building the capacity to implement capital buffers when there are significant gaps in the supervision of financial institutions, which should be addressed as a matter of urgency.

[39] SCO50—Domestic systemically important banks (https://www.bis.org/basel_framework/chapter/SCO/50.htm).

[40] RBC40—Systemically important bank buffers (https://www.bis.org/basel_framework/chapter/RBC/40.htm?inforce=20191215&published=20191215#paragraph_RBC_40_20191215_40_7).

[41] Many of these external factors may also pose challenges for small, open, advanced economies.

Also, the effectiveness of implementing releasable buffers as a countercyclical tool may face greater limitations in some low-income countries with shallow credit markets, typically characterized by low loan-to-deposit ratios and high public sector exposures, all of which hinder the desired economic effects of increasing or releasing capital buffers.

Although releasable buffers remain conceptually valuable, their effective use in emerging market and developing economies may require tailored approaches to risk measurement that go beyond the Basel metrics. In these countries, excessive credit growth could be assessed using a combination of financial and economic indicators rather than relying solely on the credit-to-GDP gap (Box 3). The positive neutral CCyB offers the opportunity to introduce capital headroom when risks are judged to be neither subdued nor elevated, embedding countercyclical capacity into the capital framework without relying on precise credit cycle indicators.

Moreover, real credit growth that significantly outpaces GDP and historical trends can indicate unsustainable borrowing, especially if concentrated in sectors such as real estate or consumer lending. In this case, a sectoral CCyB could be an appropriate tool to deal with growing risks in those segments. Rising household and corporate debt service burdens relative to income can also signal excessive credit growth. Credit condition surveys and looser lending standards provide qualitative evidence of excessive risk taking, whereas widening current account deficits suggest external imbalances that may be linked to unsustainable credit-fueled consumption or investment. Considering these indicators holistically helps authorities distinguish between healthy financial deepening and excessive credit growth that poses systemic risks.

The key challenges lie in calibrating the buffer and in determining the appropriate timing for its release, which requires supervisors to interpret multiple indicators consistently. Nevertheless, this approach allows jurisdictions to embed countercyclical capacity into the framework while tailoring activation to local conditions.

If wishing to adopt a simpler approach, less-developed countries could consider implementing higher Pillar 1 CARs instead of the Basel III buffers, in particular CCyB. Pillar 1 capital requirements are simpler to establish, as they are linked to banks' exposures and directly recognized as supervisory requirements applicable to banks.

Box 3. Armenia's Approach to Countercyclical Capital Buffer Calibration: Moving Beyond the Credit-to-GDP Gap

The Central Bank of Armenia acknowledges the limitations of relying solely on the credit-to-GDP gap as an indicator for setting the countercyclical capital buffer (CCyB). In the Armenian context, where structural changes and data limitations can distort the long-term credit trend, the CBA supplements this gap with a broader set of indicators to form a more comprehensive assessment of systemic risk.

In line with its methodology, the Central Bank of Armenia evaluates the following components:

- **A set of early warning indicators**, such as the credit-to-GDP gap, credit growth, and real estate price growth, as part of a signaling approach rather than a mechanical trigger
- **A composite financial cycle index** based on aggregation of credit flows, house prices, credit-to-GDP gap indicators, interest rate spread, and so on, to capture broader cyclical dynamics

(*continued*)

- **Stress testing results**, where the CCyB rate is informed by the difference between total losses in an adverse scenario and expected losses under baseline conditions
- **Judgment-based elements**, which allow for the consideration of country-specific features, data constraints, and expert interpretation of evolving macrofinancial conditions

This approach enables the Central Bank of Armenia to tailor the CCyB activation to Armenia's financial system, recognizing that mechanical rules may not adequately capture risks in a developing economy with structural shifts and evolving financial deepening (Central Bank of Armenia n.d.). In addition, the CBA has indicated that it is inclined to accumulate cycle-neutral CCyB in an environment in which cyclical credit risks are neither elevated nor subdued.

Source: IMF staff elaboration.
Note: CCyB = countercyclical capital buffer.

F. Pillar 2 Implementation

Emerging market and developing economies should make an effort to enhance their supervisory framework, aiming at implementing Pillar 2, ensuring that they can address institution-specific and systemwide risks effectively.

As discussed in the previous subsection, some emerging market and developing economies require minimum capital ratios higher than Basel requirements to address regulatory and supervisory limitations, as well as to manage the risks associated with their more volatile domestic economic and financial conditions. Jurisdictions should assess whether the additional capital required addresses all the risks to which individual banks and the banking system are exposed. Based on this assessment, authorities could complement these higher capital requirements with Pillar 2 capital add-ons, ensuring that bank-specific risks and systemic vulnerabilities are adequately captured. Pillar 2 allows for, and is intended to deliver, a targeted approach that addresses risks such as IRRBB, concentration risk, bank-sovereign nexus, and weaknesses in risk management and internal controls. This framework not only enhances risk management but also improves transparency and risk communication, encouraging banks to actively manage their exposures and strengthen their resilience.

Implementing Pillar 2 effectively in emerging market and developing economies requires certain key success factors and preconditions. First, the authorities should have the power to impose additional capital requirements, taking into account a bank's risk profile. Second, the implementation of Pillar 2 is significantly dependent on RBS, which provides a structured and forward-looking approach to supervision (Box 4). Implementing Pillar 2 effectively requires a supervisory framework that is dynamic, proportional, and forward looking, which closely aligns with the principles of RBS. The risk-focused, intrusive, and adaptive nature of RBS enables supervisors to identify and assess risks early, ensuring that capital add-ons under Pillar 2 are tailored to individual banks' vulnerabilities rather than applied uniformly.[42]

[42] An important aspect of Pillar 2 implementation is ensuring that a bank's ICAAP submission is of sufficient quality to reflect its own assessment of its capital needs. This process requires continuous refinement, with ongoing feedback from supervisors for banks' ICAAP assessments and the broader RBS framework to ensure its maturity and reliability in guiding a bank's internal capital adequacy decisions.

Box 4. Pillar 2 and Risk-Based Supervision

Risk-based supervision is a key element of Pillar 2, as it shifts the focus from compliance-based, checklist-driven supervision to a proactive, forward-looking, and judgment-based approach. Since Pillar 2 requires, among other actions, supervisors to evaluate a bank's Internal Capital Adequacy Assessment Process (ICAAP) and determine whether additional capital is necessary, RBS provides the methodology for conducting these assessments in a more efficient and risk-sensitive manner. In addition, RBS promotes early action by supervisors, which is a core component of Pillar 2, allowing supervisors to identify weaknesses in banks' governance, risk management, and capital planning before they pose systemic threats. By leveraging RBS methodologies, such as stress testing, forward-looking risk assessments, and sectoral risk analysis, supervisors can implement Pillar 2 effectively, reinforcing financial stability and resilience in both advanced and emerging market and developing economies.

Source: IMF staff elaboration.
Note: ICAAP = internal capital adequacy assessment process; RBS = risk-based supervision.

Another key success factor is the proportional application of Pillar 2, ensuring that requirements are aligned with the size, complexity, and risk profile of banks, thereby supporting financial stability without imposing unnecessarily complex regulatory frameworks. For instance, the complexity and sophistication of models for capital assessment and planning could be adjusted accordingly, ensuring that larger, more complex banks employ detailed and advanced methodologies, whereas smaller institutions use simpler, less resource-intensive approaches. Similarly, reporting requirements for Pillar 2 capital assessment could be simplified for smaller institutions.

Pillar 2 is designed to incorporate a forward-looking aspect. This process can rely heavily on supervisory assessment tools such as stress testing, scenario analysis, and strategic capital planning. Developing the processes for scrutiny and testing, and evolving these techniques over time, can be demanding for supervisors and banks in emerging market and developing economies that face resource and capacity constraints.

G. Institutional and Legal Considerations

Deploying capital buffers and using the Pillar 2 framework requires an adequate legal and institutional framework to be fully effective. The foundation rests on the mandate and autonomy of supervisory agencies so that a clearly defined safety-and-soundness mandate, protected by adequate autonomy arrangements against undue political or industry influence, is in place. Experience also shows that significant challenges can arise, particularly in, but not limited to, emerging market and developing economies.

Sufficiency of the legal framework is core to the application of any capital requirement. Supervisors must have explicit legal powers and instruments to impose binding Pillar 2 capital add-ons and buffers and to take action if a bank does not meet the requirements. A key challenge noted in jurisdictions relates to the lack of legal authority to impose additional capital requirements on individual banks. Pillar 2 requirements almost always incorporate expert supervisory judgments rather than quantitative formulas explicitly prescribed by law or regulation. This can expose supervisors to resistance or legal challenges from banks contesting

the basis or proportionality of the additional requirement. Supervisors can also face an extremely formalistic or risk-averse interpretation of laws or limited judicial deference to the supervisory agency's technical expertise and discretion. Of course, the supervisor still needs to follow the due-process safeguards when applying Pillar 2, including providing notice to the firm and a right to be heard. Ensuring clarity of powers and processes is therefore essential for the application of Pillar 2.

Beyond the existence of legal powers, the effectiveness of Pillar 2 requirements in supporting adequate capital levels depends critically on the quality of ongoing supervisory monitoring, as well as the timeliness, consistency, and credibility of enforcement when requirements are breached.

Powers to impose capital buffers also need to be clearly articulated. The CCB can be implemented directly through the relevant national rulebook, so that the restriction on capital distribution if the bank fails to meet the buffer is applied automatically. Often, supervisors have the important general power to restrict capital distribution if a bank is engaged in unsafe or unsound activities or practices, but this is less efficient in ensuring that banks maintain the more mechanical buffers. Legal gateways for the exchange of information and effective coordination and cooperation mechanisms are critical when decisions on CCyB are taken not by the supervisor but by another authority. Similarly, cooperation is needed with the resolution authority, if separate, given the interaction between regulatory capital requirements and prepositioning banks for sufficient loss-absorbing capacity for resolution purposes.

VI. Conclusions

The Basel capital framework has evolved significantly since the introduction of Pillar 2 in Basel II. The current capital framework has become increasingly complex as multiple layers of prudential and resolution-related requirements have been introduced since the global financial crisis. After the global financial crisis, Basel III not only enhanced the quality and quantity of required capital but also introduced macroprudential elements into the capital framework to help contain systemic risks arising from procyclicality and from interconnectedness of financial institutions, in the form of capital buffers. These buffers, the CCB and its extensions, including the CCyB and the systemic banks' risk buffers for G-SIBs and D-SIBs, were designed to strengthen the resilience of the banking system. Although the main architecture of Pillar 2 (built on supervisory judgment, ICAAP reviews, and bank-specific capital add-ons) has remained unchanged, its application has become more refined with the 2009 Supplemental Pillar 2 Guidance. Pillar 2 is core to the sound capitalization of individual banks, its strength lying in its flexibility to address bank-specific risks, emerging vulnerabilities, quality of risk management, and supervisory concerns that are insufficiently captured in Pillar 1. Authorities should recognize that Pillar 2 capital add-ons, when calibrated to address a bank's specific risk profile, constitute minimum prudential requirements rather than releasable buffers. Consequently, they are not intended to be drawn down or relaxed during periods of systemic stress. National implementation decisions need to clearly articulate the respective roles of Pillar 2 and buffers, the capital stacking order, and the distinction between Pillar 2 requirements and recommendations to avoid overlaps while ensuring that all risks are adequately covered by capital.

For emerging market and developing economies, the implementation of the Basel capital framework offers invaluable tools, though their application should be adapted to the local context. Many of these countries already require CARs above the Basel minimum levels to address a range of issues, including higher financial risks because of greater macroeconomic volatility and structural weaknesses, such as institutional capacity constraints. These jurisdictions should assess whether these ratios capture all material risks, consider what aspects of the Basel framework will enhance the resilience of the national framework, and determine whether short or long transition pathways will be needed. As indicated in this technical note, jurisdictions that have implicitly embedded buffer elements into minimum capital requirements may consider introducing explicit macroprudential buffers, while preserving higher minimum requirements where necessary to address structural or institutional weaknesses that are not macrofinancial in nature.

In developing the architecture of capital adequacy, jurisdictions need to focus on the appropriate mix and the sequencing of Pillar 2 add-ons and Basel III capital buffers tailored to their specific circumstances. The decisions will be shaped by a set of interrelated factors. These include the primary supervisory objective, informed by the nature of vulnerabilities identified through supervision, and whether these vulnerabilities are systemwide, bank-specific, or sectoral. The scope and strength of supervisory powers are core issues, especially regarding the ability to impose Pillar 2 requirements and enforce capital distribution restrictions. For jurisdictions where supervisory powers do not already support the implementation of these instruments, amendments to legislation are strongly desirable and often necessary. Supervisory capacity, including the ability to exercise supervisory judgment, will be an influencing factor.

Implementing Pillar 2 requirements in a proportionate way is a valuable step for any jurisdiction. Supported by RBS, Pillar 2 enables a targeted, more forward-looking assessment of capital adequacy, especially where data limitations or structural problems may lead to the underestimation of risks, fostering better risk

management and internal control processes in banks. Implementation of Pillar 2 requirements may lead supervisors to require Pillar 2 capital add-ons or qualitative measures, based on the conclusion that current Pillar 1 capital requirements are not enough to cover specific risks identified in the SRP. However, the most important aspect is ensuring that supervisors are well equipped and have the power to act early when their judgment indicates that a bank is not sufficiently resilient to withstand the risks it is incurring or may be subject to.

Emerging market and developing economies may also benefit from implementing Basel III capital buffers. The CCB provides a degree of automatic protection of capital resources and may be easier to implement because it does not require calibration. However, implementing any Basel III capital buffer requires a strong supervisor with the power to impose capital distribution restrictions when banks' capital falls below the CET1 minimum plus buffer requirements. Moreover, the supervisor must have the capability and resources to monitor the situation and be able to require and enforce a plan for capital replenishment.

Jurisdictions may also consider implementing the CCyB, which can be activated during periods of excess aggregate credit growth and released to enhance banks' capacity to absorb losses during periods of systemic stress. However, the feasibility of deploying the CCyB, sectoral CCyB, or positive neutral CCyB depends critically on the availability and quality of data, a practical limitation that can be addressed over time. Implementation of the CCyB may further be constrained by operational and methodological challenges in identifying financial cycles. The credit-to-GDP gap, a key reference point considered by the BCBS, might give misleading signals in those emerging market and developing economies where there is a lack of high-quality data or if financial deepening is underway. Therefore, authorities should consider a broader set of indicators, including real credit growth, lending standards, asset price movements, and indebtedness indicators, to assess imbalances more accurately. Where credit growth is concentrated in particular segments, a sectoral CCyB may offer a targeted and proportionate approach. Positive neutral CCyB offers the opportunity to introduce capital headroom when risks are judged to be neither subdued nor elevated, embedding countercyclical capacity into the capital framework without relying on precise credit cycle indicators.[43] However, challenges around calibration and release timing remain relevant, and it should not be viewed as a simple substitute for Pillar 1 or Pillar 2.

[43] The BCBS "Range of Practices" (https://www.bis.org/bcbs/publ/d585.pdf) paper highlights that the outlook on cyclical risk is relevant for the buildup of not only the overall CCyB but also the positive neutral CCyB. This reflects the notion of the positive neutral CCyB as an *early activation* approach, which can help address challenges arising from limited real-time data and uncertainty in measuring cyclical risk in the early stages of the financial cycle.

Annex 1. Capital Requirements and the Cost of Equity

The effect of changes in capital requirements on the cost of equity has been examined in the evaluation of the effect and efficacy of the Basel III reforms undertaken by the Basel Committee on Banking Supervision (BCBS 2022a) and by Belkhir and others (2021). The key takeaways of these papers are strongly aligned, namely, that higher capital reduces banks' cost of equity; better-capitalized banks maintain stronger lending capacity, especially during stress; credit risk deterioration—that is, increases in provisions and/or nonperforming loans—raises funding costs, but capital buffers attenuate this impact channel; and weak banks benefit the most from increases in capitalization.

Increases in bank equity capital significantly lower funding costs, as shown by Belkhir and others (2021) and the BCBS's evaluation of 2022. Belkhir and others (2021) find that a 1-percentage-point rise in the equity-to-asset ratio cuts the cost of equity by about 18 basis points, and by up to 79 basis points for the least-capitalized banks, whereas Tier 2 capital has no meaningful effect, underscoring investors' preference for high-quality equity. The BCBS reaches similar conclusions: banks with the lowest incumbent Common Equity Tier 1 (CET1) ratios—that is, those that had to raise capital the most following adoption of Basel III-consistent regulations—also saw the largest reductions in both cost of debt and cost of equity after the reforms. Market data reinforce this pattern, with a one-point lower pre-Basel III CET1 ratio, associated with a roughly 7-basis-point drop in senior credit default swap spreads over five years (after increases in capital to meet Basel III requirements). This indicates that stronger capital and liquidity positions translated directly into lower perceived risk and cheaper market funding.

Overall, the quantitative evidence from both studies contradicts the notion that higher capital requirements inevitably raise banks' funding costs. As banks increased their CET1 ratios—rising globally from around 7 percent in 2011 to about 13 percent by 2021—their funding costs fell, reflecting improved resilience and lower perceived default risk. By reducing both equity and debt costs, the reforms helped offset potential upward pressure on lending spreads. By contrast, both papers find that weaker asset quality increases the cost of equity, as credit risk deterioration raises funding costs.

As overall credit continued to expand across most jurisdictions, reforms did not impair the aggregate supply of credit to the real economy. One explanation for this outcome is that stronger capital and liquidity positions improved resilience and market confidence, allowing banks to sustain, and in many cases, enhance lending capacity. In parallel, evidence from the cost of capital literature suggests that higher capitalization can lower banks' funding costs, helping offset potential lending pressures associated with stricter requirements. Nevertheless, institutions that entered the reform period with relatively low initial CET1 ratios or weaker liquidity positions occasionally exhibited slightly lower loan growth compared with peers with stronger starting metrics. This suggests that banks facing more binding constraints may have adjusted their balance sheets more cautiously as they moved to meet the new standards.

Overall, the evidence presented by these analyses clarifies that Basel III strengthened banks without raising their funding costs, as higher capital buffers reduced (perceived) risk, lowering risk premiums demanded by investors, all of which ultimately supported credit supply. Basel III has reshaped banks' funding structures, market perceptions, and lending behavior by substantially raising the level and quality of capital—especially

CET1—and improving liquidity, with the largest adjustments occurring at banks that began with weaker metrics. Strengthened balance sheets did not increase banks' overall cost of capital; rather, both Belkhir and others (2021) and the BCBS show that higher equity capital lowered banks' cost of equity and, for more affected banks, also reduced the cost of debt as markets priced in improved solvency. These declines in funding costs challenge the view that higher capital requirements inevitably raise the weighted average cost of capital and restrict credit. Consistent with this, the BCBS finds no evidence of an aggregate lending contraction after Basel III: although some initially weaker banks grew loans more slowly, overall credit expanded across most jurisdictions. Taken together, the findings indicate that Basel III enhanced resilience and reduced systemic risk—reflected in falling market-based risk measures—while maintaining the flow of credit to the real economy, creating a reinforcing dynamic in which stronger capitalization boosted confidence, lowered funding costs, and supported sustained lending capacity.

Annex 2. Proportionate Distribution of Capital Components of Higher-Than-Basel-Minimum Capital Ratios

Annex Table 2.1 illustrates how the composition of capital components—Common Equity Tier 1 (CET1), Additional Tier 1 (AT1), and Tier 2—scales up proportionally with increases in the capital adequacy ratio (CAR) from the Basel III minimum of 8 percent to higher total capital levels such as 12 and 15 percent.

Annex Table 2.1. Scaled Levels of Capital Adequacy Ratios above Basel III Minimum

Component	Base Level (8 percent)	Share (percent)	Scaled Level (12 percent)	Scaled Level (15 percent)
Common Equity Tier 1	4.5	56.25	6.75 (= 12 × 0.5625)	8.4375 (= 15 × 0.5625)
Additional Tier 1	1.5	18.75	2.25	2.8125
Tier 2	2.0	25	3.00	3.75
Capital Adequacy Ratio	8	100	12	15

Source: IMF staff elaboration.

How the Calculations Work:

1. **The base composition at an 8 percent CAR:**
   CET1 = 4.5 (which is 56.25 percent of 8 percent)
   AT1 = 1.5 (18.75 percent)
   Tier 2 = 2 (25 percent)

2. **Scaling to higher total capital targets (12 percent and 15 percent):**
   The assumption is that the relative shares (percentages) of CET1, AT1, and Tier 2 remain constant. For example:

   - At 12 percent CAR:
     - CET1 = 12 × 56.25 percent = 6.75
     - AT1 = 12 × 18.75 percent = 2.25
     - Tier 2 = 12 × 25 percent = 3.00

   - At 15 percent CAR:
     - CET1 = 15 × 56.25 percent = 8.4375
     - AT1 = 15 × 18.75 percent = 2.8125
     - Tier 2 = 15 × 25 percent = 3.75

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