The CNB's approach to setting the systemic risk buffer

Contents

1. Introduction

In order to mitigate structural systemic risk, i.e. long-term non-cyclical risk, the CNB may set one or more rates for the systemic risk buffer (SyRB), which consists of Common Equity Tier 1 capital. It sets the rate either for the whole banking sector and all types of exposures in the Czech Republic and abroad (the general SyRB),[1] or for defined subsets of sectoral exposures (the sectoral SyRB). The simple sum of the rates makes up the **combined SyRB rate** (hereinafter only the "SyRB rate").

The SyRB is a flexible macroprudential capital instrument. It may not be used to mitigate any risks that are already sufficiently addressed by other CRR/CRD capital regulation tools[2] (of a supervisory or macroprudential nature, such as Pillar 2 and capital buffers). However, the capital regulations do not stipulate specific criteria for setting the SyRB, allowing national authorities to be highly flexible in their decisions.

Given the nature of the risks mitigated, the SyRB belongs to the category of instruments that are not expected to change significantly or frequently as macro-financial cyclical variables evolve. In certain circumstances, however, the SyRB may have some unintended consequences,[3] which may change through the cycle. It is therefore necessary to review the reasons for setting it at least once every two years.[4]

The ESRB has recommended the use of the SyRB in relation to several categories of non-cyclical systemic risks,[5] primarily related to financial links within the financial sector, to common exposures across banks, to the structure of the banking sector, and to financial links with the real economy and its structure. The ESRB has also identified the SyRB as a suitable tool to address the systemic aspects of climate risks in the EU; this use of the SyRB has also been explicitly acknowledged by the European Commission (EC).[6] According to the ESRB, the

1 From 1 November 2014 to 1 October 2021, the CNB applied the general SyRB (at a rate of 1–3%) to mitigate risks associated with the systemic importance of banks. However, since the transposition of CRD V into Czech law on 1 October 2021, it has been mitigating the related risks using the buffer for other systemically important institutions.

2 Directive 2013/36/EU (CRD) of the European Parliament and of the Council 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, and Regulation (EU) No 575/2013 (CRR) of the European Parliament and of the Council on prudential requirements and its implementing regulations.

3 The activation of capital instruments may lead, among other things, to excessive deleveraging and higher credit costs, investment in significantly riskier assets to maintain profitability, transfer of risk within financial groups, risk leakage outside the banking sector and growth in shadow banking, and to undesirable modifications of internal rating-based models.

4 Article 12r(3) of Act No. 21/1992 Coll., on Banks (available in Czech only)

5 See, for example, ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 3.3.1, p. 95.

6 See ESRB (2023): Towards macroprudential frameworks for managing climate risk – Policy considerations, section 4.2.1.2, and Recital 36 of Proposal for a directive of the European Parliament and of the Council, amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks, and amending Directive 2014/59/EU.

SyRB is also appropriate for addressing cyber risk.[7] In its considerations of structural risks, the ESRB has also recommended taking into account the possible interaction of individual structural risks, as they may reinforce and amplify one another. They may thus have the potential to exacerbate economic shocks, intensify the materialisation of cyclical risks and disrupt the ability of financial institutions to provide loans and other financial services, thereby deepening an economic downturn.

In line with the above categories, **a whole range of indicators are recommended for capturing the risks**.[8] The most frequently monitored ones relate to the size of the banking sector and its importance for the financing of the economy, the importance of foreign ownership, the debt ratios of sectors across the economy, exposure concentration and commonality of assets held across economic agents, economic openness, sectoral risks from the private non-financial and public sectors, and the use of fossil fuels and the energy intensity of the economy.

Structural systemic risks usually lie further down the tail of the probability distribution of bank losses. Either there is no experience with their materialisation, or they may materialise in the future very differently or with very different intensity than they have in the past. For this reason, the need to set a SyRB is assessed primarily on the basis of analyses of the impact of the materialisation of the risks and on solvency macro stress tests taking specific scenarios into account. The decision on the level of the SyRB rate is affected to a large degree by an expert assessment of the possible sources of stress and the situation of the banking sector.[9]

This document presents the key aspects of the CNB's approach to setting the SyRB rate and contributes to the creation of qualified expectations regarding its use among banks and other entities. Given the often complex nature of structural risks, the CNB will interpret the extent and intensity of the risks with the necessary degree of prudence in its decision-making. It will also take into account new trends in the economy and society, which may also result in prudent and forward-looking setting of the buffer to preventively strengthen the resilience of the Czech banking sector. This document will be revised and updated as needed, with particular regard given to (a) changes related to the evolution of structural systemic risk, (b) refinements made to the CNB's modelling system, (c) legislative changes, and (d) changes in internationally agreed and applied practice.

7 ESRB (2022): Mitigating systemic cyber risk.

8 See, for example, ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 3.3.2, p. 96.

9 See, for example, ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 4.2.3, p. 117.

2. Basic information on the setting of the SyRB rate

The CNB evaluates in detail the degree of structural systemic risk in the Czech Republic every year. On the basis of this assessment, it can set a requirement for the banking sector or a part of it to continuously maintain capital of an amount given by the SyRB rate for all exposures or a subset of them on an individual, consolidated or sub-consolidated basis.

When assessing banks' vulnerability to structural systemic risk and deciding on the level of the SyRB rate, the CNB takes into account in particular:

a) the four basic categories of risks falling into the cross-sectional component of systemic risk[10] (see section 3, Table 2),
b) additional global risks falling into the cross-sectional component of systemic risk (see primarily the Spring Financial Stability Reports),
c) indicators appropriate for identifying structural systemic risk in the Czech Republic (see Table 2),
d) an assessment of the settings of other prudential instruments that could cover the structural systemic risk indicated (see section 4),

while ensuring that the rate it sets does not have an adverse impact on the financial market and does not create obstacles to the functioning of the European single market.

In order to comprehensively assess the macro-financial conditions, including the economic outlook and the configuration of economic policies in the Czech Republic and abroad, when setting SyRB rates the CNB also takes into account projections for some of the above indicators calculated on the basis of scenarios consistent with the CNB's forecast, as well as stress test results for all the sectors tested.[11]
The CNB sets the SyRB rate in multiples of 0.5 percentage point for the whole banking sector and all types of exposures in the Czech Republic and abroad and/or for defined subsets of sectoral exposures. The criteria for determining these subsets are derived from EBA guidelines.[12] A subset is defined according to counterparty, type of exposure and type of collateral. Counterparties can be broken down by economic activity, exposures by risk profile and the type of collateral by, for example, geographical area (see Table 1).

Table 1: Definitions of exposure subsets for the sectoral SyRB

Dimensions		Subdimensions
Type of debtor or counterparty sector	Non-financial corporation	Economic activity (e.g. according to NACE)
	Financial corporation	
	General government	
	Natural person	
Type of exposure	All exposures	Risk profile (non-performing, risk-weight, LTV ratio, debt-to-EBITDA ratio…)
	Retail exposures	
	Other than retail exposures	
Type of collateral	Secured by property	Geographical area (e.g. country, region, city)
	Secured by other than property	
	Unsecured	
	All types of collateral	

Source: EBA/GL/2020/13

10 From the macroprudential perspective, the effect of capital buffers has two dimensions. In the time dimension, the buffers are targeted at increasing the resilience of the financial system and reducing the amplitude of the financial cycle. In the cross-sectional dimension, they help lower the probability of shocks spreading across the financial system and causing or exacerbating an economic downturn.

11 https://www.cnb.cz/en/financial-stability/stress-testing/

12 EBA (2020): Guidelines on the appropriate subsets of sectoral exposures to which competent or designated authorities may apply a systemic risk buffer in accordance with Article 133(5)(f) of Directive 2013/36/EU, EBA/GL/2020/13.

If several SyRB rates are set, the CNB calculates the combined SyRB rate, or the combined SyRB, as the simple sum of the individual rates ($r_T + \sum r_i$):

$$SyRB = r_T * E_T + \sum_i r_i * E_i$$

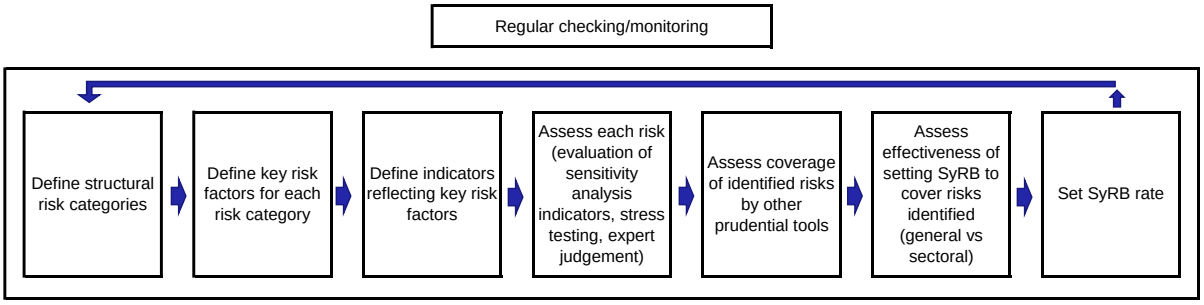
SyRB = systemic risk buffer,
r_T = buffer rate applicable to bank's total risk exposure amount,
E_T = bank's total risk exposure amount calculated in accordance with Article 92(3) of Regulation (EU) No 575/2013,
$_i$ = index for subset of exposures,
r_i = buffer rate applicable to risk exposure amount of exposure subset $_i$,
E_i = bank's risk exposure amount for exposure subset $_i$ calculated in accordance with Article 92(3) of Regulation (EU) No 575/2013.

No upper limit is set on the combined SyRB rate. However, higher rates require the European authorities to be more closely involved. When setting a SyRB rate of up to 3%, the CNB must notify the ESRB. If it sets a rate of between 3% and 5%, it must request the opinion of the European Commission. The setting of a rate of above 5% is subject to a decision by the European Commission.[13] If an entity required to maintain the SyRB is controlled by an entity registered in another Member State and the SyRB rate applies to that entity's exposures, the CNB must also notify the competent or designated authority of the Member State concerned of its intention to set an SyRB.

Banks supervised by the CNB are required to abide by the SyRB rate set by the CNB. However, the CNB may ask the ESRB to issue a recommendation for the competent or designated authorities of other Member States to recognise, on the basis of voluntary reciprocity, the SyRB rate it has set for Member State banks with exposures in the Czech Republic not supervised by the CNB.[14] Member States must comply with the recommendation or explain why they have rejected it (the "comply or explain" principle).[15] The same rules apply to the CNB if it is asked to recognise a SyRB rate set by the competent authority of another Member State for banks operating in the Czech Republic with exposures in that Member State. The CNB must recognise the SyRB rate set by the country requesting reciprocity if the exposures of banks supervised by the CNB in that country have a material value.
When the SyRB rate is raised, banks are usually required to apply the new rate **with a delay of several months** from the date of issue of the decision. In exceptional and justified cases, the CNB may set the rate without a delay. If it **decides to lower the rate, no delay is considered**. When timing its decision to change the SyRB rate and its effect, the CNB always takes into account the consequences of this change, including any adverse impacts on lending activity in the Czech Republic. For this reason, the CNB regards as it unlikely that this buffer will be set or raised in an environment where its macroeconomic forecasts expect a significant decline in economic activity.[16]

The CNB's evaluation of the need to apply the SRB is based on a structured process (see Figure 1) that, in simplified terms, involves a phase of defining the risks that can potentially be addressed using the SyRB, a phase of selecting suitable indicators for regularly monitoring structural risks and a phase of assessing the risk areas identified.

Figure 1: Process for assessing the setting of the SyRB



13 For a rate of between 3% and 5%, the CNB must request the opinion of the European Commission. If the CNB does not comply with the opinion, it must explain its reasons to the Commission. For a rate of above 5%, the ESRB (and the EBA) must provide its opinion to the European Commission within six weeks of the CNB giving notification of its proposal to set the rate. The European Commission must then issue a decision within three months. A similar procedure is followed when the sum of the O-SII buffer and SyRB rates exceeds 5%.

14 Mutual recognition of macroprudential measures is intended to prevent regulatory arbitrage and ensure a level playing field.

15 For details, see Mutual recognition of macroprudential measures or Reciprocation of measures.

16 This is mainly because setting/raising the SyRB has the potential to worsen the situation in an economic downturn (ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 4.2.2).

3. Assessment of structural systemic risks

Structural systemic risks can be defined as longer-term characteristic features of the domestic economy and financial system having the potential to exacerbate negative shocks and their consequences for the financial system and the real economy.[17] Where such risks are identified, the introduction of the SyRB should ensure that banks have sufficient capital to maintain their ability to provide financial services to the real economy if such shocks occur. The CNB uses four categories of structural risks relevant to the Czech economy, to which it responds by introducing the SyRB depending on their size:[18]

- **The vulnerability of the Czech Republic as a small open economy and its banking sector to foreign macroeconomic and financial shocks**. This category involves keeping track of the size of foreign trade in the economy in order to monitor domestic agents' sensitivity to foreign economic performance and the transmission of a wider range of global shocks affecting aggregate demand and the exchange rate. It also involves monitoring the concentration of foreign trade in terms of region and commodity structure,[19] which affects the ability and speed of exporters/importers to change their geographical focus or seek new opportunities in an adverse situation in a given region. This category also includes monitoring the size of foreign exposures in banks' balance sheets, the foreign ownership of domestic banks and the sensitivity of the economy to the pass-through of negative sentiment from abroad, which may have the potential to exacerbate the impact of foreign shocks on the domestic financial sector.
- **Structural characteristics of domestic real sectors (aside from foreign linkages)**. This category contains an assessment of the overall long-term vulnerability of households and non-financial corporations as regards their ability to meet their financial obligations, which significantly affects the riskiness of banks' balance sheets and the sensitivity of the banking sector to shocks. The degree of sectoral concentration of the domestic economic activity, which indicates the extent of economic diversification of the non-financial sector, is particularly relevant here. This category also includes monitoring public sector debt, which is closely linked to the ability of fiscal policy to have a countercyclical effect on the economy. The concentration of banks in some sectors or segments of the market (loan portfolios concentrated in the immovable property sector, for example) is a specific risk in this category.
- **The importance of the banking sector in the economy**. This is monitored due mainly to the impact of potential losses of the banking sector on overall economic performance and employment amid reduced lending, i.e. a potential downward spiral in the banking sector and its transmission to the real economy.
- **Internal characteristics of the banking sector and its position in the domestic financial system**. This category covers a wide range of banking sector characteristics that have the potential to exacerbate banks' losses, and adverse economic and financial developments in general. They include low competition in the banking sector, similarity between banks' business models, adverse earnings or liquidity positions of banks, and increased interconnectedness inside the banking sector and with other sectors of the domestic financial system. Risks associated with financial innovation and model risk form a specific subcategory.[20]

In addition, the CNB considers it relevant to assess the effect of **global cross-sectional risks**, which also change naturally in the medium to long term, for all the above categories. According to the CNB, they currently include the following types of risks:

- climate risk, i.e. the financial stability implications of climate change and the transition to a climate-neutral economy,
- cyber risk affecting banks either directly (attacks on banking systems) or indirectly (threats to non-bank entities),

17 See, for example, Hodula, M., Janků, J., and Pfeifer, L. (2022): The effect of structural risks on financial downturns, WP ESRB, No. 138, which shows on a sample of 30 countries that elevated levels of structural risks amplified credit risk materialisation during the financial cycle contraction that accompanied the Global Financial Crisis.

18 The risk classification is based on the CNB's expert judgement of structural risks and differs slightly from that of other countries and supranational authorities. The CNB's classification is based primarily on ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 3.3.1, p. 95.

19 See, for example, Drahozalová, A., Galuščák, K., and Kábrt, M. (2023): The dependence of Czech exports on Germany, Monetary Policy Report – Autumn 2023.

20 Model risk arises when values from "favourable" periods associated with low default rates dominate in the input data of internal models for determining, for example, capital and loan loss provisions. This results in future projections appearing unjustifiably optimistic. Risk weights may decrease and, all other things being equal, the absolute capital requirement for the relevant exposures may also decline, as may the level of provisions (the risk of a cliff effect; see, for, example, ESRB (2019): The cyclical behaviour of the ECL model in IFRS 9 or ESRB (2017): Financial stability implications of IFRS 9).

- the impact of artificial intelligence on labour productivity and employment.[21]

Based on this classification, the CNB uses a range of indicators to capture the extent of structural risks in the Czech economy (see Table 2). These indicators help it assess, among other things, whether the risks are systemically important at the general level or as subsets of sectoral exposures.

Table 2: Overview of risk categories, risk factors and indicators for measuring risks relevant for setting the SyRB

1. Vulnerability of the Czech economy and banking sector to foreign macroeconomic and financial shocks Greater openness or foreign linkages mean stronger global shock spillovers. Strong concentration on one region abroad also means additional shock spillovers from that region. Foreign balance-sheet linkages may be another channel of weakening of banks' positions.	
Key risk factor	**Selected indicators for measuring structural risk**
Importance of foreign trade in economy	Shares of imports and exports in GDP (%) CZK/EUR exchange rate Balance of payments current account/GDP (%)
Concentration of foreign trade and bank loans by export and import sector	Regional concentration of foreign trade in partner countries and international economic and political groups Commodity structure of foreign trade Bank loans to non-financial corporations by links to exports and trade (%)
Foreign exposures in banks' balance sheets (assets, liabilities), including foreign ownership of domestic banks	Share of loans to non-residents in total loans (%) Share of assets of subsidiaries and branches in banking sector total assets (%) Share of liabilities to parent corporations in subsidiaries' total liabilities (%)
Sensitivity to sentiment pass-through (especially market variables)	Cross-currency basis spread – CZK/EUR

2. Structural characteristics of domestic real sectors (aside from foreign linkages) Domestic real agents' degree of prudence, indebtedness, propensity to engage in risky behaviour depending on the phase of the cycle and so on affect the riskiness of banks' balance sheets and the sensitivity of the banking sector to adverse developments.	
Key risk factor	**Selected indicators for measuring structural risk**
Structural characteristics in household sector	Total debt/GDP (%) Saving rate (%) Share of exposure to households in banking sector total assets (%)
Structural characteristics in non-financial corporations sector	Return on equity (%) Total debt/GDP (%) Share of exposures to corporations in banking sector total assets (%) Share of foreign currency financing (%) Concentration of loans in emission-intensive industries (index) Energy intensity of economy (energy consumption per unit of GDP) Number of cyber attacks with serious impacts on corporations Sectoral concentration (HHI index)
Structural characteristics in public sector	Total debt/GDP (%) Public finance structural balance/GDP (%) Rating Number of cyber attacks with serious impacts on public sector Share of exposures to general government sector in banking sector total assets (%) Share of sustainable debt (%)
Bank concentration in specific segments	Share of exposures secured by residential property in total exposures to private non-financial sector (%) Share of exposures secured by commercial property in total exposures to private non-financial sector (%) Share of foreign currency exposures in total exposures to private non-financial sector (%) Share of exposures to corporations threatened by physical risks (floods, droughts, etc.) in total exposure (%)

21 See, for example, Babecký, J. (2024): The impact of artificial intelligence on the labour market or Leitner, G., Singh, J., Van der Kraaij, A., and Zsámboki, B. (2024): The rise of artificial intelligence: benefits and risks for financial stability, Financial Stability Review, May 2024.

3. Importance of the banking sector in the economy

The importance of the banking sector determines the secondary impact of structural risk materialisation on the cycle with undesirable consequences for the real economy, namely a potential spiral between the deterioration of the situation in the banking sector and the impact on the real economy.

Key risk factor	Selected indicators for measuring structural risk
Importance of banking sector	Share of banking sector assets in GDP (%) Share of banking sector assets in financial sector assets (%) Share of value added and employment in whole economy (%) Share of bank loans in total household debt (%) Share of bank loans in total debt of non-financial corporations (%) Share of bank loans in total general government debt (%)

4. Internal characteristics of the banking sector and its position in the domestic financial system

The banking sector may exhibit risk characteristics associated, for example, with model risk or interconnectedness inside the banking sector and in relation to other sectors of the domestic financial system. These characteristics may have the potential to exacerbate banks' losses in the event of adverse developments.

Key risk factor	Selected indicators for measuring structural risk
Competition in banking sector	HHI index at individual portfolio level Share of systemically important banks in number of banks in sector Share of systemically important banks in sector assets
Banks' business models, profitability, liquidity risks, relationship between liquidity and profitability	Asset and liability structure (%) Return on assets and its decomposition (%) Quick assets/total assets (%) LCR and NSFR indicators (%) Assessment of impact of climate risk scenarios
Links to other segments of financial sector	Share of individual segments' assets in financial sector assets (%) Direct and indirect interconnectedness of individual segments (CZK billions) Similarity of portfolios of individual segments (%)
Model risk	Risk weights of IRB banks' individual portfolios Three-month default rate Coverage of loans in individual credit risk stages
Risks associated with financial innovation	Number of cyber attacks with serious impacts on banks Assessment of impact of cyber risk scenarios Share of NFCELs in financial sector assets (%) Share of non-bank institutions' payments in total payments (%)

When identifying and evaluating structural risks, the CNB takes into account the sub-categories of these risks and their indicators, the interconnectedness of the individual types of risks and the relevant exposures, and related factors/channels amplifying the impact of shocks. The CNB also evaluates the probability of occurrence of the types of shocks on which the materialisation of the risks identified is conditional.

Due to the difficulty of quantifying individual structural risks and the effect of internal linkages in their materialisation (see section 5), expert judgement plays an important role in the risk identification and evaluation phase. The result of the phase of evaluating risks by category, risk factor and risk indicator, taking global cross-sectional risks into account, is a conclusion whether specific structural risks, or a combination thereof, may be material if certain plausible scenarios materialise – in other words, whether these risks may have the potential to cause or exacerbate economic shocks and intensify the materialisation of cyclical risks.

4. Assessment of the coverage of structural risk by another prudential tool

Other prudential tools are also used to mitigate structural risks related, for example, to the concentration, complexity or interconnectedness of institutions. In order to maximise the effectiveness of the CNB's prudential policy and thus avoid duplication of structural risk coverage and overlapping tools, before deciding to set a SyRB rate the CNB always assesses first whether the structural risks identified are already sufficiently addressed by other tools or whether another prudential instrument would address them more effectively.[22]

The CNB monitors the interaction of tools and the extent of overlaps primarily between the SyRB and

- the additional Pillar 2 capital requirement,
- other capital buffers, i.e. the CCyB, the O-SII buffer and the sSyRB,
- measures in Article 458 of the CRR (such as increased risk weights for a subset of exposures),
- borrower-based measures (LTV, DTI and DSTI).

The additional Pillar 2 capital requirement

The additional Pillar 2 capital requirement falls under the CNB's microprudential policy.[23] It provides a relatively broad set of tools to address institution-specific risks.[24] The CNB also uses Pillar 2 instruments to mitigate some types of structural risk (for example, concentration risk[25]). For these reasons, the CNB assesses whether there are any potential instrument overlaps when assessing systemic structural risks and before deciding whether to set or change the SyRB rate. It takes into account the results of the annual supervisory review and evaluation process (SREP[26]) together with the Pillar 2 capital requirement and the relevant methodological procedures. Any overlaps identified, and their extent, are subsequently taken into account in the SyRB calibration phase.

Macroprudential tools

The CNB similarly assesses potential overlaps in risk mitigation between the SyRB and other macroprudential tools. These involve overlaps with the other capital buffers, i.e. the CCyB, the O-SII buffer and sectoral SyRBs if applied, as well as with borrower-based measures and measures pursuant to Article 458 of the CRR.[27]

The CCyB and the SyRB are unlikely to overlap given the methodological procedures used by the CNB to set the two buffers, yet this area is regularly assessed. The CCyB is designed to increase the banking sector's resilience to cyclical risks.[28] These arise as a result of procyclical behaviour by financial institutions and their customers over time. The setting of the CCyB itself is linked to the evolution of new and accumulated purely cyclical risks, while the calibration of the CCyB is related to the estimated unexpected losses stemming from the conditional historical loss

22 Different capital instruments should not be used to cover the same risk. For example, if a bank is required to hold more capital for risk A through higher risk weights (e.g. under Article 458 of the CRR), it should not be required to hold additional capital for the same risk A through the SyRB, unless risk A (or elements thereof) is not fully covered by the increased risk weights. Similarly, the SyRB should not be used to cover risks that are already covered by the Pillar 2 requirement or other buffers. In other words, multiple instruments should only be used to fully address risk A if one instrument is not sufficient or works by a different mechanism.

23 As part of its supervision of credit institutions based in the Czech Republic, the CNB continuously assesses whether their management, strategies, procedures and prudential mechanisms ensure their safe and sound operation. This is referred to as the supervisory review and evaluation process (SREP). It is carried out in accordance with the guidelines of the European Banking Authority (EBA/GL/2014/13). The main objective of the SREP assessment is to determine how much capital and liquidity a credit institution should maintain on top of the minimum requirements (referred to as the Pillar 1 requirements).

24 These tools include, for example, additional own funds, specific treatment of assets, restrictions on certain operations, stricter liquidity requirements and additional disclosure of information.

25 For details, see, for example, EBA (2022): Guidelines on common procedures and methodologies for the supervisory review and evaluation process (SREP) and supervisory stress testing under Directive 2013/36/EU and CNB (2023): Souhrnné výsledky procesu přezkumu a vyhodnocení provedeného v roce 2023 (Aggregate results of the supervisory review and evaluation process carried out in 2023, available in Czech only).

26 For details, see Souhrnné výsledky procesu přezkumu a vyhodnocení provedeného v roce 2023 (Aggregate results of the supervisory review and evaluation process carried out in 2023, available in Czech only).

27 The measures in Article 458 of the CRR may concern capital requirements, requirements for large exposures, public disclosure requirements, the level of the capital conservation buffer, liquidity requirements, minimum risk weights for selected exposures and intra-financial sector exposures (interconnectedness of financial institutions).

28 For details, see The CNB's approach to setting the countercyclical capital buffer.

distribution (see section 5, Figure 2). Structural risks are usually present or evolve over a longer time scale than the standard financial cycle. The gradual accumulation of structural risks may not immediately imply additional risks to financial stability, as they often only materialise in the event of changes in multiple factors. However, once several structural risk indicators reach elevated levels and act in tandem, their subsequent materialisation may be associated with additional credit losses of quite large proportions, or at least larger than the usual estimates and projections considered by the CNB when calibrating the CCyB (see section 5, Figure 2, extreme losses).

Overlaps should not occur even if the SyRB is set in relation to the standard CCyB rate. The CNB has been applying the concept of the standard CCyB rate (or positive neutral rate) since about 2019. The standard CCyB rate is intended to reduce the uncertainty associated with the measurement of the cyclical component of systemic risk at the beginning of the expansionary phase, to avoid delayed sharp increases in the rate, which could potentially hamper banks' capital planning, and, indirectly related to this, to prevent undesirable volatility of the overall capital buffer. The CCyB rate should be at the standard level when the economy is generating the normal level of cyclical risks. The CCyB rate is below the standard level during significant downswings in the financial cycle accompanied by the materialisation of cyclical systemic risks. In addition, the level and evolution of structural risk are not directly linked to the specific phase of the financial cycle.

Systemically important institutions in the Czech Republic are required to hold extra capital in the form of an O-SII buffer. This is because problems in any of these institutions can have a significant negative impact on the entire Czech economy. The SyRB is focused on structural risks in the real economy and the financial sector as a whole. In other words, it is intended to mitigate the risk arising for the banking sector from the characteristic features of the financial system and the real economy, whereas the O-SII buffer is meant to limit the risk that individual systemically important (too-big-to-fail) banks might pose to the financial system and the real economy if they were unable to continue to provide financial services.

The CNB can set multiple sectoral SyRB rates, but they cannot be applied to the same set of exposures. The CNB always assesses the relationship between the risks covered by each rate. It always takes into account the ultimate source of risk and the banking sector's capitalisation for the specific type of exposure.

The CNB can also set a sectoral SyRB to mitigate the risk of concentration of banks' exposures to certain segments, typically residential property. In such a situation, the CNB always assesses potential overlaps between the sectoral SyRB and borrower-based measures (the LTV, DTI and DSTI ratios). The CNB seeks to ensure that the sectoral SyRB and borrower-based measures, if introduced, are complementary. Borrower-based measures influence the risks associated with new mortgage loans in order to limit the taking on of excessive risks related to mortgage market developments on banks' balance sheets. To a large extent, these risks are correlated with the financial cycle, as they have a greater effect in the expansionary phase. In addition, the sectoral SyRB is introduced to increase the banking sector's resilience to newly identified but previously accepted risks related primarily to the structure of the residential property market.

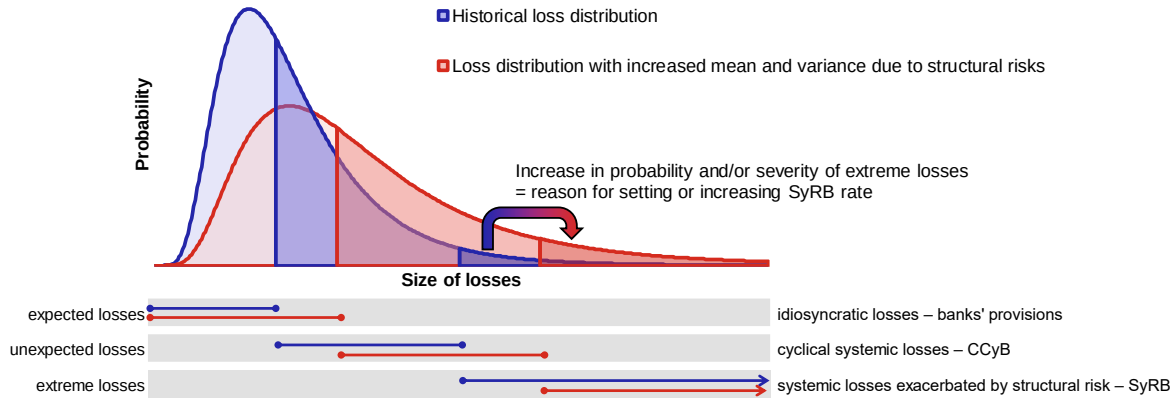
The CNB can also mitigate structural systemic risks by means of national measures pursuant to Article 458 of the CRR through higher requirements for capital, liquidity, large exposures or risk weights. However, when applying Article 458 of the CRR, it always assesses beforehand whether the systemic risk in question is so specific that it cannot be covered equally effectively by other instruments, including the SyRB.

5. Calibration of the rate and the procedure for applying it

Where the CNB identifies structural systemic risks (see section 3) that are not sufficiently covered by other instruments (see section 4), it addresses the calibration of the SyRB rate and the impact thereof. Given the nature of structural risks and the high degree of uncertainty about their impact on the Czech economy, the CNB is cautious in calibrating the rate. Calibration is based on an assessment of the overall need for capital in the banking sector. The CNB meanwhile takes the other capital requirements into account so that the banking sector is able to provide financial services (mainly credit) to the real economy without restrictions even in the event of a negative economic shock accompanied (exacerbated) by the materialisation of structural risks.

The propagation of a negative shock and its potential exacerbation due to structural vulnerabilities always depends on the specific form of the risks identified (see section 3). For this reason, it is not possible to describe in detail a single quantitative approach to calibrating the SyRB rate in this section. In general, the CNB assumes that structural risks can increase the mean or the variance of the losses, or both at the same time, compared to what is typically observed in the downward phase of the cycle. It assumes that structural risks are further down the tail of the loss distribution (see Figure 2)[29] and that they tend to be conditional on sentiment, the behaviour of economic agents and governments, and on political events and decisions at the international level (e.g. epidemics, wars, climate change and governments' responses to them). The systemic dimension of structural risks can also affect the loss distribution,[30] thereby substantially increasing unexpected losses above the level taken into account in the other capital requirements. In other words, a higher loss variance increases the probability of events with significantly adverse impacts (see Figure 2 – a higher probability and severity of low frequency events). When calibrating, the CNB focuses on making the banking sector more resilient to the increased likelihood of these extreme events linked with structural risks.

Figure 2: Stylised effects of the existence of structural risks on the financial loss distribution



When calibrating the SRB, the CNB uses the ESRB handbook.[31] The handbook recommends estimating potential conditional losses based on several adverse scenarios with different probabilities of materialisation. It mentions stress tests as a suitable tool for estimating the overall macroprudential capital shortfall. It recommends assessing the impact of shocks stemming from the real economy on the banking sector using a robust structural framework with strong theoretical foundations, along the lines of dynamic stochastic general equilibrium (DSGE) models.

The CNB uses a DSGE model to construct macroeconomic scenarios that take into account structural shocks relevant to the Czech Republic (the effect of the real economy on the banking sector).[32] The scenarios are linked to the satellite structural models that the CNB uses to forecast financial variables. Using these models and standard credit, market and liquidity risk modelling theory, the CNB then estimates the losses for each class of assets held

29 If the expected losses would "only" increase as a result of structural risk (i.e. a foreseeable idiosyncratic type of risk), the financial implications can be addressed through proper risk management under Pillar 1 or Pillar 2 (section 4).

30 For example, by changing the frequency of occurrence of shocks, which introduces greater volatility in terms of the frequency and severity of the economic impacts.

31 See, for example, ESRB (2015): The ESRB handbook on operationalising macroprudential policy in the banking sector, chapter 4, section 4.2.3, p. 113.

32 The ESRB handbook also recommends using network analysis, as close interconnectedness of banks may increase the risk of contagion and exacerbation of shocks (losses in one institution leading to losses in others). Given the relatively low direct and indirect interconnectedness of banks in the Czech Republic (for details, see, for example, Kučera., A., and Szabo, M. (2020): Interconnectedness and contagion in the Czech financial system), the CNB monitors network risk in the Czech financial system but does not currently assess it using quantitative methods.

by the banks under test. The stress tests help the CNB clarify whether the tested banks have sufficient capital and are able to generate enough profit to withstand the above-mentioned events with significant adverse impacts over the scenario horizon (usually three years). The specification of the scenarios (their story and degree of stress) designed to test banks' resilience in the SyRB rate-setting process depends on the results of a previous structural risk assessment based on a set of indicators (see section 3). This assessment also determines the frequency of the stress tests targeted directly at structural risks and the need to set or change the SyRB rate.[33]

However, the relationship between the stress test results – the quantification of additional capital – and the setting of the SyRB rate is not a mechanistic one. Besides stress tests, the rate-setting process also takes into account the results of sensitivity analyses related to specific types of structural risk (e.g. cyber risk, physical climate risk and the risk of concentration on a particular market segment) and, as recommended by the ESRB, expert judgement. When setting the rate in line with its assessment of instrument overlaps (section 4), the CNB also considers what sorts of existing buffers would cover the simulated losses. Specifically, it distinguishes whether the losses would be covered by releasable buffers (the CCyB and potentially the SyRB) or also by non-releasable buffers (the O-SII buffer and the CCoB). This is crucial given the potential impact of a shock on the supply of credit. The CNB assumes that some banks might not be willing to draw down buffers at the beginning of a crisis because of the high cost of capital in a recession, or in order to maintain their capital ratios.[34] Instead, they might prefer to reduce their risk-weighted exposures by limiting the supply of credit to the real economy. Additional credit constraints in the downward phase of the business cycle, especially in the case of exposures with higher risk weights, would have an additional negative impact on macroeconomic conditions above and beyond the scenario considered and would lead to a deeper and longer economic crisis (a suboptimal social outcome[35]). The negative feedback effect on the economy would be more likely and stronger if large banks with significant shares in lending to the economy were also to restrict the supply of credit. In this respect, setting the releasable buffers at high enough levels gives the CNB room to release them where necessary and thus reduce the risk of credit constraints during downturns.

An important factor in the process of introducing or increasing the SyRB is the timing of the requirements. The CNB prefers a timely and forward-looking approach to creating the SyRB. When setting the rate, it considers not only banks' current capital position and profitability, but also their projected paths. The size of the newly required buffer should have a material upward effect on the banking sector's resilience while not creating a significant drag on credit supply and economic growth, especially in the downward phase of the cycle. The CNB considers lowering the SyRB rate when structural risks materialise, i.e. when credit losses visibly escalate and the risk weights in the portfolios it monitors rise. However, it usually considers cutting the SyRB rate only if reducing the CCyB rate would not be sufficient to cover the losses and ensure smooth lending to the real economy. The SyRB rate may also be lowered if structural risks have disappeared or become less severe and no longer pose a risk of exacerbating negative economic shocks.[36]

33 The different stories and stress levels of the adverse scenarios used in the regular stress tests reflect the need for the CNB to assess the sector's resilience to a whole range of risks, which may often be associated with conflicting assumptions (e.g. the inflationary/deflationary nature of the scenario, an emphasis on domestic/foreign shocks and an emphasis on the impact of climate risks). The results of stress tests with different scenarios may thus be of different relevance to different macroprudential tools depending on their focus. When selecting these adverse scenarios, the CNB considers the current macro-financial conditions, the relevance of each type of risk and the need to update the assessment for each macroprudential tool. If necessary, the CNB can conduct the stress test using a variety of adverse scenarios.

34 Banks' willingness or ability to draw down buffers may be limited by a number of factors, e.g. distribution restrictions (restrictions on dividend, bonus and coupon payments according to the MDA mechanism), overlapping capital requirements, market pressure (higher funding costs, rating downgrades), stigma, and concern about increased supervisory scrutiny. Behn, M., Rancoita, E., and Rodrigues d'Acri, C.: Macroprudential capital buffers – objectives and usability, ECB; Couaillier, C., Duca, M. L., Reghezza, A., and Rodrigues d'Acri, C. (2022): Caution: do not cross! Capital buffers and lending in Covid-19 times, ECB Working Paper Series, No. 2644; ESRB (2022): Review of the EU macroprudential framework for the banking sector; Bedayo, M., and Galán, J. E. (2024): The impact of the countercyclical capital buffer on credit: Evidence from its accumulation and release before and during Covid-19, Documentos de Trabajo, No. 2411, Banco de Espana.

35 Coelho, R., and Restoy, F. (2024): Capital buffers and the micro-macro nexus, FSI Briefs, No. 24; Crockett, A. D. (2000): Marrying the micro- and macro-prudential dimensions of financial stability, Eleventh International Conference of Banking Supervisors.

36 In such case, an SyRB rate cut would not be conditional on a previous CCyB rate cut.

6. Communication

The CNB assesses the degree of structural systemic risk in the Czech Republic usually on an annual basis. It communicates the conclusions of its assessment in the Spring Financial Stability Report, which also contains detailed analyses related to its decision-making. It publishes the outcome of the assessment and, where applicable, the level of the SyRB rate in a press release. The Bank Board's decision to set or change the SyRB rate is posted on the CNB's website under Financial stability – CNB Board decisions.

The new rate becomes legally binding on institutions upon the publication of a Provision of a general nature on setting the systemic risk buffer rate, which the CNB announces in a way that allows remote access. The provision contains an assessment of the current situation and the values of the key indicators used for the decision. Where the assessment does not result in the setting of a new rate or a change to an existing rate, the CNB communicates the justification for the decision in the Financial Stability Report only. For easier traceability of past decisions and the justifications for them, the history of provisions issued is available on the CNB website under Financial stability – Macroprudential policy – The systemic risk buffer and Financial stability – Financial stability reports.

The CNB's decision on the level of, or recognition of, the SyRB rate for risk-weighted exposures in other countries intended for institutions supervised by the CNB is issued by means of a provision of a general nature on the CNB's website again under Financial stability – Macroprudential policy – The systemic risk buffer.

Abbreviations

CCoB	Capital conservation buffer
CRR	Capital Requirements Regulation
CCyB	Countercyclical capital buffer
CNB	Czech National Bank
CRD	Capital Requirements Directive
CZK	Czech koruna
DSGE	Dynamic Stochastic General Equilibrium
DSTI	Debt service-to-income
DTI	Debt-to-income
EBA	European Banking Authority
ESRB	European Systemic Risk Board
EUR	Euro
GDP	Gross domestic product
HHI	Herfindahl–Hirschman Index
IFRS	International Financial Reporting Standards
IRB	Internal rating based approach
LCR	Liquidity coverage ratio
LTV	Loan-to-value ratio
NFCELs	Non-bank financial corporations engaged in lending
NSFR	Net stable funding ratio
O-SIIs	Other systemically important institutions
SREP	Supervisory Review and Evaluation Process
SyRB	Systemic risk buffer