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Report of the ECB-ESRB workstream on buffer usability

IWG-MPPG WS on buffer usability

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Contents

Executive summary

The European Central Bank (ECB) and European Systemic Risk Board (ESRB) established a joint workstream to ensure effective information sharing and cooperation on new approaches to measuring buffer usability. To achieve this objective, the workstream was tasked with sharing analytical approaches recently developed within the ESRB community, clarifying underlying assumptions regarding the measurement of buffer usability and exchanging experiences with policy implementation. Additionally, the workstream was mandated to agree on terminology concerning interactions between the prudential and resolution frameworks and their impact on macroprudential indicators. Lastly, the workstream was tasked with implementing agreed concepts and methodologies in an analytical tool – the buffer usability simulation tool (USIT) – and sharing the code for this with all ESRB members, following an open-source approach. This report delivers on that mandate and continues the work started with the ESRB Analytical Task Force (ATF) on the overlap between capital buffers and minimum requirements (ESRB, 2021). The report adopts a neutral stance on all aspects related to policymaking and refrains from making policy recommendations. Nevertheless, it could support future policy discussions by serving as a shared reference point and offering a basis for consistent analyses on this topic.

The prudential and resolution frameworks complement each other and interact in complex ways. Prudential requirements are determined by the risk profile of a bank's assets and its leverage, with the primary aim of mitigating both systemic and idiosyncratic risks within the financial sector. Resolution requirements are intended to ensure that credit institutions maintain adequate resources to facilitate a smooth and effective resolution process. The prudential and resolution frameworks have distinct objectives and complement each other. A better understanding of the interactions between the two is essential for ensuring that the objectives of the parallel frameworks can be achieved.

Banks can use capital to meet prudential and resolutions requirements in parallel. For macroprudential authorities the natural reference point is the use of Common Equity Tier 1 capital (CET1) across frameworks, as parallel use of CET1 to meet capital buffers and other requirements implies that it may not be freely available for banks to absorb losses. By employing different analytical approaches, the usability of buffers can be measured. These approaches provide macroprudential authorities with important information about the functioning of the buffer framework and the loss-absorbing capacity in going concern of individual banks and the system as a whole.

The report defines the key concepts of buffer usability, releasability, capital headroom and loss-absorption capacity and provides a consistent methodology to quantify and evaluate these concepts. It extends the scope of previous analyses on this topic by establishing common definitions for these concepts, taking into account the complex interactions among parallel stacks. With

respect to buffer usability, two distinct analytical approaches are used: the baseline approach, which assesses buffer usability in the risk-weighted prudential stack, and the complementary approach, which evaluates buffer usability in both the prudential and resolution frameworks. Under the complementary approach, overall buffer usability is determined as the maximum usability of buffers across all stacks, thereby capturing a more comprehensive view of the system's capacity to absorb losses. Regarding the releasability of macroprudential buffers, the report introduces a methodology that enables authorities to assess the extent to which buffer releases can effectively increase capital headroom, allowing banks to absorb losses without triggering restrictions on distributions. Finally, the report defines a methodology for calculating effective capital headroom – the amount of capital not used to meet any regulatory requirement – as well as the effective loss-absorbing capacity in going concern. Regardless of the methodology applied to evaluate it, limited buffer usability does not limit banks' ability to use any available effective capital headroom not overlapping with parallel requirements. While the concepts of buffer usability and capital headroom are distinct and independent from each other when assessed separately, they jointly determine the effective loss-absorbing capacity of a bank in going concern.

The report also quantifies the level of buffer usability, releasability, capital headroom and loss-absorbing capacity of banks supervised under the Single Supervisory Mechanism (SSM). These quantifications are mainly for illustrative purposes, aiming to demonstrate how differences in methodologies and assumptions can lead to different results.

The differing nature and scopes of prudential and resolution requirements pose analytical challenges to authorities. In particular, these stem from the differences in equity consumption for the different consolidation perimeters in the prudential and resolution frameworks. The report illustrates this issue and provides initial guidance on how to deal with the differences in the consolidation perimeters.

The workstream has further developed the analytical framework to assess the above concepts in a consistent manner. The analytical framework is incorporated into the USIT originally developed by the ESRB ATF. The revised tool provides a solid basis for assessing interactions among parallel frameworks and includes several new features to quantify buffer usability, effective releasability, capital headroom and loss-absorbing capacity. It includes both the baseline and the complementary approaches to measure buffer usability. USIT can also combine various assumptions, enabling authorities to assess the impact of regulatory reforms and policy options on buffer usability and releasability.

Interactions within the prudential and between prudential and resolution frameworks can restrict both the usability and effective releasability of capital buffers, as well as banks' capital headroom, which is a concern for authorities. Since CET1 can be simultaneously used to meet capital buffers and minimum regulatory requirements, the ability to build up or release capital buffers may be limited if the required capital is "locked" in other parallel requirements. In scenarios like this, banks' capital headroom and overall loss-absorbing capacity may also be constrained.

Limited buffer usability indicates a higher risk of banks breaching minimum requirements, including the leverage ratio or resolution minimum requirements, during stress. Breaches of the prudential leverage ratio could trigger earlier activation of a "failing or likely to fail" (FOLTF) assessment than foreseen by prudential risk-weighted requirements. Breaches of resolution minimum requirements can be addressed by the relevant resolution authorities through a variety of measures specified in BRRD, including a possible FOLTF assessment of a bank. Limited buffer usability could potentially force banks into procyclical deleveraging during downturns, which could harm the real economy and financial stability as well.

The concepts and the analytical framework developed by the workstream provide a solid basis for measuring the interactions between parallel frameworks and evaluating buffer usability in a consistent manner across jurisdictions. The updated analytical tool can support authorities in implementing various policy measures effectively, as well as in assessing the impact of regulatory reforms and policy options on buffer usability and releasability.

The report does not make any policy proposals on how to enhance the usability of capital buffers. It takes the current regulatory framework as given and aims to improve understanding of it. Possible changes in the framework would warrant further analyses and discussions on the interactions between micro, macroprudential and resolution frameworks.[1]

[1] For further analyses and discussions of options to ensure or enhance buffer usability, see ESRB (2021).

1 Introduction

Banks in the EU are subject to parallel requirements that encompass both prudential and resolution elements, which complement each other. The prudential framework includes (i) minimum requirements to be met at all times; (ii) capital buffers that can be used by banks to absorb losses in adverse scenarios, and (iii) additional supervisory guidance, which is a legally non-binding expectation about the level of capital authorities consider appropriate to absorb potential losses in stress events. The resolution framework consists of requirements that aim at safeguarding the continuity of a bank's critical functions, protecting depositors and minimising costs for taxpayers in the event of default. The prudential and resolution frameworks complement each other, as the prudential framework focuses on going-concern requirements, while the resolution framework lays out gone-concern requirements. Both frameworks enhance financial stability.

Prudential requirements are determined by the risk profile of a bank's assets and its leverage, with the primary aim of mitigating both systemic and idiosyncratic risks within the financial sector. Both the risk-weighted and the leverage-based prudential frameworks encompass Pillar 1 requirements (P1R) and Pillar 2 requirements (P2R), which are jointly considered minimum requirements. P1R are set at the same level for all banks, while P2R are additional institution-specific requirements set by microprudential supervisors to cover institution-specific risks not reflected, or inadequately reflected in P1R. On top of the minimum requirements, the risk-based framework includes a combined buffer requirement (CBR) that contains a set of releasable and non-releasable capital buffers. The calibration of the buffers is either defined in law or set by macroprudential authorities. Global systemically important institutions (G-SIIs) also need to comply with a leverage ratio buffer. In addition, microprudential authorities communicate their Pillar 2 guidance (P2G) to banks, which is a non-binding recommended minimum amount of capital above minimum requirements and regulatory buffers and can be set in either risk-weighted or leverage ratio terms.

Resolution requirements ensure that credit institutions have sufficient resources to finance their smooth and effective execution of resolution. The Minimum Requirement for Own Funds and Eligible Liabilities (MREL) consist of the loss-absorption amount (LAA) and the recapitalisation amount (RCA). The LAA aims to absorb losses in resolution while the RCA is intended to recapitalise the institution (i.e. be written down or converted into CET1), so it can meet prudential requirements again after resolution. Additionally, large banks (and other banks, at the discretion of resolution authorities) need to fulfil additional subordination requirements; these aim to reduce the risk of breaching the no-creditor-worse-off (NCWO) principle, ensuring no creditor is worse off under resolution than they would have been under insolvency proceedings. For G-SIIs, total loss-absorption capacity (TLAC) requirements also apply. These are defined in the TLAC term sheet published by the Financial Stability Board, given their possible global adverse impact in case of failure. The TLAC requirements are implemented in EU law. Mirroring the prudential requirements, both

MREL and TLAC requirements are expressed in risk-weighted and leverage-based metrics.

Banks' capital can partially be used to meet parallel regulatory requirements. In general, the same unit of capital can be used to meet all parallel requirements in the prudential stack and certain requirements in the resolution stack. Regarding capital buffers, CET1 used to meet the CBR in the risk-weighted prudential stack can at the same time be used to meet leverage-based prudential and resolution requirements. The parallel use of capital creates various overlaps between frameworks, poses challenges to authorities when implementing measures and assessing their interactions, and may reduce the effectiveness of those measures.

The relationship within the prudential and between the prudential and resolution frameworks requires a common understanding and methodology to assess their interactions in a consistent manner, as they might affect the functioning of the macroprudential framework in different ways. For macroprudential authorities the most relevant source of overlap is that of CET1. The parallel use of CET1 to meet the CBR and other minimum requirements implies that this amount of capital may not be freely available for banks to absorb losses, as by doing so they might breach a parallel minimum requirement. The magnitude of this limitation in banks' ability to use buffers can be measured and provides authorities with important information about the loss-absorbing capacity of individual banks and the system as a whole. The usability of releasable buffers is important for macroprudential authorities to be able to create more capital headroom in times of broader financial instability.

This report aims to facilitate a common understanding of the interactions in the regulatory framework by providing definitions of commonly used concepts and describing analytical approaches that can be used by macroprudential authorities to quantify the usability of buffers. Previous work on the topic of buffer usability[2] and the interactions between prudential and resolution frameworks serves as a basis for the report. Given the complexity of the regulatory framework, it is important to review the additional work conducted since the initial ESRB ATF report on the topic, clarifying key concepts using a common language and explaining how different assumptions may affect the outcome of the analysis, particularly in cases where this has not been adequately addressed in existing studies. Differences in analytical approaches could also result in different interpretations and implications for policy makers. Therefore, in line with the mandate of the IWG-MPPG work stream on buffer usability, this report aims to provide a comprehensive overview of concepts and further enhance a common understanding of terminology and the implications of certain assumption underpinning the analysis. A common understanding of the interactions between parallel requirements is not only essential for macroprudential authorities, but also relevant for microprudential and resolution authorities, as well as for credit institutions and market participants.

2 See ESRB (2021), Cornacchia and Guerra (2022), De Bosio and Loiacono (2023), European Banking Authority (EBA, 2024), Leitner et al. (2023), Ebner and Westhoff (2024) and Zsámboki et al. (2025).

The agreed concepts and approaches are incorporated in an analytical tool, which is distributed to authorities to monitor and quantify the interaction between different frameworks and provide a common ground for policy discussions. The buffer usability simulation tool (USIT) developed by the ESRB ATF on the overlap between capital buffers and minimum requirements has been shared with and used by national authorities in recent years. Following the agreed terminology and analytical approaches presented in this report, USIT has been updated and the new version is shared with national authorities and other EU bodies. USIT allows authorities to compute all the metrics presented in this report in a consistent way, making it possible to use different assumptions for different analytical purposes, and compare the results of analyses conducted by different authorities.

While this report is highly relevant for macroprudential policy, it deliberately avoids making policy recommendations, maintaining a neutral stance on all aspects related to policymaking. The focus is on facilitating a common understanding of regulation and assessing interactions from a methodological perspective, rather than a policy one. Nevertheless, the report could facilitate policy discussions by serving as a common reference point and providing a technical basis for future analyses.

The remainder of this report is structured as follows: Chapter 2 provides an overview of the prudential and resolution requirements as well as their interactions. Chapter 3 presents the key concepts and definitions of buffer usability and releasability and discusses the main implications for macroprudential policy. Chapter 4 explains the way these concepts have been incorporated in USIT. Chapter 5 discusses the main implications for macroprudential policy. Chapter 6 concludes.

2 Overview of European banking regulation

2.1 Prudential framework

The key elements of the prudential framework for banks in the EU are defined in the Capital Requirements Directive[3] (CRD) and Regulation[4] (CRR). The CRD and CRR are the EU legislative acts implementing the international capital and liquidity standards developed by the Basel Committee on Banking Supervision in response to the financial crisis of 2007-09 (Basel III). The CRD and CRR jointly form a single rulebook for prudential regulation by setting requirements for banks with respect to their capital and liquidity position and defining the basic rules for their establishment, governance, supervision and public disclosure. The primary objective of the single rulebook is to improve the resilience of the financial system in the EU. Detailed rules on the implementation of the CRD and the CRR and certain technical aspects of the prudential framework are defined by the European Banking Authority (EBA) in lower-level legislation. Within the banking union, the Single Supervisory Mechanism Regulation[5] confers specific tasks on the ECB concerning the prudential supervision of credit institutions.

The prudential supervision of banks can be split into micro- and macroprudential supervision, which complement and reinforce each other. Microprudential supervision aims to ensure the safety and soundness of individual banks by addressing idiosyncratic risks, typically on a one to three-year time horizon. Macroprudential supervision focuses on the resilience of the banking sector and systemically important banks to safeguard financial stability. It aims to ensure that the banking sector can withstand systemic shock without excessive deleveraging and having to cut back on providing financial services to the real economy. Furthermore, macroprudential supervision seeks to internalise the negative externalities stemming from the systemic importance of banks by strengthening their going-concern resilience. A key objective of macroprudential supervision is to build up resilience in the financial system against various structural and cyclical systemic risks. The resilience of individual institutions is a necessary but not sufficient condition for the resilience of the system as a whole. Macroprudential policy also fosters macroeconomic stability by safeguarding financial stability. This can be seen

3 Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC Text with EEA relevance (OJ L 176, 27.6.2013, p.338).

4 Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012 Text with EEA relevance (OJ L 176, 27.6.2013, p.1).

5 Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions (OJ L287, 29.10.2013, p. 63).

through its recent emphasis on ensuring that banks can maintain lending activities and continue providing critical services during crisis periods.

The prudential framework defines various capital requirements for banks, which are expressed in risk-weighted (RW) and leverage ratio (LR) terms. The RW framework aims to measure the riskiness of banks' portfolios and sets corresponding capital requirements, expressed as a percentage of the total risk exposure amount (TREA), that can serve as a cushion against potential losses stemming from the risks identified. The LR framework is a non-risk-weighted complementary and backstop measure that restricts the build-up of leverage in the system. LR requirements are set as a percentage of the leverage ratio exposure measure (LREM), also referred to as the total exposure measure (TEM) in the CRD and the CRR.

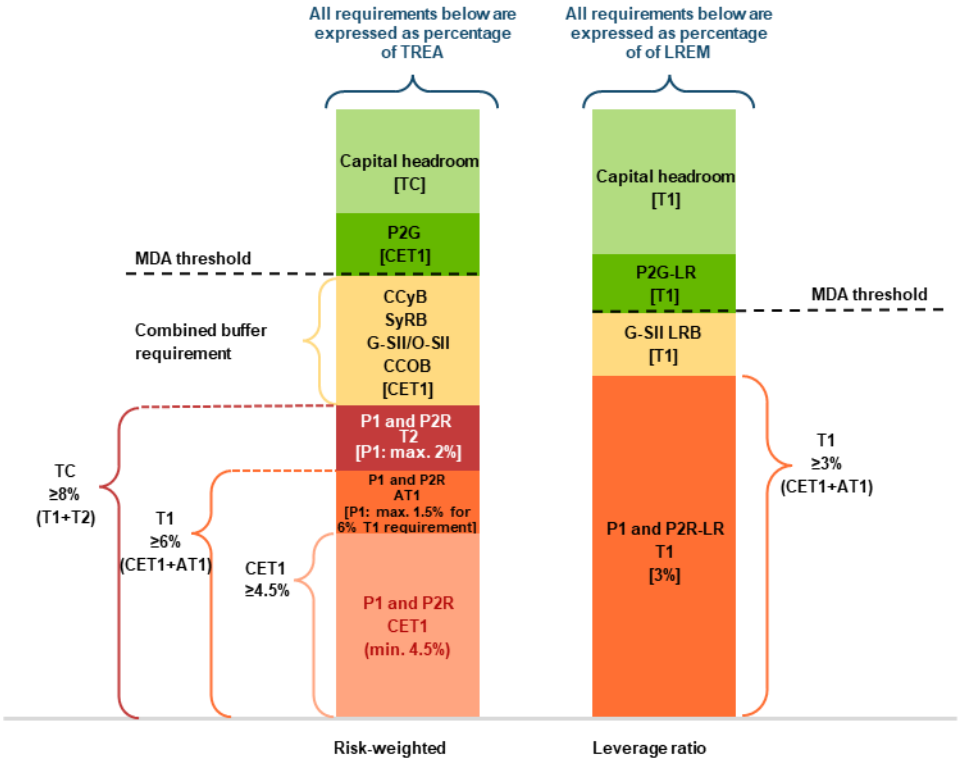
Both RW and LR frameworks include Pillar 1 (P1R) and Pillar 2 requirements (P2R), which are minimum requirements that should be met at all times. In addition, they include capital buffers that can be used by banks to absorb losses, subject to restrictions on distribution. The minimum requirements and capital buffers collectively define the overall capital requirements (OCR). On top of the OCR, supervisory authorities can communicate to banks their expectations for additional capital in form of Pillar 2 guidance (P2G), a non-binding recommendation which may serve as an additional cushion for absorbing losses.

Capital buffers constitute a key element of the RW prudential framework. There are four types of buffers in the RW framework: (i) the capital conservation buffer (CCoB), (ii) capital buffers for global and other systemically important institutions (G/O-SII buffers, only the higher one is applied), (iii) the systemic risk buffer (SyRB), and (iv) the countercyclical capital buffer (CCyB). These collectively make up the combined buffer requirement (CBR). The CCoB is calibrated at 2.5% of TREA, while G-SII buffers are calibrated according to international standards, currently in the range of 1-1.5% of TREA in the EU. The calibration of O-SII buffers is based on national methodologies, with no upper limits. The maximum rate, which is currently applied in the banking union is currently 2.5% of TREA. The national O-SII methodologies are complemented by a floor methodology set by the ECB for banks headquartered in the banking union. For banks simultaneously subject to O-SII and G-SII buffers, the maximum of the two buffers is considered in the CBR. Therefore we refer to this element as the G/O-SII buffer. The CCoB and G/O-SII buffers are meant to be structural in nature, and hence are called non-releasable buffers. The SyRB and CCyB are more flexible instruments that can be used to address a wide range of structural and cyclical risks at systemic level. The SyRB can also address risks at the sectoral level (sSyRB), providing additional granularity to the framework and allowing authorities to address risks in a more targeted manner. Both the SyRB and the CCyB are calibrated on the basis of national methodologies, while adhering to European and international guidelines on implementation. Authorities can reduce the calibration of these buffers, or set them to zero, when risks materialise. They are therefore generally referred to as releasable, although the CRD does not include explicit provisions on the release of the SyRB. Overall, the CBR includes a wide set of tools to address specific systemic risks at domestic, European and international

levels. When calibrating buffers, authorities need to ensure that each systemic risk is only addressed by one buffer and avoid any overlaps between them and with other microprudential and macroprudential measures.

Capital buffers provide additional loss-absorption capacity for banks and the banking sector above the minimum requirements. Banks can dip into the buffers, subject to automatic restrictions on distribution in the prudential framework that aim to ensure banks retain profits until buffers are restored. The details of the mechanism are described in Box 1 below.

Figure 1
Overview of prudential frameworks



Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank, nor does the height of any bars indicate a specific number for any requirement. If a bank's amount of Additional Tier 1 capital (AT1) exceeds the LR requirement, which is defined in terms of required T1 capital, then the capital headroom in the LR stack consists of both CET1 and AT1. On the other hand, if a bank does not have sufficient AT1 to fully meet the LR requirement in T1 terms, the remaining requirement needs to be met with CET1. In this case the capital headroom consists only of CET1. P2R in the risk-weighted stack need to be met with at least 56.25% CET1 and 75% T1. The remaining P2R can be met with T2, which implies at most 25% of P2R can be met with T2.

Releasable buffers play a key role in macroprudential policy, as authorities can create additional capital headroom for banks in stress periods. While banks are allowed to dip into them, they may be reluctant to do so in order to avoid restrictions on distributions. It is therefore important that authorities are able to effectively reduce certain buffer requirements by releasing or recalibrating them downwards when necessary. This creates additional capital headroom that can be used by banks to absorb losses without facing restrictions on distribution, thereby reducing possible pressure to cut back lending, which could result in an adverse deleveraging spiral at system level.

Capital buffer requirements in the RW framework must be met with CET1 capital, which is the highest quality element of own funds, as it absorbs losses first. The role of CET1 capital is crucial for absorbing losses in stress periods and therefore also key for the effective functioning of the macroprudential framework. In the standard macroprudential policy cycle authorities (i) monitor and identify risks, (ii) assess their systemic relevance and (iii) address them by calibrating capital buffers (and other instruments). The high capital quality of buffers ensures that such risks can be mitigated effectively, and potential losses absorbed if they materialise.

Contrary to the wide range of buffers in the RW framework, the LR framework includes only one specific buffer for G-SIIs which can be met with Tier 1 capital. The LR buffer requirement is linked to the risk-based G-SII buffer rate, with a conversion factor of 50%. This means that, for example, a 2% G-SII buffer in the RW stack is equivalent to a 1% buffer in the LR stack. The LR buffer is placed above the minimum leverage ratio requirements (P1R and P2R) and, since it is linked to the G-SII buffer, is classified as a non-releasable measure. Owing to the structure of the parallel capital stacks, the LR buffer can overlap with both releasable and non-releasable buffers in the RW framework and therefore can eventually constrain the releasable buffers in the RW framework. However, it can also increase the amount of total effectively usable buffers if risk-weighted buffers are locked in parallel minimum requirements. Since LR buffers and minimum requirements can be met with Tier 1 capital (including both CET1 and AT1 instruments), the CET1 consumption in the LR framework can be calculated as a residual item, after subtracting AT1 from T1 requirements.

2.2 The resolution framework

The main rules of bank resolution in the EU are defined in the Bank Recovery and Resolution Directive[6] (BRRD) and the Single Resolution Mechanism Regulation[7] (SRMR).[8] Among other things, the BRRD and the SRMR provide rules for setting MREL and minimum subordination, leaving some discretion to resolution authorities. The TLAC standard for G-SIIs is instead included in the CRR (Article 92a and Article 92b). The application and level of MREL differs across types of bank. Banks for which resolution objectives are not at risk (the outcome of the public interest assessment is negative) are not subject to MREL requirements. Conversely, for banks likely to be liquidated under national insolvency proceedings but for which financial stability concerns exist, an LAA add-on may be applied by resolution authorities, though its effect on the MREL and capital requirements interaction is so far minimal. Banks designated for resolution, i.e. where the outcome of the public

6 Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council (OJ L 173, 12.6.2014), p.190).

7 Regulation (EU) No 806/2014 of the European Parliament and of the Council of 15 July 2014 establishing uniform rules and a uniform procedure for the resolution of credit institutions and certain investment firms in the framework of a Single Resolution Mechanism and a Single Resolution Fund and amending Regulation (EU) No 1093/2010 (OJ L 225, 30.7.2014, p.1).

8 The BRRD applies to all EU countries, while the SRMR applies to the banking union only

interest assessment is positive, have MREL requirements; this is the main type of bank for which the interplay between the prudential and resolution frameworks is important.

Resolution authorities set MREL to ensure banks maintain sufficient eligible instruments to facilitate the implementation of the preferred resolution strategy. In addition, G-SIIs are subject to TLAC requirements, in line with the global standards set by the Financial Stability Board. TLAC serves as a minimum statutory Pillar 1 subordinated requirement for G-SIIs. Resolution authorities set an additional MREL requirement for G-SIIs where TLAC is lower than the general MREL calibration (LAA+RCA), based on Article 12d SRMR/ Article 45d BRRD.

A resolution entity refers to a financial institution that has been designated by resolution authorities as the primary focus for resolution actions within a financial group – the "point of entry". This is typically the parent or holding company that consolidates the group's operations and financials. A resolution group, on the other hand, consists of the resolution entity together with its subsidiaries (which are not themselves resolution entities, nor part of other resolution groups). This structure allows resolution authorities to plan and execute resolution strategies effectively at the resolution group level.

Two main approaches are recognised for resolution strategies: single point of entry (SPE) and multiple point of entry (MPE). The SPE strategy focuses on resolving the top parent or holding company of a banking group. Under this approach, losses and recapitalisation needs are absorbed at SPE level, while the operational subsidiaries continue their activities without interruption. In contrast, the MPE strategy involves resolving different parts of the banking group independently, often across multiple jurisdictions. This means that one or more subsidiaries within a group that have been defined and act as a point of entry for different resolution authorities may be resolved separately. MPE requires each resolution entity within the group to have sufficient loss-absorbing and recapitalisation capacity to handle its own resolution without relying on the ultimate parent or holding company. Both SPE and MPE strategies assume capital can be efficiently moved downstream from the point of entry to subsidiaries within the resolution group to maintain solvency and operational continuity.

The no-creditor-worse-off (NCWO) principle implies that creditors should not suffer greater losses in a resolution scenario than they would have if the institution had been liquidated through normal insolvency procedures. To mitigate this risk, resolution authorities impose subordination requirements on banks, ensuring that a minimum amount of subordinated liabilities or own funds is available to readily absorb losses before senior creditors are affected. This involves quantitative assessments that compare the expected recoveries for creditors in both resolution and insolvency scenarios. If the resolution plan would result in creditors receiving less than they would in insolvency, additional subordinated liabilities are required to minimise this risk. This mechanism ensures fairness to creditors and supports the credibility and effectiveness of resolution regimes.

From a resolution perspective, banks are categorised into different groups based on their systemic importance and size, which influences their resolution and regulatory requirements. G-SIIs are banks identified annually following the criteria set by European regulation – in accordance with international standards issued by the Financial Stability Board and Basel Committee on Banking Supervision – which refer to size, complexity, interconnectedness, substitutability and cross-border activity. Due to their critical role in the global financial system, G-SIIs are subject to additional regulatory standards, including TLAC requirement sand specific capital buffers (G-SII and LR G-SII buffers).

Pillar 1 banks include G-SIIs, material subsidiaries of non-EU G-SIIs, banks with total assets exceeding €100 billion (often referred to as top tier banks), and other banks deemed systemically important by national resolution authorities.[9] These banks must comply with specific subordination requirements, typically mandating that they maintain subordinated MREL, with a floor calibrated at 8% of total liabilities and own funds (TLOF[10]) that can be increased or decreased under certain conditions. This ensures they have sufficient loss-absorbing and recapitalisation capacity in the form of equity and subordinated debt that can be used in resolution. Similar to the prudential framework and the role of the SSM in the banking union, MREL (subordination) targets for Pillar 1 banks in the banking union are determined by the Single Resolution Board (SRB), which is the relevant resolution authority.

Non-Pillar 1 banks, which generally include smaller or less systemically significant institutions, are subject to subordination requirements on a case-by-case basis. In some instances MREL subordination might be required, which is determined based on assessments of the NCWO risk. MREL targets for less significant institutions are set by the national resolution authorities.[11]

The calibration of the MREL involves two main components: the loss-absorption amount (LAA) and the recapitalisation amount (RCA), which may include a market confidence charge. These ensure that a financial institution can absorb losses and be effectively recapitalised in the event of resolution. The LAA represents the volume of resources required to absorb an institution's losses in resolution. It is calibrated at the level of the sum of the capital requirements. The RCA is the amount needed to restore an institution's capital to a level that ensures market confidence and meets regulatory requirements after absorbing losses. The RCA ensures an institution can continue to operate effectively, supporting critical economic functions and maintaining market confidence after resolution. Resolution authorities may also consider factors such as the bank's resolution strategy (e.g. SPE versus MPE), an institution's specific risk profile, the business model, and interconnections to adjust the RCA component.

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9 In this evaluation, systemic importance does not necessarily coincide with being an O-SII or G-SII (see Ebner and Westhoff, 2024).

10 TLOF is generally close to total assets, but not identical because of adjustments: own funds are those calculated for regulatory purposes and, in addition, liabilities can be netted under certain conditions (for example derivatives with the same counterparty).

11 The SRB can include any less significant institution in its direct remit and in this case set the MREL requirements directly.

MREL requirements can be met through a combination of own funds and eligible liabilities, which are categorised based on subordination and loss-absorbing characteristics. Own funds consist of CET1, AT1 and Tier 2 capital instruments. These represent the primary loss-absorbing layer and are eligible to meet MREL and TLAC requirements. Subordinated MREL-eligible liabilities include debt instruments statutorily, contractually or structurally subordinated to senior liabilities and deposits, meaning they absorb losses before senior creditors.[12] These subordinated instruments are essential to mitigate NCWO risk and are required especially for banks subject to MREL subordinated requirements (G-SIIs, Pillar 1 banks and if applicable non-Pillar 1 banks). Non-subordinated MREL-eligible liabilities refer to eligible deposits and senior unsecured debt[13] that is not subordinated. All liabilities (subordinated and not subordinated) must have at least one year of residual maturity, not be callable by the counterparty unilaterally (no put options), be issued by the resolution entity and not be an intragroup exposure.

TLAC-eligible liabilities are a subset of MREL subordinated instruments specifically defined for G-SIIs. TLAC requires a higher quality of loss-absorbing capacity, focusing on fully subordinated liabilities and own funds that can absorb losses and recapitalise the institution during resolution. Senior liabilities may be used to meet TLAC requirements up to 3.5% of the TREA under certain conditions and subject to the agreement of the resolution authority. Conceptually, TLAC is a more stringent subset of MREL tailored for the largest and most systemically important banks and G-SIIs need to comply with it. While all TLAC liabilities qualify as overall MREL-eligible liabilities,[14] not all MREL liabilities qualify as TLAC. Notably, when calculating their TLAC-eligible liabilities, G-SIIs in the EU have to deduct investments in TLAC-eligible liabilities instruments issued by other G-SIIs from their own TLAC.[15]

In the EU there are no legal restrictions regarding the composition of the resources eligible for meeting the MREL and TLAC requirements. Similarly to the prudential LR framework – where CET1 and AT1 can be counted without restriction to meet this requirement – this composition is left to the discretion of the institutions themselves, which can choose their preferred mix of CET1 and other instruments.[16]

Similar to the prudential framework, MREL consists of a risk-based and a leverage-based requirement. Banks subject to TLAC and/or overall MREL and/or MREL minimum subordination requirements must meet those parallel requirements

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12 Senior non-preferred instruments are also subordinated for MREL eligibility purposes as they are junior to senior instruments.

13 Senior unsecured debt may also comprise certain structured notes under specific conditions, possibly derivatives, and other senior liabilities which are neither mandatorily nor discretionarily excluded from bail-in.

14 All TLAC-eligible liabilities count towards overall MREL-eligible liabilities, but not MREL subordinate eligible liabilities.

15 This provision in the CRR is based on the Basel Committee on Banking Supervision TLAC holdings standard, which is more stringent by requiring that both G-SII and non-G-SII deduct their TLAC holdings from their own Tier 2 capital.

16 The international TLAC standard contains an expectation that the sum of debt liabilities counting as Tier1 and Tier2 regulatory capital and other TLAC-eligible instruments that are not also eligible as regulatory capital is equal or greater than 33% of the minimum TLAC requirement to ensure sufficient outstanding long-term debt for loss absorption and recapitalisation in resolution (TLAC term sheet 6).

expressed in risk-weighted and leverage-based metrics. CET1 used to meet CBR in the prudential RW stack cannot be used simultaneously to meet minimum requirements in risk-weighted resolution stacks. In other words, CBR is also required on top of risk-weighted resolution requirements like MREL, subordinated MREL and TLAC.[17] The CBR mirrored to MREL-RW stacks is referred to as CBR-M. In the event of a breach of the CBR-M only (i.e. the CBR on top of the risk-weighted capital stack is met), the resolution authority can apply restrictions on distribution and is expected to do so after nine months at the latest unless specific circumstances apply. For details of the mechanism see Box 1 below.

2.3 Interaction of frameworks

The interactions between the parallel frameworks may constrain the usability of capital buffers, which is a concern for macroprudential authorities. The following overview of these interactions is based on ESRB (2021), Cornacchia and Guerra (2022), De Bosio & Loiacono (2023), Leitner et al. (2023) and Zsámboki et al. (2025), which also serve as reference for further details not covered in this report. In order of loss-absorption, CET1 absorbs losses first. Consequently, risk-weighted capital buffers must be met with CET1. Possible constraints for buffer usability primarily stem from the fact that the CET1 used to meet capital buffer requirements can simultaneously be used to meet other prudential and resolution requirements. It is therefore important to compare the CET1 component of prudential and resolution requirements. While there are no explicit CET1 requirements in the leverage-based prudential stack, nor in MREL requirements, there may be a need for banks to use CET1 to fulfil these requirements in the absence of a sufficient amount of (subordinated) eligible liabilities, T2 and AT1. Therefore CET1 consumption by the respective regulatory stacks depends not only on the calibration of those requirements, but also on the amount of available AT1 and T2 instruments and eligible liabilities, which are discretionary choices by banks. CET1 consumption in parallel frameworks can be considered a residual item that poses several analytical and policy challenges for authorities.

The ability of buffers to absorb losses is limited if the same unit of capital allocated to them is also used to meet minimum requirements in a parallel framework. In cases where the CET1 needed to fulfil capital buffer requirements is also used to fulfil one (or more) of the minimum requirements prescribed by the prudential or resolution frameworks, those buffers cannot absorb losses without simultaneously breaching a minimum requirement (see ESRB (2021), especially Section 2.2. and Table 3). The extent to which this parallel use of capital for buffers and minimum requirements occurs determines the degree of buffer usability, which can be partially or fully restricted.

[17] According to the legal interpretation of the European Commission in Commission Notice relating to the interpretation of certain legal provisions of the revised bank resolution framework in reply to questions raised by Member States' authorities (2020/C 321/01), the CBR is not required on top of leverage-based stacks. See ESRB (2021), Table 3 for an overview of permissible multiple use of capital for buffers and minimum requirements.

The usability of risk-weighted CBR can be limited by the leverage ratio and MREL in terms of the leverage ratio exposure measures, while the usability of the G-SII leverage buffer might be limited by risk-weighted capital requirements or MREL. In ESRB (2021), Table 3 provides an overview of permissible double-counting of CET1 for buffers and minimum requirements. For banks with low risk-weight densities, CBR usability is more likely to be constrained by minimum LR requirements. In such cases, the G-SII leverage ratio buffer could provide some additional buffer usability, although this comes with the trade-off of higher MDA thresholds. However, the G-SII leverage ratio buffer does not increase releasability as it is a non-releasable buffer.

The interactions of frameworks via double-counting of CET1 may limit buffer usability and could also have implications for the resolution framework. Limited buffer usability implies that a bank reaches the point of non-viability more quickly, which reduces the time supervisory and resolution authorities have to act. As the resolution framework also enhances financial stability, breaching MREL requirements calibrated to ensure sufficient loss-absorption and recapitalisation capacity in resolution would also be relevant for macroprudential policy.[18]

Box 1
MDA and M-MDA

Banks failing to meet their capital requirements are subject to regulatory consequences. If a bank falls below its CBR, it will be subject to automatic restrictions on distributions. In such cases, banks are asked to calculate the maximum distributable amount (MDA). These restrictions remain in place until buffers are rebuilt, e.g. by retaining profits. The CBR presents an additional layer in terms of loss-absorption to continue operating during periods of financial stress, with the MDA mechanism being a less severe consequence than those triggered by breaching minimum requirements. If a bank fails to meet its minimum requirements, stricter supervisory measures may be implemented, including a failing or likely to fail assessment. These measures can range from restrictions on certain business activities to, in the worst case, withdrawal of the banking licence.

In the prudential framework, the trigger for calculating the MDA is breach of the CBR, which sits on top of the prudential RW CET1 minimum requirement. As described in Section 2.3, the CET1 consumption in minimum requirements considers P1 and P2 requirements on CET1 as well as the CET1 amount used to meet T1 and T2 requirements in cases where a bank has no or insufficient AT1 or T2 to fulfil these requirements and therefore must rely on CET1. Once the MDA trigger has been breached, the bank faces limitations on the amounts it can distribute in dividends to shareholders, bonuses to employees or coupon payments on AT1 capital instruments. The extent of these restrictions is determined by the gap between the bank's actual CET1 ratio and its binding CET1 minimum requirement. As the CET1 ratio approaches the minimum threshold, the restrictions become increasingly stringent.

In the event of a breach of the CBR-M, the maximum distributable amount is set by the resolution authority (M-MDA). As in the prudential framework, the CBR-M sits on top of the risk-weighted minimum requirements in the resolution framework. Regulatory consequences on distributions

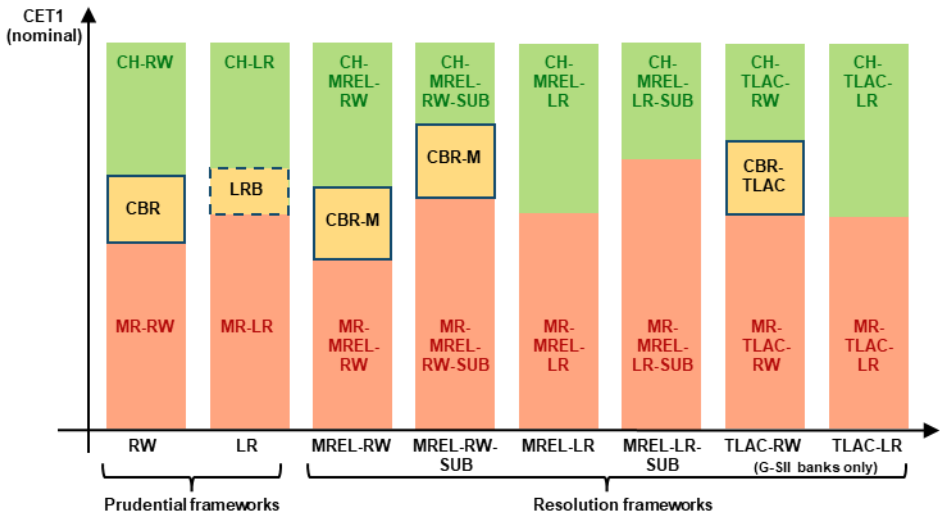
[18] See Ebner and Westhoff (2024) and Zsámboki et al. (2025).

following a breach of the CBR-M are the same as for a breach of the CBR. However, resolution authorities are granted some flexibility in implementing restrictions on distributions. In the first nine months after a bank has notified that it has failed to meet its CBR-M, there is no compulsory obligation for an MDA to be set.[19] This discretion allows flexibility when banks face temporary MREL shortfalls due to external factors like unfavourable market conditions affecting debt rollover. In the event of a CBR-M breach, resolution authorities evaluate different factors, such as the impact on resolvability and financial markets leading to broad-based stress across several market segments. After nine months at the latest the resolution authority must apply M-MDA restrictions, unless a combination of conditions is met.

Finally, limited buffer usability reduces the loss-absorbing capacity of banks and constrains the effective functioning of the macroprudential framework. Figure 2 provides a comprehensive overview of all parallel requirements and the position of the capital buffers in the prudential and resolutions stacks, as discussed in the previous sections. It depicts CET1 consumption in individual stacks and the final CET1 consumption, which defines the overall loss-absorbing capacity. The main concepts and analytical challenges associated with limited buffer usability are discussed in Section 3, while the implications of limited buffer usability are discussed in Section 5.

Figure 2

Overview of prudential and resolution frameworks



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, and hence is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline, the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

[19] See Zsámboki et al. (2025), also Article 16a BRRD.

3 Concepts and definitions

3.1 Buffer usability

Buffer usability is defined as banks' ability to use the part of the CBR which does not overlap with other parallel minimum requirements. It is expressed as a percentage of non-overlapping buffers over the total CBR. This quantifies whether capital buffers are working as intended, notably whether banks are able to dip into the buffers to absorb losses without breaching a parallel minimum requirement. The term "usable buffer" or "effectively usable buffer" has been used to indicate that part of buffers that does not overlap with other minimum requirements.[20] Since capital buffers are included in some (but not all) capital stacks, buffer usability may differ depending on which capital stack is used as a reference point.[21] This phenomenon raises several conceptual challenges with respect to the measurement and aggregation of overall buffer usability at the institutional and systemic levels. [22]

Banks might be unwilling to use capital buffers, even when they are fully or partially usable. This report focuses on banks' ability to use their buffers, but this should not be confused with their willingness to do so. Banks may be reluctant to use the buffers because of disincentives of various kinds, such as the reactions of financial markets, as dipping into CBR would trigger MDA restrictions and banks fear the associated market stigma. Even when capital buffers are released (see Section 3.2 on buffer releasability), implying no MDA restrictions if the released CET1 is used, banks might be reluctant to use the capital as they anticipate replenishment of the buffer in the future.[23]

In previous works based on the ESRB ATF report, two analytical approaches to assessing buffer usability are presented: the baseline approach and the complementary approach. As Figure 3 illustrates, there is a CBR (yellow rectangles with blue borders) in the risk-weighted prudential and resolution stacks, encompassing both the MREL and TLAC frameworks. In all cases the CBR conceptually sits on top of the minimum requirements. The CBRs placed on top of the MREL and TLAC stacks are denoted as CBR-M and CBR-TLAC, respectively.[24] This conceptual setup implies there are multiple reference points for CBR that can be used to assess buffer usability. Figure 3 displays an example in which buffer usability differs for various capital stacks. For example, the CBR in the risk-weighted

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20 See ESRB (2021), Cornacchia and Guerra (2022), De Bosio and Loiacono (2023), Leitner et al. (2023) and Zsámboki et al. (2025).

21 This report focuses on the usability of CBR in the prudential risk weighted stack and CBR-M in the resolution stacks. The concept could be also extended to the LR buffer (see ESRB (2021) for discussion of this topic) and total buffer usability could be computed when considering the CBR and LR buffers together.

22 For the interaction between buffer usability and capital headroom of a bank see Section 3.7.

23 See Behn, Rancoita and Rodriguez d'Acri (2020) for an overview of reasons why banks may be reluctant to dip into buffers.

24 This reflects the fact that the CET1 used for fulfilling the CBR cannot be used to fulfil MREL-RW, MREL-RW subordinated and TLAC-RW requirements see CRR II, Article 92a(1)(a), BRRD II, Article 45d(1) and BRRD II, Article 45b(4, 7).

prudential stack and CBR-M in the risk-weighted MREL stack fully overlap with parallel minimum requirements in the leverage-based MREL subordination requirement. Therefore, the buffer usability of the CBR and CBR-M is zero. The CBR-M in the risk-weighted MREL subordination and TLAC stacks are instead partially usable, as both buffers have a non-overlapping part (the area not shaded yellow) exceeding the highest binding parallel minimum requirement (in this case the leverage-based MREL subordination requirement). Consequently, the buffer usability of these buffers is greater than zero.

The baseline approach for assessing buffer usability uses the CBR in the risk-weighted prudential stack as a reference point. This approach focuses on the capital stack that has traditionally been the focus of macroprudential policy, notably the risk-weighted prudential capital requirements. Specifically, this approach compares the amount of CET1 capital allocated to meet the prudential CBR with CET1 consumed by each of the parallel minimum leverage-based requirements.[25] In the illustrative example in Figure 3, buffer usability under the baseline approach would be 0%, as CBR fully overlaps with the MREL-LR subordination minimum requirements.

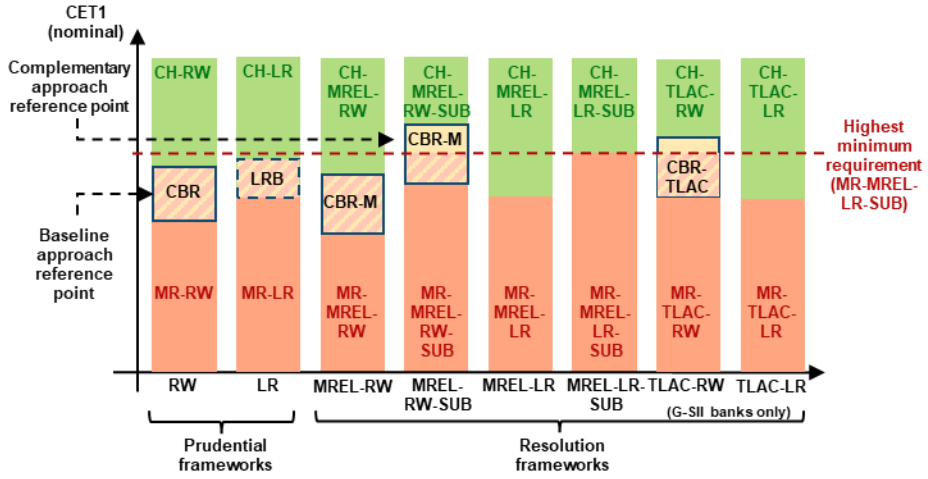
The complementary approach evaluates the usability of the capital buffers that would be breached first in the event of CET1 depletion. This method benchmarks the buffers on top of the most CET1-binding risk-weighted minimum requirements (either in the prudential or resolution stacks) against the most CET1-binding leverage-based minimum requirement. In other words, under the complementary approach, overall buffer usability is defined by the most usable buffer among the CBR, CBR-M and CBR-TLAC.[26] In the illustrative example in Figure 3 buffer usability under the complementary approach would be determined by CBR-M in the risk-weighted MREL subordination stack, amounting to around 50% due to the overlap with MREL-LR subordination minimum requirements.

[25] Parallel risk-weighted minimum requirements within resolution frameworks are not considered to constrain buffer usability. This is because CBR capital cannot be used to meet resolution risk-weighted minimum requirements, according to the first Commission Notice on the interpretation of BRRD II. However, the interaction between the provisions in BRRD/SRMR and CRD concerning CBR capital and the risk-based subordinated components of MREL would benefit from revisions to enhance legal clarity. In addition, consequences with respect to MDA restrictions can differ between a CBR breach in the prudential stack and a breach in the resolution stacks (see Box 1).

[26] This approach could also be used to encompass the G-SII LR buffer, considering it as part of total buffer usability (see ESRB 2021 for the concept of total buffer usability) as well as assessing its usability.

Figure 3

Baseline and complementary approaches to measuring buffer usability



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, hence is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

The dominant CBR is defined either as the CBR in the prudential framework or the CBR-M/CBR-TLAC in the resolution framework, depending which buffer is sitting on top of the highest binding minimum requirements. As illustrated in Figure 3, buffer usability can differ across stacks, depending on the reference point to evaluate it. In this example, the CBR-M in the risk-weighted MREL subordination capital stack is sitting on top of the highest minimum requirements. In other words, in the event of capital depletion it would be breached first and is therefore considered the dominant CBR.

The usability of the regulatory buffer determined by the complementary approach contributes to the effective going-concern loss-absorption capacity of a bank. If the CBR is breached, MDA restrictions apply (see also Box 1 above). Limited buffer usability implies more severe interventions could take place even though CBR has not yet been fully drawn down. In the extreme case of zero buffer usability, which can be observed for some banks, including systemically important ones, in the euro area, a breach of prudential and/or resolution LR-based minimum requirements would precede a breach of buffers (see Box 2). This impairs the macroprudential authorities' ability to effectively release all or part of the CBR (i.e. to reduce releasable buffer requirements in order to allow banks to support the economy in bad times) and inhibits the crucial role of buffers as an additional layer of going-concern loss-absorbing capital. For more on the effective releasability of buffers and the TLAC of a bank, see Sections 3.5 and 3.6

Box 2

Buffer usability under the baseline and complementary approaches: evidence from the euro area

Buffer usability under the complementary approach is by definition higher than or equal to usability under the baseline approach. This is because the complementary approach considers the CBR on top of the MREL/TLAC stacks (CBR-M and CBR-TLAC in Figure 3) and calculates the maximum usability of all buffers.

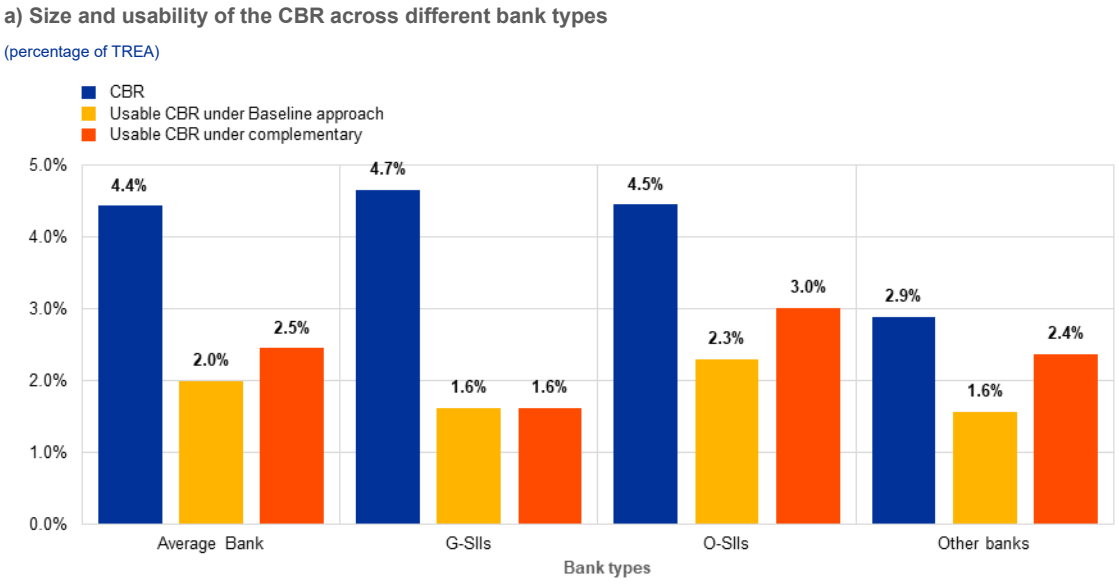
Chart 2.1 indicates that euro area banks on average had buffer usability of 45% under the baseline approach, when focusing only on the CBR in the risk-weighted prudential stack. Considering the complementary approach and therefore defining overall buffer usability as the maximum usability of CBR and CBR-M, average buffer usability stands at 55%. This implies that the difference for an average euro area bank between the two approaches is 10 percentage points. Additionally Zsámboki et al. (2025) show that on average the CBR-M is dominant, implying that the resolution TREA stacks consume more CET1 on average than the prudential TREA stack. These empirical results are in line with previous findings of De Bosio and Loiacono (2023).

Previous findings also suggest a significant degree of heterogeneity in buffer usability among different bank types; the reasons are differences in (i) capital requirements, (ii) risk weight densities and (iii) capital and liabilities structure to meet capital requirements. For a detailed discussion see Zsámboki et al. (2025). This heterogeneity across bank types is also evident in Chart 2.1

The data show that G-SIIs have the lowest buffer usability across banks, with no differences between the baseline and the complementary approach, therefore the overall buffer usability under the baseline and complementary approaches is defined by the same reference point, i.e. the CBR.

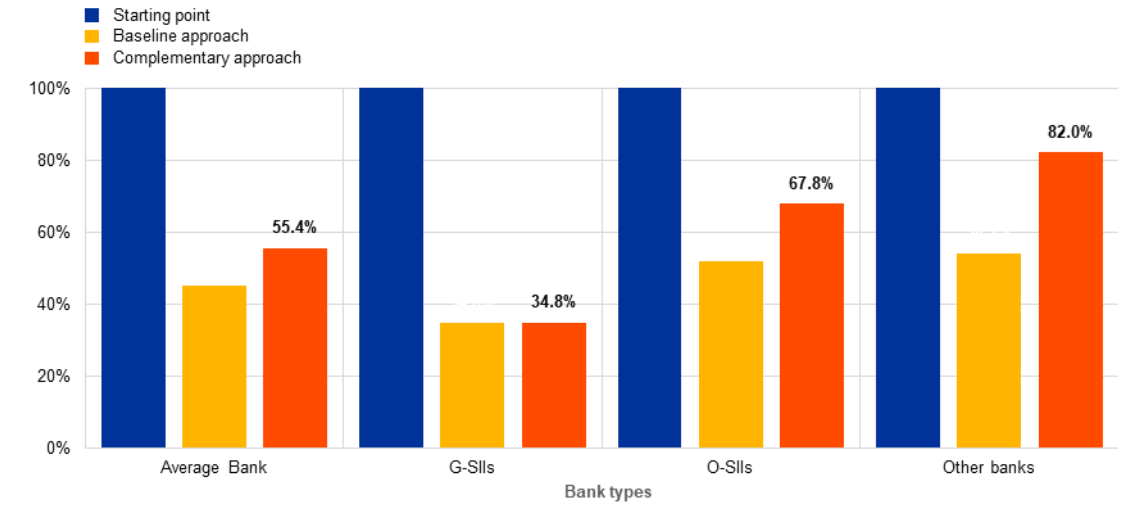
Chart A

Buffer usability in the euro area: baseline and complementary approaches



b) Size and usability of the CBR across different bank types

(percentage of CBR)



Sources: Fourth quarter 2024 supervisory data, ECB calculations, USIT.
Notes: Sample of 83 resolution groups subject to MREL requirements (6 G-SIIs, 54 O-SIIs, 23 other banks), O-SIIs exclude G-SIIs, TREA-weighted averages, final MREL targets applied. One G-SII bank omitted due to data availability.

For O-SIIs and other banks buffer usability is higher than for G-SIIs on average under both the baseline and the complementary approaches. First, this indicates that those banks' buffer usability is less constrained by the LR requirements, which leads to overall higher usability. Second, buffer usability under the complementary approach is higher than under the baseline approach, suggesting that, at least in some cases, the CBR-M is the dominant buffer for these banks.

An important explanation that clarifies the buffer usability illustrated in Chart 2.1 is the capital and liabilities structure of banks. Zsámboki et al. (2025) show that on average G-SIIs issue more AT1 and T2 capital than other institutions, which is used to comply with the prudential and resolution requirements. The results also show that G-SIIs maximise AT1 and T2 issuance based on the prudential TREA stack resulting in approximately 1.7% AT1 and 2.4% T2 holdings in percentage of TREA. Since G-SIIs use less CET1 to comply with risk-weighted prudential requirements, the CBR sits on lower levels of CET1. This increases the overlap with other parallel requirements, which may lead to lower buffer usability under the baseline approach. In turn, issuance of AT1 and T2 capital increases banks' CET1 headroom.

Banks may also decide to issue more AT1 and T2 than they are allowed to use to comply with requirements in the prudential TREA stack. The extra amount of AT1 could be used to meet leverage ratio and resolution requirements, while the extra amount of T2 could be used to meet resolution requirements, lowering the need for CET1. Lower CET1 consumption in parallel stacks may improve buffer usability.

O-SIIs and other banks display higher buffer usability on average when considering the complementary approach, as they rely to a larger extent on CET1 to meet resolution requirements. Therefore, under the baseline approach buffer usability is lower as LR requirements overlap with the CBR, but once considering CBR-M the overlaps decrease, as the relatively higher shares of CET1 in the resolution stacks results in higher usability under the complementary approach.

Table A

Size of total combined buffer requirement and usable share

(as a percentage of TREA)

Bank type	Total CBR	Usable CBR under baseline approach	Usable CBR under comprehensive approach
Average bank	4.4%	2%	2.5%
G-SIIs	4.7%	1.6%	1.6%
O-SIIs	4.5%	2.3%	3.0%
Other banks	2.9%	1.6%	2.4%

Sources: Fourth quarter 2024 supervisory data, ECB calculations, USIT.
Notes: Sample of 83 resolution groups subject to MREL requirements (6 G-SIIs, 54 O-SIIs, 23 other banks), O-SIIs exclude G-SIIs, TREA-weighted averages, final MREL targets applied.

Taking into account the average nominal CBR of different bank types (presented in Table 2.1) and buffer usability from Chart 2.1, on average the 55% of 4.4% of TREA corresponds to the overall CBR that is usable without breaching parallel minimum requirements (i.e. 2.5% of TREA). It is lowest for G-SIIs, for the reasons explained previously, even though on average they face the highest nominal CBR. The reason G-SIIs face only slightly higher CBR despite being subject to the additional G-SII buffer is that only the maximum of the G-SII and the O-SII buffer is included in the CBR. As other banks are not subject to an O-SII or G-SII buffer, naturally their CBR is lower, but they still have the largest usable share in relative terms, as shown in Chart 2.1.

While the differences between the approaches may be small for certain banks in the period under consideration, the conceptual differences between the approaches are significant. Macroprudential authorities should be aware of these differences and communicate carefully on the approach used in their assessments. In addition, and regardless of the approach, ensuring effective buffer usability is important for safeguarding financial stability not just on average but at the bank level, especially for any bank that may have a systemic impact in the event of failure.

3.2 Buffer releasability

Buffer releasability is defined as authorities' ability to set a buffer requirement at a lower level or zero, creating additional capital headroom for banks. The objective of buffer releases is to free up capital that can be used by banks to absorb losses when risks materialise without breaching regulatory requirements, which can be interpreted as creating additional capital headroom (see Section 3.3). The key difference between buffer usability and releasability is that in the first case banks can dip into the buffers, subject to restrictions on distribution, while in the latter the MDA threshold is lowered and banks can use the freed up capital to absorb losses without facing any restrictions on distributions. Banks are therefore more likely to make use of released buffers, as opposed to buffers which are not released or not releasable.

Releasing macroprudential buffers, or loosening other macroprudential requirements, should be done when systemic risks materialise or dissipate. Shocks may hit the financial system suddenly, requiring a prompt policy response from authorities to avoid potential amplification of the initial shock through the financial sector, commonly referred to as the procyclicality of the system. From this

perspective, it is not important which regulatory requirement the release comes from, as long as it provides capital relief in crisis or stressed conditions. Nevertheless, releasing or removing general or sectoral buffer or other requirements (e.g. risk weight measures, see Box 3) may change relative capital costs and incentivise the flow of lending to the economy as a whole or to a specific sector.

Releasability is an important distinguishing characteristic of macroprudential instruments. As releasable instruments play a special role in the framework, it is of interest to determine which instruments are releasable and which are not. Of the five buffers in the EU macroprudential framework, the CCoB is legally set at 2.5% and cannot be reduced, making it unreleasable. However, the CCyB can be released with immediate effect when risks materialise or subside.[27] This releasability is a key feature of the CCyB and the arrangements for release are set out in the regulatory and policy framework. The releasability of the other instruments is not always clear and may depend on the policy objective by the activating authority (see below and Box 3).

The SyRB can be calibrated downwards or discontinued, which increases the capital headroom in a similar way as a release of the CCyB. Authorities have a lot of flexibility operating their SyRB buffers. Unlike for the CCyB, arrangements for releasing the SyRB (downward calibration or discontinuation) are not specified in EU legislation. However, it is understood that this is possible. The SyRB can be used against cyclical risks which are not covered by the CCyB[28] and are likely to vary over time. It can also be used to address structural risks, which tend to be stable. Authorities can also use the SyRB against risk confined to a specific sector of the economy, which makes up for the inability to use the CCyB in a targeted way in the EU. The SyRB can be released when the systemic risk it intends to cover materialises or subsides. Nevertheless, authorities may release the SyRB even if these risks remain, to cushion larger shocks, if the perceived benefits of additional capital headroom outweigh the lower risk absorbency and communication challenges. In this vein, cyclical SyRB are more likely to be released than structural SyRB. However, the distinction between the two is not clear cut.

On the other hand, G-SII and O-SII buffers are not expected to be released. The systemic importance of a bank is relatively stable. It is reviewed annually, and a decline in the systemic importance of a given bank may result in a lowering of its requirements. The G-SII buffer calibration process is globally harmonised and set out in EU law, and any deviation would create legal and reputational risk for the authority. Releasing the G-SII buffer is therefore near impossible. Authorities may adjust the methodology for calibrating O-SII buffers, although this is expected to happen only infrequently. In the banking union, downward calibration of buffers could lead to a top-up decision from the ECB if this was deemed unjustified, in line with the

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27 Article 136(5) CRD stipulates a transitional period for an *increase* of the CCyB, however there is no such formulation for the case where the CCyB rate is calibrated downwards or to zero. This means that such a release can occur with immediate effect.

28 A prime example is cyclical systemic risk stemming from residential real estate markets. Using a CCyB for this risk would unduly penalise exposures to unrelated sectors.

powers in the SSM Regulation. This applies to all buffers, including the O-SII buffer – especially if buffers are set below the ECB O-SII floor.

Box 3

Releasability and recalibration of macroprudential tools implemented under Articles 124, 164 and 458 CRR

Macroprudential risk weight tools can be discontinued and calibrated downwards to increase capital headroom; however they are not usually perceived by authorities as releasable. Articles 124, 164 and 458(2)(d)(iv) CRR allow macroprudential authorities to require banks to use higher risk weights for real estate exposures than the standardised or IRB approaches produce. If these measures are then relieved, capital requirements of banks are reduced,[29] increasing capital headroom in all risk-weighted stacks. There is a similarity with sectoral SyRB for real estate exposures and the two measures can be substitutes or complements. Similarly to the SyRB, regular reviews are required and the possibility of release is not explicitly mentioned. Nevertheless, there are three important differences between risk weight tools and the SyRB. First, risk weight tools are typically subject to more burdensome procedures than the SyRB, which makes them less agile for cyclical variation. For example, the opinions of the ESRB and the EBA are required for Articles 124 and 164 and Commission authorisation applies for Article 458. Article 124 and 164 measures also require six-month transition periods. Second, as risk weight tools are specifically targeted at real estate, from a communication perspective it is difficult for authorities to release them if vulnerabilities in the real estate sector persist. Third, risk weight measures often have a floor design (as do most measures based on Article 458) or apply a general margin of conservativism (such as measures based on Article 124), which makes them more structural and less useful for release by authorities. As an analytical simplification, for the purpose of this report risk weight measures will not be considered releasable.

3.3 Capital headroom

The capital headroom of a bank is defined as the capital which is not needed to meet regulatory minimum and buffer requirements. Capital headroom exists for the capital component of each regulatory stack and for each capital quality allowed in that stack. For instance, in the risk-weighted capital stack the CET1 headroom is the CET1 not needed to meet the CBR and the CET1 components of the minimum requirements. Similarly, the Tier 1 headroom in the risk-weighted capital stack is the Tier 1 not needed to meet the CBR and Tier 1 components of the minimum requirements. For MREL, which is a requirement without a specific capital component, the CET1 headroom is the CET1 not needed to meet MREL and CBR-M (where relevant) requirements. Capital headroom is equivalent to “excess capital” or

[29] Article 458 measures in particular may bind substantial amount of capital. For example, Swedish RRE measures may account to more than 3% of TREA of the banks concerned.

the “distance to breach” for capital requirements, terms which are also used in literature[30] to denote the same concept.[31]

CET1 headroom is a bank’s first line of defence, as it absorbs losses before regulatory buffers are used. The CET1 headroom varies across stacks and can be impacted by the availability or lack of other instruments eligible to meet the regulatory requirements in that specific stack. For instance, a bank that issues AT1, T2 and/or eligible liabilities to meet MREL minimum requirements can reduce its reliance on CET1 to fulfil those obligations. This, in turn, will increase its CET1 headroom, but also has an impact on the bank’s risk structure, as some AT1 and T2 instruments and eligible liabilities have to be rolled over. The smallest CET1 headroom of a bank across all regulatory stacks highlighted in Chapter 2 is the one that is de-facto effectively available before a regulatory requirement will be breached (see Section 3.5).[32]

The prudential framework comprises an institution-specific Pillar 2 guidance (P2G), which is a legally non-binding capital expectation above the minimum risk-weighted requirements and the CBR and the minimum leverage ratio, and the LR buffer for G-SIIs. In the risk-weighted capital framework, the P2G indicates the level of CET1 capital a bank is expected to maintain in addition to its binding capital requirements to ensure it can absorb potential losses resulting from adverse scenarios.[33] In the leverage ratio framework, the P2G is set in Tier1 capital based on the depletion of the leverage ratio in adverse scenarios.[34] When an institution is (likely) not meeting the P2G, it will lead to higher supervisory attention, and the institution will be expected to provide the competent authority with actions aimed at meeting the capital expectation. These are much milder consequences than the breach of a regulatory requirement. Banks may nevertheless view the P2G as a constraint, which would have implications for their willingness to use it to absorb losses. However, from a regulatory perspective banks’ perception of P2G does not constrain their ability to use it. In this report P2G is generally regarded as part of a bank’s capital headroom in the risk-weighted and leverage ratio capital stacks, as applicable. The implications of banks’ different perceptions of P2G are discussed in Sections 3.5 and 3.6.

Most banks have one or more internal target ratios which they aim to achieve in terms of regulatory requirements and expectations. These are often set above requirements and expectations, to provide banks with a margin of safety. To meet the target ratios, a management buffer might then be necessary. For the purpose of this report, the management buffer is any capital needed due to bank-specific internal considerations above regulatory requirements and possibly P2G. By contrast, capital headroom relates to the observed level of capital, which may

30 See, for example, Cornacchia and Guerra (2022).

31 For MREL, the distance to breach is also determined by the availability of eligible instruments besides own funds.

32 Unlike with CET1, T2 instruments and eligible liabilities need to be rolled over, and markets often expect AT1 instruments to be called, even where there should not be such an expectation based on the AT1 terms. This might affect the ability of AT1 and T2 to absorb losses in going concern; eligible instruments only absorb losses in gone concern.

33 See Pillar 2 Guidance.

34 See Leverage ratio Pillar 2 guidance

deviate from the internal target at any given point in time. A bank may set explicit target ratios for any of the regulatory stacks; these are internal capital target ratios with respect to the capital stacks and can be expressed in different capital qualities (e.g. CET1). Empirical findings on internal capital targets of banks are discussed in Box 4.

Box 4

Empirical findings from the EBA survey on internal capital targets

The EBA conducted a survey of capital management practices among 53 EU banks.[35] In determining their management buffers, banks cited both internal factors (management or unexpected risks and strategic or business opportunities), as well as market factors (maintaining desired credit rating by rating agencies, plans for future distributions and peer pressure) and regulatory and supervisory factors (supervisory expectations and avoiding breaches of requirements).

The survey concluded that many banks do not have a clear definition of management buffers, but nearly all of them set a target based on at least one stack. While most banks set targets in more stacks, banks seem not to do so in a comprehensive manner by explicitly factoring in the interaction between capital stacks.[36]

When doing so, banks tend to set the capital target with respect to the highest reference points in the relevant stack, which in risk-weighted prudential stack is the P2G. Most banks set the target in terms of CET1 ratio, on average 2.4 percentage points above the P2G.[37] Also, where a bank used more targets (e.g. high target, medium/early warning target and low/hard limit target), the lowest was in most cases still above P2G. This could indicate that many banks perceive P2G as a de-facto requirement rather than an expectation for the management buffer and try to avoid breaching it. Some banks reported that they are ready to use P2G if needed, whereas others confirmed they perceive it as a harder requirement. Surplus capital above the management buffer in CET1 terms was also sizeable, on average 1.7 percentage points of TREA.

Management buffers above resolution requirements were considerably lower; around one percentage point of TREA in risk-weighted resolution stacks. Some banks implicitly set targets below leverage-based MREL. This may be a temporary phenomenon as the transition to the new steady-state balance sheets after regulatory changes was still underway during the time of the survey. While banks kept surplus available resources above management buffers by 1.5 percentage points in almost every stack, these results nevertheless raise questions as to whether the existence of parallel requirements is sufficiently well factored into banks' internal capital planning.

Capital headroom reduces the probability of default and provides flexibility to manage fluctuations throughout the financial and business cycles. For

35 See European Banking Authority (EBA, 2024).

36 For example, as a management buffer in CET1 terms above the most binding stack, irrespective of which one this is. This would mean targeting effective headroom or loss absorption capacity after overlaps (Section 1.6).

37 For banks with a non-zero P2G, 67% expressed their management buffer target in CET1 as a percentage of TREA above P2G, whereas 24% of them referenced CBR.

regulatory and supervisory bodies tasked with maintaining financial stability, capital headroom represents an additional layer of capital that reduces the likelihood of failure for the credit institutions under their oversight. From the perspective of banks, capital headroom impacts funding costs and provides flexibility to manage potential fluctuations in capital levels and eligible liabilities throughout the financial and business cycle. It also allows banks to remain above regulatory thresholds if unforeseen risks materialise.

Maintaining capital beyond regulatory requirements cannot be mandated by macroprudential or microprudential authorities. The decision to hold capital headroom, as well as its size, is left to the discretion of individual banks. However, market forces generally expect banks to maintain capital levels above regulatory requirements (including buffers and minimum requirements) and supervisors also have certain tools that can incentivise banks to keep certain headroom above those requirements. This is in particular relevant for P2G and supervisory expectations, in case the P2G is not met, which may not be legally binding, but still are likely to influence bank behaviour.[38] Nevertheless, these tools serve a microprudential purpose and their efficiency to serve a macroprudential purpose during crises would have to be tested.[39] In this context, usable buffers, which can be drawn down without breaching parallel minimum requirements, are critical for maintaining banking sectors' resilience on a going-concern basis.

3.4 Going-concern loss-absorbing capacity

The going-concern loss-absorbing capacity is made up of the portion of CET1 that can be used without breaching a minimum requirement. Breaches of the prudential leverage ratio could trigger earlier activation of a failing or likely to fail assessment than foreseen by prudential risk-weighted requirements, potentially leading to resolution or liquidation proceedings. Breaches of resolution minimum requirements can be addressed by the relevant resolution authorities through a variety of measures specified in the BRRD, including a possible FOLTF assessment.[40]

Going-concern loss-absorbing capacity is measured before considering any interaction between regulatory requirements. In each stack the going-concern loss-absorbing capacity is therefore the sum of the CET1 headroom and any

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38 In addition, the ECB Guide to the internal adequacy assessment process (ICAAP) expresses an expectation for banks to maintain management buffers with regards to their risk appetite framework (RAF).

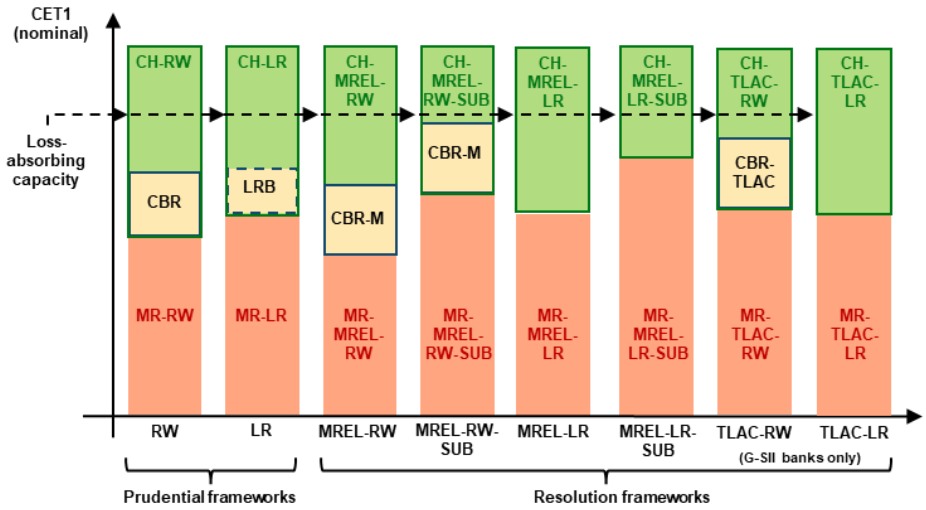
39 The only broad-based relaxation occurred during the COVID-19 pandemic, when the ECB allowed all banks to operate below their P2G; see its press release of 12 March 2020.

40 Any breach of prudential minimum requirements triggers a FOLTF assessment (Articles 32, 32a and 33 BRRD: FOLTF assessment). A breach of MREL requirements should be addressed by the relevant authorities through at least one of the following powers (Article 45k BBRD/ Article 12j SRMR):
- powers to address or remove impediments to resolvability (Article 17 and 18 BRRD);
- restrictions on distributions (M-MDA) (Article 16a BRRD);
- supervisory powers (Article 104 CRD);
- early intervention measures (Article 27 BRRD II);
- administrative penalties/measures (Article 110 and 111 BRRD);
- FOLTF assessment (Articles 32, 32a and 33 BRRD).

applicable regulatory buffer in that stack that is met with CET1. Looking solely at risk-weighted capital requirements, it is based on the CET1 that can absorb losses without breaching the risk-weighted minimum requirements; Fig. 7 shows an example, where the going-concern loss-absorbing capacity before overlaps consists of the yellow (CBR) and green (headroom) parts of the RW bar.

Figure 4

Baseline and complementary approaches to measuring buffer usability



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, therefore it is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

3.5 Effectively releasable buffers

The release of macroprudential buffers should increase capital headroom that can be used to absorb losses without triggering any MDA restriction. As discussed earlier in Section 3.2, the most likely buffers that could be released by designated authorities are the CCyB and the SyRB, including its sectoral variant. Additionally, these buffers can be released independently of any indication from supervisory authorities on the tightness of the P2G.[41]

Macroprudential buffers are effectively releasable to the extent that their release increases capital headroom after considering parallel requirements. As discussed earlier, CBR is mirrored on top of the risk-weighted MREL/TLAC requirements. The release of macroprudential buffer thus increases the CET1 capital headroom not only in the risk-weighted prudential stack, but also in the risk-weighted MREL, MREL subordination and TLAC stacks. However, depending on the size of the requirements and banks' approach to meeting them, released capital or part of it

[41] For example, as part of the ECB's package of pandemic-related relief measures, institutions were explicitly given the flexibility to dip into their P2G and capital conservation buffer until the end of 2022.

might still be needed to fulfil leverage-based minimum requirements applying in parallel – prudential LR, and leverage-based MREL, MREL subordination and TLAC requirements. If that is the case, the release of the buffer would not lead to an equal increase in the overall capital headroom across all capital stacks. Effectively releasable buffers measure how much effective capital headroom would increase as a result of the released buffer, all other things being equal, while not making any assumptions on how banks adjust their effective capital headroom.[42]

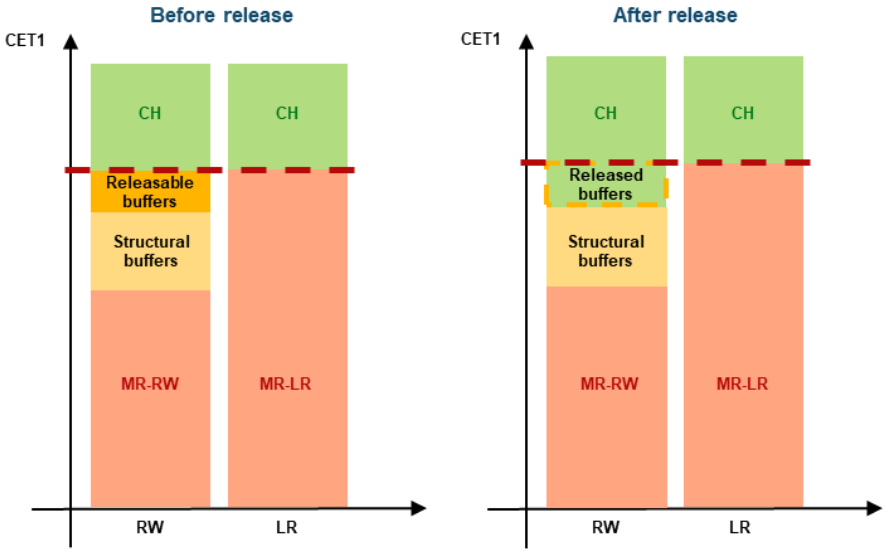
Evaluation of effectively releasable buffers is an important element in an authority's assessment of macroprudential policy if it is to understand the potential limits to its actions. Macroprudential authorities should evaluate the effective releasability of macroprudential buffers so they know how much impact a release can effectively have. This analysis would provide a holistic overview of the obstacles to the use of released capital due to parallel requirements.

The degree to which buffers are effectively releasable in practice is also affected by how the Pillar 2 guidance is treated – specifically, whether the bank is willing, or directly allowed, to operate below it by its supervisor. First, P2G is not a legally binding requirement and compliance with it cannot be enforced. However as shown by the EBA (see Box 4), several banks recognise it as the basis for their management buffers, especially in non-crisis times. Second, it is a tool that may be alleviated (albeit temporarily) under severe financial stress, similar to the release of buffers. A practical example for this is the COVID-19 crisis, when both releasable buffers and P2G were released by authorities. In these cases, P2G could be considered as part of the capital headroom in the prudential risk-weighted and leverage-based stacks, where applicable. For the purpose of this report, we call this scenario "MDA target", highlighting that it is the legal reference point for not breaching constraints triggering distribution restrictions. The simplified release of buffers in this scenario is depicted in Figure 5.

[42] One view strongly emphasises that the assessment of effective buffer releasability relies on key assumptions, including here for example the exclusion of management buffers.

Figure 5

MDA target scenario – buffer release is not effective due to an overlap with LR

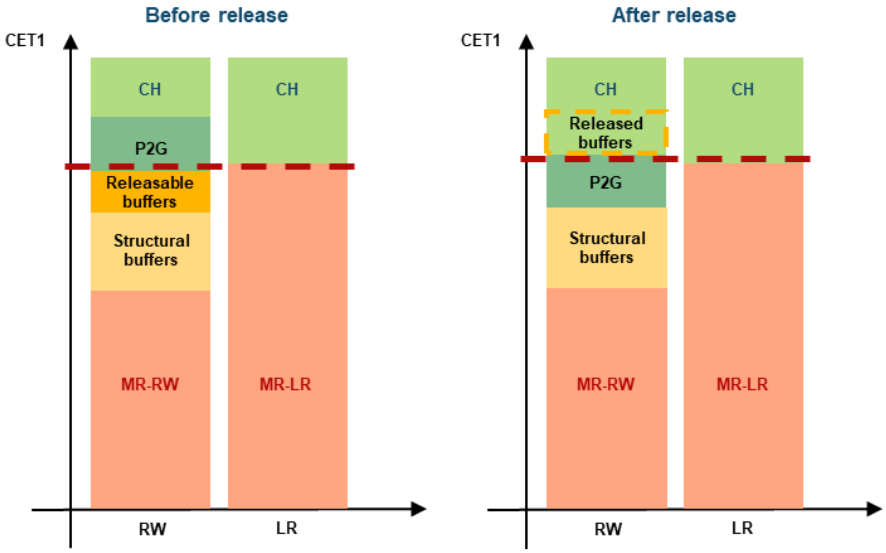


Note: This chart is purely conceptual and does not relate to the capital situation of any specific bank. Resolution stacks omitted for simplicity.

On the other hand, banks might be unwilling to dip into the P2G and may consider it the reference point for setting their capital targets. This scenario is therefore called the "P2G target" scenario. In this, the initial capital headroom would be lower than in the MDA target scenario, since P2G "consumes" part of the headroom. A release of buffers lowers the capital requirements on top of which the P2G is placed. If banks target P2G and the underlying capital requirements decrease, banks' capital headroom will increase. For illustration, see Figure 6. Effective releasability of buffers depends mainly on two factors. First, the extent to which P2G overlaps with minimum requirements, non-releasable buffers or supervisory expectations that banks are unwilling to breach in parallel leverage ratio stacks before release.[43] Second, it depends on the relative sizes of P2G and releasable buffers. A buffer release effectively increases capital headroom at least to the extent by which P2G does not overlap with the elements mentioned above after the buffer release. If P2G fully overlaps with those elements before release, and the released buffers do not exceed the P2G, then a release of buffer capital would not increase effective capital headroom at all (under either the MDA or the P2G target). This would represent zero effective releasability.

[43] These are MREL/TLAC-LR and LR minimum requirements, the non-releasable LR buffer for G-SIIs and LR-P2G.

Figure 6
P2G target – fully effectively releasable buffers



Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. Resolution stacks omitted for simplicity.

Although they lead to different results, and possibly conclusions, regarding effective releasability, both approaches are relevant for the conduct of macroprudential policy. Figures 5 and 6 illustrate that the choice of scenario can lead to fundamentally different results; an identical bank may have no effectively releasable buffers under the MDA target scenario, while fully releasable buffers are observed under the P2G target scenario. The latter may be a more suitable assumption during normal times, when banks wish to keep a certain distance from all requirements and expectations, and therefore is a reasonable reference to assess the costs of building up capital buffers. The MDA target scenario may be more relevant for assessing the effectiveness of buffer releases under financial stress, when banks may be more willing to use P2G or supervisory expectations are loosened (including those on P2G).

Banks' and supervisors' approach to P2G has no effect on banks' loss-absorbing capacity (see Section 3.6); this depends solely on the amount of own funds and eligible liabilities a bank has issued and the size of the requirements authorities set. Furthermore, where resolution stacks are more binding than prudential stacks, the amount of effectively releasable buffers does not depend on the P2G scenario chosen, since resolutions stacks do not include P2G.

Overall, effectively released capital buffers increase the capital headroom of banks (see Section 3.6). This, together with the usable part of the buffer requirements, determine the effective loss-absorbing capacity of institutions on a going-concern basis (see Section 3.7). Effectively releasable buffers are beneficial for financial stability, as they can contribute to banks avoiding reducing lending or deleveraging.

Box 5

Effectively releasable buffers of SSM banks

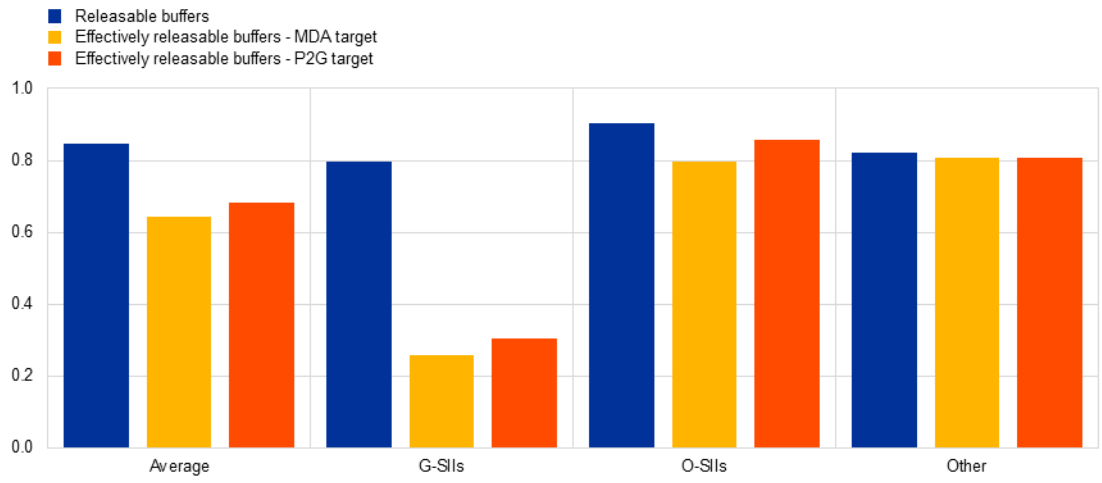
As of the last quarter of 2024, overlaps hampering the effectiveness of buffer releases were material for SSM banks, particularly for larger institutions. This was driven by the prudential leverage ratio (LR) in the case of G-SIIs and, to a lesser extent, MREL constraints in the case of O-SIIs. For G-SII banks, the limited effectiveness of buffer capital releases due to the prudential LR arises from two key factors. First, G-SII banks typically exhibit low risk-weight density (RWD) as they often use internal models, which generally result in lower TREA for their balance sheets. Additionally, after the COVID-19 pandemic these banks generally have larger sovereign holdings and liquid assets expanding their balance sheet, which decreases their leverage ratio headroom. Second, closely linked to the first point, G-SII banks face leverage ratio buffer requirements that are not releasable in addition to the minimum required leverage ratio of 3%. Buffer releases for O-SII banks, on the other hand, are constrained primarily by MREL-LR and MREL-LR subordination requirements. Additionally, banks with an elevated risk of excessive leverage (regardless of whether classified as G-SIIs or O-SIIs) may, on a case-by-case basis, be subject to leverage ratio Pillar 2 requirements or leverage ratio Pillar 2 guidance based on the results of the ECB's stress test.

For smaller and non-complex institutions, by contrast, releasable buffer releases are generally less constrained by parallel requirements, with only a few exceptions. First, for the prudential LR such institutions typically rely on the standardised approach to calculate their TREA, which leads to higher RWD. Second, for MREL, smaller banks under the Single Resolution Mechanism are generally not foreseen to be resolved through recapitalisation by their resolution authorities. As a result, most of them are not subject to MREL requirements, resulting in no additional CET1 demand from the MREL framework. Irrespective of the P2G approach taken, the shares of effectively releasable buffers of G-SIIs are small compared with the role they play in the financial system (see Chart 5.1).

Chart A

Effectively releasable buffers in the euro area

(percentage of TREA)

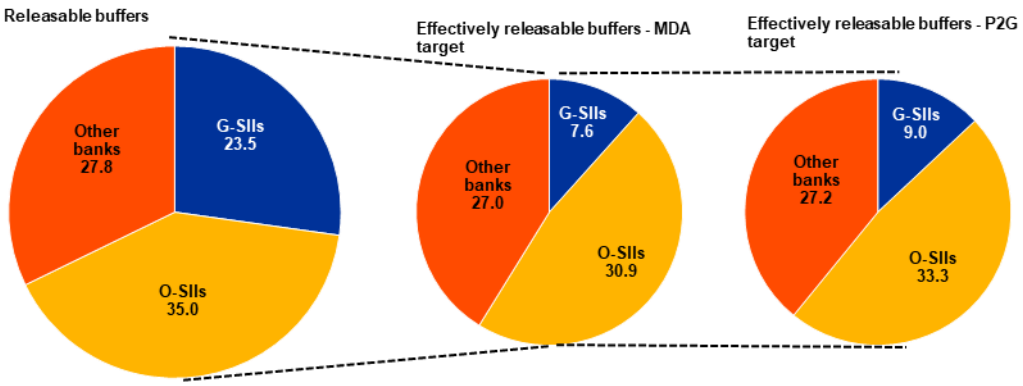


Sources: Fourth quarter 2024 supervisory data, ECB calculations, USIT.
Notes: Sample of 83 resolution groups and 1,882 banks at the highest level of consolidation (6 G-SII, 73 O-SII, 1,886 other banks), O-SIIs exclude G-SIIs, TREA-weighted averages, final MREL targets applied. One G-SII bank omitted due to data availability. Full CCyB and SyRB considered releasable including reciprocated parts. All parallel stacks considered for the sample of 83 resolution groups, while only prudential stacks are considered for the rest of the banks. The dominant CBR is considered as the reference point.

Chart B

Effectively releasable buffers in the euro area

(EUR billions)



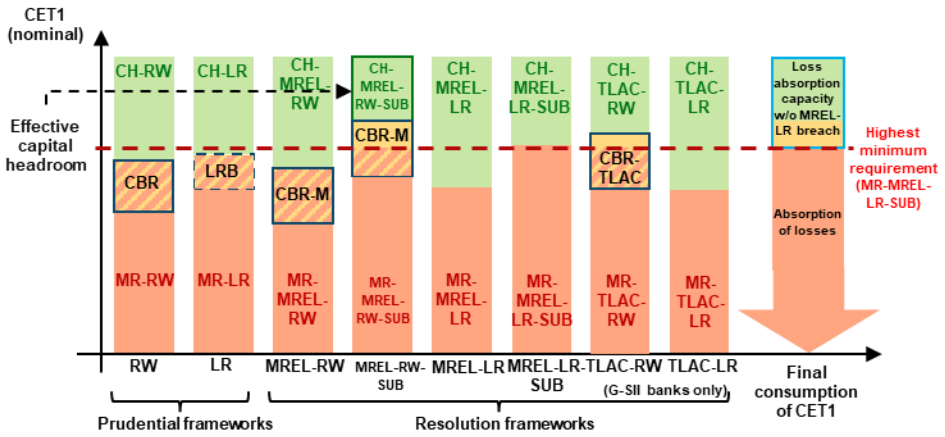
Sources: Fourth quarter 2024 supervisory data, ECB calculations, USIT.
Notes: Sample of 83 resolution groups and 1,882 banks at the highest level of consolidation (6 G-SII, 73 O-SII, 1,886 other banks), O-SIIs exclude G-SIIs, final MREL targets applied. One G-SII bank omitted due to data availability. Full CCyB and SyRB considered releasable including reciprocated parts. All parallel stacks considered for the sample of 83 resolution groups, while only prudential stacks are considered for the rest of the banks. The dominant CBR is considered as the reference point.

3.6 Effective capital headroom

The effective CET1 capital headroom is the amount of capital not used to meet any regulatory requirement. In practice, it coincides with the lowest CET1 headroom across all capital stacks. As for buffer usability and effective buffer releasability, measurement of effective headroom is affected by considerations on the treatment of the P2G. Additionally, effective capital headroom is a generic concept and can be measured before or after the release of buffers, as well as under benign or adverse scenarios.

Effective capital headroom provides a holistic perspective of the overall loss-absorbing capacity of banks. Erosion of CET1 under a stress situation reduces headroom in each capital stack and might bring a bank closer to one of the multiple constraints. Effective headroom is the relevant metric to evaluate the costs and benefits of building up regulatory capital buffers. Buffer requirements that can be met by reducing capital headroom do not add loss-absorbing capacity, all other things being equal. However, banks (especially those with limited effective headroom) may increase their internal capital target to keep sufficient headroom above MDA or P2G (see Box 4). The distance to capital requirements can also influence the effect of higher capital requirements on lending, which can be intentional.

Figure 7
Effective capital headroom



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, therefore it is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

Box 6
The effective capital headroom of SSM banks

High CET1 headroom on top of the risk-weighted prudential requirements considerably overlaps with parallel regulatory requirements. Capital ratios, indicating the amount of capital relative to TREA, are among the most closely monitored indicators of a bank's capital position and overall solvency. On aggregate, capital ratios have remained high in recent years (see, for example, ECB, 2025). For instance, as of the fourth quarter 2024 the average CET1 ratio of euro area banks stood at 16.6% of TREA, well above prudential requirements.

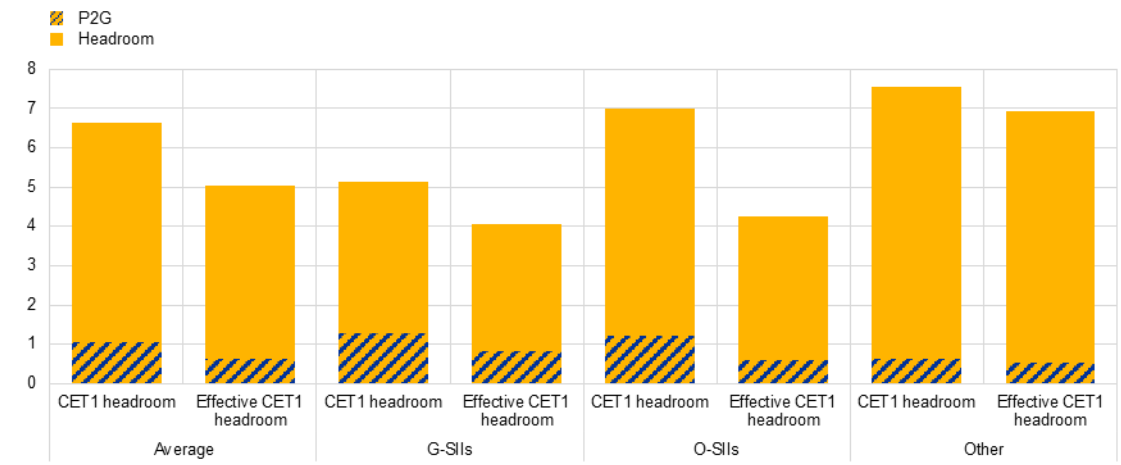
However, to some extent high CET1 resulting in high CET1 headroom above the prudential CBR is utilised to meet prudential LR requirements, and particularly MREL requirements. In aggregate, euro area banks maintain capital headroom of 6.6% of TREA – significantly higher than the average P2G of roughly 1% of TREA. Effective capital headroom is slightly lower at 5% of TREA. G-SII banks maintain lower capital headroom than O-SII and other banks on average (approximately 5% of TREA) which decreases to 4% when overlaps are accounted for.

The most significant reduction, attributed to MREL requirements, is observed for O-SIIs, where average headroom declines from 7% to 4.2% after considering parallel MREL stacks. For O-SIIs, there is also a substantial overlap between the capital held to meet P2G and parallel requirements. Limited usability due to parallel requirements affects not only buffers, but also P2G stacking above the prudential CBR. If P2G is constrained, it means CBR below is not usable at all, and P2G does not provide the expected loss-absorption capacity. For O-SII banks on a euro area level, only slightly less than half of the average P2G rate of 1.2% of TREA is non-overlapping. As with the findings on buffer usability (Box 2) and effective releasability (Box 5), other banks are not as constrained by parallel requirements. For them, the reduction in CET1 headroom is limited to 60 basis points, leading to average effective CET1 headroom of 7% of TREA.

Chart A

CET1 headroom vs effective CET1 headroom

(percentage of TREA)



Sources: Fourth quarter 2024 supervisory data, ECB calculations, USIT.
Notes: Sample of 83 resolution groups and 1,882 banks at the highest level of consolidation (6 G-SII, 73 O-SII, 1,886 other banks), O-SIIs exclude G-SIIs, TREA-weighted averages, final MREL targets applied. One G-SII bank omitted due to data availability. All parallel stacks considered for the sample of 83 resolution groups, while only prudential stacks considered for the rest of the banks. CET1 headroom defined as the amount of CET1 capital left after meeting prudential risk-based minimum requirements (Pillar 1 and Pillar 2) and the CBR.

3.7 Going-concern effective loss-absorbing capacity

Going-concern effective loss-absorbing capacity is defined as the minimum loss-absorbing capacity in parallel stacks, taking into account the interaction between all requirements applicable to a bank. It consists of the usable CBR and effective capital headroom. By applying the complementary approach (described in Section 3.1), it is possible to determine which layers of CET1 are consumed across the different capital stacks (RW, LR, and MREL/TLAC) when losses materialise. For example, in Figure 7 the effective loss-absorbing capacity (after considering overlaps) consists of the usable part of the CBR-M and the capital headroom on top of CBR-M. Other cases can occur, depending on the type of overlap (that with LR, for example). When there are no overlaps from the perspective of the risk-weighted capital stack, the loss-absorbing capacity in the stack coincides with that after overlaps.

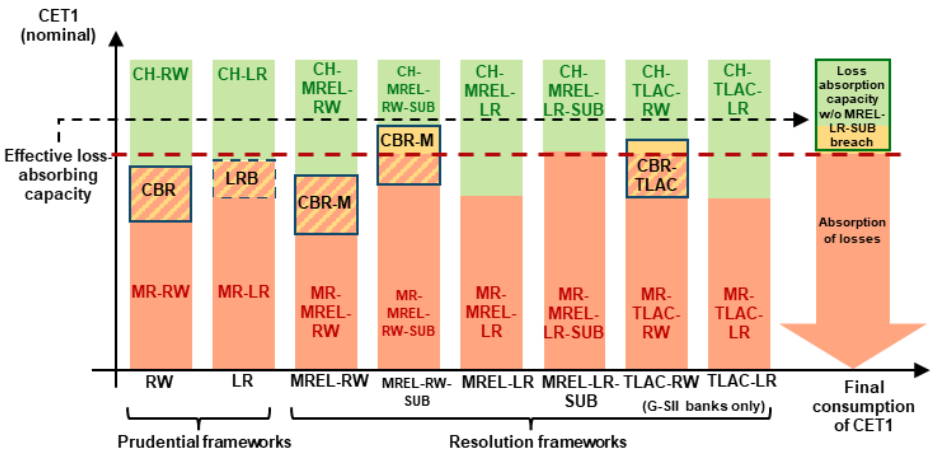
Going-concern effective loss-absorbing capacity is determined by effectively usable buffers and effective capital headroom, and differs from gone-concern loss-absorbing capacity, which is defined in the resolution framework (see the discussion on TLAC in Section 2.2). The former concept is primarily relevant for micro- and macroprudential authorities when assessing banks' ability to absorb losses before breaching any minimum requirement, thus ensuring business continuity (i.e. going concern). The latter is a concept primarily relevant for resolution authorities, which defines banks' loss-absorbing capacity once they breach minimum requirements and become subject to resolution (i.e. gone-concern).

Monitoring going-concern effective loss-absorbing capacity makes it possible to identify the financial gaps for banks if severe shocks occur. This information

is therefore relevant not only for the banks themselves and market participants, but also for authorities. For example, if micro- and macroprudential authorities were to focus solely on going-concern requirements and did not consider resolution requirements such as MREL, they would overlook situations when banks' going-concern loss-absorbing capacity was primarily constrained by the resolution framework (see Figure 8) and the consequences that may result from losses due to stress events, for example. In fact, limited capital headroom on top of MREL may lead to adjustment actions by banks (e.g. deleveraging or de-risking strategies) or result in breaches of the CBR-M and the resulting M-MDA application. In both cases there could be significant impacts on banks' profitability and operations, as well as on the real economy, due to banks' adjustment process. Monitoring the going-concern loss-absorbing capacity and the effective loss-absorbing capacity of banks is therefore important, which is also supported by analyses published by several authorities.[44]

Figure 8

Going-concern effective loss-absorbing capacity



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, therefore it is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

Going-concern effective loss-absorbing capacity increases when banks have more effectively usable capital buffers and hold more effective capital headroom. The overall amount of going-concern effective loss-absorbing capacity consists of the usable part of the capital buffers (CBR, CBR-M, CBR-TLAC) and the effective capital headroom. Banks which have large effective capital headroom, have a higher going-concern effective loss-absorbing capacity and therefore more CET1 resources to absorb losses before any MDA threshold or minimum requirements are breached. While most banks set specific internal capital targets in some capital stacks, they do not usually take into account the interactions between different capital stacks (see Box 4). If a bank sets a specific target in the prudential RW

[44] See Danmarks Nationalbank (2020), ESRB (2021), De Bosio and Loiacono (2023), Banca d'Italia (2024, 2025), Bundesbank (2023) and Zsámboki et al. (2025).

capital stack (the commonest case according to the EBA survey), this could still result in a situation where the effective capital headroom is small, given the interactions with parallel frameworks. Additionally, supervisors and regulators cannot impose a minimum level of capital headroom on banks, but only expectations (P2G).

Effective release of a capital buffer increases capital headroom, while overall going-concern effective loss-absorbing capacity remains constant. The going-concern effective loss-absorbing capacity is defined partially by the usable amount of capital buffers, including releasable buffers. When a capital buffer is released, the released capital is redistributed from the CBR/CBR-M/CBR-TLAC of a bank (the yellow part in Figure 8) to the capital headroom (the green part). Therefore effective release does not increase the overall going-concern effective loss-absorbing capacity of a bank; rather, it redistributes capital. The COVID-19 pandemic demonstrated that effective capital buffer releases were especially beneficial for banks in maintaining lending, especially those operating with low capital headroom.[45]

3.8 External MREL requirements

For banking groups, both external and internal MREL are usually applied by the resolution authority. External MREL needs to be met with consolidated own funds and eligible liabilities issued by the resolution entity and held by external investors which are not entities of the resolution group. As stated in Section 2, resolution authorities set these requirements in terms of TREA and LREM (of the resolution group) to align with the specific risk profiles and structures of each bank. Banks must comply with both the external MREL RW and external MREL LR at all times.

Smaller banks often meet MREL requirements predominantly with CET1 rather than other eligible liabilities (EL). This practice is largely driven by the higher average CET1 level of smaller banks compared to larger ones. Moreover, as reported in Box 5, reliance on CET1 can be particularly appealing to banks, as it avoids the operational challenges and financial burdens involved in issuing or rolling over eligible liabilities. These differ significantly from CET1 and often have shorter maturities compared to Tier 2 (at least five years) and AT1 instruments (no maturity date). In addition, banks with limited access to wholesale debt markets or in countries where private placements are not developed may meet external MREL requirements mainly with CET1, as it can be costly or difficult to issue eligible liabilities. However, analysis of the cost of issuance shows that in the euro area overall, medium-sized banks pay a lower coupon on fixed-rate issues than large banks, even controlling for financial conditions at the time of issuance. [46]

Rolling over MREL debt may be challenging during severe and long-lasting stress periods, potentially leading to higher use of CET1 to fulfil MREL requirements. Banks have to engage with financial markets regularly to refinance maturing debt. Unlike the permanent nature of CET1, eligible liabilities rely on

[45] See Couaillier et al. (2022).

[46] See De Bosio and Loiacono (2023) and Ibáñez et al. (2024)

regular market access — an aspect that can become problematic when market conditions shift or become unfavourable for an extended period. In volatile market conditions, banks may face difficulties in rolling over maturing MREL-eligible debt, especially if market access tightens or conditions become prohibitive. This scenario could compel banks to rely more heavily on CET1 capital to ensure compliance with MREL requirements in periods of market stress longer than has been observed to date. This could lead to or amplify possible overlaps with a bank's capital if effective capital headroom were reduced. A prudent forward-looking refinancing plan and a larger share of liabilities at the outset increase the likelihood that capital buffers can be used in the event of refinancing difficulties. This issue is discussed in more detail in Box 7.

Box 7

MREL-eligible liabilities and rollover risk

A bank bound by the MREL can issue more MREL-eligible liabilities if it wants to reduce overlaps and make CBR on top of risk-weighted requirements more usable. This would create greater CET1 headroom on top of the MREL, and consequently the bank can absorb a greater amount of losses on this stack. In addition, the limitation on effective CET1 headroom due to parallel requirements could be mitigated. Obviously, the same effect regarding capital headroom applies if the bank maintains more capital in addition to MREL. However, building up CET1 or issuing capital instruments is generally more expensive than issuing liabilities, although variations can occur.

Unlike CET1 and AT1 capital, other MREL-eligible liabilities have a fixed term. Fulfilling MREL requirements with a larger share of liabilities therefore simultaneously increases rollover risks (the risk of not being able to replace liabilities that fall due for payment). A bank's ability to issue debt can be impaired for a variety of reasons. The market's view of the individual bank's financial position may have changed, for example if it has started to make losses or has less capital headroom in relation to regulatory requirements. This could also stem from a changed view of the entire sector or a shift in risk appetite overall due to a sudden change in the economic scenario.

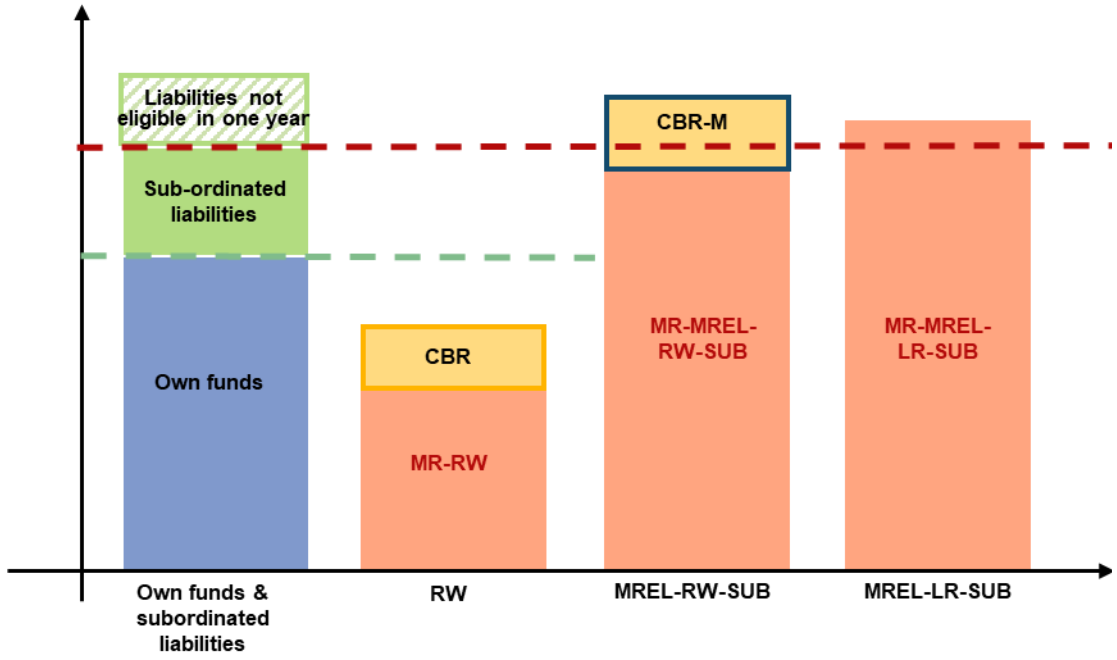
Ultimately, if a bank finds it difficult to refinance its liabilities for a long period, this could result in breaching CBR-M or even MREL minimum requirements. A prudent forward-looking refinancing plan and a larger share of liabilities at the outset increase the likelihood that capital buffers can be used in the event of refinancing difficulties.

A case where buffer usability can be limited due to a bank's inability to refinance its eligible liabilities is illustrated in a scenario analysis by the Swedish Financial Supervisory Authority (Finansinspektionen),[47] showing how a mid-sized Swedish bank fulfils the capital requirements and the subordination requirements in MREL (see Figure 7.1). In this example, subordinated liabilities that need to be refinanced in the coming year have been excluded. It is therefore assumed that the bank has not succeeded in refinancing these liabilities. In this scenario of prolonged impaired access to financial markets, the bank violates both CBR-M in the risk-weighted subordination requirement as well as the minimum level in the leverage-based subordination requirement, and hence may well be subject to intervention (see the red dashed line in Figure 7.1), even though the

47 See Forsström, Lindegren and Tingåker (2022).

bank is not violating its capital requirement, including the combined buffer requirement (see the green dashed line in Figure 7.1).

Figure A
A bank's available amount of eligible MREL liabilities affects buffer usability



Source: Finansinspektionen.
Notes: A mid-sized Swedish bank's own funds, subordinated liabilities and subordination requirements, assuming subordinated liabilities that fall within one year are not refinanced. The red and green dashed lines illustrate that the bank violates the subordination requirements while simultaneously fulfilling the capital requirement. The MR-LR, MREL-RW and MREL-LR requirements are not illustrated, as they are not close to being breached in this scenario.

Even though a scenario where a bank is not able to refinance any of its expiring MREL-eligible liabilities is an unlikely event, this has occurred in Sweden on more than one occasion in recent years when the market for subordinated debt has shifted quickly, resulting in increasing risk premia demanded by investors. This is exemplified in Chart 7.1, which shows the spread of a Swedish senior non-preferred bond over time. During the COVID-19 pandemic in early 2020 the spread increased by 350 per cent from a low level and almost all primary bond market activity was halted for weeks – hence, refinancing could be difficult during this period, depending on the bank and the market it was active in. However, the inflated prices only lasted a couple of months, as compared to the scenario described in Figure 7.1. More recently, there was also a period of high price volatility in the market from February 2022, at the start of the Russian invasion of Ukraine, until spring 2023 with the turbulence surrounding the collapse of Credit Suisse and Silicon Valley Bank.

Chart A

Volatility in bond market in recent years for Swedish banks

Source: Reuters.
Note. Shows the asset swap spread (with EURIBOR as reference rate) over time for a senior non-preferred bond issued by a Swedish bank.

In summary, Chart 7.1 indicates that there can potentially be a rollover risk for eligible liabilities, which may affect a bank's ability to meet MREL if the bank is unable to refinance for several months. However, if a bank has its subordinated MREL liabilities split into a number of separate instruments with evenly spread maturities, it has a greater chance of not ending up in this scenario and would not be as vulnerable to potential volatility on the debt markets as depicted in Chart 7.1. Banks that manage their rollover risk by proactively refinancing upcoming debt maturities in advance are in an even more favourable position. Furthermore, the design of the M-MDA (see Box 1) incorporates flexibility by recognising that there is no mandatory requirement to set an MDA within the first nine months after a bank notifies that it has failed to meet its CBR-M. This discretion allows for flexibility when banks face temporary MREL shortfalls due to external factors like unfavourable market conditions affecting debt rollover

To ensure that banks can meet their MREL requirements at all times, as well as being able to handle the rollover risk of MREL-eligible liabilities, the Danish Financial Supervisory Authority has published guidance regarding management buffers on top of the MREL requirement.[48] The guidance provides a clear expectation that Danish banks define internal buffers in relation to their MREL requirements with the purpose of preventing regulatory breaches in the event of capital losses or maturing liabilities. The size of this management buffer is based on the result of a macroeconomic stress test and how the banks have chosen to fulfil their MREL requirement. A bank that uses more liabilities compared to CET1 capital to fulfil its MREL requirement is exposed to more rollover risk and will need to hold a larger management buffer. However, a bank that uses a larger amount of instruments with more evenly spread maturities to fulfil MREL is deemed to need a smaller management buffer compared to a bank with one or only a few larger instruments.

If a bank is in breach of its MREL requirement there may be still liabilities to be used in the event of resolution for the application of the bail-in tool. The legislation stipulates that all debt must have at least one year left to maturity to be MREL-eligible, which means there are more liabilities on a bank's balance sheet working as an indirect buffer for the resolution authority to use.

48 Finanstilsynet (2023).

3.9 Internal MREL requirements

Internal MREL is a requirement designed to ensure that subsidiaries within banking groups possess sufficient loss-absorbing and recapitalisation capacity. Unlike external MREL, which applies to the resolution entity – usually at the top of a banking group – and is held by external investors, internal MREL is specifically required for subsidiaries that are not themselves designated as resolution entities (known as "non-resolution entities").

The primary objective of internal MREL is to facilitate the orderly resolution of banking groups, by ensuring that losses can be moved upstream to the resolution entity and recapitalisation funds can be shifted downstream to the subsidiaries. Subsidiaries subject to internal MREL are required to issue eligible instruments to their parent resolution entity within the group. In the event that a subsidiary experiences financial distress, these internal MREL instruments can be written down or converted into equity, allowing the parent entity to absorb the losses and recapitalise the subsidiary as needed. This mechanism helps maintain continuity of critical banking functions and supports the stability of the broader financial system.

For material subsidiaries of third-country G-SIIs, internal TLAC also applies in parallel to internal MREL. Internal TLAC is calibrated at 90% of the external TLAC minimum requirements on a consolidated basis; internal MREL is based on a methodology similar to that used for the external version (twice prudential requirements, plus a market confidence charge in some situations). This ensures that sufficient resources are pre-positioned within the group, making them readily available in times of crisis. Furthermore, internal MREL instruments, in order to count as eligible, rank in ordinary insolvency proceedings below the ordinary class of creditors (Articles 45f(2)(a)(iii) BRRD and 12g(2)(iii) SRMR). The regulatory framework also foresees that internal MREL is calibrated on a sub-consolidated basis in certain circumstances, particularly for subsidiaries of third-country banks, or where subsidiaries in the chain are waived from internal requirements or intermediate entities in a daisy chain are involved, provided this does not impair the credibility or feasibility of the group's resolution strategy.

Subsidiaries are expected to comply with their CBR (referred to as CBR-M) on top of internal MREL, as banks subject to external MREL requirements. Non-compliance with internal MREL puts the subsidiary at risk of encountering restrictions on dividend distribution (see Box 1). Where an entity within the direct remit of the SRB meets its CBR when considered in addition to its own funds requirement (i.e. points (a), (b) and (c) of Article 141a(1) CRD), but fails to meet the CBR when considered in addition to the external or internal MREL (including subordination as well as internal and external TLAC) – expressed in terms of TREA – the resolution authorities have the power to restrict dividend distributions (the same as the M-MDA regime for external MREL).

Buffer overlap and usability dynamics between prudential and resolution domains therefore apply at the level of the subsidiary too. In addition, the amount of CET1 held at the level of the subsidiary is used to meet consolidated

requirements at the level of the parent. This represents an additional layer of complexity when measuring buffer usability at the level of the subsidiary (see Box 8).

Box 8

Interactions between subsidiary and parent institution

The CET1 consumption of MREL requirements is determined by the amounts of eligible liabilities issued to the market (for external MREL) and/or to the parent institution (for internal MREL). As discussed earlier, buffer usability, effective releasability, effective capital headroom and effective loss-absorption capacity are influenced by CET1 consumption within all parallel stacks. In the context of resolution requirements, CET1 fills the gap left after accounting for eligible liabilities and lower-quality AT1 and T2 capital.

For subsidiaries subject to internal MREL, the dynamics of buffer usability and related concepts are thus determined by their parent institution – specifically, the amount of eligible liabilities the parent is willing to hold on its balance sheet.

Furthermore, a subsidiary drawing down its CET1 capital headroom to absorb losses could lead to a breach of some of the parallel requirements applying at the consolidated group level. Capital at the consolidated group level comprises the capital of the subordinated entities, i.e. the group's subsidiaries. As a result, CET1 depletion at the subsidiary level is simultaneously reflected in the CET1 depletion of the group. It is thus possible that a well-capitalised subsidiary may not be able to use its capital headroom, let alone its buffers, without breaching prudential or resolution requirements at the group level if those requirements are met with the same units of capital. Additionally, if a buffer applied to a subsidiary in a foreign country is not reciprocated by domestic authorities at the highest consolidation level, that buffer would not be reflected in the group-level CBR.[49] This would imply that the same units of capital can be used to meet, for instance, an SyRB that is only applied at subsidiary level and an O-SII or other buffer at the consolidated group level, meaning systemic risks may remain unaddressed due to double-counting of capital.

3.10 Prudential and resolution consolidation perimeters

Within banking groups, going-concern requirements (RW and LR) can apply at different levels of consolidation compared to resolution ones (external and internal MREL). While the former are applied at the highest level of consolidation – as stated in CRR/CRD[50] – the latter can be applied at sub-consolidated level with respect to the prudential perimeter (see Section 2.2 for additional details).

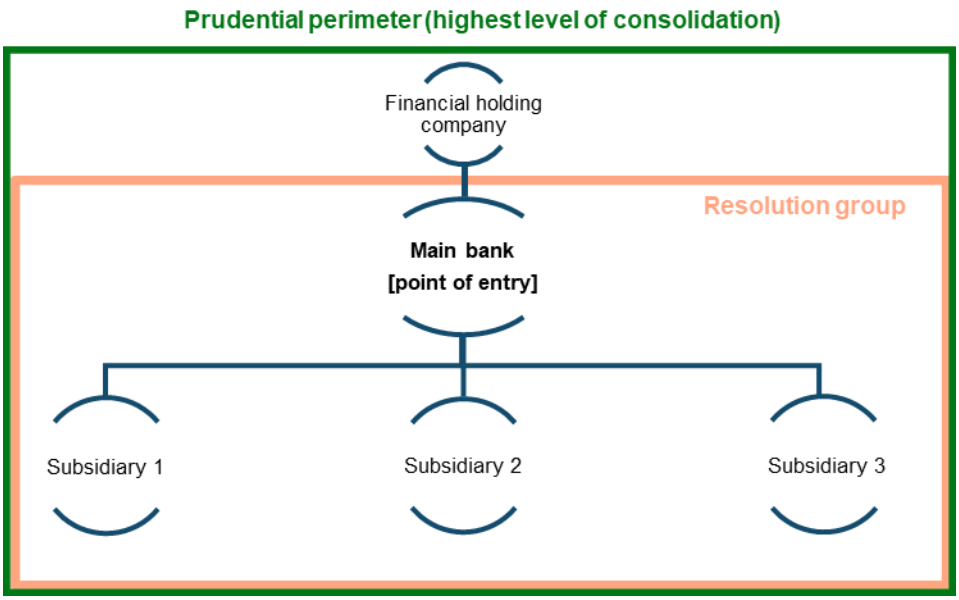
One case of differing prudential and resolution perimeters is an SPE strategy in which the parent company is not identified as the point of entry by the resolution authority. This occurs especially when the parent is a financial holding company (in other words it has no business other than holding the group), often a non-bank financial intermediary which is not active in wholesale financial markets

[49] See Section 3.8 of ESRB (2024).

[50] Prudential requirements can also be applied at sub-consolidated level.

(for example has no rating) and so cannot easily build up MREL resources. In such cases the point of entry may be identified in a more market-oriented subsidiary (usually a bank) that has a greater likelihood of finding investors willing to buy its MREL-eligible liabilities. The prudential perimeter of consolidation – based on the scope provided by the CRR/CRD rules – on the other hand, includes the financial holding company (the highest level of consolidation). Figure 8 shows a stylised example of this.

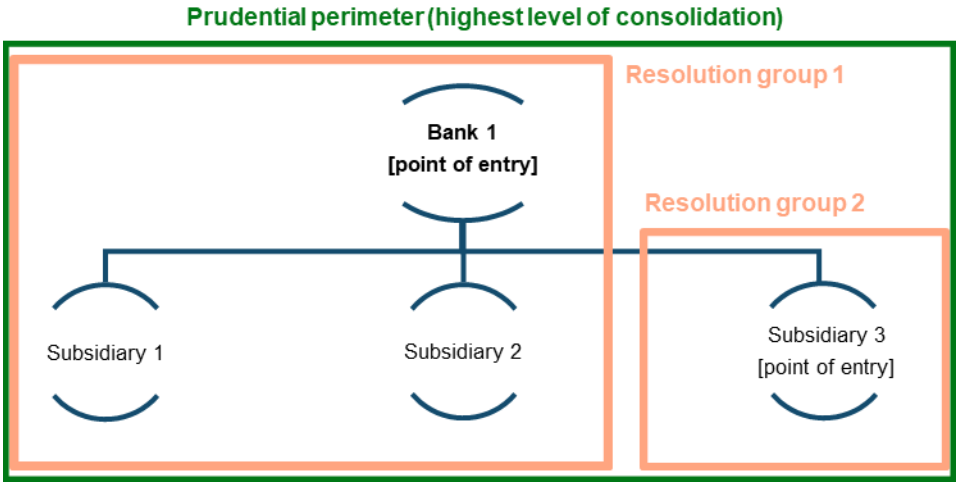
Figure 9
Different perimeters for prudential and resolution frameworks



The MPE case illustrated in Figure 10 presents another case of differing prudential and resolution consolidation perimeters. When the resolution authority adopts an MPE strategy, it identifies a number of sub-groups (resolution groups) and applies a specific external MREL to each one. Consequently, more than one external MREL requirement applies, each at sub-consolidated level. The scope of consolidation for each MPE resolution group differs from the prudential group level consolidation perimeter.

Applying different perimeters of consolidation makes it more difficult to measure overlaps. It creates two different issues. The first is the possible lack of information at sub-consolidated level: while resolution data are available for resolution groups, this might not be the case for going-concern requirements (RW and LR), depending on the specific features of the resolution group. The second issue is methodological: when resolution and prudential perimeters of consolidation coincide, banks' consolidated (effective) loss-absorption capacity can be determined for all and across applicable requirements in TREA and LREM percentage points. If perimeters differ, adjustment must be adopted to determine loss-absorbing capacity across all applicable requirements in terms of TREA and LREM.

Figure 10
Illustrative example of an MPE banking group



This report provides guidance on how to deal with different prudential and resolution perimeters for SPE banks. What is presented is not a definitive methodology, but consists of adjustments that allow results to be calculated when the issue of different perimeters occurs. First, the CET1 consumption of each stack can be determined by making use of the data that refer to that particular stack. Specifically, CET1 consumption for the MREL stack is determined based on the data of the resolution group, while that for the prudential RW/LR stacks is based on the prudential perimeter data at the level of the holding company. Second, CET1 consumption for each stack is calculated in nominal amounts (euro or other currency).[51] This makes it possible to compare CET1 consumption across stacks even though the amount of TREA and LREM is not the same.[52] Third, the loss-absorbing capacity is computed following the same logic that applies if consolidation perimeters coincide, but again in nominal amounts. Finally, the loss-absorbing capacity is reported in TREA or LREM percentage points in order make data comparable with those of other banks not affected by this issue. For this purpose, the TREA or LREM of the prudential perimeter of consolidation can be used, provided it appears the most suitable perimeter for going-concern considerations.

In principle, similar adjustment could be applied to banks following an MPE resolution strategy, as the capital of the specific resolution groups is simultaneously used to meet prudential requirements at the group level, thus creating the basis for overlaps. However, macroprudential authorities might lack the necessary data on MPE resolution groups outside their jurisdiction, preventing them from evaluating overlaps at the highest level of prudential consolidation.[53]

51 In cases where the prudential and resolution perimeters coincide, CET1 consumption can be expressed both as a percentage of TREA and LREM, and as nominal amounts to compute the overlaps.

52 This is a technical solution to compute usability. However, the euro amounts reflect the underlying RWA and LREM, which differ across consolidation perimeters. Therefore this does not provide a final solution to the difficulty of an adequate way to calculate buffer usability when consolidation perimeters differ.

53 For example, this is the case for SSM banking groups with MPE resolution groups outside the SSM.

Another option applicable to both SPE and MPE banks employed in the analytical boxes above is evaluating buffer usability at the level of resolution groups (i.e. not the highest prudential consolidation perimeter), as prudential requirements apply at lower levels of consolidation as well.

In the case of SPE banks, USIT can be used to calculate intermediate results (minimum required nominal capital for resolution and prudential scope) which need to be consolidated manually outside of USIT. Similar procedures can be followed for MPE banks too, subject to data availability. This allows authorities to better estimate the effect of the overlaps and their consequences for macroprudential policy, even when the issue of different perimeters of consolidation occurs. However, input data submitted to USIT must be consistent with the guidance provided: MREL data must be based on the applicable resolution perimeter, while data for the RW and LR stacks must be coherent with the applicable prudential perimeter. Additional and more specific details are provided in the internal USIT manual, which is shared with ESRB members.

4 The buffer usability simulation tool – implementing concepts

Among other goals, this workstream was set up to update the buffer usability simulation tool (USIT) developed under the ESRB Analytical Task Force on the overlap between capital buffers and minimum requirements**.** USIT is a tool built in the open-source statistical software R. It comes as a standalone R package and includes an interactive easy-to-use application built in R Shiny. USIT has been shared among the members of the ESRB community to facilitate a consistent method to calculate buffer usability.

The earlier version allowed assessment of interactions between parallel regulatory frameworks adhering to the latest regulatory framework. In particular, the tool provided:

(a) calculation of buffer usability under the baseline approach;

(b) calculation of (effective) capital headroom;

(c) assessment of the effect of balance sheet changes (both assets and liabilities) on buffer usability and (effective) capital headroom;

(d) assessment of changes in requirements (P2R, buffers, MREL) and the effect on buffer usability and (effective) capital headroom.

As time passed, new relevant ideas and methodological approaches emerged. Furthermore, some options became outdated in light of regulatory changes.[54] The updated tool thus offers, among other functionalities:

(e) calculation of buffer usability under the complementary approach;

(f) two approaches to calculating the effectiveness of buffer releases: MDA target and P2G target as introduced in Section 3.5, including the possibility to restrict the release to non-reciprocated (domestically governed) capital buffers;

(g) new regulatory scenarios – prohibiting simultaneous use of CBR capital across all parallel minimum requirements and minimum required level of eligible liabilities in the resolution framework.

The tool aims to strike a balance between user-friendliness and informativeness; most of the topics discussed in the preceding chapter are implemented. One notable exception is the interactions between different levels of

[54] For example, Directive (EU) 2019/878 revised the application of the SyRB and O-SII/G-SII buffers. In previous version of the CRD the scope of these buffers (partially) overlapped. Therefore for the calculation of the CBR, the higher of these buffers applied. With the revision to the CRD, the overlaps between these instruments have been eliminated and the SyRB and G/O-SII buffers became additive. These changes have been incorporated in the USIT.

banking groups, e.g. where the same unit of capital is used at the subsidiary level and at the group level simultaneously to fulfil different requirements, both in terms of scope and size (see Box 8).

5 Implications for macroprudential policy

It is important that authorities rely on common definitions and use coherent methodological approaches across all Member States if macroprudential analysis and policy is to be conducted effectively in the EU. In particular, authorities should be able to (i) understand the interactions between parallel requirements, (ii) quantify the materiality of overlaps and (iii) assess the consequences for macroprudential decisions in a consistent manner. Having common definitions and analytical approaches ensures mutual understanding and enhances coordination between national authorities, the ECB, the ESRB and the SRB, and improves the effectiveness of macroprudential decisions both at national and EU levels.

A common analytical tool based on common definitions allows authorities to assess regulatory overlaps in a structured and comparable manner. This ensures consistency with respect to data, methodology and the underlying assumptions used for analytical purposes. Furthermore, it enables authorities to have a consistent approach in assessing specific issues within the regulatory framework, such as how to deal with the application of multiple trigger points regarding buffer breaches and banks' different approaches to setting capital targets with respect to the buffers and P2G.

The common analytical approach helps authorities identify the transmission channels of macroprudential policies and quantify their impact via the prudential and the resolution stacks. This report has pointed out that focusing only on the risk-based approach in macroprudential policy is insufficient for assessing the impact mechanism of macroprudential decisions, especially for jurisdictions where the leverage ratio or the resolution framework is the binding requirement for some banks or for a systemically important bank.

Limited buffer usability reduces the effectiveness of macroprudential policy. The macroprudential framework is primarily focussing on risk-weighted requirements, whereas the microprudential and resolution frameworks consider both risk-weighted and leverage-based requirements. In this regard, the following main implications of limited buffer usability are highlighted.

- **If capital buffers are only partially usable, they may not constitute sufficient loss-absorbing capacity for individual banks and/or the banking system as a whole**.
  Limited buffer usability could therefore lead to an earlier breach of minimum requirements in a parallel stack if risks materialise and banks suffer losses, potentially triggering an FOLTF assessment[55] at a higher level of capitalisation than foreseen by the prudential risk-weighted requirements.

[55] In the case of prudential minimum requirements, any breach results in an FOLTF assessment. All breaches of resolution minimum requirements need to be assessed by resolution authorities; an FOLTF assessment is one among several measures that can be taken (see footnote 42).

- **If buffer usability is limited, this reduces authorities' ability to properly address structural and cyclical systemic risks**.
  The activation and calibration of capital buffers are intended to ensure that buffer levels are commensurate to the underlying systemic risks and provide the right incentives for banks to mitigate those risks. Limited buffer usability could leave these risks inadequately covered and may create insufficient incentives for banks to address those risks.

- **If capital buffers cannot be effectively released by authorities, they may not mitigate negative systemic effects stemming from procyclical deleveraging in a downturn.** Overlaps between releasable buffers and parallel requirements may prevent authorities from creating sufficient additional capital headroom for banks in a systemic stress event. This may result in a contraction in lending or the provision of other financial services, adversely affecting the real economy and possibly financial stability as well.

- **If a bank's capital buffers are neither usable nor effectively releasable, the capital headroom becomes the only layer of loss-absorption capacity before any breach of minimum requirements.**
  Capital headroom plays an important role in absorbing losses before buffers and minimum requirements are breached. If buffers cannot absorb losses or authorities are unable to create additional headroom for specific institutions due to parallel requirements, macroprudential measures may become entirely ineffective, and authorities may have to rely on banks' limited headroom to absorb losses before minimum requirements are breached. If banks have no or very limited capital headroom and buffers are not (fully) usable this becomes a significant concern for financial stability and macroprudential policy, especially if systemically important institutions or multiple banks are impacted.
  Nevertheless, if banks' capital headroom is abundant, the constraints of limited buffer usability and releasability can be mitigated by making the release of macroprudential capital buffers conditional upon, or synchronised with, agreements on certain capital-consuming actions by banks benefiting from the buffer release. In such instances macroprudential authorities can facilitate the use of the released capital for its intended purposes.[56]

- **If capital headroom is limited due to parallel requirements, it may hinder authorities' ability to build up buffers effectively.**
  Similar to the constraints on buffer releases, the ability to increase buffers may also be constrained by parallel requirements. This is particularly true if, after activation or upward calibration of a buffer, its level remains below that of a parallel minimum requirement. In such cases, increasing the buffer would fail to adequately address the underlying systemic risks, and would not enhance the resilience of banks either.

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[56] The "conditional" or "synchronised" buffer releases can also ensure that the released capital is not distributed to shareholders. Synchronisation between (1) the release of a macroprudential capital buffer and (2) a number of concrete actions agreed with the banks that benefited from regulatory relief occurred in Belgium at the time of the pandemic. For further details, see press release of 11 March 2020 and press release of 22 March 2020.

Buffer usability can also be influenced by specific elements of the resolution framework. In cases where buffers on top of the MREL RW are breached, resolution authorities have the discretionary power to set restrictions on distributions (M-MDA) (see Box 1 for details). The (temporary) exemption of M-MDA restrictions may prolong the time to restore the buffers on top of the resolution stack, as there are no distribution restrictions that would provide an incentive to retain profits. On the other hand, it may facilitate issuance of AT1, T2 or eligible liabilities, which could increase buffer usability by freeing up CET1 that has been used to meet MREL. The current legislative framework does not provide for information to be exchanged between resolution and macroprudential authorities,[57] for instance when powers related to M-MDA restrictions are executed or not executed.[58] Furthermore, the size of the CBR-M and CBR-TLAC may be different from the CBR included in the prudential stack, in case of different resolution and prudential perimeters. This might pose challenges for calculating buffer usability, capital headroom and loss-absorbing capacity.

Macroprudential policy decisions need to have a forward-looking perspective, taking into account the complex interactions between parallel frameworks. The analytical framework developed in this paper and the USIT, which implements these concepts and methodologies, can be used to achieve this objective. A specific use-case could be the combination of stress tests and macroprudential policy by using the output of stress tests or other future scenarios as input to the USIT (e.g. own funds, MREL-eligible liabilities, RWAs, leverage ratio exposure, etc.). This approach could enhance the effective implementation of macroprudential policy measures.

The analytical tool can be used to assess the impact of various regulatory reforms and policy options on buffer usability and releasability. The USIT is designed to allow for the assessment of a broad range of policy options by using appropriate input data (e.g. quantitative impact studies on Basel III implementation) or conducting analyses on various regulatory initiatives. These features further complement the analytical toolkit, enabling authorities to assess the potential impacts of different options and make well informed decisions regarding the possible (re-)design of the regulatory and policy framework.

Finally, an integrated, forward-looking approach to macroprudential analysis that takes into account complex interactions among parallel frameworks requires effective exchange of information among the many authorities involved at national and European level. Effective data and information exchange between the various authorities involved in micro- and macroprudential supervision, as well as in resolution, is essential to ensure that all of them are able to measure overlaps, including under differing prudential and resolution perimeters, and take

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57 See ECB and ESRB responses to the call for advice of the European Commission on the macroprudential review (March 2022). See also ESRB (2022b).

58 As per Article 16a BRRD and Article 10a SRMR, the RA has the power to adopt maximum distributable amount (MDA) decisions, which include the ability to prohibit distributions, in cases where there is a breach of capital buffers within the resolution framework. The RA is required to conduct monthly assessments based on the conditions specified in the regulation. If the bank remains in breach of the CBR for nine consecutive months, the RA must exercise its power to restrict dividends. However, an exception is outlined in paragraph 3 of Article 16a BRRD and Article 10a SRMR. This specifies a list of conditions, and if at least two of these are fulfilled, the RA may exempt the bank from MDA restrictions. If the exception not to exercise the M-MDA is applied, the RA must repeat its assessment at least every month for as long as the bank is in breach.

advantage of the USIT to ensure timely and well-coordinated actions. An integrated financial supervisory architecture, which in some Member States assigns the central bank the role of microprudential supervisor as well as macroprudential and resolution authority, facilitates an exchange of information making it possible to monitor loss-absorbing capacity after overlaps. However, information exchange needs to be possible in other institutional setups too. The ECB and the ESRB called for improved arrangements for the exchange of information in their replies to the Commission's call for advice regarding the macroprudential review.[59]

[59] See Review of the EU Macroprudential Framework for the Banking Sector - Response to the call for advice and ECB response to the European Commission's call for advice on the review of the EU macroprudential framework, p. 15.

6 Conclusions

This report has been prepared by a dedicated ECB-ESRB workstream on buffer usability and provides a detailed description of the interactions between prudential and resolution frameworks. In line with its mandate, the workstream has identified the main sources of overlaps between parallel frameworks, developed common concepts and terminologies to describe these interactions, defined consistent methodologies to quantify them and assessed their implications for macroprudential policy. The commonly agreed concepts and methodologies have been incorporated in the buffer usability simulation tool (USIT), which is now available to the ESRB community for analytical purposes.

The interactions between prudential and resolution frameworks can limit the usability of capital buffers, which is a concern for macroprudential authorities. Risk-weighted capital buffers must be met with CET1 capital, which is the highest quality loss-absorbing instrument. However, CET1 capital may be simultaneously needed to satisfy other parallel requirements in the prudential and resolution frameworks. Consequently, the overlaps between parallel frameworks may prevent buffers from being fully available to absorb losses. Measuring the extent of the limitations on buffer usability provides valuable insights into the loss-absorbing capacity of individual banks and the financial system. As explained in ESRB (2021), the extent of these overlaps depends on (i) the legal provisions laying down which equity and liabilities can be counted towards the different minimum requirements and buffers, (ii) the relative size of the different requirements in nominal terms, and (iii) a bank's balance sheet structure (the composition of assets and liabilities and the risk weight density of assets) and the size of off-balance sheet items, posing a number of analytical and policy challenges for authorities.

The relationship between prudential and resolution frameworks requires a consistent methodology to evaluate their implications for macroprudential policy. Building on prior work on buffer usability, this report extends the scope of analysis with the aim of establishing a common understanding of key concepts, such as (effective) buffer releasability, capital headroom and going-concern loss-absorbing capacity. In addition, it provides an overview of the analytical challenges arising from the differing nature and scopes of prudential and resolution requirements. By promoting a unified framework, the report also seeks to strengthen cooperation among macroprudential, microprudential and resolution authorities, while offering greater clarity to credit institutions and market participants with respect to the application of parallel requirements.

The common analytical approach helps authorities identify the transmission channels of macroprudential policies and quantify their impact via the prudential and resolution stacks. The report points out that focusing only on the risk-based approach is insufficient for assessing the impact of macroprudential policy decisions, especially for jurisdictions where the leverage ratio or the resolution framework is the binding requirement.

Limited buffer usability weakens the effectiveness of macroprudential policy by constraining banks' loss-absorbing capacity in going concern and reducing authorities' ability to adequately mitigate systemic risks. Overall, limited buffer usability increases the risk of banks breaching minimum requirements in a parallel stack during stress, potentially leading to an earlier activation of an FOLTF assessment as foreseen in the risk-weighted prudential framework. In addition, overlaps between releasable buffers and parallel minimum requirements can limit authorities' capacity to create additional capital headroom, potentially forcing banks into procyclical deleveraging during downturns, which could harm the real economy and financial stability. Furthermore, if buffers are neither usable nor effectively releasable, banks may rely solely on their capital headroom to absorb losses, leaving them and the system more vulnerable to shocks. Hence, having significant voluntary capital headroom is important, as it improves the loss-absorbing capacity of banks, which is beneficial for financial stability as well. Finally, overlaps between parallel requirements also restrict authorities' ability to build up capital buffers in an effective manner, which raises concerns for financial stability.

Buffer usability can be also influenced by the interplay with the resolution framework, beyond the double-counting of capital. This relates to the discretionary powers of the resolution authority to set M-MDA restrictions, which has implication on restoring buffers that must be met in addition to MREL. When powers related to M-MDA restrictions are executed or not executed by resolution authorities,[60] this it may affect buffer usability from the perspective of macroprudential authorities. Moreover, the size of the CBR in the risk-weighted resolution stack may differ from that in the prudential stack whenever prudential and resolution perimeters are not aligned.

The analytical framework developed in this paper, along with the updated USIT, provides a solid basis for macroprudential policy decisions that account for the complex interactions between parallel frameworks. The tool can combine various assumptions and macroprudential policy paths as input for buffer usability analysis, enhancing the effective implementation of various macroprudential measures. Additionally, the USIT allows authorities to assess the impact of regulatory reforms and policy options on buffer usability and releasability. These capabilities complement existing analytical toolkits, enabling authorities to evaluate potential reforms and design well informed regulatory and policy frameworks.

[60] Ibid.

References

Banca d'Italia (2024), "Financial Stability Report", November.

Banca d'Italia (2025), "Financial Stability Report", April.

Behn, M., Rancoita, E. and Rodriguez d'Acri, C. (2020), "Macroprudential capital buffers – objectives and usability", *Macroprudential Bulletin*, Issue 11, European Central Bank, October.

Bundesbank (2023), "Financial Stability Review 2023".

Cornacchia, W. and Guerra, G. (2022), "Overlaps between minimum requirements and capital buffers: the case of Italian banks", *Notes on Financial Stability and Supervision*, No 30, Banca d'Italia, June.

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

De Bosio, R. and Loiacono, G. (2023), "Measures of banks' capital buffer usability under prudential and resolution requirements in the Banking Union", *SRB Working Paper Series*, No 2, Single Resolution Board, October.

Denmarks Nationalbank (2020), "Credit institutions are facing hard times", *Analysis – Financial stability –1st Half 2020,* No 8, May.

Ebner, A. and Westhoff, C. (2024), "Joining up prudential and resolution regulation for systemically important banks", *Occasional Paper Series*, No 25, ESRB.

European Banking Authority (EBA) (2024), "Stacking orders and capital buffers – reflections on management buffer practices in the EU", July.

European Central Bank (2018), "ECB Guide to the internal capital adequacy assessment process (ICAAP)", November.

European Central Bank (2020), "ECB Banking Supervision provides temporary capital and operational relief in reaction to coronavirus", *press release*, 12 March

European Central Bank (2022), "ECB response to the European Commission's call for advice on the review of the EU macroprudential framework", March.

European Central Bank (2025), "Financial Stability Review", May.

European Systemic Risk Board (2021), "Report of the Analytical Task Force on the overlap between capital buffers and minimum requirements", December.

European Systemic Risk Board (2022a), "Review of the EU Macroprudential Framework for the Banking Sector – response to the call for advice", March.

European Systemic Risk Board (2022b), "Review of the EU Macroprudential Framework for the Banking Sector – a concept note", March.

European Systemic Risk Board (2024), "ESRB Annual Report 2024".

Finanstilsynet (2023), "Market development article".

Forsström, V., Lindegren, N. and Tingåker, L. (2022), "Are the capital buffers fulfilling their purpose?", *FI Analysis*, No 39, Finansinspektionen, December.

Ibáñez, L., Kruse, M., Pollos, M., Serena, J. M. and Tarí, M. (2024), "The euro area banking sector and MREL: a challenge for medium-sized banks?", *Financial Stability Review*, Issue 46, Spring, Banco de España.

Leitner, G., Dvořák, M., Magi, A. and Zsámboki, B. (2023), "How usable are capital buffers?", *Occasional Paper Series*, No 329, ECB.

Nationale Bank van België/Banque Nationale de Belgique (2020), "National Bank of Belgium releases full countercyclical buffer", *press release*, 11 March.

Nationale Bank van België/Banque Nationale de Belgique (2020), "Guarantee scheme for individuals and companies affected by the corona crisis", *press release*, 22 March.

Zsámboki, B., Doležal, J., Singh, J., Leitner, G. and Vasilakos, S. (2025), "Buffer usability in a complex world", *Occasional Paper Series*, No 374, ECB.

Annex 1
Prudential framework

Table A1

List of minimum requirements for prudential risk-weighted (RW) and leverage ratio (LR) frameworks

Framework	Pillar	Requirement rate	In % of	To be met with
RW	Pillar 1	4.5%	TREA	CET1
		6%		T1
		8%		TC
	Pillar 2	Bank-specific rate		CET1 at least 56.25% of the requirement T1 at least 75% of the requirement (the supervisor can prescribe higher capital quality)
LR	Pillar 1	3%	LREM	T1
	Pillar 2	Bank-specific rate		

Table A2

List of buffer requirements for prudential RW and LR frameworks

Framework	Type	Name	Requirement	To be met with
RW	Structural	CCoB	2.5%	CET1
		G-SII buffer	G-SII buffer bank-specific rate	
		O-SII buffer	O-SII buffer bank-specific rate	
	Releasable	CCyB	CCyB bank-specific rate	
	Structural or releasable	SyRB	SyRB bank-specific rate	
LR	Structural	LRB	0.5 * G-SII buffer bank-specific rate	T1

Notes: the CCyB bank-specific rate is not set individually by regulators for each bank. Instead, authorities establish jurisdictional CCyB rates, and each bank computes its own rate as the weighted average of those rates across its credit exposures. Similarly, regulators define SyRB rates by exposure class or institution category, and banks apply the relevant rate(s) to their exposures or institution subsets. See Glossary for details.

Computations

TC = T1 + T2

- **T1 = CET1 + AT1**

All computations are expressed in nominal terms, unless otherwise specified.

Risk-weighted (RW) framework

The RW prudential stack consists of several components: the RW minimum requirement, the combined buffer requirement (CBR), the Pillar 2 guidance (P2G-

RW), and the capital headroom. This section presents all the relevant formulae for calculating these individual components.

Minimum requirement

RW minimum requirement =
CET1 RW minimum requirement + RW minimum requirement met with AT1 + RW minimum requirement met with T2
While there is an explicit CET1 RW minimum requirement, AT1 and T2 used to meet minimum requirements are computed considering T1 and TC RW minimum requirements.

- **CET1 RW minimum requirement = CET1 P1R-RW minimum requirement + CET1 P2R-RW minimum requirement + AT1 gap RW + T2 gap RW**
  - **CET1 P1R-RW minimum requirement** = P1R-RW-CET1 rate * TREA
    - P1R-RW-CET1 rate = 4.5%
  - **CET1 P2R-RW minimum requirement** = P2R-RW-CET1 rate * TREA
    - P2R-RW-CET1 rate = {75%} * P2R-RW-T1 rate = {56.25%} * P2R-RW-TC rate
      Numbers in curly brackets are default values that can be altered if the supervisor prescribes higher capital quality
    - P2R-RW-T1 rate = {75%} * P2R-RW-TC rate
    - P2R-RW-TC rate = bank-specific
  - **AT1 gap RW** = max(0, AT1 gap RW-temp)
    The AT1 gap is the amount of CET1 used to meet the portion of RW minimum required that could be met with AT1.
    - AT1 gap RW-temp = AT1 max by requirement – AT1
    - AT1 max by requirement = [(P1R-RW-T1 rate – P1R-RW-CET1 rate) + (P2R-RW-T1 rate – P2R-RW-CET1 rate)] * TREA
    - P1R-RW-T1 rate = 6%
    - P2R-RW-T1 rate = {75%} * P2R-RW-TC rate
    - P2R-RW-TC rate = bank-specific
  - **T2 gap RW** = max(0, T2 gap RW-temp)
    The T2 gap is the amount of CET1 used to meet the portion of RW minimum required that could be met with T2.
    - T2 gap RW-temp = T2 max by requirement – T2 + min(0, AT1 gap RW-temp)

    - T2 max by requirement = [(P1R-RW-TC rate – P1R-RW-T1 rate) + (P2R-RW-TC rate – P2R-RW-T1 rate)] * TREA
    - P1R-RW-TC rate = 8%
    - P2R-RW-TC rate = bank-specific

- **RW minimum requirement met with AT1 = min(AT1, AT1 max by requirement)**
  If AT1 max by requirement < AT1: AT1 is used to cover the RW minimum requirement to the fullest possible extent (also to compensate for a T2 gap if needed) and the remainder is classified as AT1 RW capital headroom. If AT1 < AT1 max by requirement: AT1 is applied entirely to the requirement and the AT1 gap indicates the portion of requirement that is covered by CET1 but could be met with AT1.
  By definition, the RW minimum requirement met with AT1 will never exceed available AT1.

- **RW minimum requirement met with T2 = min(T2, T2 max by requirement)**
  If T2 max by requirement < T2: T2 is used to cover RW minimum requirement to the fullest possible extent and the remainder is classified as T2 RW capital headroom. If T2 < T2 max by requirement: T2 is applied entirely to the requirement and the T2 gap indicates the portion of requirement that is covered by CET1 but could be met with T2, after considering available AT1.
  By definition, the RW minimum requirement met with T2 will never exceed available T2.

Combined buffer requirement (CBR)

CBR = structural buffers + releasable buffers

Option 1: SyRB is considered a releasable buffer

- **Structural buffers = [CCoB rate + max(G-SII buffer rate, O-SII buffer rate)] * TREA**
    - **CCoB rate** = 2.5%
    - **G-SII buffer rate** = bank-specific
    - **O-SII buffer rate** = bank-specific
- **Releasable buffers = (CCyB rate + SyRB rate) * TREA**
    - **CCyB rate** = bank-specific
    - **SyRB rate** = bank-specific

Option 2: SyRB is considered a structural buffer

- **Structural buffers = [CCoB rate + max(G-SII buffer rate, O-SII buffer rate) + SyRB] * TREA**
  - **CCoB rate** = 2.5%
  - **G-SII buffer rate** = bank-specific
  - **O-SII buffer rate** = bank-specific
  - **SyRB rate** = bank-specific
- **Releasable buffers = CCyB rate * TREA**
  - **CCyB rate** = bank-specific

Pillar 2 guidance (P2G-RW)

- **P2G-RW = P2G-RW rate * TREA**
- **P2G-RW rate = bank-specific**

Capital headroom

Capital headroom in the prudential framework can be calculated under one of two scenarios: MDA target and P2G target.

MDA target scenario

RW capital headroom =
CET1 RW capital headroom + AT1 RW capital headroom + T2 RW capital headroom

- **CET1 RW capital headroom = CET1 – (CET1 RW minimum requirement + CBR)**
- **AT1 RW capital headroom = AT1 – RW minimum requirement met with AT1**
- **T2 RW capital headroom = T2 – RW minimum requirement met with T2**

P2G target scenario

RW capital headroom =
CET1 RW capital headroom + AT1 RW capital headroom + T2 RW capital headroom

- **CET1 RW capital headroom = CET1 – (CET1 RW minimum requirement + CBR + P2G-RW)**
- **AT1 RW capital headroom = AT1 – RW minimum requirement met with AT1**

- **T2 RW capital headroom = T2 – RW minimum requirement met with T2**

Green *is used to enhance readability, highlighting the difference between the MDA and P2G target scenarios.*

By construction, AT1 and T2 RW capital headroom can only be zero or positive amounts. CET1 RW capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the RW minimum requirement or CBR (or P2G-RW in the P2G target scenario). See Annex 3 for details.

Leverage ratio (LR) framework

The LR prudential stack consists of several components: the LR minimum requirement, the leverage ratio buffer (LRB), the Pillar 2 guidance (P2G-LR), and the capital headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

LR minimum requirement =
LR minimum requirement met with CET1 + LR minimum requirement met with AT1
AT1 covers as much as possible of the LR minimum requirement; CET1 is expected to fill the remaining portion.

- **LR minimum requirement met with CET1 = max(0, T1 P1R-LR minimum requirement + T1 P2R-LR minimum requirement – AT1)**
  - **T1 P1R-LR minimum requirement** = P1R-LR-T1 rate * LREM
    - P1R-LR-T1 rate = 3%
  - **T1 P2R-LR minimum requirement** = P2R-LR-T1 rate * LREM
    - P2R-LR-T1 rate = bank-specific
- **LR minimum requirement met with AT1 = min(AT1, T1 P1R-LR minimum requirement + T1 P2R-LR minimum requirement)**

Leverage ratio buffer (LRB)

LRB = LRB rate * LREM

- **LRB rate = 0.5 * G-SII buffer rate**

LRB has to be met with T1 capital. Thus, a CET1 and a AT1 portion can be defined:

LRB = CET1 LRB + AT1 LRB

AT1 not used to meet minimum requirements covers LRB to the fullest possible extent. If not enough, CET1 is expected to fill the remaining portion.

- **CET1 LRB = max[0, LRB – (AT1 – LR minimum requirement met with AT1)]**
- **AT1 LRB = min(AT1 – LR minimum requirement met with AT1, LRB)**

Pillar 2 guidance (P2G-LR)

P2G-LR = P2G-LR rate * LREM

- **P2G-LR rate = bank-specific**

P2G-LR has to be met with T1 capital. Thus, a CET1 and a AT1 portion can be defined:

P2G-LR = CET1 P2G-LR + AT1 P2G-LR

AT1 not used to meet minimum requirements or the LRB covers P2G-LR to the fullest possible extent. If not enough, CET1 is expected to fill the remaining portion.

- **CET1 P2G-LR = max[0, P2G-LR – (AT1 – LR minimum requirement met with AT1 – AT1 LRB)]**
- **AT1 P2G-LR = min(AT1 – LR minimum requirement met with AT1 – AT1 LRB, P2G-LR)**

Capital headroom

MDA target scenario

LR capital headroom = CET1 LR capital headroom + AT1 LR capital headroom

- **CET1 LR capital headroom = CET1 – (LR minimum requirement met with CET1 + CET1 LRB)**
- **AT1 LR capital headroom = AT1 – (LR minimum requirement met with AT1 + AT1 LRB)**

P2G target scenario

LR capital headroom = CET1 LR capital headroom + AT1 LR capital headroom

- **CET1 LR capital headroom = CET1 – (LR minimum requirement met with CET1 + CET1 LRB + CET1 P2G-LR)**
- **AT1 LR capital headroom = AT1 – (LR minimum requirement met with AT1 + AT1 LRB + AT1 P2G-LR)**

Green *is used to enhance readability, highlighting the difference between the MDA and P2G target scenarios.*

By construction, AT1 LR capital headroom can only be a zero or positive amount. CET1 LR capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the LR minimum requirement or LRB (or P2G-LR in the P2G target scenario). See Annex 3 for details.

Annex 2
Resolution framework

Types of bank in the scope of the resolution framework

Banks subject to MREL are classified into Pillar 1 and non-Pillar 1 banks.

- Pillar 1 Banks:
  - G-SIIs: G-SIIs under the prudential framework and material subsidiaries of non-EU G-SIIs.
  - Top tier banks: banks with total assets >€100 billion.
  - Other Pillar 1 banks: other banks assessed to pose a systemic risk in the event of failure, chosen by the respective national resolution authority (also called “fished banks”).
- Non-Pillar 1 banks: other banks for which the resolution authority imposes MREL and for which it can impose subordination requirements if assessed to pose a threat of breaching the no-creditor-worse-off (NCWO) principle (see Glossary).

Minimum requirements

MREL comprise an overall requirement, calculated as a loss-absorption amount (LAA) plus a recapitalisation amount (RCA), and a subordination requirement, mainly to address NCWO risk. TLAC serves as additional subordination requirements for G-SIIs. Both MREL and TLAC are calibrated under the RW framework, as a percentage of TREA, and the LR framework, as a percentage of LREM.

Table A3

List of minimum requirements for resolution RW and LR frameworks

	RW framework			LR framework		
	MREL		TLAC minimum requirements	MREL		TLAC minimum requirements
	Overall	Subordination		Overall	Subordination	
G-SII	RW-LAA rate + RW-RCA rate	18%	18%	LR-LAA rate + LR-RCA rate	6.75%	6.75%
Top tier bank		13.5%	Not applicable		5%	Not applicable
Other Pillar 1 bank		13.5%			5%	
Non-Pillar 1 bank		Bank-specific rate			Bank-specific rate	

RW-LAA rate = P1R-RW-TC rate + P2R-RW-TC rate
RW-RCA rate = P1R-RW-TC rate + P2R-RW-TC rate

- **P1R-RW-TC rate = 8%**
- **P2R-RW-TC rate = bank-specific**

The Pillar 1 and Pillar 2 rates are the same applied in the prudential framework (see Annex 1).

LR-LAA rate = P1R-LR-T1 rate + P2R-LR-T1 rate
LR-RCA rate = P1R-LR-T1 rate + P2R-LR-T1 rate

- **P1R-LR-T1 rate = 3%**
- **P2R-LR-T1 rate = bank-specific**

LAA and RCA amounts computed with the rates described above can be used to proxy MREL targets. The final MREL targets, after upward and downward adjustments, are set by resolution authorities on a case-by-case basis. For all the analyses in this report final MREL targets are used, not the default formulas.

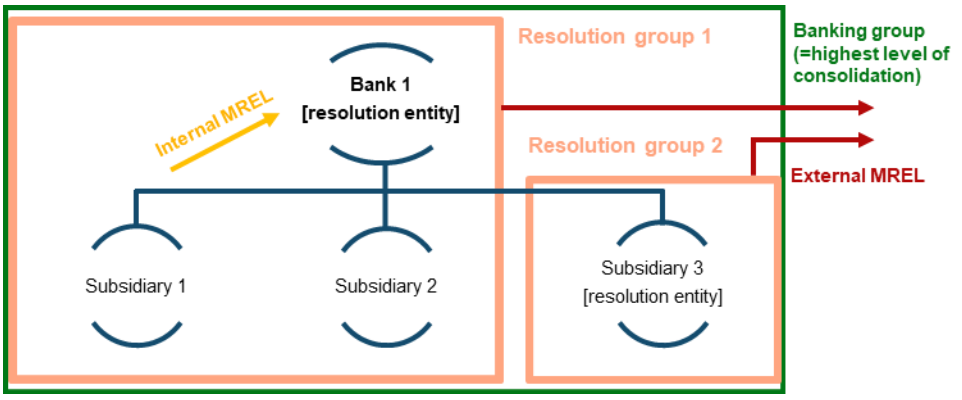
One of the possible upwards adjustments to the RCA consists of the market confidence charge, designed to ensure the resolution entity maintains sufficient market confidence post-resolution.

Similarly, subordinated requirement rates can also be modified on a case-by-case basis. These adjustments are driven primarily by the need to protect the NCWO principle. Moreover, whether non-Pillar 1 banks face subordination requirements at all derives from an NCWO risk assessment, with any applicable levels calibrated to eliminate that risk.

In addition, an amount of 8% of total liabilities and own funds (TLOF) informs the calibration of subordinated MREL requirements for Pillar 1 banks, with the possibility of allowing non-subordinated instruments up to 3.5% of TREA if specific conditions set by the BRRD are met.

MREL and TLAC minimum requirements can each be external or internal. Resolution entities are subject to external requirements calibrated on the consolidated balance sheet of the resolution group. Internal requirements are measured on the individual (or sub-consolidated group) balance sheet of the non-resolution entity to which they apply. See the glossary for definitions of resolution group, resolution entity and non-resolution entity.

Figure A1
Internal and external MREL



Eligible instruments to meet minimum requirements

External and internal requirements differ in the range of instruments that can be used to satisfy them, as Table A4 briefly illustrates.

Table A4
Instruments allowed to meet resolution requirements

		Instruments	
		Own funds	EL
External MREL	Overall	Own funds at the level of the resolution group	All MREL-EL issued by the resolution entity and held outside the resolution group
	Subordination		Subordinated MREL-EL issued by the resolution entity and held outside the resolution group
Internal MREL	Overall	Own funds at the level of the subsidiary (or sub-consolidated group)	All MREL-EL issued by the subsidiary and held inside the resolution group
	Subordination		Subordinated MREL-EL issued by the subsidiary and held inside the resolution group
External TLAC		Own funds at the level of the resolution group	TLAC-EL issued by the resolution entity and held outside the resolution group
Internal TLAC		Own funds at the level of the subsidiary (or sub-consolidated group)	TLAC-EL issued by the subsidiary and held inside the resolution group

Own funds comprise TC – the sum of CET1, AT1 and T2 instruments.

Under the RW framework only, capital already employed to meet prudential combined buffer requirement cannot also count toward MREL or TLAC minimums. Consequently, a dedicated MREL and TLAC combined buffer requirement (CBR-M and CBR-TLAC) sits on top of MREL-RW, MREL-RW subordination and TLAC-RW requirements.

A liability qualifies as MREL-EL (or simply EL) only if it meets the relevant eligibility criteria, which vary by instrument type and are defined in Article 72a to 72c CRR. In

general, the instrument must have a residual maturity of more than one year. Any T2 instrument that falls below the five-year residual maturity threshold ceases to qualify as Tier 2 own funds, but continues to count as EL, provided it still meets the maturity criteria of one year.

Subordinated MREL-EL must meet the same eligibility conditions and additionally rank below all other EL instruments.

TLAC-EL are subject to all the above criteria and various more stringent conditions. As a result, every TLAC-EL instrument automatically qualifies as MREL-EL, but not every MREL-EL instrument meets the higher TLAC-EL standard.

Computations

All computations are expressed in nominal terms, unless otherwise specified.

MREL-RW framework

The MREL-RW resolution stack consists of several components: the MREL-RW minimum requirement, the combined buffer requirement for the MREL framework (CBR-M) and the capital and EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

MREL-RW minimum requirement = (RW-LAA rate + RW-RCA rate) * TREA
RW-LAA and RW-RCA rates can be adjusted up or down by the resolution authority on a case-by-case basis.

MREL-RW minimum requirement can be met with own funds and EL. Thus, a CET1, AT1, T2 capital and EL portion can be defined:

MREL-RW minimum requirement =
MREL-RW minimum requirement met with CET1 + MREL-RW minimum requirement met with AT1 + MREL-RW minimum requirement met with T2 + MREL-RW minimum requirement met with EL
EL, T2 and AT1 cover MREL-RW minimum requirement to the fullest possible extent in this order. If there is not enough, CET1 is expected to fill the remaining portion.

- **MREL-RW minimum requirement met with CET1 = max[0, MREL-RW minimum requirement – (AT1 + T2 + EL)]**
- **MREL-RW minimum requirement met with AT1 = min{AT1, max[0, MREL-RW minimum requirement – (T2 + EL)]}**
  If the MREL-RW requirement is not fully met after using MREL-EL and T2, AT1

is used to cover the remaining shortfall, calculated as the minimum between the available AT1 and the maximum of 0 and the remaining requirement.

- **MREL-RW minimum requirement met with T2 = min[T2, max(0, MREL-RW minimum requirement –EL)]**
- **MREL-RW minimum requirement met with EL = min(EL, MREL-RW minimum requirement)**

MREL combined buffer requirement (CBR-M)

CBR-M = CBR (see Annex 1)

CBR-M computation follows CBR computation in the RW prudential framework. CBR-M and CBR could differ in cases where the perimeter of the resolution framework is different from that of the prudential framework, resulting in different TREA amounts. EU law does not specify how to compute CBR-M if the consolidation perimeters differ. However, for analytical purposes calculations can be performed at the level of resolution group and/or the highest level of consolidation.

Capital and EL headroom

MREL-RW capital and EL headroom =
CET1 MREL-RW capital headroom + AT1 MREL-RW capital headroom + T2 MREL-RW capital headroom + EL MREL-RW headroom

- **CET1 MREL-RW capital headroom = CET1 – (MREL-RW minimum requirement met with CET1 + CBR-M)**
- **AT1 MREL-RW capital headroom = AT1 – MREL-RW minimum requirement met with AT1**
- **T2 MREL-RW capital headroom = T2 – MREL-RW minimum requirement met with T2**
- **EL MREL-RW headroom = EL – MREL-RW minimum requirement met with EL**

By construction, EL, T2 and AT1 MREL-RW headroom can only be zero or positive amounts. CET1 MREL-RW capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the MREL-RW minimum requirement or CBR-M. See Annex 3 for details.

MREL-RW subordination framework

The MREL-RW subordination resolution stack consists of several components: the MREL-RW-sub minimum requirement, the combined buffer requirement for the

MREL framework (CBR-M), and the capital and EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

MREL-RW-sub minimum requirement = MREL-RW-sub minimum requirement rate * TREA

- **MREL-RW-sub minimum requirement rate = bank-specific**

MREL-RW-sub minimum requirement can be met with own funds and sub-EL. Thus, a CET1, AT1, T2 capital and sub-EL portion can be defined:

MREL-RW-sub minimum requirement =
MREL-RW-sub minimum requirement met with CET1 + MREL-RW-sub minimum requirement met with AT1 + MREL-RW-sub minimum requirement met with T2 + MREL-RW-sub minimum requirement met with sub-EL
Sub-EL, T2 and AT1 cover MREL-RW minimum requirement as much as possible in this order. If there is not enough, CET1 is expected to fill the remaining portion.

- **MREL-RW-sub minimum requirement met with CET1 = max[0, MREL-RW-sub minimum requirement – (AT1 + T2 + sub-EL)]**
- **MREL-RW-sub minimum requirement met with AT1 = min{AT1, max[0, MREL-RW-sub minimum requirement – (T2 + sub-EL)]}**
- **MREL-RW-sub minimum requirement met with T2 = min[T2, max(0, MREL-RW-sub minimum requirement – sub-EL)]**
- **MREL-RW-sub minimum requirement met with sub-EL = min(sub-EL, MREL-RW-sub minimum requirement)**

MREL-sub combined buffer requirement (CBR-M-sub)

CBR-M-sub = CBR (see Annex 1)

Capital and EL headroom

MREL-RW-sub capital and EL headroom =
CET1 MREL-RW-sub capital headroom + AT1 MREL-RW-sub capital headroom + T2 MREL-RW-sub capital headroom + sub-EL MREL-RW headroom

- **CET1 MREL-RW-sub capital headroom = CET1 – (MREL-RW-sub minimum requirement met with CET1 + CBR-M)**
- **AT1 MREL-RW-sub capital headroom = AT1 – MREL-RW-sub minimum requirement met with AT1**

- **T2 MREL-RW-sub capital headroom = T2 – MREL-RW-sub minimum requirement met with T2**
- **Sub-EL MREL-RW-sub headroom = sub-EL – MREL-RW-sub minimum requirement met with sub-EL**

By construction, sub-EL, T2 and AT1 MREL-RW-sub headroom can only be zero or positive amounts. CET1 MREL-RW-sub capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the MREL-RW-sub minimum requirements or CBR-M. See Annex 3 for details.

MREL-LR framework

The MREL-LR resolution stack consists of several components: the MREL-LR minimum requirement and the capital and EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

MREL-LR minimum requirement = (LR-LAA rate + LR-RCA rate) * LREM
LR-LAA and LR-RCA rates can be adjusted up or down by the resolution authority on a case-by-case basis.

MREL-LR minimum requirement can be met with own funds and EL. Thus, a CET1, AT1, T2 capital and EL portion can be defined:

MREL-LR minimum requirement =
MREL-LR minimum requirement met with CET1 + MREL-LR minimum requirement met with AT1 + MREL-LR minimum requirement met with T2 + MREL-LR minimum requirement met with EL
EL, T2 and AT1 cover in this order MREL-LR minimum requirement as much as possible. If not enough, CET1 is expected to fill the remaining portion.

- **MREL-LR minimum requirement met with CET1 = max[0, MREL-LR minimum requirement – (AT1 + T2 + EL)]**
- **MREL-LR minimum requirement met with AT1 = min{AT1, max[0, MREL-LR minimum requirement – (T2 + EL)]}**
- **MREL-LR minimum requirement met with T2 = min[T2, max(0, MREL-LR minimum requirement – EL)]**
- **MREL-LR minimum requirement met with EL = min(EL, MREL-LR minimum requirement)**

Capital and EL headroom

MREL-LR capital and EL headroom =
CET1 MREL-LR capital headroom + AT1 MREL-LR capital headroom + T2 MREL-LR capital headroom + EL MREL-LR headroom

- **CET1 MREL-LR capital headroom = CET1 – MREL-LR minimum requirement met with CET1**
- **AT1 MREL-LR capital headroom = AT1 – MREL-LR minimum requirement met with AT1**
- **T2 MREL-LR capital headroom = T2 – MREL-LR minimum requirement met with T2**
- **EL MREL-LR headroom = EL – MREL-LR minimum requirement met with EL**

By construction, EL, T2 and AT1 MREL-LR headroom can only be zero or positive amounts. CET1 MREL-LR capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the MREL-LR minimum requirement. See Annex 3 for details.

MREL-LR subordination framework

The MREL-LR subordination resolution stack consists of several components: the MREL-LR-sub minimum requirement and the capital and EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

MREL-LR-sub minimum requirement = MREL-LR-sub minimum requirement rate * LREM

- **MREL-LR-sub minimum requirement rate = bank-specific**

MREL-LR-sub minimum requirement can be met with own funds and sub-EL. Thus, a CET1, AT1, T2 capital and sub-EL portion can be defined:

MREL-LR-sub minimum requirement =
MREL-LR-sub minimum requirement met with CET1 + MREL-LR-sub minimum requirement met with AT1 + MREL-LR-sub minimum requirement met with T2 + MREL-LR-sub minimum requirement met with sub-EL
Sub-EL, T2 and AT1 cover the MREL-LR-sub minimum requirement as much as possible in this order. If there is not enough, CET1 is expected to fill the remaining portion.

- **MREL-LR-sub minimum requirement met with CET1 = max[0, MREL-LR-sub minimum requirement – (AT1 + T2 + sub-EL)]**
- **MREL-LR-sub minimum requirement met with AT1 = min{AT1, max[0, MREL-LR-sub minimum requirement – (T2 + sub-EL)]}**
- **MREL-LR-sub minimum requirement met with T2 = min[T2, max(0, MREL-LR-sub minimum requirement – sub-EL)]**
- **MREL-LR-sub minimum requirement met with sub-EL = min(sub-EL, MREL-LR-sub minimum requirement)**

Capital and EL headroom

MREL-LR-sub capital and EL headroom =
CET1 MREL-LR-sub capital headroom + AT1 MREL-LR-sub capital headroom + T2 MREL-LR-sub capital headroom + sub-EL MREL-LR-sub headroom

- **CET1 MREL-LR-sub capital headroom = CET1 – MREL-LR-sub minimum requirement met with CET1**
- **AT1 MREL-LR-sub capital headroom = AT1 – MREL-LR-sub minimum requirement met with AT1**
- **T2 MREL-LR-sub capital headroom = T2 – MREL-LR-sub minimum requirement met with T2**
- **Sub-EL MREL-LR-sub headroom = sub-EL – MREL-LR-sub minimum requirement met with sub-EL**

By construction, sub-EL, T2 and AT1 MREL-LR-sub headroom can only be zero or positive amounts. CET1 MREL-LR-sub capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the MREL-LR-sub minimum requirement. See Annex 3 for details.

TLAC-RW framework

The TLAC-RW framework only applies to banks designated as G-SIIs.

The TLAC-RW resolution stack consists of several components: the TLAC-RW minimum requirement, the combined buffer requirement for the TLAC framework (CBR-TLAC) and the capital and TLAC-EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

TLAC-RW minimum requirement = TLAC-RW minimum requirement rate * TREA

- **TLAC-RW minimum requirement rate = 18%**

The TLAC-RW minimum requirement can be met with own funds and TLAC-EL. Thus, a CET1, AT1, T2 capital and TLAC-EL portion can be defined:

TLAC-RW minimum requirement =
TLAC-RW minimum requirement met with CET1 + TLAC-RW minimum requirement met with AT1 + TLAC-RW minimum requirement met with T2 + TLAC-RW minimum requirement met with TLAC-EL
TLAC-EL, T2 and AT1 cover the TLAC-RW minimum requirement as much as possible in this order. If there is not enough, CET1 is expected to fill the remaining portion.

- **TLAC-RW minimum requirement met with CET1 = max[0, TLAC-RW minimum requirement – (AT1 + T2 + TLAC-EL)]**
- **TLAC-RW minimum requirement met with AT1 = min{AT1, max[0, TLAC-RW minimum requirement – (T2 + TLAC-EL)]}**
- **TLAC-RW minimum requirement met with T2 = min[T2, max(0, TLAC-RW minimum requirement – TLAC-EL)]**
- **TLAC-RW minimum requirement met with TLAC-EL = min(TLAC-EL, TLAC-RW minimum requirement)**

TLAC combined buffer requirement (CBR-TLAC)

CBR-TLAC = CBR (see Annex 1)

Capital and EL headroom

TLAC-RW capital and EL headroom =
CET1 TLAC-RW capital headroom + AT1 TLAC-RW capital headroom + T2 TLAC-RW capital headroom + TLAC-EL TLAC-RW headroom

- **CET1 TLAC-RW capital headroom = CET1 – (TLAC-RW minimum requirement met with CET1 + CBR-TLAC)**
- **AT1 TLAC-RW capital headroom = AT1 – TLAC-RW minimum requirement met with AT1**
- **T2 TLAC-RW capital headroom = T2 – TLAC-RW minimum requirement met with T2**

- **TLAC-EL TLAC-RW headroom = TLAC-EL – TLAC-RW minimum requirement met with TLAC-EL**

By construction, TLAC-EL, T2 and AT1 TLAC-RW headroom can only be zero or positive amounts. CET1 TLAC-RW capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of the TLAC-RW minimum requirement or CBR-TLAC. See Annex 3 for details.

TLAC-LR framework

The TLAC-LR framework only applies to banks designated as G-SIIs.

The TLAC-LR resolution stack consists of several components: the TLAC-LR minimum requirement and the capital and TLAC-EL headroom. This section presents all the relevant formulas for calculating these individual components.

Minimum requirement

TLAC-LR minimum requirement = TLAC-LR minimum requirement rate * LREM

- **TLAC-LR minimum requirement rate = 6.75%**

The TLAC-LR minimum requirement can be met with own funds and TLAC-EL. Thus, a CET1, AT1, T2 capital and TLAC-EL portion can be defined:

TLAC-LR minimum requirement =
TLAC-LR minimum requirement met with CET1 + TLAC-LR minimum requirement met with AT1 + TLAC-LR minimum requirement met with T2 + TLAC-LR minimum requirement met with TLAC-EL
TLAC-EL, T2 and AT1 cover the TLAC-LR minimum requirement as much as possible in this order. If there is not enough, CET1 is expected to fill the remaining portion.

- **TLAC-LR minimum requirement met with CET1 = max[0, TLAC-LR minimum requirement – (AT1 + T2 + TLAC-EL)]**
- **TLAC-LR minimum requirement met with AT1 = min{AT1, max[0, TLAC-LR minimum requirement – (T2 + TLAC-EL)]}**
- **TLAC-LR minimum requirement met with T2 = min[T2, max(0, TLAC-LR minimum requirement – TLAC-EL)]**
- **TLAC-LR minimum requirement met with TLAC-EL = min(TLAC-EL, TLAC-LR minimum requirement)**

Capital and EL headroom

TLAC-LR capital and EL headroom =
CET1 TLAC-LR capital headroom + AT1 TLAC-LR capital headroom + T2 TLAC-LR capital headroom + EL-TLAC TLAC-LR headroom

- **CET1 TLAC-LR capital headroom = CET1 – TLAC-LR minimum requirement met with CET1**
- **AT1 TLAC-LR capital headroom = AT1 – TLAC-LR minimum requirement met with AT1**
- **T2 TLAC-LR capital headroom = T2 – TLAC-LR minimum requirement met with T2**
- **TLAC-EL TLAC-LR capital headroom = TLAC-EL – TLAC-LR minimum requirement met with TLAC-EL**

By construction, TLAC-EL, T2 and AT1 TLAC-LR headroom can only be zero or positive amounts. CET1 TLAC-LR capital headroom can be negative if the amount of CET1 capital is insufficient, signalling a breach of TLAC-LR minimum requirement. See Annex 3 for details.

Annex 3
Concepts

This annex outlines the concepts and computations of buffer usability, capital headroom, loss-absorbing capacity and effective releasability, with the assumption that prudential and resolution perimeters coincide.

Buffer usability computation

This report focuses on the usability of the combined buffer requirement (CBR) in the risk-weighted stacks:

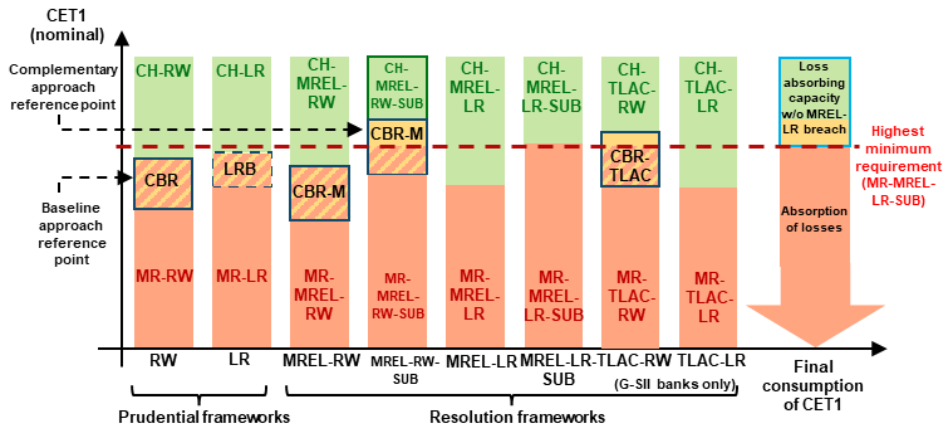
- CBR from the RW stack
- CBR-M from the MREL-RW stack
- CBR-M-sub from the MREL-RW-sub stack
- CBR-TLAC from the TLAC-RW stack

However, the concept could also be extended to the leverage ratio buffer (LRB).

Buffer usability can be computed under a baseline or a complementary approach. See Figure A2 for a visual representation of the buffers and the stacks mentioned.

Figure A2

Baseline and complementary approaches to measuring buffer usability



Source: Based on Zsámboki et al. (2025).
Notes: This chart is purely conceptual and does not relate to the capital situation of any specific bank. The heights of the red bars indicate the CET1 consumption by the minimum requirements of the respective capital stack. This does not correspond to the total size of the respective requirements, as different types of capital and eligible liabilities can be used to meet the total requirements. Higher CET1 consumption in a given stack does not necessarily imply a higher overall requirement for that stack. The leverage ratio buffer (LRB) applies only to G-SIIs, hence is represented in the chart by a dashed line. The CBR-M applies only to banks subject to MREL. As reference points to compute buffer usability under the baseline the CBR is used; under the complementary approach, the CBR, CBR-M and CBR-TLAC (for G-SIIs) are used.

Baseline approach

Under the baseline approach, buffer usability is the percentage of the CBR in the prudential RW stack that remains after considering its single largest overlap with any other LR stack. There is no overlap calculated with any RW stack because capital allocated to meet buffer requirements under the prudential framework cannot simultaneously be used to satisfy RW minimum requirements under the resolution framework. As a result, the CBR that cannot be used for RW minimum requirements is effectively added on top of the resolution RW minimum requirements (CBR-M, CBR-M-sub, CBR-TLAC) and the requirement below it cannot be considered as generating an overlap with the CBR.

Buffer usability = usable CBR / CBR * 100

- **Usable CBR = max(0, CBR – max CBR overlap)**
    - **Max CBR overlap** = max(LR CBR overlap, MREL-LR CBR overlap, MREL-LR-sub CBR overlap, TLAC-LR CBR overlap)
      Note that, e.g. LR CBR overlap means the CBR overlap with the LR minimum requirement.
        - *The overlaps in the above formula are positive values representing the difference between CET1 used to meet the LR minimum requirement in the stack of reference and the CET1 RW minimum requirement, on top of which the CBR sits:*
          e.g. LR CBR overlap = max(0, LR minimum requirement met with CET1 – CET1 RW minimum requirement)

Complementary approach

Under the complementary approach, buffer usability is defined by the most usable of CBR, CBR-M, CBR-M-sub and CBR-TLAC (i.e. the first to be breached in the event of CET1 depletion).

Buffer usability = max usable buffer / CBR * 100

- **Max usable buffer = max(usable CBR, usable CBR-M, usable CBR-Ms, usable CBR-TLAC)**
    - **Usable CBR** = max(0, CBR – max CBR overlap)
        - Max CBR overlap = max(LR CBR overlap, MREL-LR CBR overlap, MREL-LR-sub CBR overlap, TLAC-LR CBR overlap)
    - **Usable CBR-M** = max(0, CBR-M – max CBR-M overlap)
        - Max CBR-M overlap = max(LR CBR-M overlap, MREL-LR CBR-M overlap, MREL-LR-sub CBR-M overlap, TLAC-LR CBR-M overlap)

- *e.g.* LR CBR-M overlap = max(0, LR minimum requirement met with CET1 – MREL-RW minimum requirement met with CET1)

- **Usable CBR-M-sub** = max(0, CBR-M-sub – max CBR-M-sub overlap)
  - Max CBR-Ms overlap = max(LR CBR-M-sub overlap, MREL-LR CBR-M-sub overlap, MREL-LR-sub CBR-M-sub overlap, TLAC-LR CBR-M-sub overlap)
  - *e.g.* LR CBR-M-sub overlap = max(0, LR minimum requirement met with CET1 – MREL-RW-sub minimum requirement met with CET1)
- **Usable CBR-TLAC** = max(0, CBR-TLAC – max CBR-TLAC overlap)
  - Max CBR-TLAC overlap = max(LR CBR-TLAC overlap, MREL-LR CBR-TLAC overlap, MREL-LR-sub CBR-TLAC overlap, TLAC-LR CBR-TLAC overlap)
  - *e.g.* LR CBR-TLAC overlap = max(0, LR minimum requirement met with CET1 – TLAC-RW minimum requirement met with CET1)

CET1 capital headroom computation

CET1 capital headroom is assessed for the eight different stacks in two ways: (1) under an MDA target scenario, where it is measured based on the distance between a bank's CET1 capital and its buffers, where applicable, or its minimum requirements; and (2) under a P2G target scenario, where it is measured based on the distance between a bank's CET1 capital and its P2G in prudential stacks, or its buffers, where applicable, or its minimum requirements. In practice, the computed capital headroom for the two scenarios differs only for the prudential stacks, where P2G is applicable. A negative CET1 capital headroom in any stack indicates that the bank does not have sufficient CET1 capital to meet the reference requirement for that specific stack. For detailed CET1 capital headroom formulae for the different stacks under the two scenarios, refer to Annexes 1 and 2.

Since CET1 is the only capital layer that can be used to meet minimum requirements, buffers and P2G under both the prudential and resolution frameworks and can be used to fill gaps when AT1, T2 or EL resources are already being fully used to meet requirements, a breach can only occur when CET1 itself is insufficient. Therefore, only CET1 capital headroom can be negative and is relevant to assessing any breach.

Effective CET1 capital headroom computation

The effective CET1 capital headroom is calculated as the smallest value of the CET1 capital headroom across all stacks, providing an indicator of breaches in P2G, buffers or minimum requirements.

Effective CET1 capital headroom =
min(CET1 RW capital headroom, CET1 LR capital headroom, CET1 MREL-RW capital headroom, CET1 MREL-RW-sub capital headroom, CET1 MREL-LR capital headroom, CET1 MREL-LR-sub capital headroom, CET1 TLAC-RW capital headroom, CET1 TLAC-LR capital headroom

Loss-absorbing capacity computation

Loss-absorbing capacity is measured for the eight different stacks based on how far a bank's CET1 capital lies from minimum requirements. A negative loss-absorbing capacity in any stack indicates that the bank lacks sufficient CET1 capital to meet the minimum requirements for that specific stack. As CET1 absorbs losses first, loss-absorbing capacity is always expressed in CET1 terms.

Note that for the MREL-LR, MREL-LR-sub and TLAC-LR stacks CET1 capital headroom corresponds to loss-absorbing capacity, due to the absence of P2G and capital buffers.

RW loss-absorbing capacity = CET1 – CET1 RW minimum requirement

LR loss-absorbing capacity = CET1 – LR minimum requirement met with CET1

MREL-RW loss-absorbing capacity = CET1 – MREL-RW minimum requirement met with CET1

MREL-RW-sub loss-absorbing capacity = CET1 – MREL-RW-sub minimum requirement met with CET1

MREL-LR loss-absorbing capacity = CET1 – MREL-LR minimum requirement met with CET1

MREL-LR-sub loss-absorbing capacity = CET1 – MREL-LR-sub minimum requirement met with CET1

TLAC-RW loss-absorbing capacity = CET1 – TLAC-RW minimum requirement met with CET1

TLAC-LR loss-absorbing capacity = CET1 – TLAC-LR minimum requirement met with CET1

Loss-absorption capacity can also be directly computed for each stack as the sum of the usable buffer and the CET1 capital headroom under the MDA target scenario

Effective loss-absorbing capacity computation

The effective loss-absorbing capacity is calculated as the smallest value of the loss-absorbing capacities across all stacks, providing an overall indicator of breaches in minimum requirements.

Effective loss-absorbing capacity =
min(RW loss-absorbing capacity, LR loss-absorbing capacity, MREL-RW loss-absorbing capacity, MREL-RW-SUB loss-absorbing capacity, MREL-LR loss-absorbing capacity, MREL-LR-SUB loss-absorbing capacity, TLAC-RW loss-absorbing capacity, TLAC-LR loss-absorbing capacity)

Effective loss-absorption capacity can also be directly computed under the complementary approach as the sum of the most usable buffer and the effective CET1 capital headroom under the MDA target scenario.

Effective releasability computation

The releasable buffer (RB) can be CCyB only or the sum of CCyB and SyRB (see Annex 1).

However, in some cases not all the releasable buffers may be effectively released if they overlap with capital already allocated to minimum requirements or structural buffers in other stacks. Effective releasability therefore measures the amount of releasable buffers that can be effectively freed up when needed.

Effective releasability is calculated similarly to buffer usability under the complementary approach, reflecting the fact that the release of buffers increases capital headroom in all stacks containing releasable buffers. Following from that, effective releasability is determined by the most binding releasable buffers (those which would be breached first). By default, it is expressed as a percentage of TREA.

Two scenarios can be applied when computing effective releasability, similarly to the choice made for capital headroom calculations. In the first scenario, the MDA is treated as the binding target and P2G is considered to be part of capital headroom (see Figure 5). In the second scenario, P2G is included as an additional constraint, which, all other things being equal, decreases the overlap with other stacks (see Figure 6). However, LR is considered to constrain the effective releasability.

Effective releasability = max effective RB / TREA * 100

- **Max effective RB = max(effective RB, effective RB-M, effective RB-M-sub, effective RB-TLAC)**
    - **Effective RB** = max(0, RB – max RB overlap)
        - Max RB overlap = max(LR RB overlap, MREL-LR RB overlap, MREL-LR-sub RB overlap, TLAC-LR RB overlap)
          Note that, for example, LR RB overlap means the RB overlap with LR minimum requirement, LRB (and P2G-LR in P2G target scenario).

MDA target scenario

- *The overlaps in the above formula are positive values representing the difference between CET1 used to meet the minimum and*

structural buffer requirements in the LR stack of reference and CET1 used to meet the RW minimum requirement and structural CBR, on top of which RB sits:
e.g. LR RB overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB – (CET1 RW minimum requirement + CBR – RB)]

P2G target scenario

- *The overlaps in the above formula are positive values representing the difference between CET1 used to meet the minimum and structural buffer requirements (plus P2G where applicable) in the LR stack of reference and the CET1 used to meet the RW minimum requirement, structural CBR and P2G, on top of which RB sits:*
  e.g. LR RB overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB + CET1 P2G-LR – (CET1 RW minimum requirement + (CBR – RB) **+ P2G-LR**)]

Green *is used to enhance readability, highlighting the difference between the MDA and the P2G target scenarios.*

- **Effective RB-M** = max[0, (RB-M – max RB-M overlap)]
  - Max RB-M overlap = max(LR RB-M overlap, MREL-LR RB-M overlap, MREL-LR-sub RB-M overlap, TLAC-LR RB-M overlap)

MDA target scenario

- *e.g.* LR RB-M overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB – (MREL-RW minimum requirement met with CET1 + CBR – RB)]

P2G target scenario

- *e.g.* LR RB-M overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB + CET1 P2G-LR – (MREL-RW minimum requirement met with CET1 + (CBR – RB) **+ P2G-RW**)]

- **Effective RB-M-sub** = max[0, (RB-M-sub – max RB-M-sub overlap)]
  - Max RB-M-sub overlap = max(LR RB-M-sub overlap, MREL-LR RB-M-sub overlap, MREL-LR-sub RB-M-sub overlap, TLAC-LR RB-M-sub overlap)

MDA target scenario

- *e.g.* LR RB-M-sub overlap = max[0, (LR minimum requirement met with CET1 + CET1 LRB) – (MREL-RW-sub minimum requirement met with CET1 + CBR – RB)]

P2G target scenario

- *e.g.* LR RB-M-sub overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB + CET1 P2G-LR – (MREL-RW-sub minimum requirement met with CET1 + (CBR – RB) **+ P2G-RW**)]

- **Effective RB-TLAC** = max[0, (RB-TLAC – max RB-TLAC overlap)]

  - Max RB-TLAC overlap = max(LR RB-TLAC overlap, MREL-LR RB-TLAC overlap, MREL-LR-sub RB-TLAC overlap, TLAC-LR RB-TLAC overlap)

MDA target scenario

- *e.g.* LR RB-TLAC overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB – (TLAC-RW minimum requirement met with CET1 + CBR – RB)]

P2G target scenario

- *e.g.* LR RB-TLAC overlap = max[0, LR minimum requirement met with CET1 + CET1 LRB + CET1 P2G-LR – (TLAC-RW minimum requirement met with CET1 + (CBR – RB) **+ P2G-RW**)]

Annex 4
Concepts and terminology of the report

	Definition
Baseline approach for computing buffer usability	Buffer usability under the baseline approach is the usable portion of the combined buffer requirement in the RW prudential stack (CBR) after removing the overlap with any other LR stack in the prudential and resolution frameworks.
Buffer releasability	Authorities' ability to set a buffer requirement at a lower level than the current buffer requirement, or at zero, creating additional capital headroom for banks.
Buffer requirement	Mandatory Common Equity Tier 1 (CET1) capital that banks are required to hold in addition to minimum capital requirements and that can be used to absorb losses. When it is breached, then banks are subject to restrictions on distribution. There are four types of buffer requirements in the risk-weighted (RW) framework: (i) the capital conservation buffer (CCoB), (ii) capital buffers for global and other systemically important institutions (G/O-SII buffers), (iii) the systemic risk buffer (SyRB) and (iv) the countercyclical capital buffer (CCyB). There is one type of buffer requirement in the leverage ratio framework, namely the leverage ratio buffer (LRB).
Buffer usability	Banks' ability to use the buffers included in the combined buffer requirement (CBR) without breaching a parallel minimum requirement. It can be computed following the baseline or complementary approach. Buffer usability can also be computed for the leverage ratio buffer (LRB), individually and considering all buffers (see *Total buffer usability*).
Capital headroom	The amount of capital not needed to meet regulatory minimum and buffer requirements in each stack.
Complementary approach for computing buffer usability	Buffer usability under the complementary approach is the highest usable buffer portion of the combined buffer requirement in the RW prudential stack (CBR), the CBR in the RW MREL stacks (CBR-M and CBR-M-sub), and the CBR in the RW TLAC stack (CBR-TLAC): i.e. the first to be breached in the event of CET1 depletion.
Effective capital headroom	The amount of Common Equity Tier 1 (CET1) capital not used for meeting any regulatory minimum and buffer requirements across all parallel stacks.
Effective loss-absorbing capacity	The amount of Common Equity Tier 1 (CET1) capital not used for meeting any minimum requirement across all parallel stacks. Effective loss-absorbing capacity can also be defined as the sum of usable buffers and effective capital headroom under the complementary approach.
Effectively releasable buffers	The portion of releasable buffers that – upon their release – increases a bank's capital headroom, after considering all parallel requirements (i.e. the effective capital headroom).
Eligible liability (EL) headroom	The amount of EL not needed to meet minimum requirement in each resolution stack.
External minimum requirement of own funds and eligible liabilities (MREL)	MREL applied to resolution entities.
Internal minimum requirement of own funds and eligible liabilities (MREL)	MREL applied to subsidiaries of resolution entities which are non-resolution entities themselves.
Leverage ratio buffer (LRB)	The leverage ratio framework buffer requirement that a G-SII must maintain on top of its leverage-based minimum requirements according to Article 92(1a) CRR.
Leverage ratio exposure measure (LREM) (or total exposure measure – TEM)	Sum of the exposure values of all assets and off-balance sheet items of an institution, calculated according to Article 429(4) CRR. LREM and TEM are identical concepts.
Loss-absorbing capacity	The amount of Common Equity Tier 1 (CET1) capital not needed to meet regulatory minimum requirement in each stack.
Loss-absorption amount (LAA)	The amount of own funds and eligible liabilities foreseen to absorb an institution's losses in resolution. The LAA is a component of MREL.
Market confidence charge (MCC)	The amount of own funds and eligible liabilities necessary to ensure that a bank sustains market confidence post-resolution. It is included in the recapitalisation amount (RCA) and derived from the CBR.
Minimum requirement	Regulatory requirements on own funds and/or eligible liabilities that a bank must comply with at all times to meet prudential or resolution standards.

	Definition
MREL combined buffer requirement (CBR-M and CBR-M-sub)	The total amount of all RW buffer requirements (CCoB, maximum of G-SII and O-SII buffer, SyRB, CCyB) that a bank must maintain on top of its minimum requirements in the RW MREL and RW MREL subordination stacks.
MREL maximum distributable amount (M-MDA)	The maximum amount of capital a bank is allowed to distribute when MREL combined buffer requirement (CBR-M) or MREL minimum requirement are breached (Article 10a SRMR).
Multiple point-of-entries (MPE) resolution strategy	A resolution strategy where a banking group is resolved through the application of resolution powers to multiple resolution groups. In the event of a MPE strategy, individual resolution groups can be resolved, while unaffected resolution groups can maintain operations.
No-creditor-worse-off (NCWO) principle	Regulatory safeguards to ensure that the affected shareholders and creditors will not be worse off in resolution than would have been the case had the bank entered into normal insolvency proceedings.
Non-resolution entity	Entities that are part of a resolution group in which the resolution plan does not provide for resolution action. Non-resolution entities may be subject to internal MREL requirements on an individual or sub-consolidated basis.
Recapitalisation amount (RCA)	The amount of own funds and eligible liabilities foreseen to recapitalise the institution in order for it to continue to comply with its conditions for authorisation and carry on the activities for which it is authorised under the relevant legislation. The level of RCA can be adjusted upwards with the market confidence charge. The RCA is a component of MREL.
Resolution entity	An entity which is identified by the resolution authority as an entity in respect of which the resolution plan provides for resolution action ("point of entry)". Resolution entities are subject to external MREL requirements.
Resolution group	Group earmarked for resolution comprising resolution entity and its subsidiaries. For cooperative banking groups, the resolution group are the credit institutions permanently affiliated to a central body, the central body itself and their respective subsidiaries.
Single-point-of-entry (SPE) resolution strategy	A resolution strategy where a banking group is resolved by applying resolution tools to only one resolution group.
TLAC combined buffer requirement (CBR-TLAC)	The total amount of all RW buffer requirements (CCoB, maximum of G-SII and O-SII buffer, SyRB, CCyB) that a bank must maintain on top of its minimum requirements in the RW TLAC stack.
Total buffer usability	Banks' ability to use the buffers included in the combined buffer requirement (CBR, CBR-M and CBR-TLAC) and the leverage ratio buffer (LRB) together without breaching a parallel minimum requirement. It can be computed both under the baseline and complementary approach.

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For specific terminology please refer to the ECB glossary (available in English only).

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