



Banc Ceannais na hÉireann
Central Bank of Ireland

Eurosystem

The Central Bank's framework for macroprudential capital

June 2022

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Introduction

Following a period of review, the Central Bank of Ireland (Central Bank) is updating its strategy for macroprudential capital buffers. In doing so, the Central Bank has looked to draw on lessons, both domestically and internationally, from the operation of the buffer framework over the last decade, including during the COVID-19 pandemic. The updated strategy also places the setting and implementation of individual macroprudential capital buffers within the wider context of the overall bank capital framework.

Macroprudential policy relating to bank capital is one of the three pillars of the Central Bank's overall macroprudential framework.¹ The Central Bank is the designated authority for the macroprudential tools contained in the Capital Requirements Directives (CRD) and Capital Requirements Regulation (CRR), a responsibility that is shared with the European Central Bank (ECB) under the Single Supervisory Mechanism (SSM) Regulation (Article 5).^{2,3}

The Central Bank has been carrying out a review of its macroprudential capital strategy. The key outcomes, which are discussed in detail in the remaining sections of the document, arising from this review are:

- **The Central Bank is updating its strategy for deploying macroprudential capital tools.**
 - Under its updated strategy for macroprudential capital buffers, the Central Bank will rely on a single instrument – the counter-cyclical capital buffer (CCyB), rather than a combination of CCyB and a systemic risk buffer (SyRB) – to safeguard resilience against macro-financial risks, including those stemming from the small and globalised nature of the Irish economy. As a small, highly-interconnected economy, Ireland faces greater downside macro-financial risks compared to larger, more diversified economies. This is a structural characteristic of the Irish economy, which manifests itself as greater cyclical macro-financial volatility.

¹ The other pillars being policies relating to borrowers (i.e. the mortgage measures) and policies relating to non-banks.

² The ECB may impose stricter requirements for those measures available under CRD and CRR, and the Central Bank consults with the ECB before taking policy action on any of those instruments.

³ Since the creation of the Single Supervisory Mechanism (SSM), the ECB is the competent authority for banking supervision both in Ireland, and the rest of the euro area. The SSM is built on collaboration between the ECB and the National Competent Authorities within each euro member state, such that resources from both authorities work together to deliver on the SSM's supervisory responsibilities.

- This strategy reflects the emerging lessons from the pandemic internationally on the value of releasable capital buffers to better enable the banking system to support the economy when shocks hit. It is also consistent with the Central Bank’s aim of safeguarding resilience, while reducing complexity in the macroprudential capital framework.
- **When macro-financial risks are neither elevated, nor subdued, the Central Bank will set a positive CCyB rate.**

- The Central Bank’s revised strategy for the CCyB intends to build up the CCyB rate to 1.5 per cent when risk conditions are deemed to be neither elevated nor subdued.
- A first key input into that judgement has been an assessment of the macroeconomic benefits and costs of different levels of bank capital for the Irish banking system. Specifically, the Central Bank judges that – as a guide to informing its macroprudential capital strategy – Tier 1 (T1) capital levels of between 14 and 18 per cent are appropriate, when there are not significant imbalances in cyclical risks. The width of the range reflects the fundamental uncertainty in quantifying appropriate capital levels. In reaching a judgement around macroprudential buffers, when risks are neither elevated nor subdued, the Central Bank has taken into account other elements of the prudential capital framework, including interactions with the risk weighting regime and the resolution framework at a system-wide level. A 1.5 per cent CCyB rate would imply T1 regulatory capital demand for the banking sector in aggregate at the lower part of the 14 to 18 per cent range, when risks are neither elevated, nor subdued.

This relates to the banking system as a whole, while institution-specific considerations, including forward looking capital planning, will be captured – as currently – through supervisory assessments.⁴

- A second key input into that judgement has been a macroprudential stress test of the banking system. The positive CCyB rate is not calibrated to ensure the banking sector is resilient to all possible shocks, but rather to a scenario that is appropriate based on the current risk environment. Higher CCyB rates would be implied by the stress testing framework when risk conditions are elevated.

⁴ Individual elements of the prudential capital framework will be determined by the respective competent authorities in accordance with their mandates and the appropriate legal frameworks.

The role of bank capital

Capital enables banks to absorb losses in the face of adverse shocks and reduces the likelihood of bank distress. Capital is a form of bank funding. Relative to other sources of bank funding (e.g. deposits or debt), capital plays a special role, as it stands first in line to absorb potential losses in times of stress. When banks' capital levels get too low, and if they are unable to receive more capital from their shareholders, banks are more likely to fail. So the more capital banks fund themselves with in good times, the more losses they are able to withstand in bad times, before reaching a point of failure.

From society's perspective, the banking system as a whole needs to be able to absorb losses, while maintaining the supply of financial services to the economy. The capacity to absorb losses means that, even after an adverse shock (either idiosyncratic or system-wide) occurs, banks are better able to meet their liabilities as they fall due and continue to provide financial services to households, businesses and the broader economy. Maintaining a sustainable supply of credit is essential for the functioning of the overall economy.

The consequences of failing or distressed banks are much broader than the institutions themselves. The Global Financial Crisis (GFC) demonstrated how insufficiently capitalised banks can lead to severe restrictions on the supply of credit and a broader loss of confidence across the economy. During the GFC, an insufficiently capitalised banking system amplified the economic recession. To reduce the likelihood of even bigger damage to the economy, banks were supported using public funds, with taxpayers incurring the costs of bank failure.

The societal harm caused by banking crises is long-lasting, complex and multifaceted. Banking crises are typically associated with sharper economic downturns than non-financial recessions (see, for example, [Jorda, Schularick, Taylor, 2013](#)). The costs of banking crises also go beyond the initial economic downturn, with growing evidence that the adverse effects on economic output are persistent ([Laeven and Valencia, 2018](#)). More broadly, in addition to the cost of lost economic output, there are also broader societal costs of financial crises ([Otker-Robe and Podpiera, 2013](#), [Karanikolos et. al, 2016](#)).

Over the past fifteen years, in response to the major fault lines exposed by the GFC, there have been substantial global reforms to establish higher standards for banks' equity capital and other loss-absorbing capacity. Consistent with those reforms, over the same period, the capital position of the Irish banking system has been bolstered significantly. The T1 capital ratio of the three main domestic retail lenders more than doubled from approximately 8 per cent in 2007 to around 18 per cent in 2021 and the loss-absorbing quality of this capital has also been significantly improved.

The regulatory framework for loss absorbing resources that banks are required to have now entails a number of different components. Specifically:

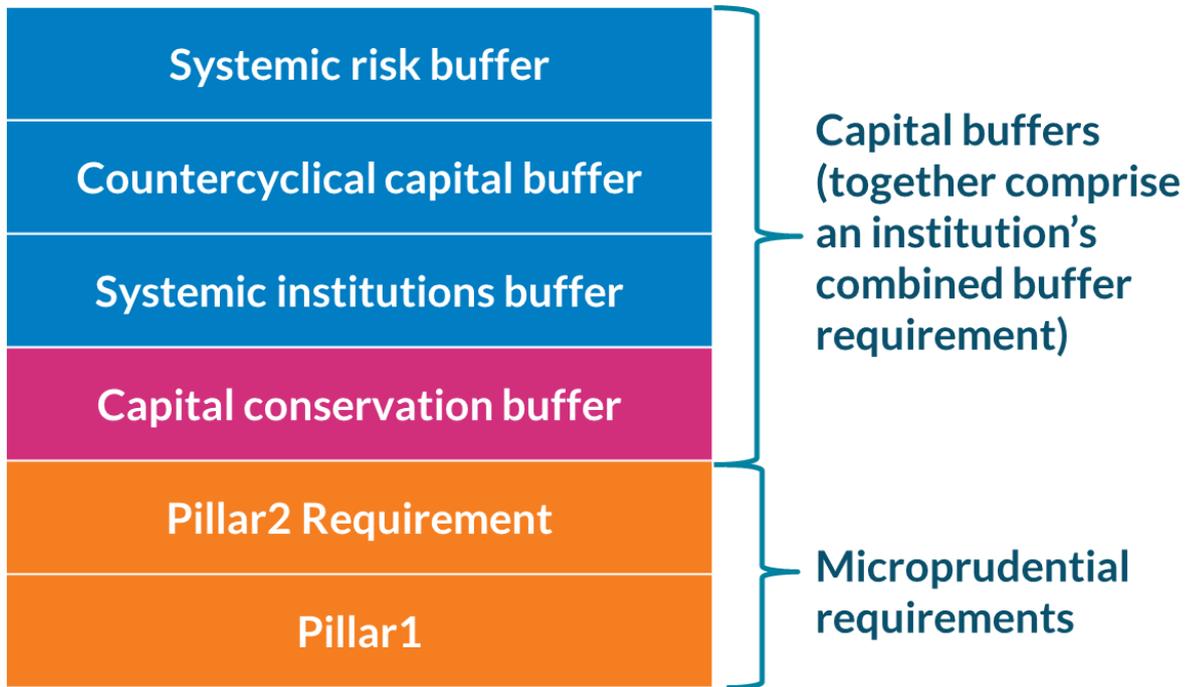
- **Requirements around loss-absorbing resources from a ‘going’ and ‘gone’ concern perspective.** ‘Going-concern’ loss-absorbing resources, such as T1 capital, can cushion the impact of losses in times of stress and ensure that banks can keep operating and maintain the supply of credit to the economy. ‘Gone concern’ loss-absorbing resources, typically in the form of subordinated debt, can be ‘bailed in’ when a bank has failed increase the likelihood that the failure is orderly, does not result in further damage to the economy and that the taxpayer is not forced to provide public funds to support the bank.
- **Risk-based and leverage requirements:** Bank capital adequacy is typically expressed as a ratio of capital to a bank’s assets (sometimes referred to as their ‘exposures’). The risk-based measures assign weights to a bank’s assets to reflect their relative risk of incurring losses. So risk-based requirements are expressed as a share of Risk-Weighted Assets (RWAs). The leverage measure does not weight assets, but simply captures the total value of exposures. This is in recognition of the fact that a simpler, non-risk-based measure can complement RWA-based measures due to fundamental uncertainty around measuring risk.
- **Macro- and micro-prudential requirements:** A key innovation of the post-crisis financial reforms has been the introduction of buffers that can be used to absorb losses while a bank remains a going concern.⁵ Buffers sit on top of banks’ minimum capital requirements. By design, buffers aim to enable banks to absorb the impact of stress, while maintaining credit provision to the real economy. In the European framework, buffers include the capital conservation buffer (CCoB), the countercyclical capital buffer, buffers for systemically important institutions and the systemic risk buffer (Figure 1). The CCoB applies to all institutions and is automatically set at 2.5 per cent of RWA. It provides institutions with a layer of usable capital which can be drawn down when losses are incurred. As discussed below, the other buffers are set by macroprudential authorities in line with the specific risks faced. Together the buffers form an institution’s combined buffer requirement. Where an institution’s level of capital dips below its combined buffer requirement, certain restrictions and limitations apply.⁶ In addition, individual banks may have (non-legally binding) supervisory capital guidance,

⁵ Macroprudential buffers take the form of Common Equity Tier1 capital which is the highest quality of regulatory capital.

⁶ When operating below the combined buffer requirement, banks face automatic restrictions on distributions such as dividends and bonus payments as well as coupon payments on certain capital instruments.

determined by the competent authority reflecting the bank’s own firm-specific characteristics and risks.

Figure 1: Bank capital requirements



Note: Pillar2 Guidance (P2G) sits on top of a bank’s capital requirements. P2G is a bank specific capital recommendation determined by the supervisory authority as part of the Supervisory Review and Evaluation Process. P2G is not a legally binding requirement.

In considering its strategy around macroprudential capital buffers, the Central Bank has taken into account the interactions between these different elements of the prudential framework. While the different forms of prudential requirements each have an individual objective, there are clear interactions between them and – taken together – they make up the overall loss-absorbing capacity of the banking system. Similarly, ‘going’ and ‘gone’ concern requirements interact. The greater the confidence that failing banks can be resolved with less damage to the wider economy or financial system, and without the need to be supported using taxpayer funds, the smaller the cost of failure of an individual institution to society.

Macroprudential toolkit: bank capital

There is a range of potential sources of systemic risk facing the financial system. The financial system provides many critical services for the economy including payments, intermediating between savers and borrowers, and risk-sharing. The sources of risk that could lead to interruption in the system-wide provision of any of these services are also multi-faceted. Some may stem from the degree of risk-taking by the financial system (e.g. in terms of quality or pricing of new lending) while others could stem from structural features of the financial system, such as its interconnections, the distribution of risk

across different participants or the degree of concentration of the banking system. Others still could stem from structural features of the economy (e.g. characteristics of the economy that can make it more susceptible to adverse shocks).

In response to the multi-faceted nature of systemic risk, EU-wide legislation has provided a range of macroprudential capital instruments to authorities. As the macroprudential framework has been established in Europe over the past decade it has incorporated different macroprudential capital instruments that authorities could employ to tackle different sources of systemic risks. These include:

- **Counter-cyclical capital buffer:** The CCyB is a time-varying capital requirement, which aims to promote a sustainable provision of credit to the economy by making the banking system more resilient to cyclical risks. By increasing regulatory capital requirements in good times, the CCyB looks to ensure additional capital is in place to absorb losses when risks materialise. In the face of losses in times of stress, the release of the CCyB aims to limit the potential that regulatory capital requirements act as an impediment to the supply of credit to the economy.
- **Buffers for systemically-important institutions⁷:** The objective of buffers for systemically important institutions is to reduce the probability of their failure of, commensurate with the greater impact that the failure of these institutions would have on the broader economy or financial system. The buffer enhances the resilience of these institutions, which due to the scale or nature of their business are of systemic importance, by providing an additional layer of loss absorbing capital. A higher capital requirement for these institutions reflects the greater impact that their failure would have.
- **Macroprudential measures in relation to risk weights on real estate exposures:** The provisions within Articles 124 and 164 of the CRR look to ensure that, from a financial stability perspective, the capital requirements of the banking system relating to exposures fully secured by mortgages on immovable property adequately reflect the underlying risks. Article 124 relates to the risk weights associated with the standardised approach to credit risk assessment, with Article 164 focusing on the loss given default associated with the application of the Advanced Internal Ratings Based approach to credit risk assessment.
- **Systemic Risk Buffer:** The SyRB is a flexible macroprudential capital buffer. The SyRB can be used to address sources of systemic risk that are not covered by the

⁷ In the European framework institutions can be classified as being globally systemically important, referred to as G-SIIs, or systemically important from a domestic or European perspective, referred to as other systemically important institutions (O-SIIs).

CCyB, buffers for systemically important institutions or CRR. The SyRB can be used to target specific sources of risk and therefore can vary across institutions or sets of institutions as well as across subsets of exposures.

- **CRR Article 458:** Article 458 of the CRR confers authorities with the power to take action across a range of measures. This power can only be activated where warranted on the basis of financial stability considerations and when the other macroprudential instruments would be less effective. The measures include additional own funds requirements, enhanced disclosure and liquidity requirements, as well as higher risk weightings for certain exposure classes. Further, the implementation of measures under Article 458 is subject to a number of specific procedural requirements at a European level.

The range of macroprudential instruments available to macroprudential authorities across Europe, including the Central Bank, underlines the importance of taking a joined-up perspective around macroprudential bank capital buffers. The wide range of macroprudential capital tools available to the Central Bank means that it can tackle a range of potential sources of systemic risk to the banking system. Nevertheless, the Central Bank also places a premium on clarity regarding the risks mitigated by the implemented policies. In that context, it is particularly important to take an overall perspective around macroprudential bank capital, including to account for the interactions between different capital buffers.

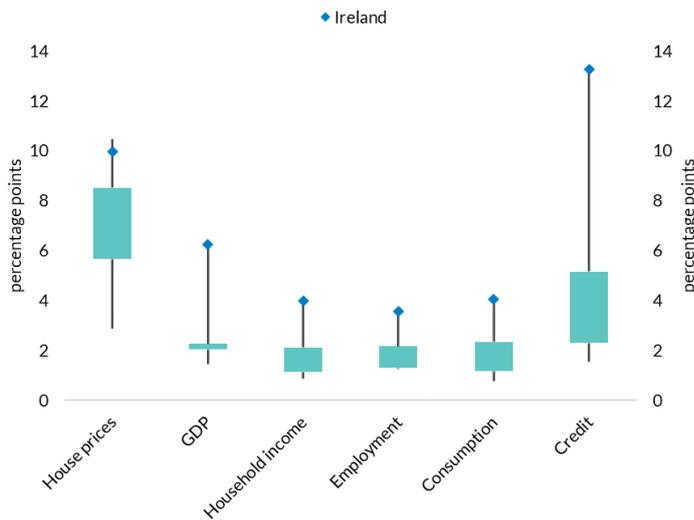
Macroprudential capital buffers in the specific context of the Irish economy

There are specific features of the Irish economy and financial system, which inform the Central Bank's strategy around the operation of the macroprudential capital buffer framework. Ireland is a small and highly-globalised economy, within a monetary union. This has implications for the nature and magnitude of macroeconomic 'tail risks' facing the banking system. In addition, Ireland is host to a large, internationally-oriented financial sector. The banking system in Ireland has two distinct groups, one serving the domestic economy and the other serving mainly European or global economies. This has implications for the distribution of risk across the banking system.

The small and open nature of the Irish economy means that it is inherently more susceptible to shocks relative to larger, more diversified economies. Historically, the Irish economy has been considerably more volatile than its peers across a range of macro-financial variables (Figure 2). In part, though not entirely, this higher volatility stems from the small and highly-globalised nature of the Irish economy. Indeed, small countries tend to experience more adverse macro-economic outcomes than larger, more

diversified economies. Given its openness, the Irish economy is also particularly sensitive to global financial or economic shocks, whether cyclical or structural in nature (Figure 3). Overall, small countries such as Ireland face a greater degree of macroeconomic ‘tail risk’.

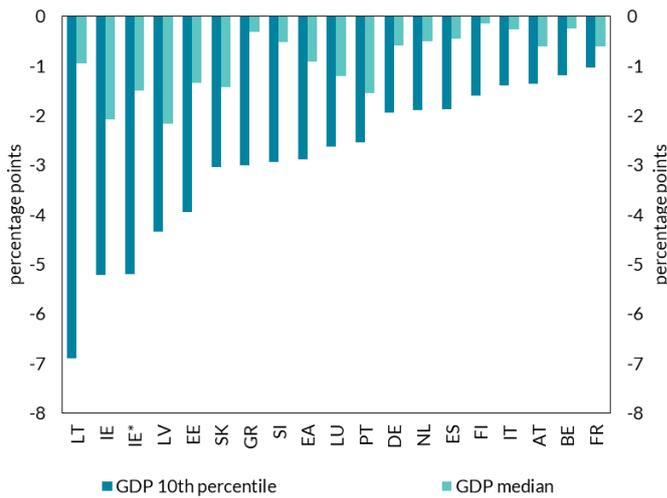
Figure 2: Historically the Irish economy has been considerably more volatile than its peers across a range of macro-financial variables



Source: Central Bank of Ireland calculations

Notes: Volatility is the standard deviation of annual growth rates in the series examined (1980Q2-2018Q2). For Household Income and Credit to NFC 1997Q2-2018Q2. GDP is replaced with modified GNI* for Ireland.

Figure 3: Ireland is particularly susceptible to shocks to global financial conditions



Source: As published in [FSR 2020:1](#) based on Beutel *et al* (2020) [The Global Financial Cycle and Macroeconomic Tail Risks](#)

Notes: The chart shows the GDP growth impulse response to a US excess bond premium shock across the euro area.

To safeguard resilience, capital levels need to reflect this higher level of macroeconomic ‘tail risk’. Central Bank analysis highlights the importance of economic structure for the

appropriate range of capital requirements in a given country (O’ Brien and Wosser, 2022). This analysis notes that small, open economies consistently experience worse economic downturns than their larger, less open counterparts. Consistent with the higher degree of risk these countries face, the appropriate capital level is generally estimated to be higher for small, highly-globalised countries than those countries which do not exhibit such characteristics to the same extent.

The structure of the banking system in Ireland also has implications for the distribution of systemic risk. The banking system in Ireland has long had two broad but distinct groupings of institutions. First, retail banks, which predominantly provide financial services to the domestic real economy and by nature of the size of the Irish economy tend to be small in an international context. Second, international banks, which, while located in Ireland, tend to have more limited interaction with the domestic real economy. In recent years, including as a result of the UK’s departure from the EU, a number of institutions in this latter group have substantially grown in size. Further, the retail banking sector in Ireland continues to experience structural changes in terms of the number and type of institutions operating in the market. This has implications for the distribution of systemic risk across the banking system.

Enhancing the operation of the macroprudential capital buffer framework

The introduction of macroprudential capital buffers over the past decade, together with the implementation of broader prudential reforms, contributed to increased resilience of the banking system. In Ireland, the Central Bank announced in 2015 the gradual phase-in of capital buffers for systemically-important institutions (O-SII buffers). This was followed in 2018 by the introduction of a 1 per cent CCyB rate. A number of other countries across the EU introduced a range of macroprudential capital measures in the decade prior to the pandemic, albeit there were differences in instrument choice and calibration. Several EU countries had introduced a positive CCyB rate, while almost all countries had introduced buffers for systemically-important institutions.^{8,9} Some countries had chosen to also make more active use of other macroprudential capital measures, such as the systemic risk buffer or risk weight requirements. This differentiated experience related both to differences in underlying risks across jurisdictions as well as differences in overall strategies adopted by macroprudential authorities across Europe (see, for example, (ESRB, 2021)).

⁸ [ESRB- CCyB](#)

⁹ [ESRB- Systemically important institutions](#)

[The COVID-19 shock offered insights as to the effectiveness of the macroprudential framework in a stress.](#) The enhanced regulatory regime for banks, including macroprudential capital buffers, resulted in a more resilient banking system that was better placed to weather the COVID-19 shock and maintain the provision of services to households and business. However, the COVID-19 shock was unique in many ways, including the entirely exogenous nature of the shock and the unprecedented degree of direct support provided by governments to households and businesses. As such, the macroprudential buffer framework remains to be tested through a whole financial cycle.

[A key lesson from the COVID-19 shock has been the importance of bank capital buffers that are usable in periods of stress.](#) Macroprudential capital buffers are intended to allow the banking system to absorb losses and maintain the supply of lending to households and businesses, lessening the damaging effects that can arise from credit supply shortages. For the benefits of this mechanism to operate fully, banks need to be able and willing to make use of the capital provided by the macroprudential buffers. If not, banks may still excessively contract the supply of lending in the face of adverse shocks so as to support their capital position. This outcome would not be consistent with the macroprudential objective of the buffers.

[International evidence from the COVID-19 episode points to the value of having built up capital that could be released ahead of adverse shocks.](#) Owing to the exceptional nature of the shock and associated policy support, bank losses were eventually smaller than they might otherwise have been during the pandemic. Despite these smaller losses, a range of studies find evidence that banks that were further away from their combined buffer requirements had more resilient credit supply (see, for example, [BIS \(2021\)](#) and [Berrospide, Gupta, Seay \(2021\)](#)). Other studies also find that the release in capital buffers during the pandemic was associated with higher credit supply than would otherwise have been the case (see, for example [Avezum, Oliveira, Serra \(2021\)](#), [Neef, Schandlbauer, Wittig \(2022\)](#) and [Bergant and Forbes \(2021\)](#)). Based on those lessons, there has been growing recognition across Europe of the benefits of increasing the CCyB in a more preventative and forward-looking way outside of crisis periods, to enable macroprudential authorities to release capital during stresses (see, for example [ECB, 2022](#) and [ESRB, 2022a](#) input into the EU Commission’s [review of the EU macroprudential framework for the banking sector](#)).

[A further lesson from the past decade has been around the balance between simplicity and effectiveness of the overall framework.](#) As discussed above, there are many different sources of systemic risk, which implies a potential need for several capital instruments to address these risks. Indeed, this is reflected in the legislative framework, which provides macroprudential authorities with a range of macroprudential capital measures. Nevertheless, there are also benefits of a parsimonious strategy for using this

set of tools. A complex strategy that is difficult to understand can entail costs in terms of effectiveness, transparency and accountability. Using tools in a manner that is well understood will help the Central Bank to explain its actions to market participants and account for them to the wider public. So, subject to being able to address the main sources of systemic risk, there are benefits of simpler strategies.¹⁰

The Central Bank’s strategy for the use of macroprudential capital buffers

The Central Bank has reviewed its strategy for using different macroprudential capital buffers. When considering the appropriate composition of the macroprudential capital buffers, the Central Bank has considered the role of each instrument in the overall framework, the lessons learned from the experience with macroprudential policy to date, including during the COVID-19 crisis, as well as the Central Bank’s policy intent to achieve its macroprudential objectives, while minimising the level of complexity in the framework where feasible.

In terms of the composition of macroprudential instruments, the main outcomes include:

- The Central Bank will use the CCyB as its primary macroprudential capital tool for safeguarding resilience to macro-financial risks. As a small, highly-globalised economy, Ireland faces greater downside macro-financial risks compared to larger, more diversified economies. This is a structural characteristic of the Irish economy, which manifests itself in greater cyclical macro-financial volatility.
- Under this updated strategy, an SyRB will not be used to mitigate these risks as had been proposed in [FSR 2019:II](#).
- This strategy reflects the emerging lessons from the pandemic internationally on the value of releasable capital buffers to better enable the banking system to support the economy when shocks hit. It is also consistent with the Central Bank’s aim of safeguarding resilience, while reducing complexity in the macroprudential capital framework.
- For risks posed by systemically-important institutions, the O-SII buffer is the required tool in the EU macroprudential framework and will continue to be used by the Central Bank to ensure that more systemically-important institutions are held to higher capital standards.

¹⁰ The simplification of the macroprudential framework is a theme discussed in the contributions of the ([ECB, 2021](#)) and ([ESRB, 2022b](#)) to the European Commission review of the macroprudential framework for banks.

- Overall, the CCyB and the O-SII buffers are the two tools that the Central Bank expects to be employing actively and reviewing on a regular basis. The SyRB remains part of the Central Bank’s macroprudential toolkit and is available should additional risks be identified as warranting mitigation via this instrument in the future. Similarly, macroprudential measures in relation to risk weights on real estate exposures as well as Article 458 also remain in the Central Bank’s macroprudential toolkit, but would only be used if specific risks are identified in the future.

The Central Bank’s review of its strategy around macroprudential capital buffers has sought to take a holistic view of macroprudential buffers. In particular, the Central Bank has considered the interaction *between* different macroprudential capital buffers as well as the interaction of macroprudential capital buffers *with other elements of the prudential framework*, such as risk weighting and additional ‘gone concern’ loss-absorbing capacity. In addition, the Central Bank has considered both the macroeconomic benefits and the costs of bank capital within a consistent framework. Overall, the Central Bank’s approach has been grounded in seeking to ensure that the banking system is resilient enough to provide services to the economy in times of stress, without damaging the capacity of the banking system to support sustainable economic growth over the long term.

An analytical framework for assessing appropriate capital levels

Like all policy interventions, different settings of macroprudential capital buffers entail both benefits and costs for society, which the Central Bank seeks to balance. By allowing banks to absorb losses in the face of adverse shocks and, thus, reducing the probability of a banking crisis and associated deep recessions, bank capital entails benefits for society overall. At the same time, requiring higher bank capital in ‘good times’ also entails costs for society, through the potential for a higher cost of lending than might otherwise have been the case, which can weigh on economic growth.

The Central Bank has employed an analytical framework that assesses these societal macroeconomic benefits and costs. The analytical framework employed by the Central Bank – which builds on a similar approach used by a number of international authorities is outlined in McInerney *et. al*, (2021). In this framework, the macroeconomic benefits of additional capital arise from the associated lower probability of a systemic banking crisis, which leads to a reduction in the expected macroeconomic banking crisis-related costs. The macroeconomic costs of additional capital are as a result of higher lending interest rates, which eventually dampen consumption and investment levels and result in relatively lower economic growth. Balancing these two elements, the framework allows

for, with a given set of assumptions, an estimation of the level of capital at which the net macro-economic benefits are maximised.

There is inherent uncertainty around analytical estimates of the level of capital at which these macro-economic benefits are maximised. This uncertainty stems from fundamental factors. Examples include the low frequency of banking crises internationally (which means there is a limited sample of data to assess the likelihood and/or implications of banking crises) or the challenges in measuring with precision the magnitude of ‘tail’ macro-financial risks facing the banking system. As with any analytical approach, quantitative estimates of the costs and benefits of different capital levels are sensitive to the underlying assumptions. Some of the key choices include assumptions around the persistence of the negative effects of banking crises, the discount factor used to estimate the present values of lost future economic activity and the extent to which higher capital costs are offset via the so-called Modigliani-Miller channel.¹¹

For a typical advanced economy, and in an environment where risks are neither elevated nor subdued, estimates point to a range of T1 capital levels at which the net benefits to the economy are maximised between 12 and 20 per cent. In each case the estimate for the capital ratio relates to that applicable to a typical advanced economy and in an environment where risks are neither too elevated, nor too subdued. This range, 12–20 per cent, is broadly in line with other studies in this area (see for example [Dagher et. al, 2016](#)). The width of the range is an indication of the fundamental uncertainty around the estimates. A greater weight attached to judgements that the effects of banking crises are persistent or that the costs of higher capital are to some degree offset in overall funding costs – both of which tend to be supported by the empirical evidence to some extent – would imply higher estimates of capital levels.

For a small, open economy, the same analytical approach points to additional capital needs, given the greater magnitude of macro-financial ‘tail’ risks. The same modelling approach described above has also been used to assess the extent to which countries with certain macro-financial structural characteristics, like those of Ireland, may require additional capital, over and above that of a typical advanced economy, to mitigate the higher risks associated with these characteristics (O’ Brien and Wosser, 2022). The analysis suggests additional capital in the region of 1 per cent would be warranted to account for structure-related systemic risk, when risks are neither elevated, nor subdued.

¹¹ The Modigliani-Miller theorem states that in a perfectly competitive and frictionless economy, the value of a firm is independent of how it is financed. The empirical evidence on the Modigliani-Miller theorem is mixed. See [Barclay and Smith, 2020](#) for a discussion.

This analysis is calibrated to reflect the amount of capital that would be appropriate, in terms of expected macroeconomic activity, for the banking sector to have given an ‘average’ financial stability risk environment. However, the probability of a crisis will be larger and the net benefits of additional capital higher, in a high risk environment. As a result, higher capital requirements would be merited when there is evidence of elevated risk, in line with the framework for the CCyB. For example, these estimates of capital, applicable where risks are neither elevated nor subdued, would not have been sufficient for the overall risk environment in Ireland that preceded the GFC, which was characterised by the presence of large imbalances across credit, asset markets and the broader economy.

Interactions with other elements of the prudential framework

The review also considered the interaction of bank capital with other elements of the prudential framework. These factors have been accounted for in the final capital range that has informed the Central Bank’s strategy around macroprudential capital buffers.

- **The Central Bank has considered the interaction between risk-weighted assets (RWAs) and macroprudential buffers.** The objective of risk weighting is to reflect the underlying risk of banks’ portfolios in their capital requirements. The Central Bank has considered the drivers of RWAs for key lending portfolios in Ireland to assess the extent, if any, of potential overlap between them and macroprudential capital buffers (see Lyons & Rice, [2022a](#) & [2022b](#)). Resulting from this assessment, the Central Bank considers that the RWA regime broadly captures the risk facing Irish banks’ main loan books appropriately. Risk weight densities in Ireland are higher than in other countries because the underlying risk of current lending exposures is higher. There is one area where the Central Bank judges there to be potential overlap between risk weighting and the buffer framework. Consistent with the regulatory requirement to model ‘downturn’ loss given defaults (LGD), the high modelled LGD in the mortgage market is partly a reflection of the very severe crisis that Ireland experienced from 2008 ([Lyons and Rice, 2022](#)), as well as the challenges to realise mortgage collateral through repossession. That crisis, in turn, was a function of the very large credit-driven housing boom that preceded the financial crisis. The Central Bank judges the potential overlap between this LGD channel of the RWA regime and macroprudential buffers to be small, in the range of 25-50 basis points (bps) of T1 capital.
- **The resolvability of banks has been enhanced through the implementation of the Bank Recovery and Resolution Directive (BRRD), including through requirements for additional ‘gone concern’ loss absorbing capacity.** All else equal, this would be

expected to reduce the economic cost of a bank failure – something which would result in a lower estimate for the appropriate level of ‘going concern’ capital within the analytical framework outlined above. The quantification of this effect is particularly challenging, not least because there remains a lack of experience with the implementation of recovery and resolution regimes, particularly in the context of a systemic banking crisis.¹² Nonetheless, the Central Bank judges this to be an important factor that would justify lower ‘going concern’ requirements relative to the estimates implied from the analytical framework above. Some of these factors have been taken into account in the assumptions regarding the cost of crisis in the modelling approach, which uses an average cost of crisis rather than an Irish-specific one.

- [The introduction of the mortgage measures in 2015 is another post-crisis development in the domestic regulatory framework, and the interaction of the measures with the capital framework was considered as part of the framework review.](#) The mortgage measures strengthen lending standards by banks. This is already reflected in the capital framework through risk weighting. For example, loans that have been issued since the financial crisis – under more prudent lending standards than before – have significantly lower risk weights than loans issued before the financial crisis. The introduction of the mortgage measures has also reduced the probability of credit-fuelled housing booms from re-emerging and, through that channel, the likelihood of experiencing housing shocks as severe as those seen during the financial crisis. Through their role in dampening this cyclical dynamic, the mortgage measures are also likely to reduce the severity of residential real estate declines in future adverse scenarios applied to macroprudential stress tests (pointing to a lower amplitude of the CCyB than would be the case in the absence of the mortgage measures).

[Taking these factors into account, the Central Bank judges that the appropriate T1 capital demand for the Irish banking sector in aggregate, when risks are neither elevated nor subdued, would be between 14 and 18 per cent of RWAs. The Central Bank’s macroprudential policy implementation, acknowledging the other elements of the prudential regime, would lean towards the lower part of the range.](#) While serving as a guide to the use of macroprudential capital buffers overall across the system, the range does not imply a target capital level for individual institutions. In addition, regulatory

¹² [Brooke et. al. \(2015\)](#) did look to quantify the impact of recovery and resolution framework on the appropriate level of capital. In their central case, where resolution is assumed to be effective at reducing the cost of crises the optimal capital range was quantified as being 10-14 per cent. Where resolution is viewed as ineffective the corresponding range is estimated as being 15-19 per cent. The effectiveness of the resolution regime in this analysis comes through assuming a lower cost of crisis.

requirements are not substitutes for risk management and capital planning by individual firms, which need to be robust and consistent with firms' own risk appetite.

A refreshed strategy for the CCyB

The Central Bank is updating its strategy for the CCyB. In line with CRD, the Central Bank undertakes a quarterly assessment of the CCyB rate on Irish exposures (see Box 1). In guiding its use of the CCyB, the Central Bank's refreshed strategy can be summarised by the following elements:

- The primary objective of the CCyB is to promote the resilience of the banking sector¹³ to future adverse shocks – in a manner proportionate to the risk environment - with a view to facilitating a sustainable flow of credit to the economy through the macro-financial cycle.
- The CCyB achieves this objective by building loss-absorbing capacity as the risks facing the banking system grow, and reducing or releasing the CCyB as risks materialise or imbalances unwind. In that way, the banking system is better able to withstand adverse shocks, without restricting the supply of credit to the economy.
 - The Central Bank will build the CCyB rate to 1.5 per cent, when risk conditions are deemed to be neither elevated, nor subdued. This strategy acknowledges the inherent uncertainty in assessing the degree of risk facing the banking system and the time lags in implementing the CCyB. In addition, by moving early in the cycle, the Central Bank has the scope to implement policy changes in a gradual manner, where necessary and appropriate, with a view to minimising unwanted impacts on the real economy.
 - The CCyB would increase above 1.5 per cent should cyclical risk conditions suggest emerging imbalances or an elevated risk environment (as reflected by developments in credit, the domestic economy, asset prices (especially real estate), risk appetite and global conditions).
 - The CCyB rate would be partially or fully released in cases where a materialisation of cyclical systemic risk or a downturn is identified, to allow the banking system to absorb losses and maintain the supply of lending to the economy. This is consistent with its objective to mitigate macro-

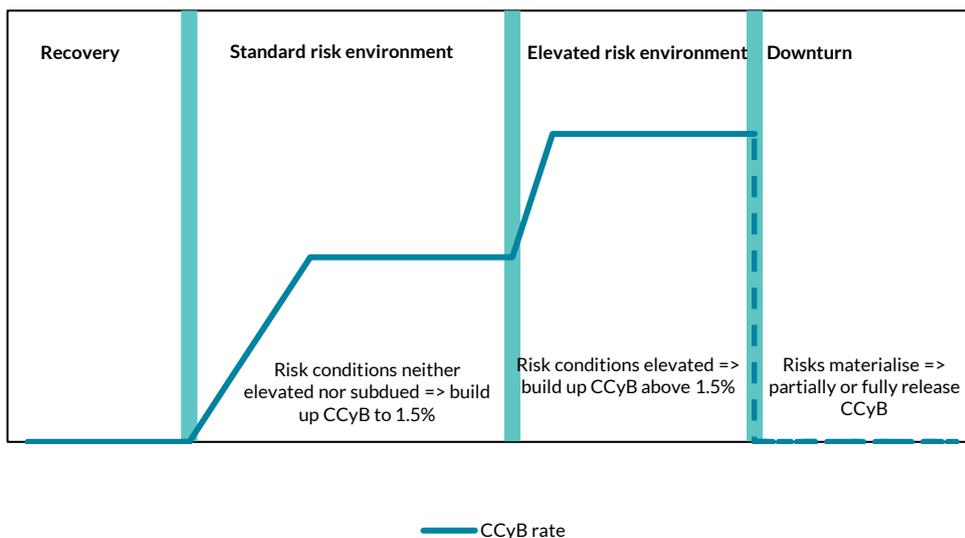
¹³ In the context of the CCyB, it is the domestically-focused retail banks that are of most relevance.

economic risks associated with pro-cyclical bank lending behaviour during a downturn.

This high-level strategy for the CCyB is presented in Figure 4 which illustrates, in a stylised way, how the CCyB rate would evolve over the course of the cycle in line with the expected systemic risk conditions.

- **Recovery** - The period immediately following a crisis. Losses have for the most part crystallised and balance sheets are being repaired. The CCyB has been partly or fully released, to facilitate banks maintaining the supply of lending during the period of balance sheet recovery.
- **Standard risk environment** - The economic and financial cycle are improving and no significant losses are forecast for the banking sector in the central outlook for the economy. The CCyB will be built up to or maintained at 1.5 per cent during this phase.
- **Elevated risk environment** - Cyclical risk conditions, as reflected by indicators across credit, the domestic economy, asset prices (especially real estate), risk appetite and global conditions reflect emerging imbalances. In line with the forward-looking nature of the CCyB, the rate would be increased above 1.5 per cent when an elevated risk environment is expected.
- **Risk materialisation** - Risks materialise and losses are crystallised. The CCyB is partially or fully released, so that banks can absorb losses and maintain the supply of lending to the economy.

Figure 4: Stylized representation of the Central Bank’s strategy for the CCyB



Notes: Stylized representation, does not refer to specific figures

Box 1: Quarterly assessment of the CCyB rate

The Central Bank undertakes a quarterly review of the CCyB rate on Irish exposures.

As discussed in this report, the Central Bank's approach to the use of the CCyB takes a broad perspective on systemic risk. As such, each review of the CCyB draws on a range of information. This approach is in line with that recommended by the [ESRB](#) and consistent with views emerging at a European level for refinement to the CCyB within CRD. The assessment of macro-financial conditions is informed by quantitative and qualitative information across a number of areas including the domestic economy, credit developments and asset prices. The broader global cycle is also considered, given Ireland's open economy. The condition of the banking sector also informs the assessment. The Central Bank publishes a selection of commonly used indicators which underlie its assessment as part of its quarterly announcement.

The credit gap – which is currently a required reference indicator in the CCyB framework – is one of the indicators calculated and published by the Central Bank. Nonetheless, from a policy perspective, as discussed in O'Brien *et al.* (2018), the standardised credit gap has a number of short-comings, especially in an Irish context. In addition, the Central Bank's strategy for the CCyB envisages a positive buffer when risk conditions are neither elevated nor subdued (an approach whereby a positive buffer would be set in advance, if imbalances, for example those suggested by the credit gap, become evident).

These elements have now been supplemented through the development of the macroprudential stress testing framework. This provides a tool which can be used to inform the setting of the CCyB rate applicable to prevailing macro-financial conditions. The approach to using the stress testing model to inform the review of the CCyB rate on an ongoing basis would be through the evolution of the input scenarios. Changes in the trajectory for the economy can be captured through cyclical developments linked to a baseline scenario, while the severity of the adverse scenario would reflect the risk environment (for example greater house price falls in periods of increasingly stretched valuations). While it is not anticipated the stress testing approach would be implemented for each quarterly review, it would be run periodically (e.g. annually, or potentially when a material change to the outlook occurred) to act as an additional input for the Central Bank's policy stance for the CCyB.

Overall, there is no mechanical link between any specific element and the CCyB rate set with the underlying inputs serving to inform policymaker judgement.

The use of stress testing to inform the CCyB

Stress testing provides a valuable tool to assess the resilience required by banks to be able to absorb potential adverse shocks and maintain the supply of lending. A key principle behind the Central Bank's CCyB strategy is to seek to match the level of capital in the banking system to the magnitude of the risks that it faces. There are a number of analytical approaches that can help inform policymakers' judgements around the CCyB rate. For example, since the financial crisis a new set of analytical tools have been developed that link current macro-financial developments to potential future 'tail' macroeconomic outcomes, which can guide the setting of the CCyB. In addition, analytical frameworks that provide an assessment of the cost and benefits of different levels of capital, conditional on the macro-financial environment, can provide a further input to guide the CCyB. Stress testing is an analytical tool that can map potential future adverse scenarios to their impact on bank balance sheets. As such, it can provide a particularly useful input in informing the setting of the CCyB.

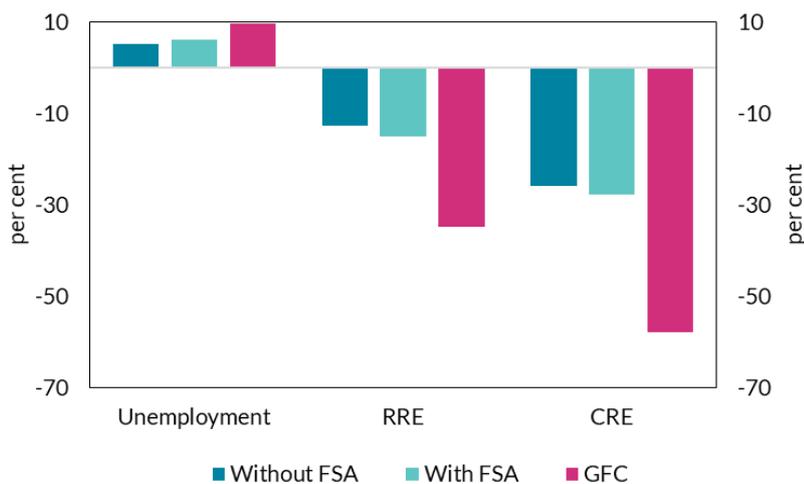
As part of its refreshed CCyB strategy, the Central Bank plans to add stress-testing to its analytical toolkit for informing policymakers' judgements. Underpinning the use of any stress testing framework is the macroeconomic scenario employed. To inform the CCyB, the adverse scenario utilised, estimated primarily using the Central Bank's macroeconomic models, will be calibrated to reflect a plausible, yet severe, macroeconomic downturn based on prevailing cyclical conditions. The output of the macroeconomic scenario for key variables such as the unemployment rate and house prices acts as input into the macroprudential stress test, which in turn estimates the associated level of capital depletion. Unlike stress tests such as the [European Banking Authority \(EBA\) biannual exercise](#), which are carried out to assess the capacity of individual banks to withstand a wide range of shocks, the Central Bank's CCyB assessment incorporates banks' responses to stress, and their potential to amplify an adverse scenario through reduced lending supply. Box 2 outlines the Central Bank's macroprudential stress testing framework.

As it seeks to inform the CCyB, the macroprudential stress test focuses mainly on risks from domestic credit exposures, rather than being a full balance sheet stress test. There is a range of risks to banks' capital positions, including from domestic and international credit exposures, market risks as well as more idiosyncratic risks, such as those relating, for example, to pensions liabilities. As a macroprudential capital buffer, the CCyB focuses on domestic macro-financial risks, so – at this stage – the application of the macroprudential stress test focuses on risks from domestic credit exposures.

To inform the CCyB, the calibration of the scenario will reflect the Central Bank's judgement around the magnitude of cyclical risks. When risks are judged to be high, the calibration of the shocks will be more severe. The severity will vary systematically over

time, in line with policymakers' judgements around the magnitude of domestic and international risks. This is reflected in the calibration of the scenario published in the Central Bank's [Financial Stability Review \(FSR\) 2022:1](#) – which has informed the choice of CCyB rate appropriate for a standard risk environment. While the scenario represents a significant adverse shock, it is much less severe than was observed during the financial crisis, reflecting the fact that current macro-financial imbalances are not judged to be at the levels seen immediately prior to the 2008 financial crisis (Figure 5).

Figure 5: Macroprudential stress test adverse scenario used to inform CCyB for a standard risk environment relative to the global financial crisis



Source: Central Bank of Ireland

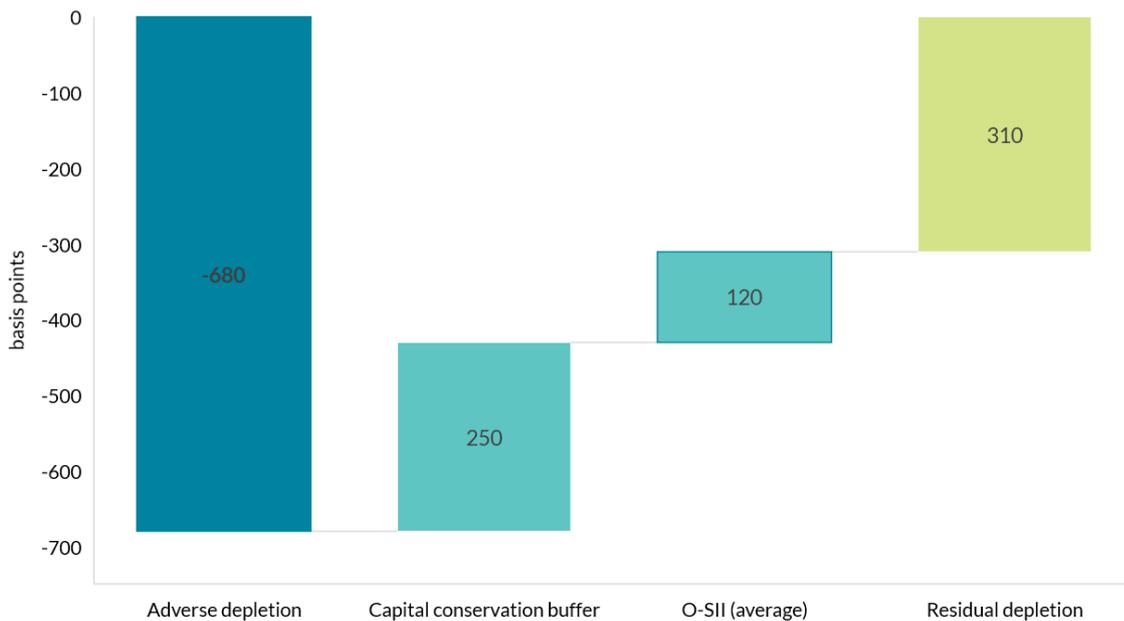
Notes: The chart shows the impact of the financial sector amplification (FSA) on unemployment, residential real estate prices (RRE) and commercial real estate prices (CRE). For the unemployment series, the difference between the 2021 value and the maximum value over the scenario is reported, while the cumulative 3 year growth rate is reported for the real estate price series. We omit the amplification for inflation since this is negligible. The chart also presents comparable metrics over the first three years of the GFC (2009-2011)

While stress testing can provide a useful input to inform CCyB judgement, there is no mechanical link to setting of the CCyB. Like any forward-looking quantitative exercise, there are significant uncertainties around stress testing estimates. In addition, as outlined above, the approach used is not a full balance sheet stress test, which has implications for the mapping between capital depletions and capital buffers. Overall, as with all of its macroprudential instruments, the Central Bank will reach judgements using a set of inputs, considering the development of indicators and analytical tools, including stress testing, and use judgement to determine the CCyB rate.

The macroprudential stress test has informed the Central Bank's judgement around the appropriate CCyB rate for a standard risk environment. Figure 6 below illustrates how the estimated level of capital depletion, relative to RWAs that are relevant for the CCyB, can be used to inform the appropriate CCyB rate in the current risk environment. The estimated capital depletion in the adverse scenario is around 680bps of relevant RWAs.

Beyond the CCyB, the banking system already has regulatory buffers in place that allow it to absorb losses without breaching minimum requirements in this stress. These include the Capital Conservation Buffer (CCoB) rate of 250bps and the Other Systemically Important Institutions (O-SII) buffer, where the current system-wide average for Irish retail banks is around 120bps. This means that – on average across the system – additional buffers of around 310bps, relative to relevant RWAs, would be required to absorb losses from domestic loan portfolios in the stress.

Figure 6: Capital depletion (expressed as a percent of CCyB-relevant RWAs) arising from adverse scenario in macroprudential stress test relative to buffer requirements



Source: Central Bank of Ireland
 Notes: for further details see FSR 2022:I Box F

In judging the appropriate level of the CCyB (when risks are neither elevated nor subdued), the Central Bank has taken into account that there are also bank-specific recommendations around the level of capital that supervisors expect banks to maintain, in the form of [Pillar 2 Guidance](#). More broadly, the aim of the CCyB is to support lending in periods of stress and evidence shows the supply of lending to be impacted in advance of capital depletion reaching regulatory requirements. This is consistent with an overall depletion in excess of 680bps to inform the calibration of the CCyB.¹⁴ However, the

¹⁴ Morell, Rice, and Shaw (2022) discuss how the [stress testing framework can be used to offer an alternate lens on CCyB calibration whereby the model estimates the level of additional capital that would be required to ensure that credit supply never acts to restrict the demand for credit in an adverse scenario](#). Based solely on this modelling approach the implied additional level of is estimated in the region of 200-250bps. This alternate lens provides a potential upper bound for a CCyB rate which would be appropriate when risk conditions are neither elevated nor subdued.

Central Bank has taken into account additional factors and their application in an Irish context, including the assessment of macro-economic costs and benefits of different levels of capital outlined earlier as well as interactions of macroprudential buffers with other parts of the prudential regime. Like all analytical inputs, this approach is one input into an overall judgement around the CCyB and there is no mechanistic link between stress testing outputs and the CCyB. Taking all these factors into account, the Central Bank judges that a CCyB of approximately 150bps would be appropriate in an environment when risks are neither elevated, nor subdued.

The setting of the CCyB at 1.5 per cent in a standard risk environment is consistent with the Central Bank’s judgement on the appropriate level of bank capital for the Irish banking system. This level will act as a guide to informing its macroprudential capital strategy. In reaching a judgement around macroprudential buffers, when risks are neither elevated nor subdued, the Central Bank has taken into account other elements of the prudential capital framework, including interactions with the risk weighting regime and the resolution framework. A 1.5 per cent CCyB rate would imply T1 regulatory capital demand for the banking sector in aggregate at the lower part of the 14 to 18 per cent range, when risks are neither elevated nor subdued. As mentioned above, while serving as a guide to the use of macroprudential capital buffers overall across the system, the range does not imply a target or appropriate capital level for individual institutions. Moreover, regulatory requirements are not substitutes for risk management and capital planning by individual firms, which need to be robust and consistent with firms’ own risk appetite.

Box 2: Overview of macroprudential stress testing model

Since the onset of the recent financial crisis, stress testing has grown in prominence as a key supervisory tool. Notable examples of regular stress tests conducted by regulatory authorities since the crisis include the EU-wide banking sector stress tests conducted by the EBA, the US Comprehensive Capital Analysis and Review (CCAR) and the Bank of England’s annual stress testing framework. In addition, a number of countries have developed macroprudential stress tests, including to inform the setting of capital buffers.

The Central Bank’s macroprudential stress test model augments an existing internal framework¹⁵, which has been used over the past decade for numerous assessments of the banking sector’s resilience, with capacity to embed shock amplification mechanisms such as deleveraging and credit supply responses to banks’ capital positions. In line with approaches taken by other central banks, the inclusion of a dynamic balance sheet and feedback loop between the financial sector and the real economy provides a useful toolkit for considering

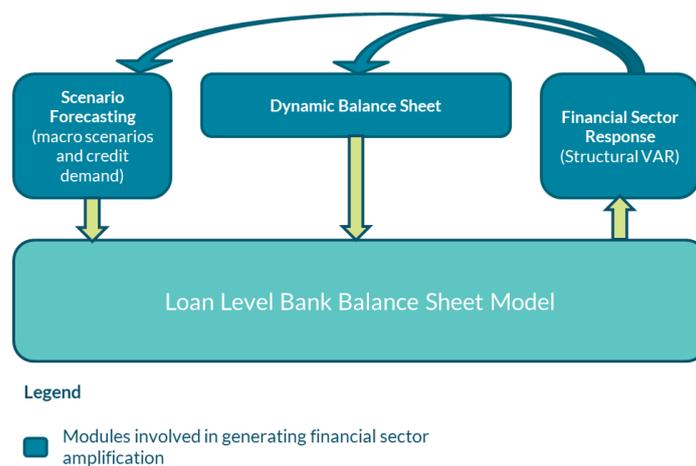
¹⁵ For information on the Central Bank’s Financial Stability stress testing toolkit, as used in the 2020 assessment of banking sector resilience, see ([FSR 2020:II-Box E](#), page 53) and, for further information see ([Central Bank of Ireland, 2020b](#))

the implications of various macroprudential policy decisions relating to capital buffers, particularly the CCyB.

This is achieved along two dimensions. Firstly, behavioural reactions of banks (through new lending) and borrowers (through weakened credit demand) to the macroeconomic environment are explicitly modelled. Secondly, interactions between the macroeconomy and banking sector will also be formally modelled through a financial sector amplification channel, whereby the implications in an adverse scenario of reduced credit volumes and changes in lending rates will have an impact on the economic trajectory within the scenario.

Figure A below summarises the components of the model, building upon the Central Bank’s existing bank balance sheet model based on loan-level data. The additional components are shown as the dark blue segments, and include a scenario forecasting module, a financial sector response module and a dynamic balance sheet, which interact dynamically with one another and with the Central Bank’s existing loan-level model.

Figure A: The Central Bank’s Macroprudential Stress Testing model – additional components



Each block in Figure 1 is briefly outlined and a detailed description of the model is provided in Morell, Rice and Shaw (2022).¹⁶ The first step is to use macroeconomic scenarios to conditionally forecast new lending paths for mortgages and non-financial companies (NFC) credit demand.¹⁷ These macroeconomic scenarios include three-year paths for unemployment, house prices, commercial real estate prices, and interest rates, under both baseline and adverse scenarios. Credit demand forecast paths from this exercise are used to drive new lending volumes in the dynamic balance sheet for the first year of the model run.

¹⁶ Central Bank of Ireland, Research Technical Paper, forthcoming

¹⁷ Note, other household loans are assumed to follow the same demand path as mortgage lending.

The loan-level balance sheet model is composed of various satellite modules that translate a macroeconomic scenario into the various components that affect a bank's profitability and solvency. The output of the satellite modules are subsequently aggregated to quantify the total impact of the macroeconomic scenario on a bank's solvency position.¹⁸

The results of the loan-level module then enter a financial sector amplification module which drives the behavioural response of the financial sector to shocks to their capital position, with banks responding to macroeconomic conditions primarily via the lending channel directly (adjusting the quantity of credit supplied), or via loan pricing (adjusting lending rates).¹⁹

These deleveraging responses have negative implications for the real economy, as banks' choice for the supply of credit may be lower than firms' and households' credit demand, and an increase in lending rates for new loans may weigh further on demand. In the model, the macroeconomic implications of these deleveraging responses are reflected by an increase in unemployment and declines in house prices, commercial real estate (CRE) prices, inflation, and equity prices. This financial sector amplification worsens the original macroeconomic scenarios for years 2 and 3 of the scenario horizon. This mechanism ensures that amplification has a direct effect on banks' solvency position in the stress testing exercise, given that the adjusted macroeconomic paths directly influence all components of the loan-level module for banks' impairments and income.

The dynamic balance sheet has two components, amortisation and new lending. Amortisation is calculated at a loan level for each annual model run based on the loan interest rate, remaining term, loan principal, and credit performance within the year. The path for new lending, in each year, is set at the lower of the estimated credit supply (i.e. the level of credit banks are willing to supply given macroeconomic conditions), and the estimated credit demand (i.e. the level of credit desired by households and firms given macroeconomic conditions).

The combination of the loan-level module for credit risk and income, the shock amplification mechanism, and the dynamic balance sheet produce forward-looking estimates for capital depletion and levels, projections for new lending quantities, adjustments to banks' total RWA, and adjustments to the originally-set macroeconomic scenarios, allowing for shock

¹⁸ These modules are all implemented consistent with the approach outlined in the 2020 resilience assessment, which did not formally model the amplification mechanisms included in the Macroprudential Stress Test. For more information on the Central Bank's approach to PD and LGD estimation, as well as the link to balance sheet aggregates, see ([Central Bank of Ireland, 2020](#)).

¹⁹ From a technical perspective, a structural vector autoregression (SVAR) approach is employed. This approach relies on advanced time series techniques in order to identify a capital deleveraging shock in the data. A shock to banks' capital headroom, which is calibrated at a bank level based on the outputs from the TOYCAP model, enters the SVAR ([ECB, 2020](#)).

amplification via the banking sector. In their totality, these inputs all provide insights into the Central Bank’s decision-making process when setting the CCyB.

As with all of its analytical tools, the Central Bank plans to continue developing and refining its macroprudential stress test framework over time. Following the financial crisis, research around the relationship between the financial sector and the real economy has expanded and evolved, with continued advancements in academic and policy thinking.

O-SII buffer strategy

Systemically important institutions can present negative externalities to the economy and the broader financial system. The O-SII buffers aim to address the material impact that failure or distress of a large, complex and heavily interconnected bank may have on the rest of the financial system and the broader economy.

Other systemically important institutions, O-SIIs, are institutions which are systemically important to the domestic economy or to the economy of the EU. An institutions’ systemic importance is based on characteristics such as size, importance, significance of cross-border activities and interconnectedness. The implementation of higher capital requirements for these institutions, in the form of O-SII buffers, aim to reduce the probability of their failure, commensurate with the bigger impact their failure or distress would have on the broader economy or financial system.

As mentioned above, the banking system in Ireland has long had two broad but distinct groupings of institutions. Retail banks, which predominantly provide financial services to the domestic real economy and by nature of the size of the Irish economy tend to be small in an international context. International institutions, while located in Ireland, tend to have more limited interaction with the domestic real economy and mainly provide services into the rest of the EU. In recent years, and affected by the UK’s departure from the EU, a number of institutions in this latter group have substantially grown in size. Further, the retail banking sector in Ireland continues to experience structural changes in terms of the number and type of institutions operating in the market.

This heterogeneous make-up of the banking sector has implications for the Central Bank’s strategy around the identification of, and setting of buffers for, systemically important institutions, as the channels through which these different types of institutions can affect systemic risk vary. Specifically, some institutions are more relevant from the perspective of the domestic economy, while others are more relevant from the perspective of their interconnectedness with the broader financial system and/or the overall European economy. In particular, for banking sectors like Ireland, the EBA scoring methodology (which is relative to the national banking system) can lead to

situations where the use of certain indicators within the framework can result in an over or under estimation of systemic importance. It is due to these limitations that the Central Bank does not apply a mechanical link between the EBA score and O-SII buffers.

The Central Bank views flexibility as being an important complement to the mechanical scoring process for O-SII identification and buffer setting. The Central Bank undertakes an annual O-SII assessment (see Box 3). In recent years, given the issues outlined above, supervisory judgement has been used to ensure that those institutions which are systemically important in terms of the provision of financial services to the domestic real economy have been identified as O-SII. Discretion also plays an important role in terms of buffer setting. This has been important to ensure that capital buffers for these internationally focused institutions have not been excessively high. In recent years, the scores of these institutions have increased, with two of the top three scoring institutions in the most recent assessment being internationally-focused institutions. A mechanical link with the EBA score would have seen these institutions receive amongst the highest buffers in an Irish context. The flexibility within the framework ensures that the Central Bank can acknowledge the role played in terms of being systemically important to the domestic economy. As such, the O-SII buffers applied by the Central Bank ensure that those institutions which are most systemically important to the Irish economy have buffers which reflect this domestic importance and those with less direct links to the economy have buffers which acknowledge the systemic importance through their international business and size.

Box 3: Annual O-SII assessment

The Central Bank undertakes an annual O-SII assessment.

Broadly speaking there are two elements to the assessment. The first looks to identify those institutions which are systemically important, the second relates to the setting of capital buffers commensurate with the level of systemic importance.

The Central Bank's identification assessment is carried out in line with the relevant [EBA guidelines](#). These guidelines set out a two stage process:

- (i) a mandatory scoring methodology based on quantitative indicators relating to an institution's size, importance, complexity and interconnectedness. The scoring methodology results in each institutions receiving an O-SII "score". An institution receiving a score in excess of a threshold level should be identified as an O-SII.
- (ii) a supervisory overlay where additional institutions can be designated as O-SIIs if deemed appropriate based on (prescribed) additional qualitative and quantitative indicators. For the reasons outlined elsewhere in this

report, the Central Bank has utilised this process to ensure that the identification assessment appropriately captures institutions systemic importance to the domestic economy.

Buffer setting for institutions identified as systemically important is based on guided discretion. Beyond complying with the “[floor methodology](#)” developed by the ECB – where buffer floors for institutions are directly linked to the O-SII score – the Central Bank does not employ a mechanical link between an institution’s O-SII score and its O-SII buffer. As with the identification assessment, this approach is informed by the diverse make-up of the Irish authorised banking sector. In reaching a judgement on the setting of O-SII buffer rates, the Central Bank considers measures of systemic importance relating to institutions’ linkages with the domestic economy as well as broader measures that would be relevant from the perspective of European financial stability. Buffers are set within the range set out in CRD.

The outcome of the assessments are published by the Central Bank, generally in the second FSR of the year.

In a European context the EBA has called for the introduction of an EU wide floor and number of authorities see scope for greater harmonisation with integration between the identification and calibration an important element in this. As outlined in the [Central Bank of Ireland’s response](#) to the [European Commission’s consultation](#) on improving the EU’s macroprudential framework for the banking sector, there is merit in further progressing the development of the O-SII policy regime for the EU, including considering a joined-up framework that would provide a consistent approach to the assessment of systemic importance across both O-SII identification and buffer-setting. An effective framework would provide a consistent approach to the assessment of systemic importance across Europe, while acknowledging the flexibility required to capture the different channels through which this could operate.

Future developments

The Central Bank will continue to develop and mature its approach to the setting of macroprudential capital buffers. A key objective of the [Central Bank’s Strategy](#) is to review and develop the macroprudential framework for banks, borrowers and non-banks. The review of its approach to the setting of macroprudential buffers – the conclusions of which are outlined in this report – is a key element of this ambition. Achieving the overall aim will require continuous advancements in the Central Bank’s analytical frameworks around macroprudential policy and financial stability. This will be

a multi-year effort, building on continuous deepening in domestic and international policy experience as well as advancements in academic insights.

At an international level, the [European Commission](#) is currently reviewing the [macroprudential framework for banks](#). To support its review, earlier this year the European Commission undertook a [targeted consultation](#) to gather evidence in the form of relevant stakeholders' views and experience with the current rules. The [European Systemic Risk Board](#), the [European Central Bank](#) and the [European Banking Authority](#) have also inputted into the European Commission's review. Arising from its review, the Commission may bring forward a legislative proposal to the European Parliament and the Council. The Central Bank will continue to engage in the development of the European macroprudential framework and reflect amendments in its own policy framework as appropriate.

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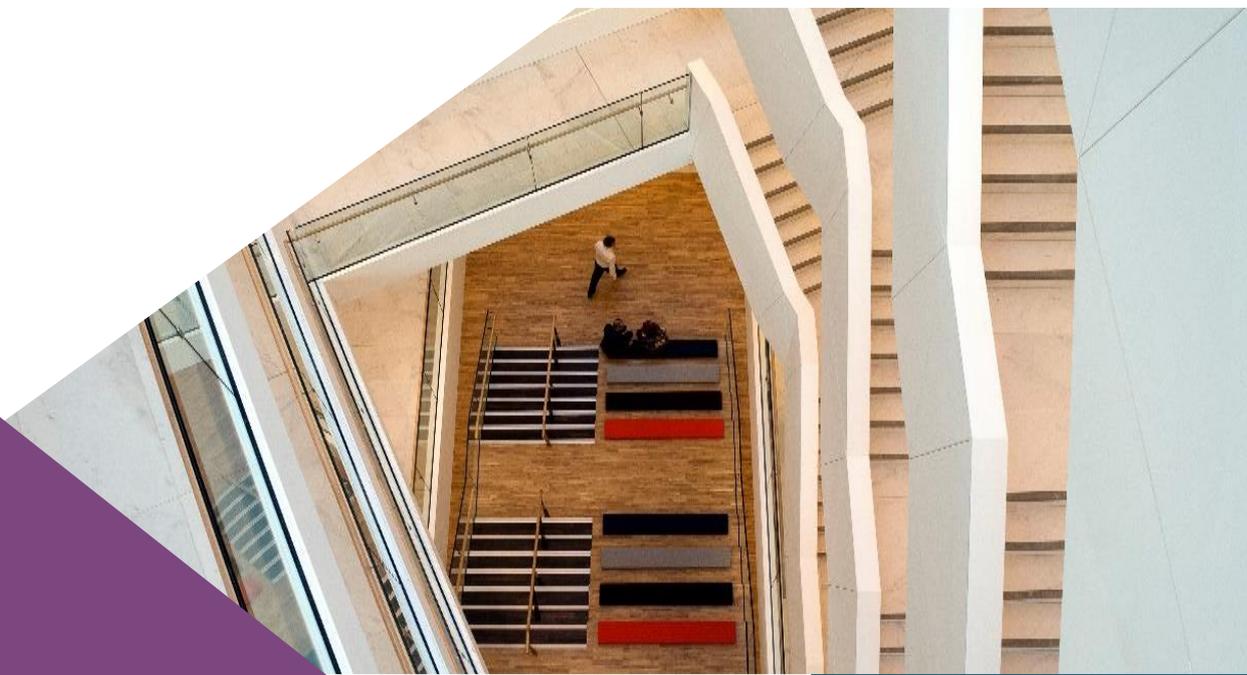
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