Systemic risk buffer and the possibility of its use for retail exposures

The Systemic risk buffer (SyRB) has been for a long-time part of the portfolio of capital macroprudential instruments available to the Národná banka Slovenska. Since 2020, due to a legislative change, it is possible to apply it also on specific sectors / exposures. This has significantly increased its potential from the financial stability perspective. Thanks to a clearly defined and consistently applied methodology, this originally rigid instrument, now became a flexible and transparent element of macroprudential policy toolbox. The first analysis of the possible use of the sectoral systemic risk capital buffer has been focused on the retail sector. The behind reason was the long-term accumulated imbalances in this segment, growing exposure of domestic banks and ongoing communication on this topic with the European Systemic Risk Board (ESRB)[1], the European Central Bank (ECB) and the International Monetary Fund (IMF).

Summary

The introduction of a new sectoral SyRB also required a new methodology to assess its appropriateness and to calibrate its rate. The new methodology is built on the comparison of stress losses from retail loans with the regulatory capital allocated to cover these exposures. The question of capital sufficiency thus depends not only on the stress scenario and the quality of the portfolios, which determine the size of stress losses, but also on the amount of other macroprudential buffers (especially the countercyclical capital buffer) and risk weights that affect the allocated capital. Since all the mentioned factors can change over

[1] In February 2022, the ESRB issued a warning to Slovakia on vulnerabilities in the residential real estate sector.

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time, it is necessary to regularly review the analysis. The construction of the methodology also enables its application to other areas that could be a source of systemic risk in the banking sector.

At this point, detailed analysis has not shown the case for the application of sectoral SyRB for retail exposures. Stress losses from retail loans were, at the aggregate level of the banking sector, fully absorbed by the combined buffer requirement. The systemic risk in the portfolio of retail loans in IRB banks appears to be more relevant due to the nature of advanced credit risk models.

The legal framework

The implementation of European banking legislation[2] in 2020 has also affected capital buffers. The restrictions applied on other systematically important institutions (O-SII) capital buffers[3] of subsidiaries of banks have been eased.[4] On the other hand, the SyRB specification has been changed, which no longer allows its use as a complement for the O-SII capital buffer.

Based on new legislation, the SyRB may be introduced with the aim of preventing or mitigating systemic or macroprudential risks. NBS as the designated authority can issue the decision on the SyRB based on §33e par. 1 of the Act on Banks.[5] NBS is obliged to review its decision no later than every second year after its previous decision on the instrument.

The new wording of the CRD V brought a significant increase in the flexibility of the SyRB. The fundamental change is the possibility to set different capital buffer rates for different types of exposures (Scheme 1) according to new EBA guidelines.[6] This creates the possibility of using the sectoral SyRB. The flexibility of the instrument is further underlined by the possibility to set a different rate of the SyRB for different banks. Some additional amendments include the reduction of the minimum frequency of review of the SyRB from one to two years and the abolition of the minimum rate, which until now was 1% of risk-weighted assets.

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[2] Directive 2013/36/EU (also known as CRD V).

[3] It is currently possible to increase the O-SII capital buffer for a domestic subsidiary of bank authorised in other Member State up to 1 p. p. above the rate of the O-SII capital buffer set for the respective banking group. The previous regulation did not allow setting the O-SII capital buffer above the rate of the O-SII capital buffer set for the respective banking group.

[4] Between 2017 and 2021, the NBS had set a non-zero SyRB as a supplement to the O-SII capital buffer. The reason was the legislative limitation of the rate of the O-SII capital buffer at the highest level of consolidation.

[5] Act No 483/2001 Coll. on Banks and amending certain laws.

[6] 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.

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Scheme 1 SyRB can target specific types of exposures

borrower

- **type**: natural persons, non-financial corporates, financial corporates and / or public sector entity
- **sector**: economic sector (based on NACE rev. 2)

exposure

- **type**: retail and / or non-retail exposure
- **conditionality**: on-balance items and / or off-balance items
- **character**: debt instrument and / or equity instrument
- **type of instruments**: securities, FX loans, consumer loans, letters of credit, bank guarantees
- **risk profile**: risk weight, credit quality and / or parameters of the client / exposure (LTV, LTI, DTI, DSTI, debt-to-EBITDA)

collateral

- **type of exposure**: secured and / or unsecured exposure
- **securing real estate**: residential and / or commercial
- **real estate location**: country, region (higher territorial units)

Source: NBS

Experience from other countries

As of the end of July 2023, the ESRB was notified by 14 countries that currently have an activated SyRB. In the case of 9 countries[7], it is a continuation of the previous SyRB in accordance with the conditions set by the previous wording of the CRD. The difference in use among them is only in the scope of application to all, or only domestic exposures, and for all or only a subset banks. The remaining 5 countries[8] use the new sectoral SyRB, namely for exposures secured by residential real estate. The active use of SyRB must also be seen in the context of additionally allocated capital (e. g. through the CCyB, or Pillar II requirement), which may reduce the motivation of individual countries for the activation of SyRB.

Even in cases where SyRB is applied to the same exposure class (usually retail exposures), it is possible to find methodological differences, which reflects the flexibility of the tool. We observe the difference in the application whether it is aimed exclusively on natural persons, all retail exposures (including small and medium-sized enterprises) or on all subjects without distinction. At the same time, some countries have narrowed the use of SyRB

[7] Bulgaria, Faroe Islands, Finland, Croatia, Iceland, Norway, Austria, Romania, and Sweden.

[8] Belgium, Liechtenstein, Lithuania, Germany, and Slovenia. In addition, in the case of Malta, the instrument is in the process of approval.

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exclusively to IRB banks. The differences in the approach of individual countries are also in the level of consolidation of the banks for which the SyRB is applied, or in determining the materiality level of the banks for whose is the SyRB required.

In addition to the mentioned methodological nuances, the circumstances under which individual countries had proceeded to activate the SyRB on retail exposures are also different. For example, in the case of Belgium and Slovenia, it is a compensation for cancelled or eased other macroprudential instruments (risk weight floors according to Article 458 CRR[9], or the limit on the DSTI). In the case of other countries, this is an additional strengthening of the banking sector's resilience to risks from the real estate market.

Systemic risk in the retail and its coverage

The possibility of strengthening banks' resilience to risks arising from retail exposures has been analysed since the summer of 2021. It resulted for a combination of three circumstances:

- long-term accumulated risks in this segment: growth of housing loans and their concentration on banks' balance sheets, growth in real estate prices and high competition among banks in the segment,
- recommendations of international institutions to mitigate the risks in the segment (IMF and ECB in 2022; ESRB in 2021) and
- deactivation of the SyRB in May 2021[10], which was based on the abovementioned legislative change.

Mitigation of systemic risk in retail can be approached through other instruments, besides the SyRB. In this case, alternatives were also analysed:

- Article 124 CRR: increase of risk weights for exposures secured by mortgages on immovable property, or tightening the limit for recognition of fully secured exposure (only STA approach),
- Article 164 CRR: LGD floor (only IRB approach) a
- Article 458 CRR: risk weight floor, or risk weight add-on.

However, the mentioned alternatives did not appear to be suitable for further analysis of systemic risk mitigation in retail exposures. Article 124 of the CRR applies only to exposures secured by mortgages on immovable property under the standardized approach. However, STA risk weights on these exposures are significantly higher than those under IRB

[9] Regulation (EU) No. 575/2013 (also known as CRR).

[10] The rate of the SyRB shall be reviewed at least every second year. This period has begun with the deactivation of the SyRB by the decision on 25 May 2021.

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models. In addition, the effectiveness of this instrument would be limited by the high share of IRB banks in the housing loan market. Article 164 CRR, if applied, would only concern a limited number of banks. At the same time, experience with this tool is highly limited in Europe.[11] The application of Article 458 CRR would be procedurally complicated and the validity of such a decision would be limited in time. At the same time, its use is possible only if other tools would not appear to be effective enough. In addition, the experience of other countries with SyRB gradually spread during 2022, which confirmed that this instrument can be an effective for mitigating systemic risk in retail.

The systemic risk arising from retail exposures must also be perceived through the CCyB perspective. Despite the fact that the CCyB is applied to all exposures, allocated capital is also tied to retail exposures, thus mitigating this type of systemic risk. Therefore, its increase in June 2022, with effect from August 2023, contributes to a higher resilience of banks also to the risks arising from retail loans. The rate of the CCyB even directly affects the quantification of the need to increase the rate of the SyRB. The higher the rate of the CCyB, the higher the amount of allocated capital and thus the lower potential shortfall of capital in relation to stress losses. At the same time, the calibration of the CCyB is also affected by indicators from the retail sector and the real estate market.

Methodology of the calibration of SyRB on retail exposures

The calibration of the SyRB is based on a comparison of the losses that could occur in the adverse scenario with the existing capital buffers. When estimating losses, the key is to estimate the share of loans that may be at risk of a more difficult financial situation in the event of an unfavorable economic situation.

Simulated losses from retail loans were based on the quantification of loans at risk in a 2.5-year horizon. The parameters of the stress scenario (inflation, real estate prices, wages, unemployment rate and the level of interest rates on loans) were based on the adverse scenario of the NBS autumn prediction in 2022 (P3Q-2022), and other model outputs.[12]

The credit quality of individual banks' portfolios was considered through individual client data reported by the banks. It is the use of individual data that makes it possible to model potentially different developments more accurately in both the income and expenditure situation of each individual borrower when simulating losses, which is crucial for the proper calibration of SyRB. It was thus possible to more sensitively take into account (i) the impact of inflation on different income groups according to their structure of living costs, as well as (ii) the change in financial costs after the refixation of borrowers' loans. The estimate of (iii) the

[11] Only Norway, since 2014.

[12] Parameters of the adverse scenario in the Table 3 on p. 54 Financial Stability Reports – November 2022.

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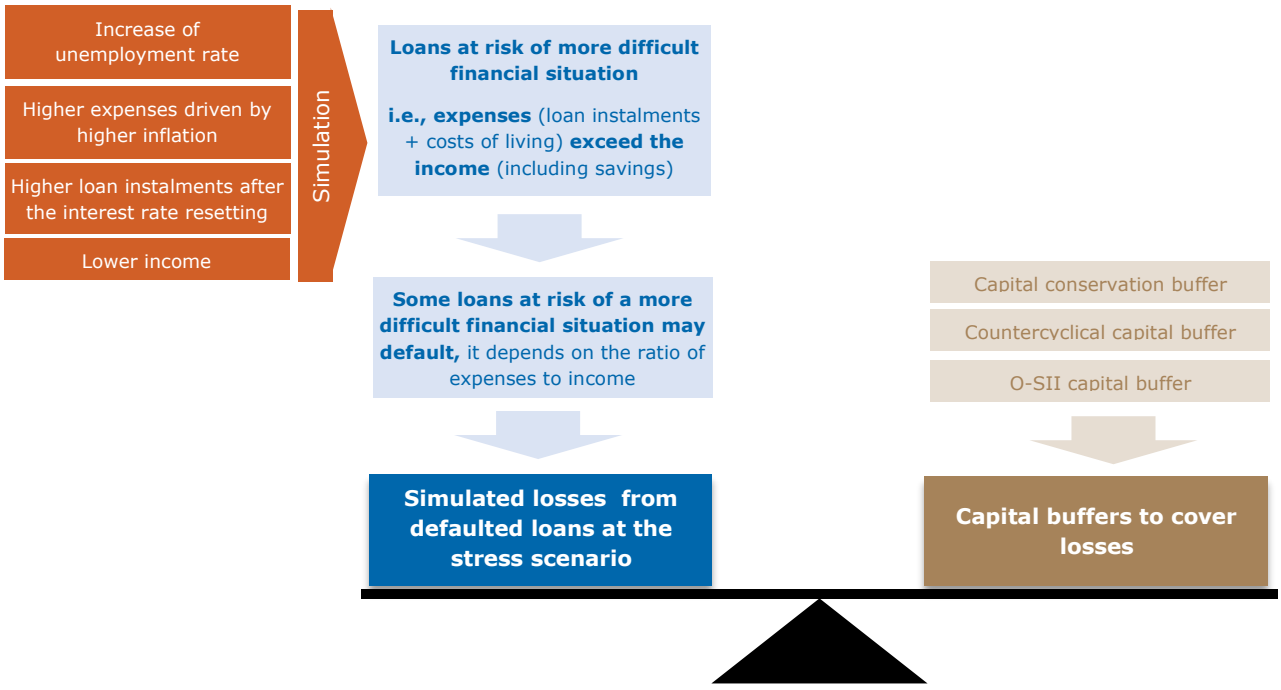
change in the income situation of each borrower was simulated from the moment the loan was granted, including (iv) the possibility of the potential loss of his job, partially offset by the unemployment benefits. The client's additional repayment capacity in the scenario horizon was also formed by (v) a financial cushion in the form of the client's net financial assets in the bank from which the loan was granted. By comparing the financial capacity of the client simulated in this way and adjusted expenses, the volume of loans at risk was estimated (Chart 1). The share of loans at risk was 8% for mortgage loans and 12% for other consumer loans.

Scheme 1 The calibration of SyRB is based on a comparison of the simulated losses with existing capital buffers



Source: NBS

A status of "*loan at risk*" means a situation where the borrower's expenses are higher than the income, not necessarily a defaulted loan. Based on the amount of the simulated DSTI and the type of loan, the probability of default (PD) of the loan was calculated.[13] The total cumulative default rate in the scenario horizon for mortgage loans was at the level of 3.9%, and for other consumer loans at the level of 10.7%. The parameters of the loss given default (LGD)

[13] It is assumed that the probability of default increases with the increasing value of the share of living costs and loan instalments to income (including drawing down savings). For housing loans, it is assumed that 10% of mortgages will default within the group of households with a value of this share between 100% and 110%, every second mortgage loan with a share between 110% and 120% will default, and with the share over 120% already 90% of mortgage loans will default. In the case of consumer loans, it is assumed that within the group of households with a value of this share between 100% and 110%, 50% of consumer loans will default, with a share between 110% and 120%, it will be 75% of consumer loans, and every single consumer loan with share above 100% will default. Households at risk are assumed to default first on consumer loans and only in case of necessity (if income is still insufficient to cover expenses) on housing loans.

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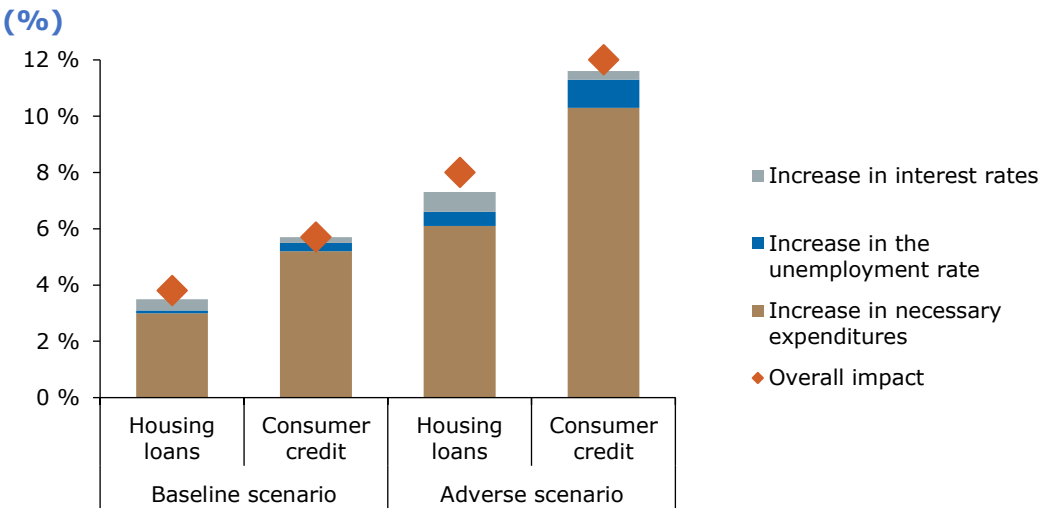
for the purposes of calculating the loan losses were estimated at the level of 26% for mortgage loans, or 50% for other consumer loans.

Chart 1 Increase in loans at risk by type of loan and type of shock



Source: NBS
Notes: The total impact is slightly higher than the sum of the impacts of individual shocks because borrowers who are resistant to individual shocks, but not to the simultaneous interaction of the given shocks, may also be at risk.

Comparison of simulated losses and allocated capital

Simulated credit losses from the portfolios of individual banks were compared with the capital allocated to these portfolios (Chart 2) in the form of a combined buffer requirement. In the simulation, the capital tied up in this way was supposed to protect the capital requirements of Pillar I and Pillar II from stress losses. Further absorption capacity of banks to cover potential losses[14] was not considered for the purposes of this calculation.

The use of the entire combined buffer requirement to cover stress losses for the purpose of the analysis is not a standardized approach within the EU. Several EU countries selected only some of its components from the combined buffer requirement or did not take it into account at all. An argument against using the entire combined buffer requirement is the fact that all the components of combined buffer requirements are primarily intended to cover specific risks. For example, the O-SII capital buffer rate does not directly depend on the riskiness of a specific group of exposures. On the other hand, the calculation of the amount of capital allocated by every macroprudential buffer is based on the volume of risk-weighted

[14] Interim profit, voluntary capital buffer and capital allocated in the form of a Pillar II guidance.

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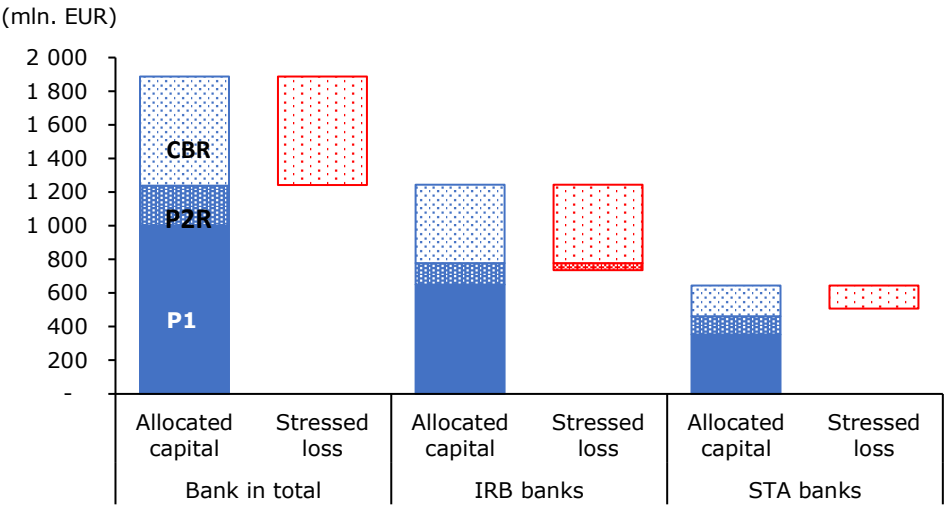
assets, which take into account the risk profile on the bank's balance sheet. Hence, incurred losses in the form of loan loss provisions would cause a reduction in the volume of capital bound by these exposures. For this reason, we consider the use of the entire combined buffer requirement in our methodology as justified.

Chart 2 Comparison of allocated capital with stressed losses from retail exposures



Source: NBS

Notes: CBR: capital requirement in the form of a combined buffer requirement, P2R: capital requirement in accordance with Pillar II requirement, P1: capital requirement in accordance with Pillar I, IRB banks: summary for banks using IRB models, STA banks: summary for banks using exclusively standardized approach for credit risk measurement.

Definition of the allocated capital to cover stress losses is currently the main difference in the approach of individual countries. Two currents have formed in the EU on this issue. On the one hand, there are countries (BE, DE) whose stress losses for the purposes of determining the SyRB are directly covered by the new requirement for the SyRB.[15] In the case of other countries (MT, LT, LI, SI, but also SK), different layers of capital requirements and buffers are used to cover stress losses. The requirement for the SyRB is thus introduced in these countries only when this capital[16] is not sufficient to cover stress losses. The question is whether, in the case of covering stress losses with some form of already tied up capital, there is no double use of it.

[15] In the case of Germany, the SyRB was reduced by the simultaneously introduced CCyB, which aimed to cover stress losses related to the financial and economic cycle. The SyRB aims to cover stress losses of structural origin.

[16] In the case of Malta, allocated capital is defined by the total capital requirement (including all capital buffers), and in the case of Lithuania and Liechtenstein by the combined buffer requirement. In the case of Slovenia, it is the estimation of the increase in interest income from the additional new stock of loans after the DSTI limit release (stress losses were calculated only from the volume of loans that would arise as a result of the DSTI limit release).

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The overall comparison of allocated capital with stress losses shows that the systemic risk in retail exposures is not undercapitalized, and for now[17] there is no need to set SyRB for these exposures. At the level of the banking sector, stress losses from retail exposures were fully absorbed by the combined buffer requirement. In the case when the stress losses at the sectoral level would significantly exceed the capital allocated in the combined buffer requirement, the need to set the SyRB would be more urgent. Considering the characteristics of IRB models, the issue of systemic risk in the portfolio of retail loans in IRB banks appears to be more relevant than in the group of banks using the standardized approach (STA).

It is the heterogeneity of risk weights between IRB banks that has a specific position within the discussion on the use of the SyRB, especially in the case of retail exposures. Applying the SyRB in the case of insufficiently explained differences in risk weights, resulting mostly from methodological differences in the models, can deepen the differences in capital requirements among banks. However, the heterogeneity in retail risk weights in the Slovak banking sector has decreased since the end of 2022, which has significantly reduced the initial obstacles to the potential application of the SyRB. At the same time, it should be noted that there has currently been a long-term process of harmonization of IRB model approaches (from 2019 to 2024), the so-called "EBA IRB repair programme", which should ensure better comparability of model outputs.

SyRB calibration and its challenges

Due to the importance of retail exposures in banks' portfolios, the assessment of SyRB on retail exposures will be regularly assessed. The result of the assessment depends on both parameters that change over time - allocated capital and stress losses. On the one hand, allocated capital is the result of changing capital requirements, e. g. CCyB, O-SII buffer, possibly by evolving risk weights. On the other hand, the calculation of stress losses is based on the characteristics of credit portfolios that are evolving and, last but not least, is also significantly affected by the design of the stress scenario. For example, the stress scenario used in the recent analysis puts more emphasis on the negative impact of double-digit inflation than on the development of the labor market. This, as well as other parameters of the stress scenario, change over time to consider current risks. It is also assumed that the horizon of the stress scenario will be extended from 2.5 years to a standard 3-year period.

It is expected that the methodology of quantification of SyRB on retail exposures will gradually be affected by ECB steps, which is starting to prepare its own methodology on the issue. Previous experience with the use of SyRB on retail exposures has shown that macroprudential authorities in the EU use the same general concept of SyRB calibration, but

[17] Based on data as of December 2022.

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with significant methodological differences. A common feature is the approach to risk quantification based on capital shortfall due to simulated losses in a stress scenario. However, differences can be observed in the definition of allocated capital. The practical side of using and calibrating SyRB can therefore bring new challenges also in relation to the capital requirements of Pillar I, CCyB, or P2R.

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