MACROPRUDENTIAL REPORT

2023

‘The only road to perfection is one

where people work for the common good.’

Count István Széchenyi

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2023

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Foreword

The international economic crisis of 2008 fundamentally changed the perception of how financial stability should be maintained. A painful lesson of the severe turmoil in the financial system is that interventions aimed at the stability of individual financial institutions cannot in themselves maintain the stability of the financial system if they are limited to micro-prudential aspects. This also requires the mitigation of systemic financial risks, which calls for appropriately calibrated macroprudential requirements.

Act CXXXIX of 2013 on the National Bank of Hungary provides the MNB with a strong mandate and appropriate tools to effectively manage financial system risks at national level as a micro- and macroprudential authority, and to support the preservation of confidence in the financial system through its consumer protection function. The MNB uses its enhanced mandate proactively and in line with the EU regulatory framework.

The Macroprudential Report aims to present the macroprudential tools used by the MNB to prevent and manage systemic risks identified and communicated in the Financial Stability Report, their mechanisms of action and the adjustment of market participants. Moreover, it provides an overview of resolution activities to support the smooth functioning of the financial system and of developments in the area of financial consumer protection that contribute to financial stability by strengthening confidence in the financial system. In line with the Statute of the MNB and its macroprudential and supervisory strategy, the publication aims to make the MNB's actions to promote financial stability more understandable not only to the industry but also to the wider public.

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Executive Summary

In its annually published Macroprudential Report, the MNB describes and evaluates – covering also the MNB's consumer protection and resolution activities – the operation of its macroprudential instruments, the adjustment of market participants, and how the requirements impact the sustainable contribution of the financial system to economic growth. In addition, the report provides a more in-depth analysis of some of the most relevant issues from a financial stability perspective. In October 2023, the following key messages can be formulated in respect of the instruments in question:

1. By the tight monetary policy conditions aimed at suppressing the persistently high inflation and a continued uncertain macroeconomic situation, the indicators examined in the definition of the countercyclical capital buffer rate (CCyB), the housing market and related lending trends point to a substantial easing of systemic risks associated with cyclical and housing market overheating. In view of the above, the MNB has decided to postpone the CCyB requirement scheduled to be activated from 1 July 2023 for a year, which means that the capital buffer will enter into force on 1 July 2024 at a level of 0.5 per cent. The MNB will continue to decide on the rate on a quarterly basis, depending on the evolution of risks.

2. While the risks associated with commercial real estate (CRE) lending are not considered excessive at present, they may, in the future, build up into material financial stability risks. Rental demand remains below pre-COVID levels in most segments, with a significant risk of oversupply in the medium term, with rising vacancy rates, while the increase in expected returns on real estate investments is pointing towards a decline in property values. Potentially rising risks justify the reactivation of the systemic risk buffer (SyRB), which was suspended for an indefinite period in the wake of the COVID-19 outbreak, from 1 July 2024 for preventive purposes. The activation of the SyRB in the case of a capital requirement strengthens banks' resilience to shocks related to project loan exposures or reduces the vulnerability of banks by encouraging the cleaning of targeted stocks.

3. The MNB has not changed the set of domestic systemically important domestic institutions (O-SIIs) in its 2023 review. From 2023, systemically important banks are required to meet half of the individual buffer rate target levels envisaged for 2024, while gradually building up buffers as specified following the release introduced in connection with COVID-19. In the past year, the moderate change in the systemic importance and concentration of O-SII banks, mainly due to the foreign acquisitions of OTP Bank Plc, did not justify any change in buffer rates.

4. Despite the rapid lending outflows in recent years, a high inflation and the resulting tight monetary conditions, no over-indebtedness of borrowers can be identified. In 2023 H1, the share of new home loans with a high debt-service-to-income (DSTI) ratio increased by around 3 percentage points year-on-year, driven by rising repayments due to rising lending rates. However, the volume of loans with a high DSTI is still only about a third of the volume of previous years, despite an increase in their share, due to the slowdown in the overall credit market. At the same time, the slowdown in house price dynamics has been accompanied by a continued gradual decline in loan-to-value (LTV) ratios seen in recent years. No excessive clustering of loans near the limits of borrower-based measures (BBMs) or a significant adjustment of stretched debtors to BBMs are visible. Due to the rise in house prices in recent years, young first-time buyers may find it more difficult to raise the funds needed to buy a home compared to other homebuyers. In view of this, the MNB intends applying different, preferential LTV limits for first-time buyers soon. Moreover, in 2023, to offset inflation and nominal wage growth, and to preserve the effectiveness and flexibility of the BBMs the MNB has increased the income threshold for higher indebtedness to HUF 600,000 and the de minimis limits set by the regulation to HUF 450,000.

5. Banks are meeting the liquidity coverage ratio (LCR) requirement with comfortable buffers, and there is no significant change in actual bank liquidity positions compared to recent years. Sectoral LCR has returned to levels close to the previous 150-160 per cent, following a technical decline in the level associated with changes in the monetary policy toolkit. Banks have safely met the net stable funding ratio (NSFR) requirement over the past year. However, the limited and slower impact of tightening monetary conditions on the pricing of customer deposits could pose a funding risk in the longer *term. In response to rising interest rate risks and international bank failures, the MNB requires institutions to strengthen their liquidity management as a preventive measure under its supervisory powers, despite significant liquidity in banks.*

6. The banking system continues to meet the MNB's macroprudential funding requirements with adequate buffers and a favourable funding structure. The banking system's short-term external debt, both nominal and as a share of total assets, has increased slightly from historical lows, while some banks are holding substantially higher intra-group short-term external debt interquarterly. In terms of the foreign exchange mismatch, the banking system operates with a substantial foreign exchange liability surplus. The funding position of banks is stable, and the sector has adequate reserves, which means that it does not pose an obstacle for lending.

7. Banks comply with the mortgage funding adequacy ratio (MFAR) requirement with safe buffers, supported with the preferential treatment of green mortgage bond issues. Over the past year, the stock of domestic mortgage bonds has grown significantly, including an increase in the share of green mortgage bonds. As of 1 July 2022, foreign exchange denominated mortgage-backed liabilities have become eligible under the MFAR requirement, while no foreign exchange denominated mortgage bonds have been issued to date. To further develop the mortgage bond market, in summer 2022, the MNB decided on several modifications to broaden the investor base and further improve the forint maturity mismatch. However, due to the current uncertain economic and capital market conditions, these changes were postponed for an indefinite period at the end of 2022. The MNB may decide on the timing of the planned tightening measures, depending on the evolution of capital market conditions.

8. The MNB's financial consumer protection activities will continue to support financial stability by increasing confidence in the financial system. In that context, over the past year, the central bank has focused on (1) preventing cyber fraud and raising consumers' financial awareness, (2) examining compliance with the payment moratorium, and (3) raising the fees for account products in line with inflation. The MNB supports green transition through the continuous development of Certified Consumer Friendly Products and the uptake of online lending processes by banks.

9. The MNB has updated the MREL requirements for domestic institutions, referring to changes in international legislation and their implementation in Hungary. The updated requirements were fulfilled by credit institutions by the mandatory compliance date of 1 January 2023. The MNB has been closely monitoring the preparation for mandatory compliance on 1 January 2024, for which institutions are required to make an additional adjustment of around HUF 655 billion based on data from the first quarter of 2023.

In addition to assessing the impact of the application of the macroprudential policy toolkit, the MNB has also examined the following topics from a macroprudential perspective:

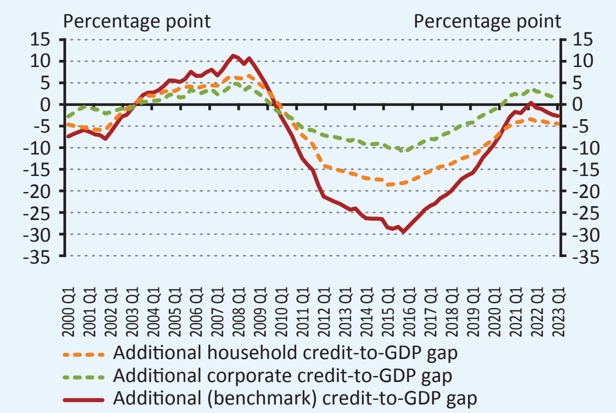
10. The MNB will continue to pay particular attention to the assessment of financial stability risks arising from climate change. In that context, it also monitors, among other things, the concentration of loans extended to high-carbon companies, the energy mix of housing loan collaterals and their exposure to natural disasters. Green risks and climate change considerations have also started to be considered in the domestic macroprudential toolkit, firstly through the preferential inclusion of green mortgage bonds in the MFAR. Moreover, there are a growing number of international examples of the application of green considerations in borrower-based measures, which is also being explored by the MNB.

11. Over the past decade, the financial assets of the shadow banking system, which is less regulated and poses a potential systemic risk, and its relative size compared to the credit institution sector have also grown significantly on a global scale, driven by the increasing regulation of the banking sector and the greater use of new technology by non-bank institutions. The presence of shadow banking risks in the domestic financial system is currently limited compared to the situation in core EU countries. Due to the size of shadow banking activities and the potentially low exposure of domestic banks to associated risks, no material systemic risk can be identified. While EU regulation currently provides mainly micro-prudential tools to address shadow banking risks, regulatory tools for investment funds are being complemented with a systemic focus.

1 Countercyclical capital buffer

The indicators examined in the determination of the countercyclical capital buffer (CCyB) rate show a substantial easing of cyclical systemic risks from the second half of 2022 onwards and do not, as a rule, indicate the need for macroprudential intervention. Real estate and related lending developments also point to a significant easing of cyclical risks, while risks associated with residential real estate market overheatedness are expected to ease. In view of this, the MNB has postponed the planned activation of the countercyclical capital buffer by a year, from 1 July 2023 to 1 July 2024. The MNB will continue to decide on the rate on a quarterly basis, depending on the evolution of risks.

Chart 1
Evolution of the additional credit-to-GDP gap used for the calculation of the benchmark rate and its household and corporate breakdown

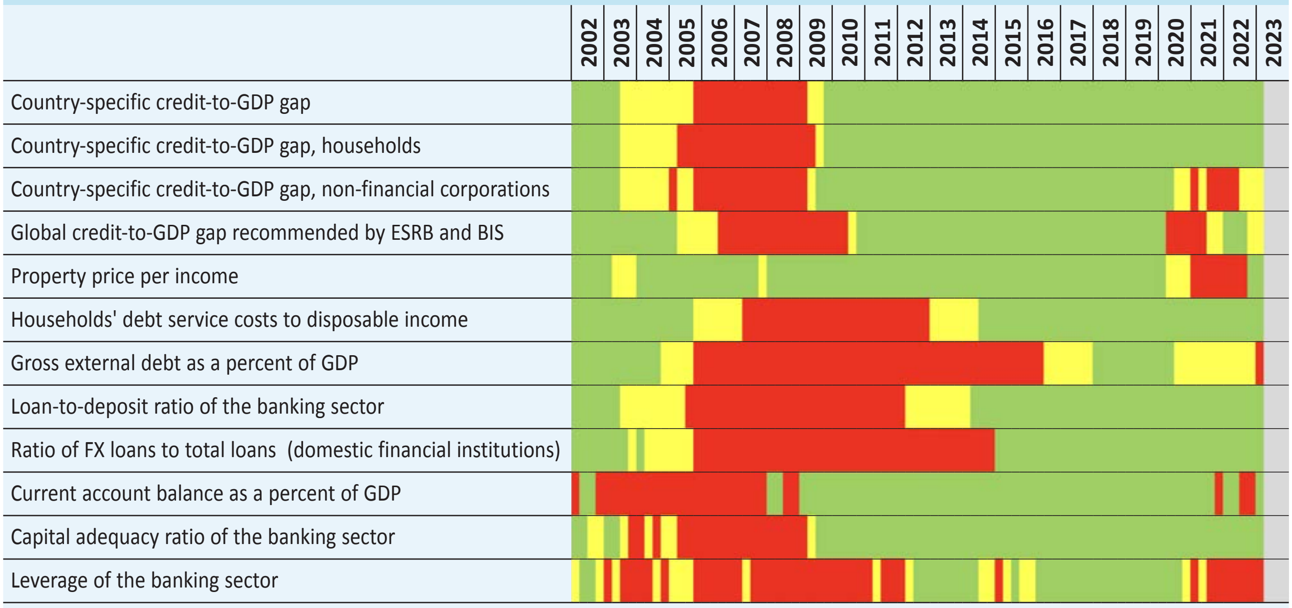


Source: MNB.

1.1 THE MNB POSTPONED THE ACTIVATION OF THE COUNTERCYCLICAL CAPITAL BUFFER BY ONE YEAR DUE TO THE SLOWDOWN IN HOUSING LENDING AND HOUSING MARKET ACTIVITY

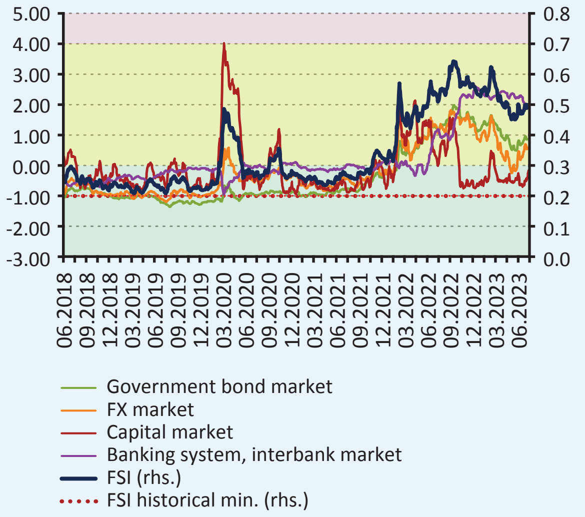
The level of domestic cyclical financial systemic risk has declined substantially. The country-specific benchmark additional credit-to-GDP gap developed for assessing the domestic credit cycle dropped increasingly below the equilibrium level since the end of 2021, with differing levels of household and corporate lending trends *(Chart 1)*. While corporate credit has moved above its estimated equilibrium level since the second half of 2020, household credit has remained below since the 2008 crisis, approaching it in the second quarter of 2020 but moving away from it since.

Table 1
Evolution of selected indicators of the cyclical systemic risk map, 2002-2023, Q1



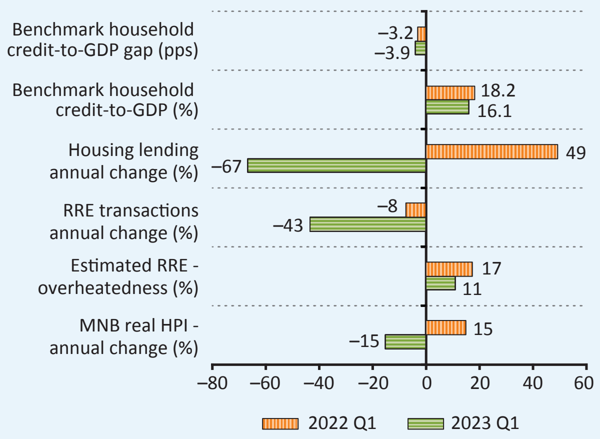
Note: The green, yellow and red colours respectively indicate low, medium and high cyclical systemic risks.
Source: BIS, KSH, MNB.

Chart 2
Evolution of the Factor-based Financial Stress Index



Note: Values calculated from factors estimated for 2005-2019.
Source: According to Szendrei, T. – Varga, K. (2017); MNB.

Chart 3
Key housing market risk indicators



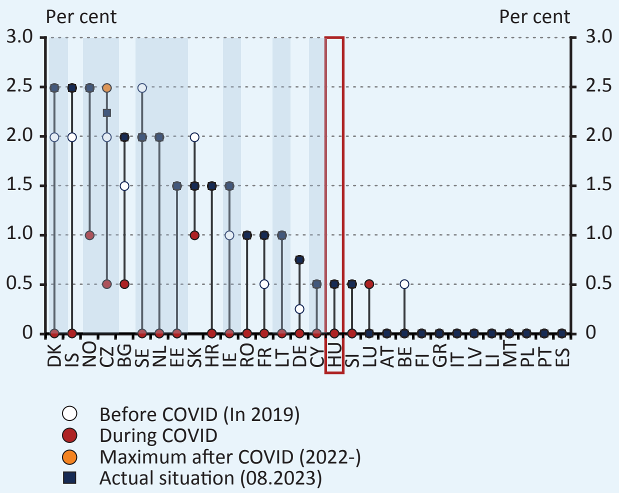
Note: In case of a change, compared to the same period of the previous year.
Source: MNB, BIS, KSH

Overall, therefore, lending in the economy is slightly below its equilibrium level, based on the headline incremental credit margin. In the set of indicators for overheating and vulnerability of the MNB's cyclical systemic risk map, the banking system leverage ratio and gross external debt to GDP were at high risk in the first quarter of 2023, while the current account balance to GDP and house price to income ratio no longer showed any risk. Corporate lending in the first quarter of 2023 indicated medium rather than high risk (Table 1). Looking ahead, the cyclical risks highlighted by the monitored indicators are expected to ease further, reflecting the increasing impact of high inflation and associated tight monetary conditions, macroeconomic uncertainties and lending slowdown. Therefore, the level of cyclical domestic financial systemic risk does not require macroprudential intervention, either on a rule-based basis or on the foundation of the quantitative and qualitative information monitored[1].

Over the past year, the stress level in the financial system has remained elevated. Based on the Factor Stress Index (FSI), the Russia-Ukraine war has resulted in a persistent medium stress situation with widespread cross-market effects. However, it remained below the levels seen during the 2008-2009 crisis *(Chart 2)*. In the spring of 2023, a short minor spike in the stress factors examined was observed, due largely to individual bank failures in the US and Switzerland and their effects. This, however, has not materially affected the observed stress levels.

Private sector lending trends and housing market developments show a significant easing in the risks associated with overheatedness. Housing market overvaluation eased substantially to 11 per cent by the beginning of 2023 from a high level of 15 per cent at the beginning of 2022. At the same time, housing transactions in the first quarter of 2023 also fell significantly, by more than 40 per cent compared to the same period of the previous year *(Chart 3)*. In the first quarter, in line with the slowdown in the housing market, housing loan originations also showed a significant year-on-year decline of nearly 70 per cent, partly explained by the base effect of the Green Home Programme in early 2022. Accordingly, there has been a decline in one of the lowest domestic household credit-to-GDP ratio among EU countries in recent years. It reached 16.1 per cent in the first quarter of 2023, some 4 percentage points below its estimated equilibrium level.

Chart 4
Development of CCyB requirements of EEA countries (August 2023)



Note: Buffers announced but not necessarily activated. The CCyB rates shown are for exposures in the country concerned. The light blue shading marks countries with a framework that can be considered as a positive neutral CCyB rate. The wording in some countries may differ.

Source: ESRB (2023), websites of national authorities

The MNB has postponed the imposition of the countercyclical capital buffer by a year, due to the easing of risks in the housing market and related lending risks. Taking into account the benchmark additional credit-to-GDP gap and the additionally monitored risk indicators that do not signal the need for macroprudential intervention, the declining number of housing market transactions, the declining overvaluation of the housing market from a historic high, and the significant decline in the number of new housing loans, the MNB decided to postpone the planned activation of the countercyclical capital buffer, originally envisaged for 1 July 2023, by a year. Accordingly, the MNB has reduced the countercyclical capital buffer rate applicable to Hungarian exposures to 0 per cent, effective from 1 July 2023, and set the rate effective from 1 July 2024 at 0.5 per cent. The capital and liquidity positions of the banking system remains strong. The measure will ensure that the banking system maintains significant free capital buffers and avoids potential pro-cyclical rate activation effects based on current risk and lending trends.

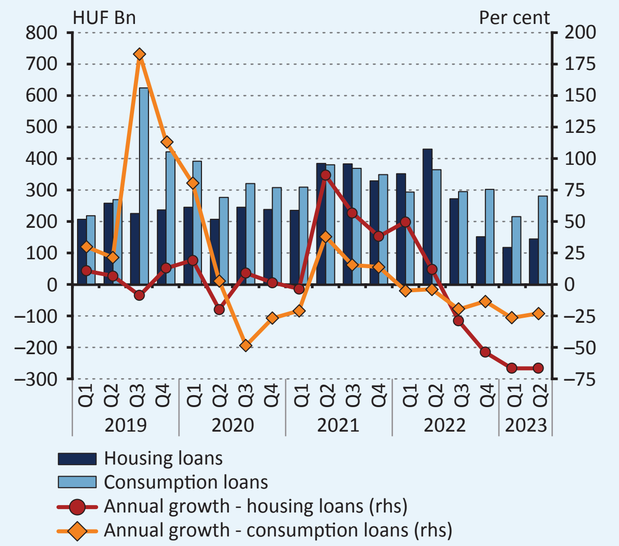
1.2 MOST EUROPEAN AUTHORITIES CONTINUE TO REQUIRE A POSITIVE COUNTERCYCLICAL CAPITAL BUFFER RATE FOR NOW

Over the past year, the rebuilding of the capital buffer requirements that were released during the coronavirus pandemic has commenced. For now, the proposals of international institutions (BIS, ESRB, IMF) and the decisions of most EEA countries point towards maintaining or increasing effective capital buffers, depending on the evolution of risks and bank profitability. In July 2023, the rate remained at 0 per cent for 12 EEA countries (including Poland within our region) *(Chart 4)*. For these countries, the decision to maintain the 0 per cent rate was mainly based on the decline of cyclical risks and the negative value of the credit-to-GDP gaps. 8 EU countries, Norway, and the UK opted for a positive level of the rate in a risk-neutral environment (so-called positive neutral CCyB)[2]. The Czech central bank (CNB), on the other hand, decided in early June to cut the 2.5 per cent CCyB rate by 0.25 percentage points from 1 July 2023, in addition to the easing of its borrower-based measures.

2 Borrower-based measures

While borrower-based measures (BBMs) do not prevent healthy credit growth, they have increased the resilience of the credit portfolio by withholding risky lending, thereby helping to offset the shocks of recent years. Rising installments in the past year as a result of tightening monetary conditions due to high inflation have led to an increasing share of loans granted close to the regulatory limit for the debt-service-to-income (DSTI) ratio, especially for housing loans. This, however, did not entail additional risk, given the low volume. The collateral stretch of newly granted mortgages is gradually decreasing. In order to maintain a healthy lending structure, the MNB continuously monitors (1) the credit market effects of the rising interest rate environment and inflation, (2) the potential unintended side effects of borrower-based measures, especially among young first-time home buyers, (3) the potential excessive increase in the maturity of household loans, (4) the extent to which personal loans are used to finance down payment, and (5) the potential risks of online lending.

Chart 5
Evolution of new household lending in the credit institutions sector



Note: Without loans to sole proprietors.
Source: MNB.

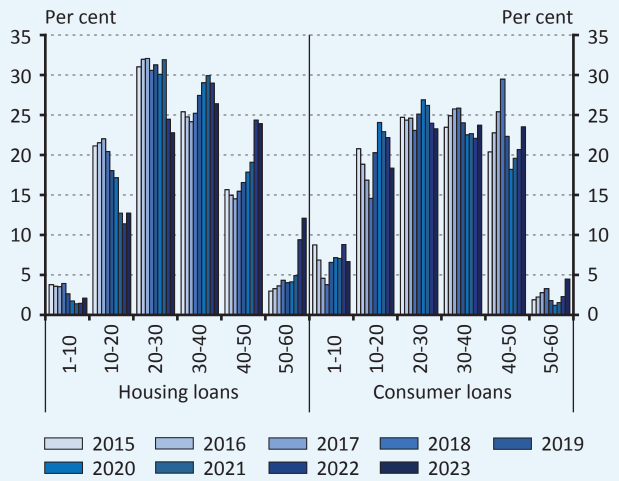
2.1 HOUSEHOLD LENDING HAS FALLEN SHARPLY, WITH NO SIGNS OF EXCESSIVE CREDIT OUTFLOWS

In H1 2023, household lending halved compared with the same period of the previous year, with a particularly sharp fall in housing loan disbursements. In H1 2023, banks extended HUF 752 billion in retail loans, 47 per cent less than in the same period of the previous year *(Chart 5*). The decline was particularly pronounced in the housing loan market, where lending fell to 33 per cent of the same period last year, driven by a significant drop in loan demand and a higher base of Green Home Programme loans disbursed in the previous year. For consumer credit, the decline in lending was more moderate, with a 25 per cent drop in H1 2023.

2.2 THE STRUCTURE OF LENDING DOES NOT INDICATE EXCESSIVE HOUSEHOLD INDEBTEDNESS

High interest rates and a drop in lending led to an increase in the effectiveness of the debt-service-to-income requirement. An increase in the volume of retail loans close to the DSTI limits is visible in new disbursements, especially for housing loans *(Chart 6*). While before 2021, banks provided around 20 per cent of housing loans at a high DSTI of over 40 per cent, this share increased to 36 per cent in H1 2023. However, the increasing share of housing loans with a high DSTI is explained primarily by a larger decline in lending with DSTI below 40 per cent, which means that the increasing effectiveness of the DSTI requirement had mainly occurred due to base effect. This is also supported by the fact that the distribution of DSTI by the number of contracts does not show significant increase in risk and no significant growth in DSTI stretch is visible for consumer loans as well.

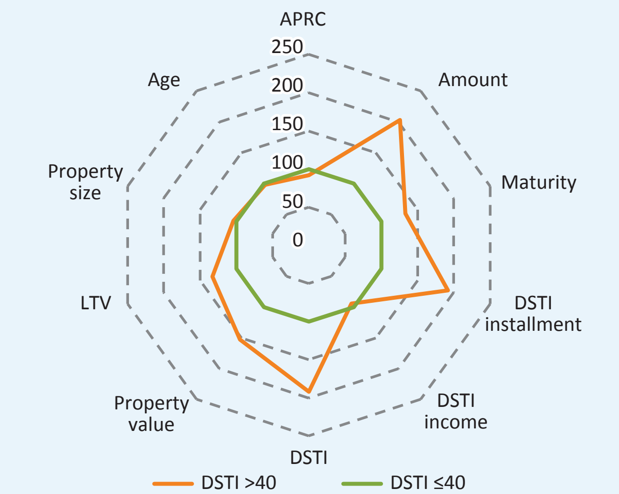
Chart 6
New household lending according by DSTI



Note: Credit institutions sector. By volume. 2023 values are for the first half of the year.

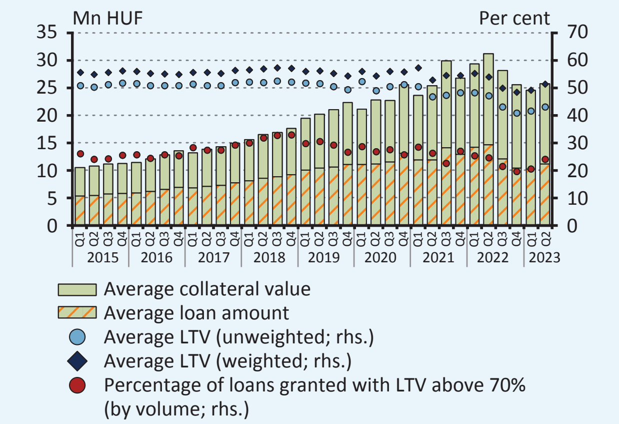
Source: MNB.

Chart 7
Differences of main characteristics of housing loans granted with DSTI over 40 per cent compared to loans granted with DSTI less than 40 per cent (H1 2023)



Source: MNB.

Chart 8
LTV compliance for new home loan disbursements



Source: MNB.

High-DSTI borrowing is attributable to a small group of borrowers and does not represent an excessive risk due to the low volume of such loans. In H1 2023, loans with a DSTI above 40 per cent were characterized by lower interest rates, nearly twice the loan amount, one-third longer maturity, twice the repayment amount, yet exhibited similar incomes compared to those below 40 per cent *(Chart 7)*. At 47 per cent, the average DSTI value of loans with DSTI above 40 per cent was thus almost double that of loans with DSTI below 40 per cent. These higher-than-average risk loans, however, represent about half the volume of previous years, as a result of the drop in lending, and thus do not pose an excessive systemic risk.

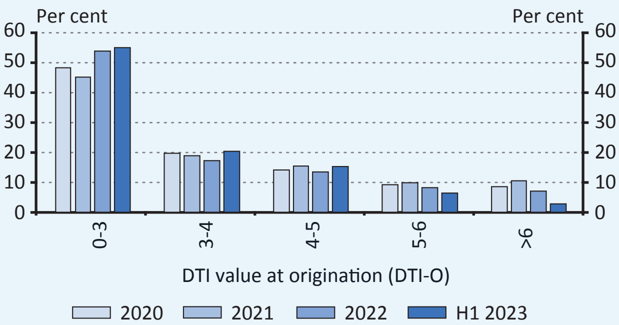
A gradual decline in the collateral stretch of housing loans has been observed. The weight of housing loans with a loan-to-value (LTV) ratio above 70 per cent in new lending fell to below 20 per cent by the end of 2022 and rose to 23 per cent by Q2 2023, from a peak of around 32 per cent in 2018 *(Chart 8*). The emergence of family support programmes, in particular the prenatal loans, is likely to have played a decisive role in raising the down payment and thus reducing the stretched collateral. However, despite the declining LTV-stretch, the LTV requirement may represent an effective barrier to entry into the credit market for young customers or singles not eligible for family support schemes (see sub-section 2.4), which may be reinforced by the moderate rise in housing prices, which resumed in the beginning of 2023.

Loans granted with high collateral stretch are not considered to be particularly risky. Loan amounts and repayment rates are higher for home loans above 70 per cent LTV, and borrowers' incomes are nearly the same as for loans below 70 per cent LTV. As a result, the higher LTV ratio (i.e. a low ratio of down payment) is also associated with a slightly higher income stretch of 6 percentage points (29 and 35 per cent average DTI, respectively), which is only partially mitigated by longer maturity and slightly lower interest rates *(Chart 9)*. However, compared to lower LTV loans, the difference is not material. In addition, housing loans with a low ratio of own financing are also associated with lower age and property size compared to loans where LTV was below 70 per cent.

Chart 9
Differences in the main characteristics of housing loans with LTV above 70 per cent compared to loans with LTV below 70 per cent (2023 H1)

Source: MNB.

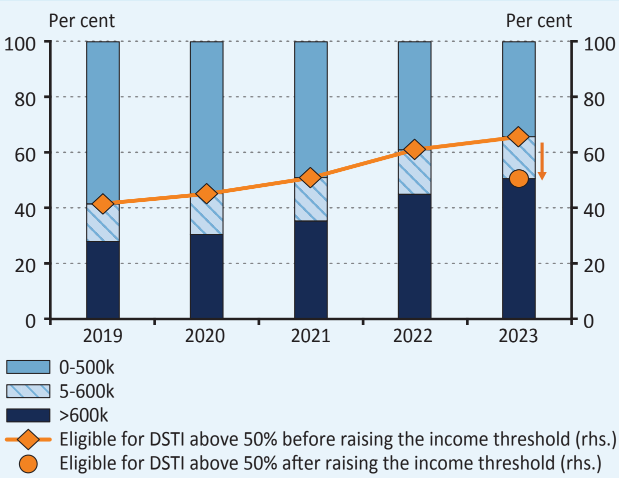
Chart 10
New housing loan disbursements by DTI ratio



Note: By volume.

Source: MNB.

Chart 11
DSTI income distribution of new home loans



Note: By number of contracts. 2023 values refer to the first half of the year.

Source: MNB.

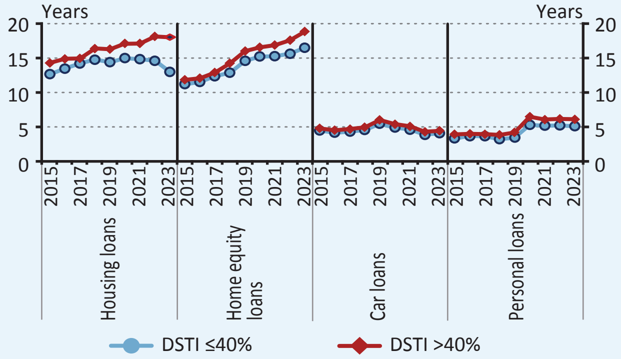
2.3 THE MNB CONTINUOUSLY MONITORS COMPLIANCE WITH THE BORROWER-BASED MEASURES AND MAINTAINS THE EFFECTIVENESS OF THE REGULATION

The MNB's borrower-based measure toolkit has been expanded with the introduction of the debt-to-income (DTI) measure, which limits the maximum permissible amount of credit and leasing debt as a share of income, following an amendment to the MNB Act effective from 1 January 2023. The advantage of the DTI is that it limits the maximum amount of debt that borrowers can take on, regardless of changes to the interest rate and the maturity of the loan. Thus, the effect of the requirement is also maintained in a low interest rate environment, where borrowers can borrow several times their annual income for a long term at low interest rates without breaching the DSTI requirement. At the same time, the distribution of domestic lending by DTI currently shows a downward trend due to lower loan amounts and rising incomes, while maturities remain moderate *(Chart 10)*: risky borrowers, with the total debt exceeding six times their annual income, took out 3 per cent of all new loans in H1 2023, while this share was close to 11 per cent in 2021. For the above reasons, in the current risk and interest rate environment, implementing the requirement is not justified. (The international practice and possibilities of using the DTI are discussed in detail in Box 1).

In view of high inflation and rapid nominal wage growth, the MNB decided to amend its borrower-based measures in order to preserve the effectiveness of the requirements. With nominal wages rising in the current inflationary environment, the 60 per cent DSTI limit for borrowers with incomes above HUF 500,000 per month has become available to an increasing share of borrowers, without a substantial increase in their debt-service ability (*Chart 11*). Moreover, the flexibility of the BBMs has been reduced by the decrease in the real value of the *de minimis* loan amount limit of HUF 300,000 for the application of the regulation. To compensate for inflation and wage increases, the DSTI income thresholds were increased from HUF 500,000 to HUF 600,000 per month from 1 July 2023, while the relevant *de minimis* limits were increased from HUF 300,000 to HUF 450,000.

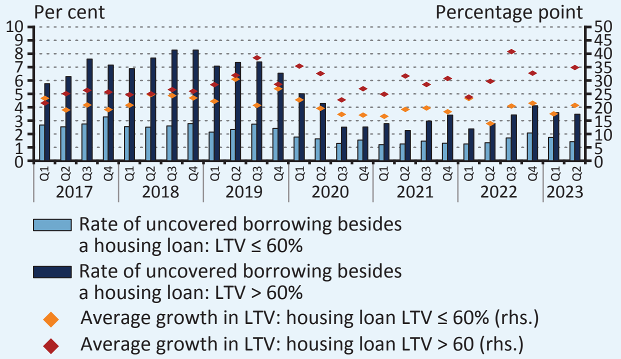
A substantial reduction in the average maturity of loans with lower income stretch is discernible. Borrowers can also adapt to high repayments by extending the maturity. Currently, the gap is widening between the average maturity of mortgage loans above and below 40 per cent DSTI. For housing loans, that maturity gap gradually increases and,

Chart 12
Average maturity by DSTI and loan type



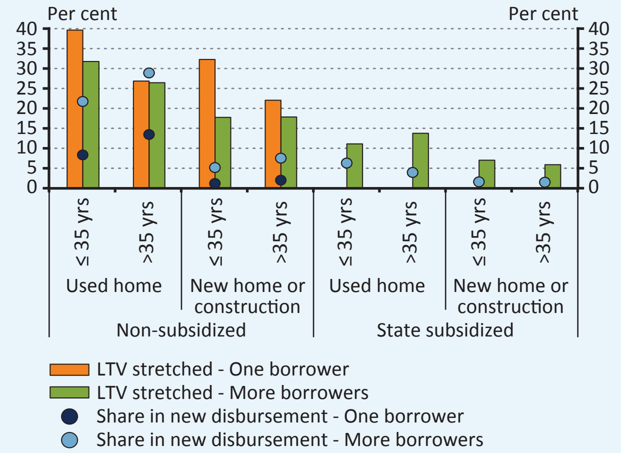
Note: 2023 values refer to the first half of the year.
Source: MNB.

Chart 13
Estimated change in personal loans used as a substitute for the down payment



Note: Proportion of housing loans by the number of contracts within disbursements by LTV category, for which the principal borrower also took out a personal loan 180 days before contracting. Without prenatal loans.
Source: MNB

Chart 14
Proportion of housing loans with stretched LTV within different customer segments (2022)



Note: A LTV above 70 per cent is considered as a stretched LTV ratio. Ratios are shown individually for each customer segment. By volume.
Source: MNB.

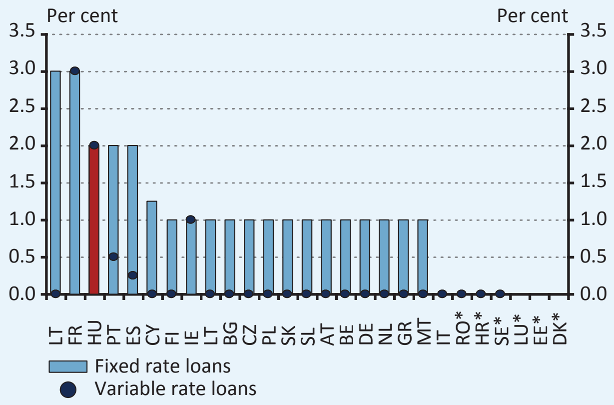
by the second half of 2023, it has risen to more than 5 years *(Chart 12*). The increase in 2023, however, is mainly explained by shorter maturities for borrowers with a lower income. The increase may be driven by the low-DSTI borrowers' motivation to reduce the total amount to be repaid, which is expected to rise sharply due to the current high borrowing rates. A significant increase in maturities is also visible for home equity mortgages, which still account for a small part of new lending. Adjustment through maturity extension, that may be potentially mitigated in the future by DTI limits, does not currently pose an excessive risk due to the fact that the average maturity is still low.

Increased financing of the down payment through unsecured borrowing is not foreseen. In 2019, the MNB published an executive circular, calling on institutions not to include personal loans as down payment and to establish procedures to exclude them, as it is considered to be a particularly risky practice. The launch of prenatal loans in 2019 also contributed to a reduction in the risks concerned: the prevalence of funding the down payment with personal loans fell from 7-8 per cent of home loans to around 2-3 per cent in 2020 and has not shown a significant increase since *(Chart 13*).

2.4 THE MNB IS CONTINUOUSLY IMPROVING THE EFFECTIVENESS OF THE BORROWER-BASED MEASURE REGULATION

For first-time home buyers, it would be reasonable to apply preferential LTV limits to support their access to housing loans. The rapid rise in house prices in recent years has particularly hit first-time buyers, who are typically young, with small savings and low incomes, but represent a lower risk due to their homeownership goals and expected rising income (Grosz et al. 2023). Among young borrowers who are potential first-time homebuyers, the share of loans with an LTV above 70 per cent, i.e., low down payment, was around 30 to 40 per cent in 2022. The share of loans with stretched LTV was particularly high among single borrowers not eligible for state subsidies *(Chart 14*). For young first-time home buyers, a differentiated LTV limit of 90 per cent may be appropriate, in line with international examples. The application of such preferential rate became possible due to the substantial mitigation of the risks associated with overvaluation in the housing loan market. Thus, the measure could support the improvement of young people's access to housing loans without excessively increasing financial stability risks.

Chart 15
Mortgage prepayment fees by interest rate fixation types within the EU (2023)



*Note: In proportion to the amount prepaid. In some countries, the amounts that can be prepaid free of charge are capped on an annual basis. *In Romania, as of 2016, all early repayments are free of charge as an emergency measure. An interest rate premium is payable on the loan rate and the interest rate environment in Sweden for fixed-rate loans and in Luxembourg and Estonia for all mortgage loans. In Croatia, prepayment of variable-rate loans is free of charge, while there is no legal ceiling for fixed-rate loans, which is set by the lender. While there is no legal maximum charge for mortgage loans in Denmark, due to the direct link with mortgage bonds, in practice, no early repayment fee is normally applied.*

Source: MNB collection, based on the laws of each country.

In the current high interest rate environment, it is of paramount importance to create the possibility of a quick and cost-effective loan refinancing. As a result of previous measures by the MNB, long-term fixed-rate housing loans have become common, which has significantly increased households' resilience to interest rate risk and mitigated potential financial stability risks in a rising interest rate environment (measures to support the uptake of fixed-rate housing loans are described in detail in the 2022 Macroprudential Report). Looking ahead, however, in the case of mortgage schemes with long-term fixed interest rates, borrowers who currently take out a mortgage may be 'stuck' with high-interest loans, despite a possible fall in interest rates. In Hungary, the cost of loan refinancing (early repayment fees, notarisation fees, valuation fees, etc.) currently amount to 2-5 per cent of the loan debt and entails time-consuming administrative burden. As a result, the proportion of refinancing loans in new housing lending has varied between 5 and 7 per cent in recent years. The share to refinancing loans could be boosted by reducing early repayment fees, which are high by EU standards *(Chart 15)*, by broadening the applicability of statistical appraisal, by digitalizing notary services and by bringing mortgage lending fully online. Within the BBM framework, the MNB supports loan redemptions that do not add to the loan debt, as these loans do not need to be reassessed for compliance with the BBM limits. Moreover, Certified Consumer Friendly Home Loans are subject to lower early repayment fees than the legal maximum.

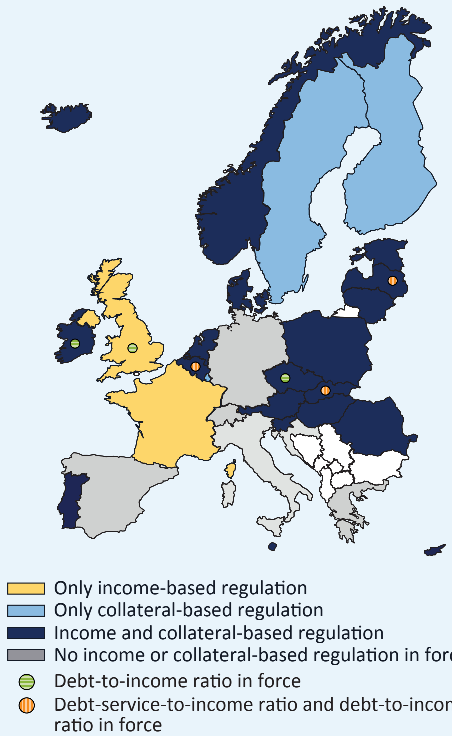
Box 1
International application of DTI/LTI rules and the domestic evolution of potentially manageable risks

With regard to borrower-based measures (BBMs), in addition to indicators limiting the maximum loan amount available to borrowers in relation to the value of the collateral or the maximum repayment burden to be borne by borrowers in relation to their income, instruments limiting the maximum loan amount available to borrowers or the maximum total debt to take in relation to the borrower's (mostly annual) income are increasingly applied by macroprudential authorities. At European level, various BBMs are becoming increasingly common and are typically used in some combination with each other.

While the DTI can be an effective complement to DSTI-type standards, the efficiency of standards such as the DSTI may weaken in a low interest rate environment and, when combined with a long maturity, may lead to excessive risk-taking. The combined use of DSTI and DTI indicators can therefore allow for more precise risk targeting, as opposed to a framework based on a single income-based ratio indicator, as it allows for more refined regulatory responses rather than a general tightening of certain regulatory limits. Hungarian data also show that while it is more frequent that high DTI and DSTI go together, high DSTI does not necessarily lead to a high DTI. For this reason, a multi-dimensional macroprudential toolbox incorporating several BBMs may be more effective in influencing lending trends and increasing the shock absorbing capacity of households. The simultaneous use of both instruments can therefore effectively reduce the credit risk of debtors by moderating the probability of default (PD) and exposure at default (EAD) across the financial cycle.

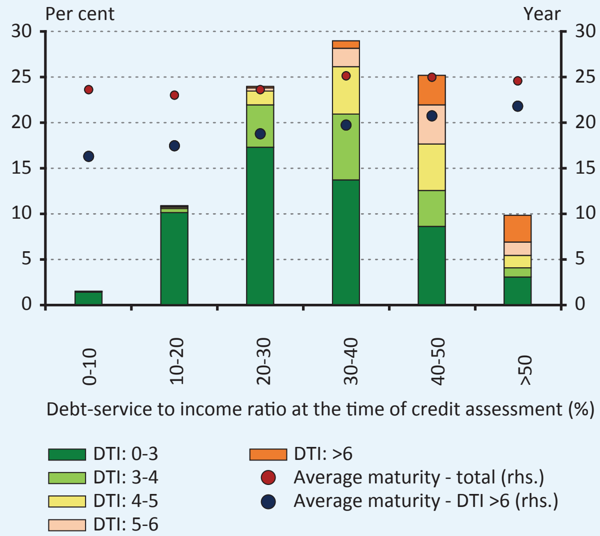
International examples vary in terms of the actual calibration of DTI requirements. In some countries (IE, SK, CZ, UK), the requirement only applies to mortgage loans, while in Lithuania and Belgium it includes all loans. There is also a difference in the definition of the debt taken into account, i.e. whether the definition is limited to the amount of outstanding mortgage loans or includes the total outstanding debt from all types of loans. There are also differences in practice between countries in terms of whether they use annual gross income or net income after deduction of tax. Differences between the targeted amount and the benchmark income therefore also lead to different

European practice on the use of BBMs (July 2023)



Note: EEA countries, the UK and Switzerland. Both mandatory and recommended restrictions.
Source: ESRB, MNB, national websites

New home loan originations by DSTI and DTI (2022)



Note: By volume.
Source: MNB

regulatory limits, ranging from three to nine times the borrower's annual income. Moreover, Ireland and the Czech Republic have put in place more favourable regulatory limits for first-time-buyers (FTBs).

Calibration of DTI/LTI instruments in Europe

	Application	Indicator	Debt (Numerator)	Income (Denominator)	Limit
IE	Mortgage loans	DTI	Total mortgage loans	Gross annual	3 / 4 FTB
SK			Total debt	Net annual	<41 years: 8 >41 years: tightened to 5.25
CZ					8.5 / 9.5 FTB
UK		LTI	Outstanding mortgage loan	Gross annual	4.5
LV	Total loans	DTI	Total debt	Net annual	6
BE					9

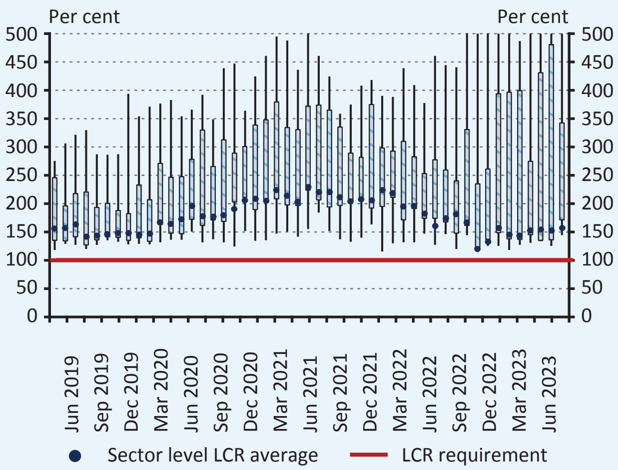
Source: ESRB, MNB, national websites

While distribution of DTI values in Hungary warrants increased monitoring, a process requiring direct regulatory intervention is currently not foreseen. A high interest rate environment, declining lending, the slowdown in the housing market and the reduction in risks from overvaluation in the housing market all point to diminishing cyclical and credit risks. Over-adaptation to DSTI limits and a significant increase in maturities currently cannot be observed. Nor is there any evidence of borrowers taking on excessive debt relative to their income. For this reason, the application of a debt-to-income indicator in Hungary is currently unnecessary.

3 Basel liquidity and funding instruments

The liquidity coverage ratio (LCR) requirement is complied with by banks with substantial buffers. The changes in the monetary policy toolkit and banks' adjustment to such changes played a crucial role in the evolution of sectoral LCR over the past year. Following the associated technical drop of the LCR it has returned to its previous levels of 150-160 per cent. Overall, while there was no substantial change in the actual liquidity position, a reallocation took place between liquidity items in favour of central bank assets. The net stable funding ratio (NSFR) requirement is met by the banking system with significant surpluses of resources, at stable levels and with a stable structure. In response to both rising interest rate risks and international bank failures, the MNB has tightened liquidity requirements preventively in its supervisory powers, despite the ample liquidity available.

Chart 16
Changes to institutional LCR compliance



Note: The chart shows the first and ninth deciles, the first and third quartiles and the average. Values calculated net of mortgage credit institutions and housing savings banks, based on solo compliance.

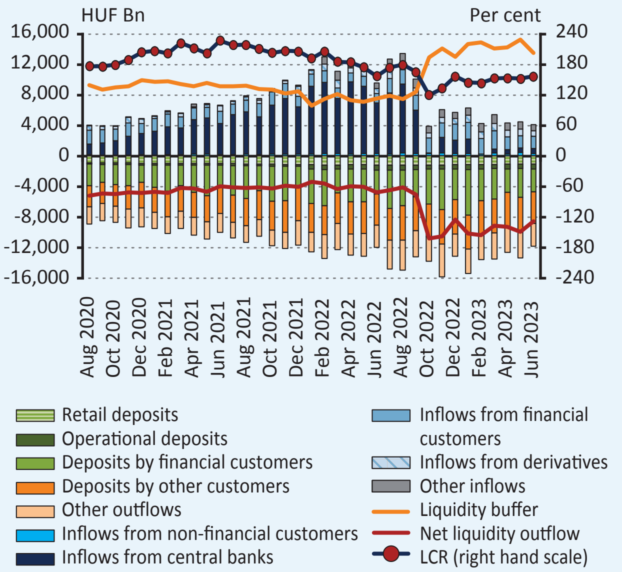
Source: MNB.

3.1 BANKS' LIQUIDITY HAS REMAINED AMPLE

While LCR has stabilised at a lower level, buffers have remained significant. After a drop in October 2022, LCR returned to near 150 per cent and was at 157 per cent on 30 June 2023 *(Chart 16*). Monetary tightening and, in particular, the central bank's new long-term liquidity instruments and the related adjustments by banks played a crucial role in the evolution of sectoral LCR over the past year. It manifested primarily in the reallocation of liquid assets at the expense of inflows *(Chart 17*). The MNB has ensured that the minimum reserve can be accounted for as a liquid asset based on its availability under stress situations. This has also offset the impact of the rebalancing of liquidity at LCR level (at the same time, the required reserve does not require stable funding in the NSFR either).

Buffers available in the effective liquidity position are stable and significant. The operative liquidity reserve (OLR) of the banking system, supplemented by the amount of the central bank's minimum reserve requirement, with a high level, it can be said to be stable with a small degree of fluctuation. At the end of June 2023, value averaged nearly HUF 18,000 billion, representing around 64 per cent of the private sector's total deposits. Since October 2022, the level of OLR has been shaped mainly by the liquidity-providing effect of the interest paid on central bank instruments and a slight increase in the loan-to-deposit ratio, which mutually offset each other.

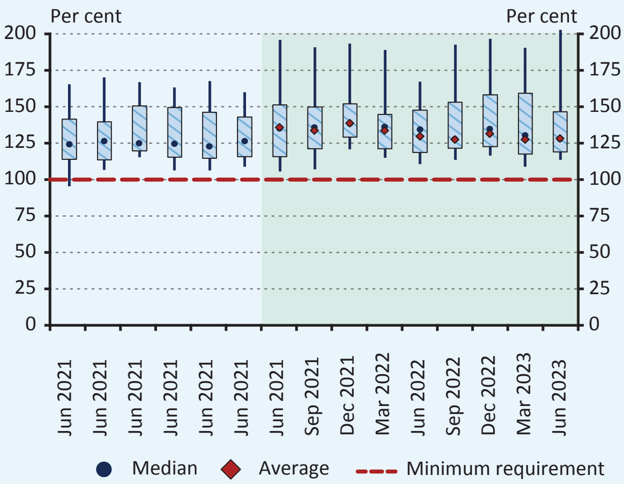
Chart 17
Sectoral evolution of LCR components



Note: compliance by solo banks, excluding 3rd country branches that are exempted from compliance, home savings banks, mortgage banks and specialised credit institutions.

Source: MNB.

Chart 18
Changes to institutional NSFR indicators



Note: Bottom and top deciles (vertical lines), bottom and top quartiles (light blue bars) and mean (average and median) values. The NSFR entered into force on 28 June 2021 (green shading). Based on individual bank compliance.

Source: MNB.

3.2 BANKS ARE ADEQUATELY SUPPLIED WITH STABLE FUNDING BASED ON THE NSFR

The EU-wide NSFR requirement for long-term stable funding has been met by banks steadily, with significant surpluses. Banks have met the 100 per cent target in recent years, with minor fluctuations, at an average level of around 130 per cent. At the end of June 2023, the sector-wide indicator stood at 128 per cent and the vast majority of banks had excess funding above the safe buffer level of 20 percentage points *(Chart 18)*.

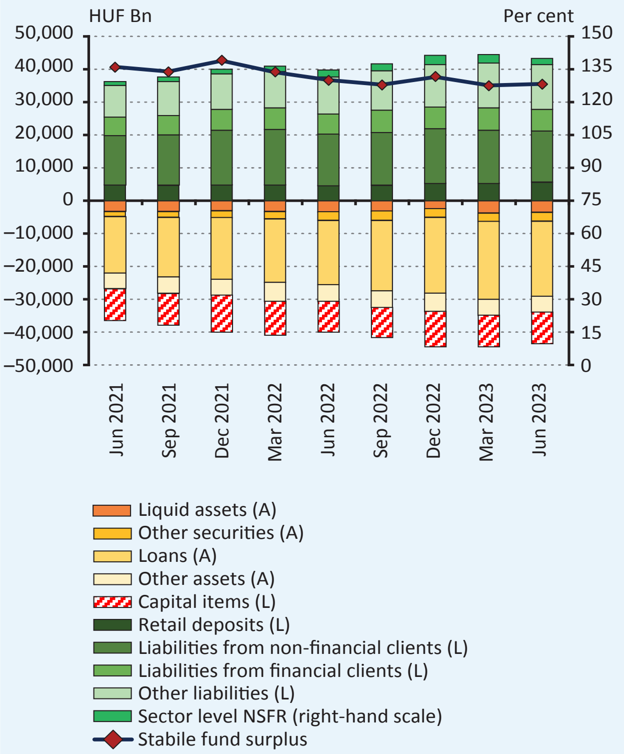
Similarly, the structure of the NSFR has essentially remained stable. The changes in the monetary policy toolkit resulted in small shifts in the NSFR, both last year and this year *(Chart 19)*. While the banking system's loan-to-deposit ratio has increased over the past year, mainly due to a decline in deposits, its level remains low (72 per cent). The decline in corporate and household deposits has not caused adjustment problems so far, given the ample stable funding, as banks replace the lost financing with other stable liabilities, such as the capitalization of high interim profits.

3.3 THE MNB HAS STRENGTHENED ITS SUPERVISORY REQUIREMENTS FOR THE LCR

Liquidity and funding risks have been in the spotlight worldwide in the wake of the international bank failures and tightening monetary policies earlier this year. Rising interest rates in the wake of the global monetary policy tightening cycle, recessionary effects and volatile financial conditions, as well as recent international banking turmoil, have highlighted the importance of appropriate management of liquidity and funding risks .

In its supervisory powers, the MNB has strengthened[3] its liquidity requirements, including the LCR. In its August 2023 executive circular, the MNB reminded banks that they need to have a larger buffer to maintain a 100 per cent LCR at all times, and called on banks to strengthen liquidity management by the end of 2023 for precautionary reasons: it expects appropriate intervention and recovery levels to be set depending on the LCR level, and further development of risk identification and stress testing systems adapted to the size, model and operation of each bank. In addition, it has

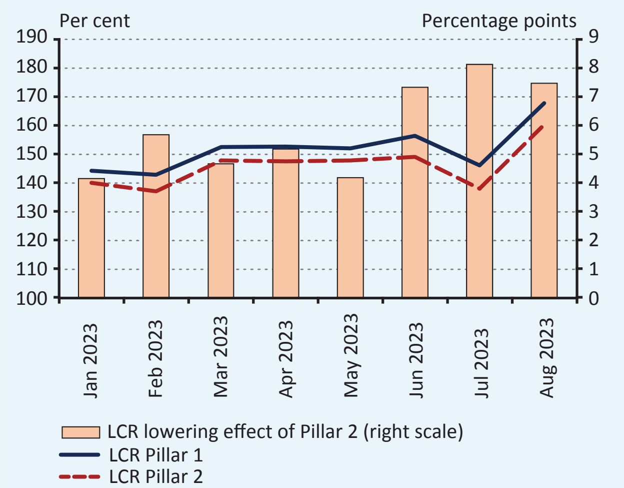
Chart 19
Evolution of NSFR components



Note: Stocks weighted by weights used in NSFR. Data selected according to individual compliance. E = assets, F = liabilities.

Source: MNB.

Chart 20
Evolution of sectoral LCR levels, including the Pillar 2 surplus requirement



Note: Sectoral averages calculated according to individual compliance.

Source: MNB.

tightened additional LCR requirement applied under Pillar 2 since 2019 set out in the ICAAP-ILAAP-BMA Manual[4]: large deposits now include deposits exceeding 1 per cent of the deposit portfolio, replacing the former 2.5 per cent, and a higher outflow weight of 100 per cent has been devoted for the part exceeding the limit. Banks needed to achieve an LCR improvement of about 4-8 percentage points in order to maintain the LCR levels due to the Pillar 2 requirements prior to this tightening, which might be further increased by new expectations in the coming months *(Chart 20)*.

Box 2
Regulatory lessons to be learned from international individual banking crises

Recent international bank failures[5] have highlighted the potential financial stability aspects of interest rate risk. A significant concentration of long-term fixed-rate assets and over-reliance on short-term and less stable sources of funding can lead to a build-up of significant risks. When interest rates rise, asset values may fall, which could lead to bank losses in the event of a possible outflow of funds and thus to further accelerating withdrawals. The negative spiral could in turn lead to the insolvency of institutions facing difficulties and cause further contagion effects in the financial system, as was the case in spring 2023.

The capital and liquidity requirements under the Basel III regulatory framework provide an appropriate framework for for the management of banks' interest rate risk from a liquidity perspective[6]. Banks' interest rate risk is mitigated by the Basel capital and liquidity requirements for the minimum trading book under Pillar 1, and by the interest rate risk requirements for the banking book and the supervisory review process under Pillar 2. Regarding Pillar 1 capital requirements, excessive risk-taking by banks, including excessive exposure to interest rate risk, is mitigated by risk-based minimum capital requirements and the leverage ratio. However, recent bank failures in the US and Switzerland have shown that there may be a serious deficiencies between the results of bank risk management models for the stability and interest rate sensitivity of low-interest deposits and the actual situation. Therefore, it is not enough to meet standard requirements, risk assessment on an individual basis is also required.

The liquidity coverage ratio (LCR) and the net stable funding ratio (NSFR) ensure a shock-resilient liquidity and funding position for institutions. In the LCR requirement, the most liquid assets are taken into account at market value, while less liquid assets are taken into account at market value less the haircut. Thus, liquid assets considered at the value according to the current yield environment must cover potential outflows within a hypothetical 30-day stress period. The NSFR sets the minimum level of stable funds, reducing the renewal risk for institutions and their over-reliance on quickly withdrawable funds in stress situations.

In addition to the sector level requirements under Pillar 1, regulators have extra scope under Pillar 2 to further increase resilience, depending on individual institutional risks, for example by imposing additional liquidity buffers. Identifying and managing institution-specific risks is, however, a major challenge. The definition of Pillar 2 liquidity requirements largely depends on expert risk assessment by the supervisory authorities and their risk tolerance. For this reason, a broad treatment of liquidity risks in Pillar 2 may lead to international fragmentation of prudential standards and substantial divergence in regulatory practices.

Based on recent international bank failures, several lessons can be drawn in terms of the existing liquidity and funding regulatory framework[7]:

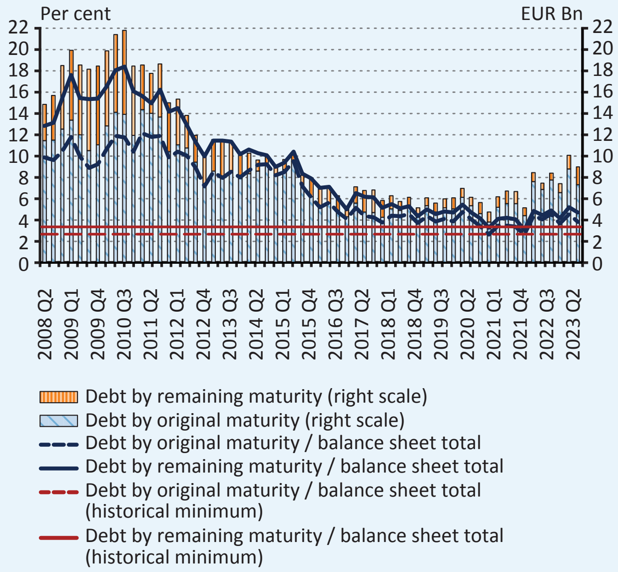
- **The prudential requirements of the Basel regulatory framework are fundamentally sound. Compliance with those requirements and prudent risk management are of paramount importance.** As for the Silicon Valley Bank (SVB), that institution had a unique business model that exposed it to technology companies, over-reliance on unsecured deposit funds, and inadequate management of risks arising from the business model. Moreover, unlike European regulation, which applies to all banks across the board, the US regulation exempted the SVB from the LCR and NSFR requirements on account of its below the regulatory threshold, but still significant size. Ensuring compliance with liquidity and funding requirements and establishing appropriate risk management procedures and responsibilities within the institution are therefore of paramount importance for the institutions' resilience to shocks. Hungarian supervisory and regulatory practices have adequately mitigated these risks also by international standards.

- **Deposit withdrawal processes have accelerated due to the growing role of social media and online banking, a review of the LCR weights may be warranted in the future.** By design, the LCR and NSFR standards make simplified assumptions about the quality and liquidity of banks' assets and the relative stability of their funding sources. As a result, LCR and NSFR ratios may remain above the expected minima, yet the institutions' liquidity and funding positions may still become stretched (e.g. the case of Credit Suisse), especially in an environment characterised by volatility and rapid changes in the financial conditions of assets and liabilities (interest rates, exchange rates)[8]. Risks can be further increased by significantly accelerated communication and the strengthening of online deposit withdrawal options following the generalization of social media This may result in a faster and in its scale greater deposit withdrawal than the corresponding outflow weights set in the LCR, warranting a review of the weights. This slow, multi-step process, expected first in the Basel framework and only then in the EU, has started at international expert level. Within the national competence, it is possible to respond primarily to individual risks under Pillar 2.

4 Financing instruments to reduce external vulnerability

The macroprudential funding rules applied by the MNB under its national competence, which limit external vulnerabilities, are met by the banking system with adequate buffers and in a favourable funding structure. The banking system's short-term external debt, both nominal and as a share of total assets, has increased at a moderate rate from historical lows, while some banks are holding substantially higher intra-group short-term external debt interquarterly. The regulations do not constitute an obstacle to continued sustainable lending activity.

Chart 21
Short-term external debt of the banking system

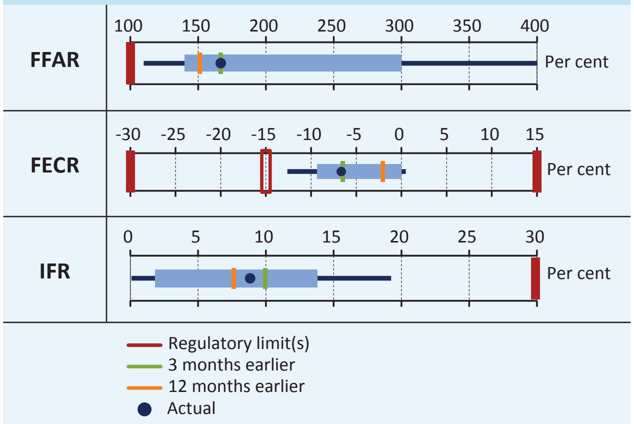


Note: Credit institutions sector, including EXIM, MFB and KELER data. Estimated, from balance of payments statistics until 2023 Q1, and from other MNB data for 2023 Q2. Historical minima since 1998 Q1.
Source: MNB

4.1 RISING SHORT-TERM EXTERNAL DEBT HAS CURRENTLY NOT LED TO A SUBSTANTIAL INCREASE IN SYSTEMIC RISKS ASSOCIATED WITH EXTERNAL VULNERABILITIES

The banking system's short-term external debt, both nominal and as a share of total assets, is rising slightly from historical lows. Short-term foreign liabilities of the banking system are increasing in line with the differences between foreign and domestic monetary conditions. Such increase, however, is more moderate compared to the balance sheet total. The increase was influenced both by changes in other items of bank funding and by profitability considerations. At the end of the second quarter of 2023, short-term external debt stood at EUR 9 billion, still only 4.7 per cent of balance sheet total of the banking system, 1.6 percentage points above the historical minimum yet still significantly, i.e. 14 percentage points lower than the historical maximum *(Chart 21*). Short-term external debt is concentrated, with a few banking groups and their intra-group transactions accounting for a large proportion of the total amount. These banks have flexible liquidity management, carrying over larger amounts interquarterly. Overall, the relative level of exposure and the associated systemic risk has remained low.

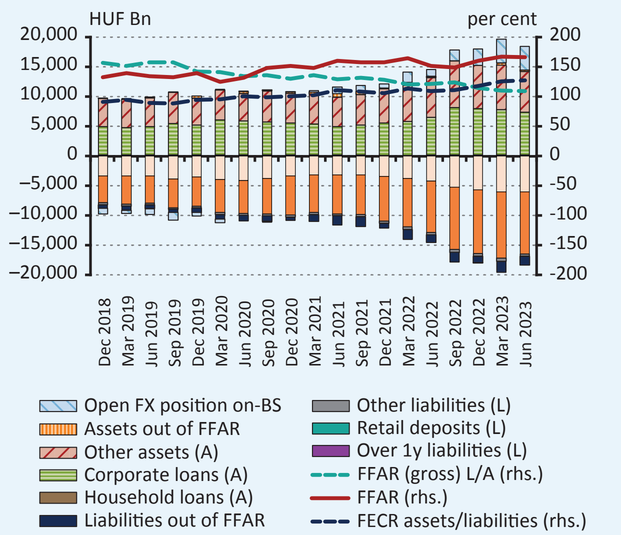
Chart 22
Compliance with liquidity and funding regulations



Note: Data as at 30 June 2023. The edges of the blue rectangle represent the bottom-top quartiles, while the ends of the dark blue line represent the 10th and 90th percentiles of the distribution.

Source: MNB

Chart 23
Development of asset and liability groups and funding indicators requiring and providing stable foreign currency funding



Note: Based on unweighted FFAR items. A temporary tightening was in place between March and September 2020. E: assets, F: liabilities.

Source: MNB

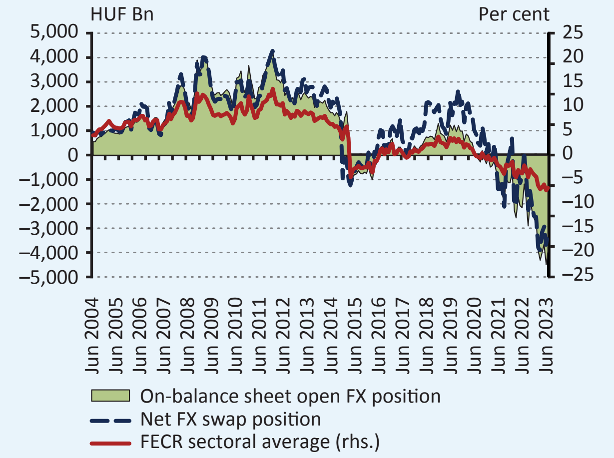
4.2 THE BANKING SYSTEM MEETS DOMESTIC FUNDING REQUIREMENTS WITH ADEQUATE BUFFERS AND IN A SECURE STRUCTURE, WITH MODERATE INCREASES IN RISKS

The elements of the macroprudential toolkit preventing financing risks are met by the banking system with safe buffers. For each of the three relevant requirements, which are complementary to the EU-wide Basel liquidity funding requirements and target funding systemic risks relevant from a domestic perspective, the average of banks is far from risky levels *(Chart 22)*; this provides significant and stable buffers over time to operate and to absorb the negative effects of a deteriorating market environment and maintain lending capacity.

Banks have steadily exceeded the required minimum level of 100 per cent for the foreign exchange funding adequacy ratio FFAR by an average of 67 percentage points, with an increase over the past year. In the past, significant buffers were mainly driven by the dynamic growth of stable household and corporate deposits, which can also be observed in stocks filtered for foreign exchange rate impact, but cannot be separated from exchange rate expectations, as well as by rising foreign exchange earnings from foreign trade activity and the resulting abundant foreign exchange supply. Over the past half-year, however, the improvement in the Hungarian forint exchange rate has changed this process, in that the improvement in the FFAR is now primarily the result of an increase in the volume of foreign currency liabilities outstanding with a remaining maturity over 1 year and in its ratio over all stable liabilities. Meanwhile, the importance of short-term, largely intra-group interbank external foreign currency funds not taken into account for the FFAR also increased in the first half of 2023, which liabilities have been used to finance assets that do not require stable funding in the FFAR *(Chart 23)*.

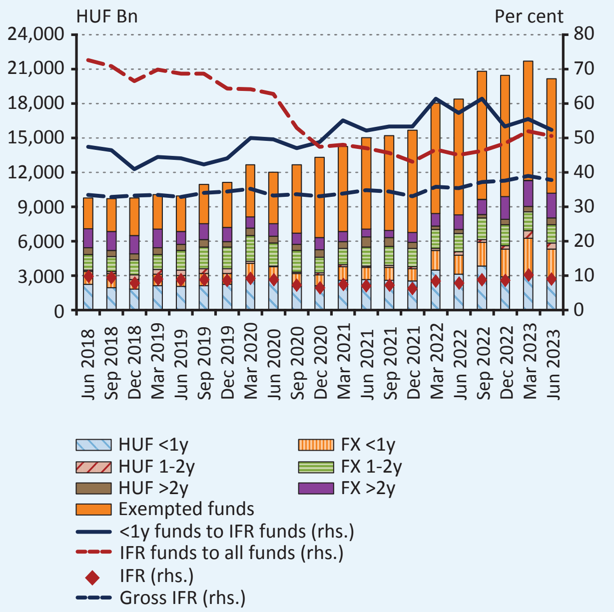
While the foreign exchange surplus on the banking system's balance sheet increased, it remained well above the minimum limit of -30 per cent allowed by the foreign exchange coverage ratio (FECR) requirement. Foreign currency lending, which has lagged behind the growth in

Chart 24
On-balance sheet open foreign exchange positions and net foreign exchange swap positions



Source: MNB

Chart 25
Funds of the banking system originated from financial corporations targeted by IFR



Note: Gross unweighted funds from financial corporations. Gross IFR represents the unweighted financial corporate funds targeted by unweighted IFR compared to the total funds. Exempt liabilities: liabilities secured by mortgage loans, loans from specialised institutions, liabilities from foreign branches of credit institutions, bonds with a maturity of over 2 years at issue, margin account balances, holdings of ancillary capital items, liabilities from credit institutions belonging to the group (other than the parent), liabilities on the liabilities side of the fair value of financial derivatives.

Source: MNB.

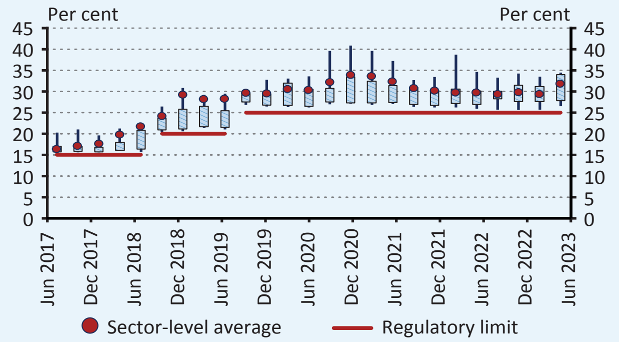
foreign currency deposits, continues to cause an increase in the foreign currency surplus on the banking system's balance sheet. This represents a less risky foreign exchange deviation from a prudential point of view and is far from the lower limit of FECR of -30 per cent. At the end of June 2023, the sector's average FECR was -6.7 per cent, with around HUF 4,000 billion in open FX positions on the balance sheet *(Chart 24)*. This is hedged by the banking system off the balance sheet, by selling foreign exchange through FX swaps, i.e. by acquiring HUF and placing it mainly in central bank assets. While this may lead to an increase in market risks, counterparty risks and liquidity risks associated with swap market exposures, such risks remain limited. A more active short external debt management has also led to a significant decline in FECR values at some banks, and in the case of several branches, greater volatility is seen due to their active role in FX swap markets and their less balanced balance sheet structure.

The sector-wide reliance on riskier financial corporate funding increased moderately but was still well below the 30 per cent maximum allowed by the interbank funding ratio (IFR) requirement. The reliance on funds from financial corporations has been steadily low for several years, but has increased marginally over the past year, with a higher reliance than in the past year, probably due to fluctuations in the Hungarian forint exchange rate and interest rate conditions. At the end of the second quarter of 2023, the sector-wide average was 8.9 per cent, down from the highest level in March (10.1 per cent) of the period following the introduction of the regulation, which is well below the regulatory limit *(Chart 25)*. Most banks, including major ones, are meeting the IFR requirement with significant buffers, well below the 20 per cent limit which serves as a kind of early warning. The highest and most volatile IFR levels are observed in some branches due to their specific and concentrated intra-group and extra-group transactions. Of the increasing amount of funds originating from financial corporations, the share of riskier funds targeted by the IFR increased moderately over the last year. The share of more volatile short-term exposures including foreign currency increased, resulting in a moderate deterioration of the indicator over the year due to the higher inclusion weight. Although structurally larger fluctuations may occur due to the concentration and specificity of this type of funds, this does not seem to result in a significant change in the indicator as long as the reliance on financing from financial corporations is at a safe level.

5 Mortgage Funding Adequacy ratio

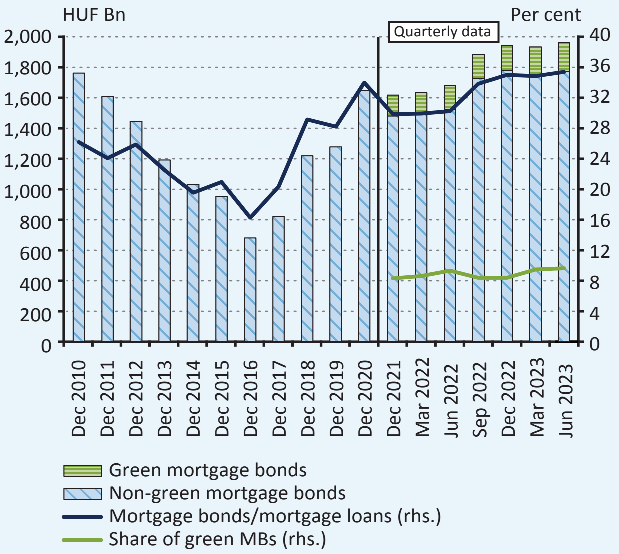
Banks comply with the mortgage funding adequacy ratio (MFAR) requirement by providing safe buffers. As a result of both the MFAR and mortgage purchase programmes, the stock of mortgage bonds has increased in recent years, along with the stock of green mortgage bonds, as all mortgage banks have successfully issued such bonds with this qualification. At the end of 2022, the MNB decided to put off the tightening of the MFAR requirement for an indefinite period to help adjust to the uncertain economic and financial environment, after already being postponed for 1 year and planned to enter into force on 1 October 2023. In September 2023, in view of the administrative time requirement of issuance and the downturn in mortgage lending, the green requirement for foreign currency mortgage-backed funds, which was to be implemented on 1 October 2023, was also postponed by 1 year. The fundamentals for developments in the mortgage bond market are currently unfavourable and a wait-and-see approach to further regulatory action is warranted.

Chart 26
Changes in MFAR compliance



Note: The chart shows the values of the first and ninth deciles (blue lines), the lower and upper quartiles (blue bars) and the average.
Source: MNB.

Chart 27
Development of domestic outstanding amount of mortgage bonds and mortgage bond/mortgage loan ratio



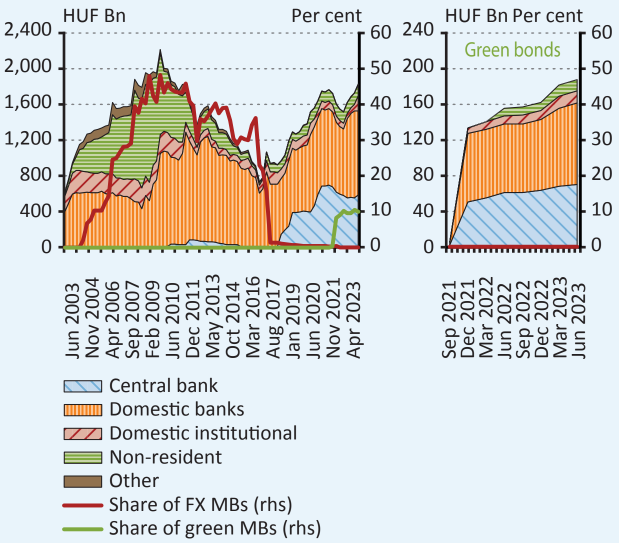
Note: Nominal values.
Source: MNB.

5.1 THE MFAR REGULATION ENCOURAGES THE DEVELOPMENT OF THE DOMESTIC MORTGAGE BOND MARKET

The mortgage funding adequacy ratio (MFAR) requirement is met by the vast majority of banks and the sector as a whole, with an adequate level of buffers. The banking system average of MFAR stood at 31.8 per cent at the end of June 2023, slightly higher than in previous quarters *(Chart 26)*. However, there are significant differences in the MFAR compliance of banks at individual levels. Due to the existing and persistent form of funding, the MFAR is a less volatile regulatory requirement, depending mainly on the maturity of mortgage bonds (and related refinancing) and new issuance, as well as on the evolution of the typically more continuous loan portfolio. For this reason, a relatively lower level compliance, close to the regulatory limit, is more predictable than in case of other liquidity requirements, and also lower MFAR buffers do not pose a material funding risk.

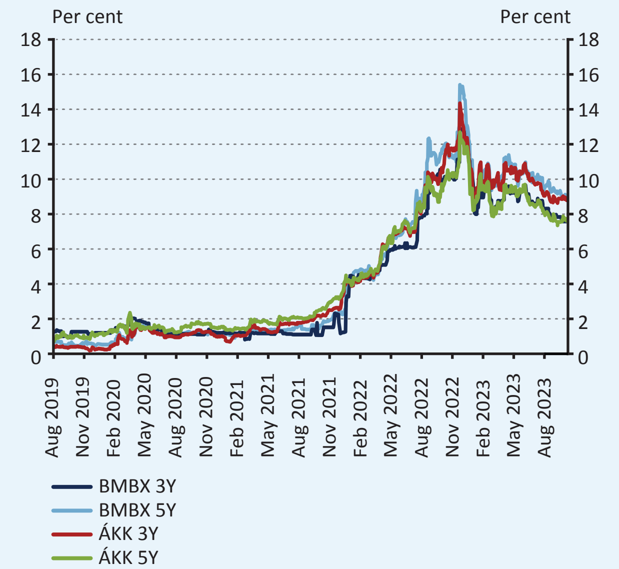
Due in part to the MFAR, the stock of mortgage bonds has continued to grow and a substantial stock of green mortgage bonds has been issued. After a temporary slowdown in 2021, the amount of domestic mortgage bonds repeatedly increased in 2022, reaching close to HUF 2,000 billion by 30 June 2023 *(Chart 27)*. Moreover, all mortgage banks now have green mortgage bonds, mainly as a result of the issuances in 2021. They now represent 9.6 per cent of the total outstanding stock (HUF 188 billion). In 2023, in addition to previous green issuances, further green issuances are expected to replace maturing non-green mortgage bonds. Foreign currency denominated issuances have not yet taken place, given the complexity of the preparation required for such issues and the lack of ideal market conditions and issuance volumes that are also appropriate for international markets. In order to increase incentives to attract green funds while allowing

Chart 28
Development of the outstanding Hungarian and green mortgage bonds by owner sector



Note: nominal values.
Source: MNB Securities statistics

Chart 29
3-year and 5-year mortgage bond market indices (BMBX 3Y and BMBX 5Y) and government bond market benchmark yields



Source: BSE, ÁKK.

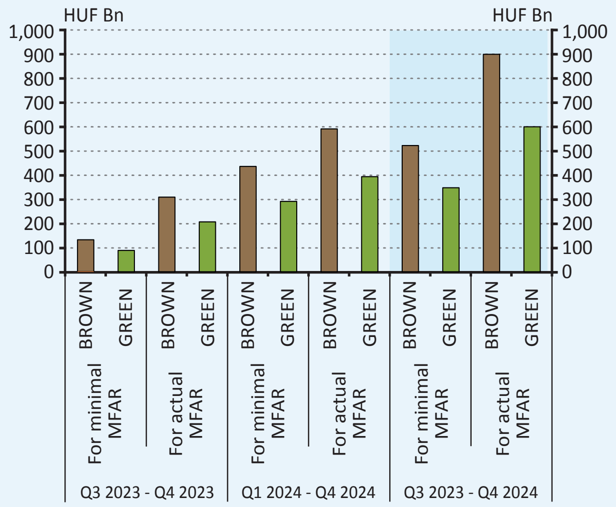
sufficient time for the build-up of sufficient green mortgage collateral foreign currency mortgage liabilities issued after 30 September 2024 will also need to meet sustainability (green) requirements to be included in the MFAR, putting off the effective date by one year.

Diversifying the investor base remains an important objective in the mortgage bond market ensuring stable funding. At the end of the second quarter of 2023, 51 per cent of mortgage bonds were held by domestic banks and 32 per cent were held by the MNB, with only 9 and 7 per cent held respectively by domestic institutional and foreign investors *(Chart 28)*. It has been a favourable development that the share of domestic institutional investors roughly doubled in the quarter under review, at the expense of banks. Green bonds show a similar ownership distribution in terms of size, with a moderately larger share of domestic non-bank institutions and, therefore, a slightly smaller share of banks. Cross-ownership across banks may entail contagion risks and does not represent a real stable funding at sector level. MNB holds nearly 40 per cent of the total stock. Depending on the direction of monetary policy, its role could also change substantially in the future. In the longer term, the share of systemic external funding, preferably from non-bank institutions and foreign investors, should therefore continue to be strengthened. This may be supported by the MFAR requirements, which are also adapted to prevailing market conditions such as the preferential treatment of green mortgage funds and the inclusion of foreign currency funds in the regulation.

5.2 THE MNB POSTPONED THE PLANNED TIGHTENING OF THE MFAR DUE TO CHANGED FINANCIAL MARKET CONDITIONS

Previously planned tightening measures to increase the share of mortgage-based financing and reduce interbank cross-financing have been postponed for an indefinite period to avoid unintended negative effects. To address the ongoing economic and capital market uncertainty and to facilitate smooth compliance with MREL requirements, the previously announced MFAR tightening measures aimed at strengthening the maturity match of liabilities and assets, which were originally due to enter into force on 1 October 2023, i.e. raising the minimum MFAR requirement from 25 to 30 per cent, requiring newly issued mortgage bonds to be listed on a stock exchange, and re-limiting the banking sector's cross-ownership of mortgage bonds, have been postponed indefinitely at the end of 2022. The move will help avoid costly bank adjustments in the current capital market environment. Given the current uncertainties,

Chart 30
Issuance needs for different compliance targets and types of mortgage bonds to be issued (30 June 2023)



Note: The MFAR denominator takes into account the projected growth in loans. The need for issuance also reflects the need for other banks to adapt through refinancing links.

Source: MNB.

expected returns remain high albeit moderately declining *(Chart 29)*. This keeps mortgage-based funds more expensive compared to other available funds, such as client deposits.

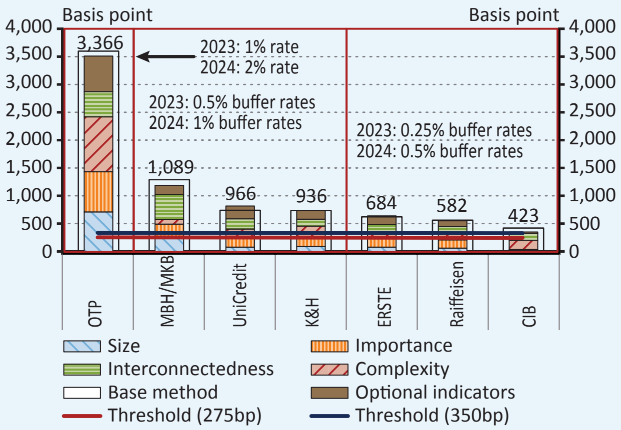
In September 2023, the MNB decided to postpone the green requirement for new foreign currency mortgage bond-based liabilities for 1 year. The MFAR requirement is met by the vast majority of banks and by the sector as a whole, with significant buffers. However, in view of the conditions in the mortgage bond market, the administrative time required for foreign currency issuance, the large stock of mortgage bonds maturing and due for renewal, the downturn in mortgage lending and the slow build-up of green collateral of sufficient volume, the MNB has postponed the entry into force of the green requirement for new foreign currency mortgage bond-based liabilities from 1 October 2023 to 1 October 2024.

The momentum and fundamentals for development of the mortgage bond market are currently unfavourable; therefore, a wait-and-see approach to further regulatory tightening is warranted. Some institutions may also find it challenging to maintain compliance under the current market conditions. As larger volumes of mortgage bonds will mature in the second half of 2023 and in 2024 (HUF 245 billion and HUF 440 billion respectively), there will be a substantial demand for issuance even in the absence of tightening. In 2023 and 2024, taking into account the estimated growth of mortgage loan portfolios, a minimum issuance of around HUF 523 billion may be needed to maintain MFAR compliance in case of issues exclusively without green rating and a minimum issuance of around HUF 349 billion in case of only green issues *(Chart 30)*. If the aim is to maintain the current level of MFAR buffers, issuance of HUF 903 billion or HUF 602 billion may be required, depending on the green aspect of the issued mortgage bonds. While green issuance would therefore make it easier to meet the requirement, they may be constrained by the lack of adequate available green collateral, which is adversely affected by the substantial slowdown in new lending and the availability of data for qualification. The potential timing of the introduction of MFAR tightening will be decided by the MNB in the light of the normalisation of the economic and financial market environment.

6 The capital buffers of systemically important institutions

The 2023 regular annual review of the MNB did not result in any change to the list of domestic Other Systemically Important Institutions (O-SIIs). From 2023, systemically important banks has been required to comply with half of the individual buffer rate target levels envisaged for 2024, thereby gradually building up buffers as specified following the release introduced in connection with COVID-19. The relatively modest change in the systemic importance and concentration of O-SII banks in the past year, mainly due to the foreign acquisitions of OTP Bank Plc, did not justify any change in buffer rates.

Chart 31
Components of the scores of other systemically important institutions and their final buffer rates



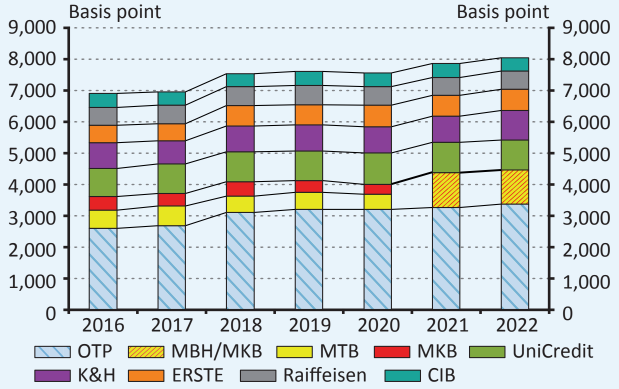
Note: The scores shown are the results of the 2022 review. The horizontal blue line indicates the standard 350 basis points in the EBA Guidelines, while the red line indicates the domestic threshold level above which a bank can be rated O-SII, reduced to 275 basis points in 2020 as enabled by the EBA Guidelines.

Source: MNB

The regular annual review by the MNB in 2022 has not changed the list of systemically important institutions. During the latest identification of Other Systemically Important Institutions (O-SIIs) headquartered in Hungary in 2022, the MNB continued to use the same measurement of systemic importance as in previous years, based on the aggregation of the EU-harmonised core indicators and the additional domestic indicators. The MNB thus reviewed the O-SII scores representing systemic importance[9], which for seven banking groups, as in previous years, exceeded the 275 basis point threshold *(Chart 31)*.

The concentration and share of O-SII banks in the banking system has been shaped both by the acquisitions of OTP, which has expanded abroad, and the merger of large banks operating in the domestic market. Based on the 2022 results, the share of significant institutions continued to increase (to 8,045 basis points), and the concentration within the distribution of significant credit institutions also increased *(Chart 32)*. The latter was significantly impacted by the expansion of the international activities of the OTP Group, which may be further boosted by the acquisitions closed in 2022 and 2023 or expected to be completed (expansion in Albania, Slovenia and Uzbekistan). The growth of foreign subsidiaries has largely surpassed and compensated for the shrinking presence in the Russian, Ukrainian and Moldovan markets (which only accounted for 7 per cent of the group on balance sheet total basis at the end of 2022). From 2023, OTP subsidiaries are considered O-SIIs in all EU member states where the OTP Group is present. The sub-consolidated part of the group at domestic level is of considerable importance in itself, with an estimated score of around 2,500 basis points. In terms of the distribution of EU buffer rates and scores *(Chart 33)*. The set buffer rates can be considered to be oriented proportionally with the score estimated at the domestic sub-consolidated level, even so, just as other EU authorities, the MNB also takes into account subsidiaries

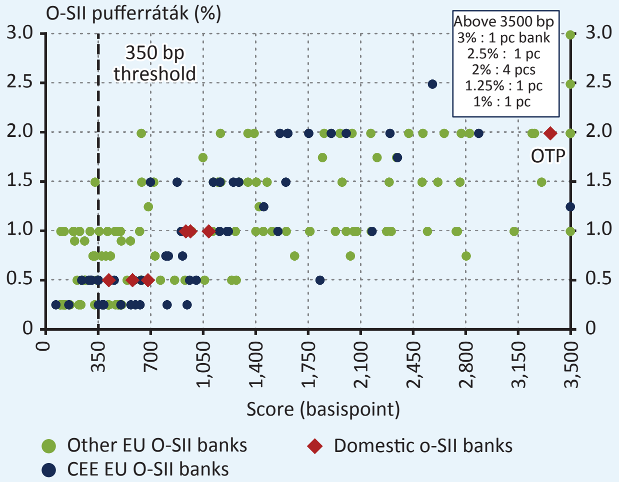
Chart 32
Changes in the scores of other systemically important banks



Note: The years indicate the validity period of the scores, the scores are calculated by the MNB on the basis of the audited data provided by December 31 of the previous year.

Source: MNB

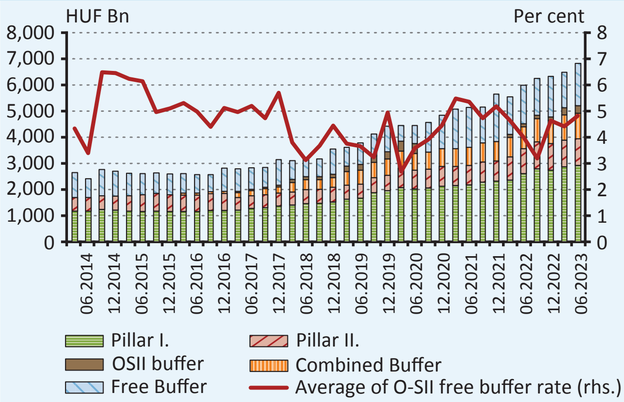
Chart 33
Correlation of score and buffer rates of O-SII banks



Note: There are 8 O-SII institutions with a score higher than 3,500 basis points, which are shown at 3,500 basis points in the chart.

Source: MNB

Chart 34
Evolution of the O-SII banks' free buffer rates



Source: MNB

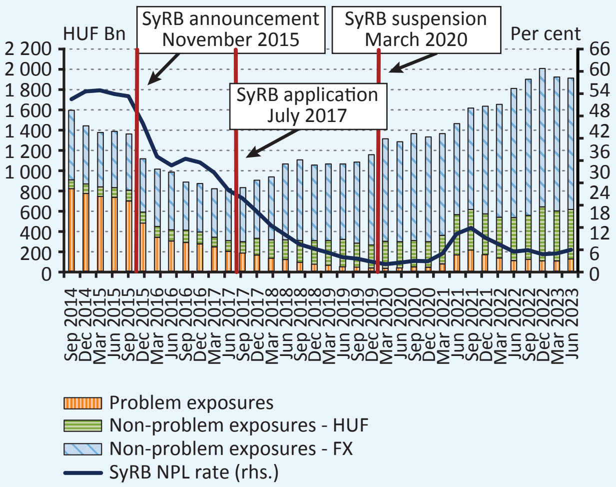
active in other countries for the calculation of scores. Moreover, the integration of Magyar Bankholding Zrt. (MBH) has also increased the concentration of O-SII banks in the domestic market, as MBH has emerged as a market leader or prominent player in several systemically important financial intermediation segments.

Even with the continued build-up of O-SII buffers in 2023, the capital position of O-SII banks has remained adequate. Banks that are significant at domestic system level continued to operate with a relatively high voluntary capital buffer of nearly HUF 1,640 billion at the end of 2023 Q2, taking into account the MNB's capital buffer release measures. The O-SII buffers required a capital of HUF 285 billion *(Chart 34)* and are expected to increase by approximately the same amount in 2024 according to the currently envisaged buffer rates (depending on the change in the total risk exposure amount). Voluntary buffer rates improved significantly by Q2 of this year, reflecting the year-end slowdown of the rapid expansion of total risk exposure in 2022[10] and the gradual expansion of own funds. However, the capital positions of O-SII banks vary significantly, with the lowest voluntary buffer rate being at 2.2 per cent while the highest was at 6.6 per cent at the end of Q2. A stable capital position and high profitability will continue to provide the opportunity to gradually build back buffers to fall back on in a crisis.

7 Systemic risk buffer

While the risks associated with commercial real estate (CRE) lending are not considered excessive at present, they may increase in the future. Rental demand remains below pre-COVID levels in most segments, with a significant risk of oversupply in the medium term, rising vacancy rates are observed, and the increase in expected returns on real estate investments is pointing towards a decline in property values. Effective from 1 July 2024, rising risks have justified the reactivation of the systemic risk buffer (SyRB) for preventive purposes, which was suspended for an indefinite period in the wake of the COVID-19 outbreak. The activation of the SyRB, calibrated with consideration to changing risks and technical conditions associated with CRE financing, will strengthen banks' resilience to project loan exposures and encourage timely balance sheet clean-up in the event of a potential default.

Chart 35
Domestic commercial real estate project loan exposures and held-for-sale real estates



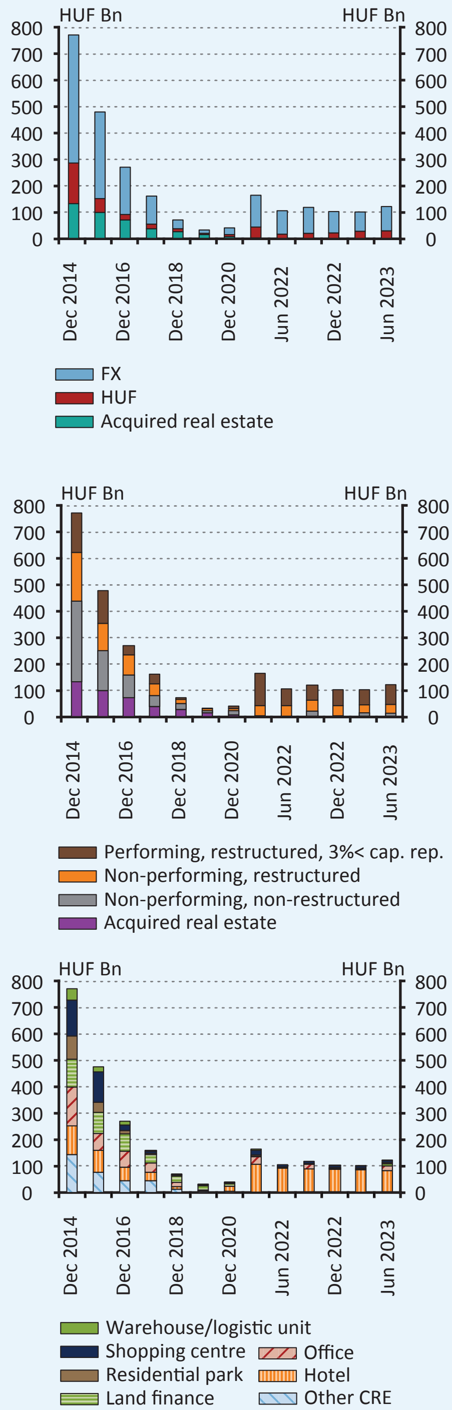
Note: SyRB NPL rate: The ratio of problem stock according to the SyRB definition to total stock.

Source: MNB.

7.1 SYSTEMIC RISKS FROM COMMERCIAL REAL ESTATE PROJECT LOAN EXPOSURES MAY INCREASE OVER THE MEDIUM TERM

The systemic risks associated with problem commercial real estate project loan portfolios may increase over the medium term. In terms of problem loans, due to the reclassification of the project loan exposures most affected by the previous corporate credit moratorium to performing restructured portfolios, the NPL ratio according to the SyRB definition of problem loans reached 12 per cent by September 2021. As the majority of the exposures concerned proved to be problem-free after the expiry of the moratorium and the subsequent monitoring period, this rate fell substantially by the beginning of 2023 and stood at 6.4 per cent, or HUF 122 billion, at the end of June 2023. An increase in problem stocks due to a small number of higher-volume transactions does not yet indicate an increase in overall systemic risk *(Chart 35)*. 76 per cent of problem loans *(Chart 36)* are foreign currency loans, , in a way that cannot be separated from the specificities of project loan finance, and 66 per cent is the financing of hotel-related projects. Only 37 per cent of problem loans were non-performing transactions, while 63 per cent were essentially performing transactions, typically restructured due to a previous moratorium and therefore with insufficient repayment capacity, and therefore not classified as problem-free. The likelihood of future growth in problem loans has increased due to the current uncertain macroeconomic outlook, yields trends, tightening financing conditions and various sector-specific risks (accommodation, hospitality). This is confirmed by the ESRB recommendation of 25 January 2023[11], which draws attention to the importance of the sector for systemic risks, the potential build-up of risks and the key importance of risk monitoring.

36. ábra
Belföldi problémás kereskedelmiingatlan-kitettségek különböző típusbontások szerint



Forrás: MNB.

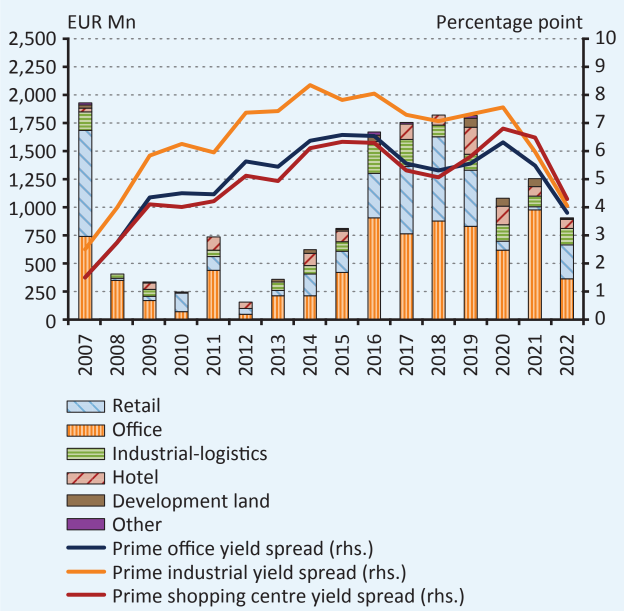
For new commercial real estate market investments, falling return premiums are moderating investor demand. Rental demand remains below pre-COVID levels in most segments, with a significant risk of oversupply in the medium term, and rising vacancy rates already observed. On the basis of ongoing construction, there is a significant risk of oversupply in the office market within a year and in the industrial/logistics market in the medium term. Meanwhile, the increase in expected yields on real estate investments tends to reduce property values. In 2022, the investment turnover of the commercial real estate market reached EUR 0.9 billion *(Chart 37)*, a decrease of 28 per cent compared to the previous year. Prime euro-based spreads have declined significantly in all segments as a result of tightening monetary conditions, falling from around 6 percentage points in 2021 to close to 4 percentage points in 2022. The decline in return premiums is observed both globally and in Europe, curbing investor demand and investment volumes, posing a potential risk to the commercial real estate market. This is reinforced by the fact that Budapest has experienced a 14 per cent drop in capital value, the highest in the region, due to the rise in expected yields in the office market. As a result, the commercial real estate market entered a downturn by the end of 2022, according to most experts[12].

7.2 THE MNB HAS DECIDED TO REACTIVATE THE SYSTEMIC RISK BUFFER, WHICH WAS SUSPENDED FOR AN INDEFINITE PERIOD IN THE WAKE OF THE CORONAVIRUS EPIDEMIC

The MNB decided to reactivate the SyRB in view of the potential increase in commercial real estate market risks. In addition to providing a communication signal on the potential increase in risks, it would contribute to increasing banks' resilience to shocks, encourage a timely clean-up of loan portfolios with potential problems, thereby supporting a rapid recovery of lending, and limit excessive CRE outflows relative to banks' risk profile (i.e., relative to balance sheet total and capital position).

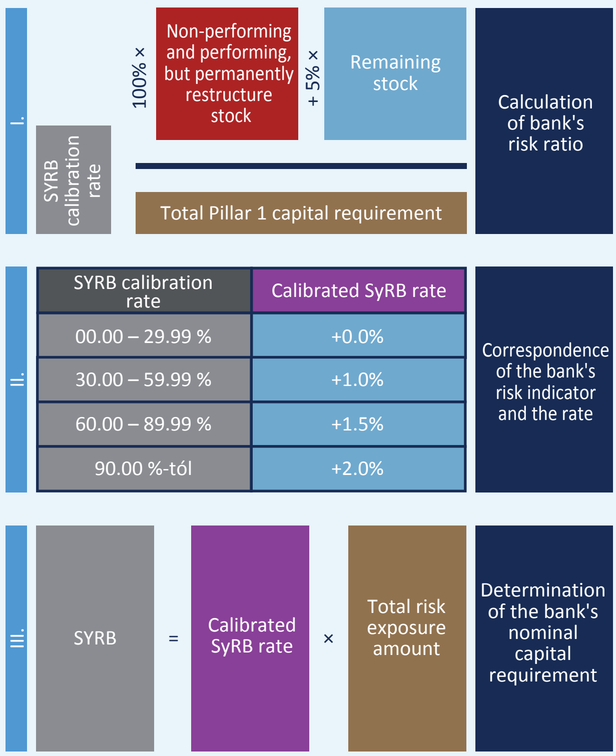
The requirement would be amended on several points to reflect changing risks and technical conditions. The MNB will set the capital buffer rate based on the ratio of each institution's potentially risky assets to the Pillar I capital requirement, which captures the bank's size and risk profile. The numerator of the resulting calibration indicator includes 100 per cent of the non-performing and permanently restructured project loan portfolio and 5 per cent of the remaining project loan portfolio *(Chart 38)*. Depending on

Chart 37
Investment volume and prime yield spreads in the Hungarian commercial real estate market



Note: Yield spreads are calculated on the basis of 10-year Eurobond yields.
Source: CBRE, Cushman & Wakefield, MNB

Chart 38
Calculation of the systemic risk capital buffer



Source: MNB.

the value of the indicator, the calibrated capital buffer rate is set between 0 and 2 per cent for the sub-consolidated domestic group. In addition, the instrument targets domestic and foreign exposures according to the seat of the counterparty instead of domestic project finance exposures by location. See *Table 2* for other minor changes resulting in some cases from changes in the data services used.

Based on the preliminary calibration results and the expected substantial phase-in time, the SyRB would be introduced as a preventive measure. Based on the banks' project loan portfolios and the capital position at the end of the second quarter of 2023, two banks may need to be subjected to effective SyRB requirement. However, the sufficiently long preparation period until 31 March 2024 enables banks to mitigate or avoid the capital buffer requirement through portfolio screening or balance sheet adjustments. Moreover, for some smaller banks the so-called *de minimis* limit may result exemption, which threshold has been increased to take account of the general increase in loan portfolios. The set of banks that may be subjected to an effective requirement may therefore change in view of all the above until the capital buffer is prescribed.

Table 2
Comparison of the previous and the new SyRB to be put in place

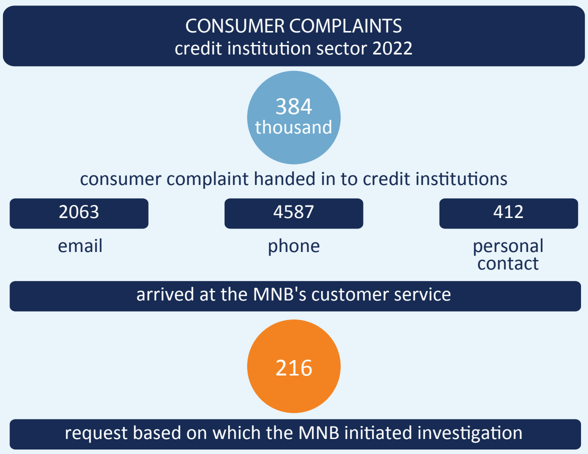
Regulatory element concerned	Current SyRB	Adjusted SyRB
Consolidation level of targeted stock	Consolidated exposure of entire group	Exposures consolidated with domestic entities
Transaction size de minimis	Transactions under HUF 100 million are exempt	No
Definition of project loan	Any of the CRR special credit exposure conditions (3/1)	CRR special credit exposure conditions all (3/3)
Definition of CRE	A specific definition based on the CRE definition according to the CRR, setting out exceptions	Loans based on the definition of CRE according to the CRR for the purpose of construction and purchase loans
Geographical dimension of targeted stock	Domestic exposures based on the location of the financed project	Exposures to financed domestic and foreign partners regardless of the location of the property
Definition of targeted exposure	Non-performing stock according to the original or restructured contract, performing stock that has been restructured with a capital repayment of less than 3%, as well as real estate on the balance sheet weighted at 100 percent, while foreign currency stock that cannot be characterized as such has a weight of 5 percent.	Non-performing stock according to the original or restructured contract and performing stock that has been restructured without interruption for more than 2 years are weighted at 100 percent, while stock that cannot be characterized by these has a weight of 5 percent.
De minimis for the targeted exposure	HUF 20 billion for the targeted unweighted stock	HUF 30 billion for the targeted unweighted stock
Denominator of calibration indicator (capital requirement)	Domestic (domestic) pillar 1 capital requirement of the entire group	Total pillar 1 capital requirement of the domestic group
SyRB rate projection basis (risk exposure amount)	Total group domestic (domestic) risk exposure amount	Total risk exposure amount of the entire group

Source: MNB

8 The MNB’s financial consumer protection activities

Through confidence in the financial system, the MNB’s financial consumer protection activities, which have become increasingly complex and focused in recent years, also make a significant contribution to maintaining financial stability. As part of its consumer protection activities, the MNB continuously assesses the actual risks for consumers. Once risks have been assessed, the necessary measures are determined, ranging from the orientation of operators’ supervision to the launch of targeted investigations. As part of its consumer protection activities, the MNB has launched an educational campaign to raise consumer awareness and issued a recommendation to domestic payment service providers to mitigate the risks of cyber fraud. Moreover, the MNB has made it a priority to examine the adequacy of institutional practices regarding the payment holiday and the increase in inflation charges on account products.

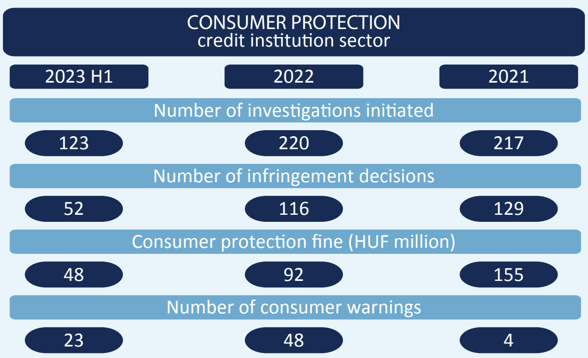
Chart 39
Consumer complaints in the credit institutions sector in 2022



Note: The credit institutions sector includes credit institutions and the associated financial businesses.

Source: MNB

Chart 40
Data on consumer protection activities in the credit institutions sector



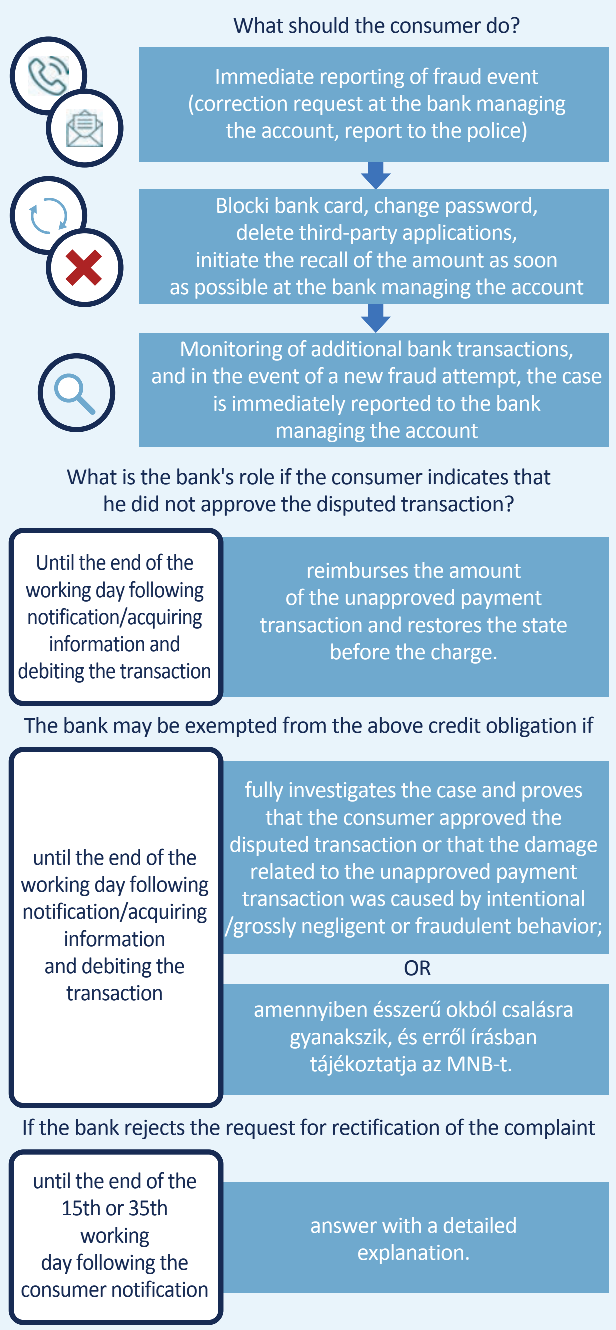
Note: The credit institutions sector includes credit institutions and the associated financial businesses.

Source: MNB

8.1 IN 2022, THE MNB’S CONSUMER PROTECTION ACTIVITIES IN THE FINANCIAL MARKETS WERE CHARACTERISED BY CONTINUOUS, PROACTIVE SUPERVISION

Compared to the previous year, the number of complaints received by the credit institutions sector decreased in 2022, while the number of consumer complaints received by the MNB is on the rise. While the number of complaints to the credit sector decreased by more than 1 per cent in 2022, investigations opened on request increased by nearly 10 per cent compared to the 197 cases investigated in 2021 *(Chart 39)*. In 2023 H1, the number of procedures opened on request is similar to the equivalent period of 2022. In 2022, the number of rapid action consumer protection warnings issued as part of continuous monitoring increased twelvefold compared to the previous year *(Chart 40)*, typically requiring institutions to correct incomplete information and inaccuracies on websites. The amount of fines imposed in 2022 decreased compared to the previous year and was at a similar level to the fines imposed in 2020 (2020: HUF 98 million). In terms of the topics of complaints received by credit institutions, financial abuse complaints took the lead in 2022, ahead of settlement disputes, and continued to dominate 2023 H1, while they also contributed to the increase in investigations opened on request.

Chart 41
Types of action if any abuse is detected

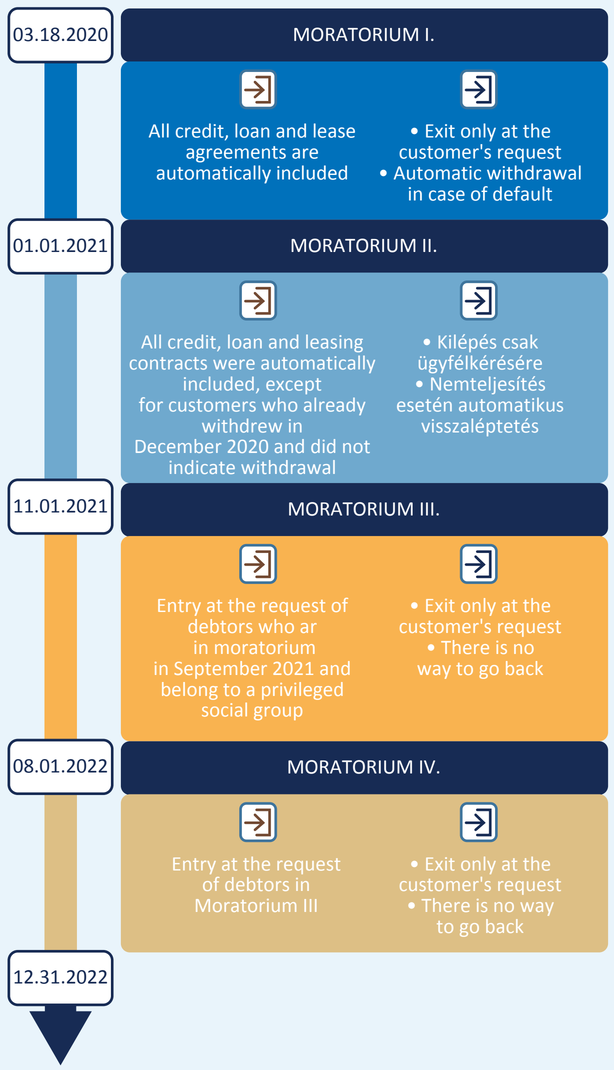


Source: MNB

8.2 MNB TACKLES CYBER FRAUD BY RAISING CONSUMERS' FINANCIAL AWARENESS AND ISSUING A RECOMMENDATION TO THE HUNGARIAN PAYMENT INDUSTRY

The MNB has recently received a number of consumer requests and notifications related to some form of abuse in the digital space that has caused financial harm to consumers. There is an increasing number of cases where fraudsters use deception and psychological manipulation to persuade consumers to provide personal authentication and sensitive payment details, to record the payment order, to approve payment orders given by the perpetrators, or to ask consumers to install software that take control of their computing devices, allowing payment orders to be directly given or approved by the perpetrators. There are limited possibilities to recover the amount of these transactions, and in case of serious negligence by the consumer, the payment service provider has no obligation to pay compensation. In order to reduce the number of consumers falling victim to fraud, it is crucial to improve consumers' digital financial awareness, and their awareness of cybersecurity risks and related protection options. To support the above, an educational campaign entitled the CyberShield project has been launched, in which the MNB has been actively involved. The project will raise awareness of the risks to financial security in the online space, how to avoid them and the types of action to take in the event of potential abuse. The MNB also supports the fight against cyber fraud by issuing a recommendation to domestic payment industry operators. In the recommendation, the MNB identifies expected and good practices for preventing, detecting and deterring fraud. MNB emphasises the importance of sufficiently informing customers about framework contracts and fraudulent transactions MNB specifies the procedure to be followed by the payment service provider once it has received a fraud report from a consumer (*Chart 41*).

Chart 42
The different stages of the moratorium



Source: MNB.

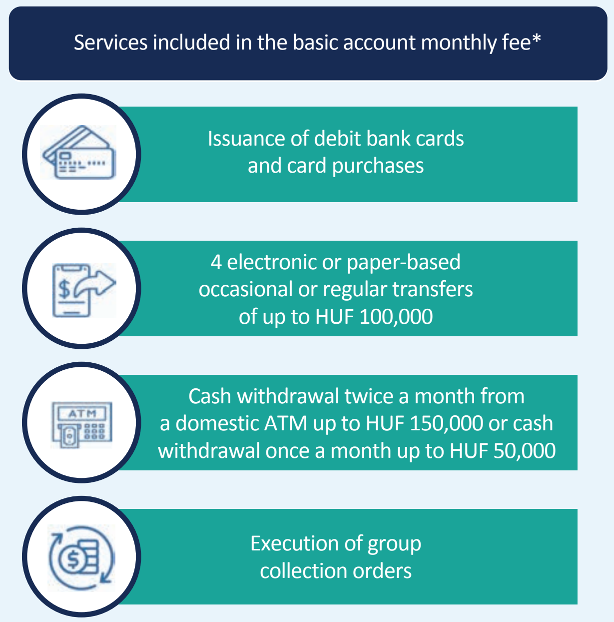
8.3 NO SYSTEMIC ERRORS WERE IDENTIFIED IN THE MNB'S THEMATIC INQUIRY ON THE PAYMENT MORATORIUM

2022 Q4 saw the end of the MNB's thematic inquiry into the payment moratorium practices of 16 institutions. In the thematic inquiry launched in June 2021, the MNB reviewed the implementation of the moratorium rules by the institutions, including the treatment of debts accumulated during the moratorium and the logic used to calculate the expected maturity extension. The study covered the first and second phases of the moratorium (*Chart 42*). Errors found included two institutions charging interest on late payments due to incorrect system settings and three institutions incorrectly extending the deferred payment period for premiums related to framework products. The investigation revealed that four institutions started collecting moratorium debts after consumers had left the moratorium yet before its end, which is against the law. Moreover, while some institutions breached the debt rescheduling deadline for revolving credit products under the moratorium, these mostly represented a low volume of loans and minor delays. The MNB imposed a total of HUF 18 million in fines on 9 institutions, taking into account that the introduction of the payment moratorium required rapid adaptation and systemic changeover and that the errors detected were quickly remedied by the credit institutions under investigation.

8.4 IN ADDITION TO THE INFLATION-RELATED INCREASE IN ACCOUNT FEES, THE MONTHLY FEE FOR THE BASIC ACCOUNT HAS FALLEN BY A THIRD, WHICH MAY ENCOURAGE ACCOUNT SWITCHING

As in previous years, payment institutions increased the fees for payment accounts in the first half of the year by the rate of inflation of the previous year. **By the end of June 2023, almost all institutions enacted the 2022 tariff changes, equivalent to the 14.5 per cent inflation**, which may represent charges increased by thousands of forints a year for consumers. Fees may be lawfully increased if the institutions have set out the conditions and reasons for the increase in advance in the framework contract and if the reasons are stated at the time of the increase. In addition to inflation, institutions may also cite other reasons (e.g. tax increases) for fee increases, and may apply inflationary increases where were previously postponed for business reasons in combination with the current increase, which may result in fee increases in excess of the rate of inflation.

Chart 43
Basic account services



**Transactions charged in addition to the monthly fee are subject to an additional fee as set out in the notice.*

Source: MNB

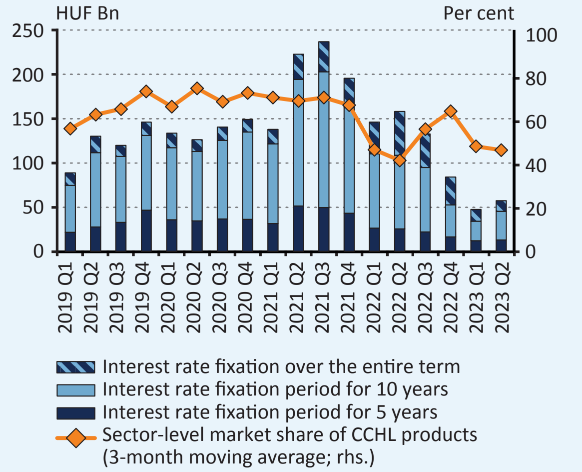
The 2022 inflationary fee increases for payment accounts could further exacerbate the differences in fees between different accounts, even within a single bank. **Switching between accounts may be boosted by the statutory reduction in the basic account fee with effect from 1 July 2023**. From now on, the fee ceiling for a basic account is 0.5 per cent of the monthly gross minimum wage applicable on the last day of the previous year, instead of the previous 1.5 per cent, i.e. in 2023 H2, the monthly account management fee must not exceed HUF 1,000. Due to the reduced fee, a basic account can offer consumers with average transaction patterns a meaningful alternative to their current account product *(Chart 43)*. The 'Statement of Charges', sent to consumers by 31 January each year, enabling them to keep track of the transaction history of their account in a summarised and systematic way, may substantially facilitate the selection of the right account product.

As part of its ongoing supervision, the MNB regularly reviews the institutions' fee-increasing practices and their compliance with the law, as well as their compliance with the obligation to send Statements of Charges to their clients.

Box 3
Certified Consumer-friendly products – achievements and development directions

The MNB launched its Certified Consumer-Friendly framework in summer 2017, with a focus on consumer protection, competitiveness and financial stability. The consumer-friendly product certification was first applied to housing loans. This was then extended by the MNB to housing insurance products from 2020 and to the personal loans market from 2021. By early 2023, certified products became the dominant products in all three markets. Since the launch of Certified Consumer-Friendly Housing Loans (CCHL), around 197,000 MFL contracts worth nearly HUF 2,800 billion were signed by 2023 Q2, giving the products a share of over 45 per cent of the total outstanding housing loan portfolio. The share of CCHL products in new lending was close to 60-70 per cent at the end of 2022, the product rating was thus instrumental in longer-term fixed-rate loan products becoming common and in an overall reduction in housing loan spreads. Since 2023, however, the market share of CCHL products has gradually decreased to around 40-50 per cent due to the changed market environment.

New housing loans by length of interest period



Note: The share of CCHL products has been calculated among potentially qualifying bank housing loans.

Source: MNB.

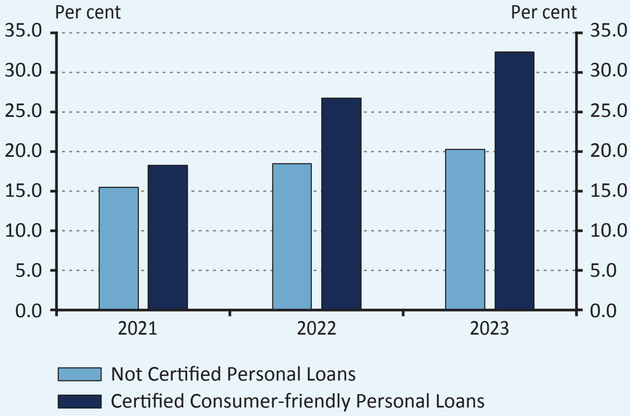
In the changed market and regulatory environments, a comprehensive review and further development of the framework has become necessary to make it more flexible. As of 1 September 2023, a comprehensive review of the MFL framework was carried out, which did not affect the basic principles of the certification, in order to ensure that they should remain the leading products in the housing loan market in a changed market and regulatory environment (rising interest rates, new bank charges, interest rate freeze) and to ensure that the positive effects of the certification continue to be felt as widely as possible. The revised framework includes changes to pricing, disclosure requirements, disbursement conditions, data reporting and monitoring, and allows CCHL distributors to provide a one-off, no-fee interest rate reduction service on the transaction rate for fixed-rate loans throughout the term.

In order to promote the energy renewal of the domestic housing stock, the MNB decided to improve the CCHL framework in a green direction from April 2023, in line with its green mandate. The aim of the amendment is to encourage the development of green home loan products and the financing of green lending objectives by the banking sector and to support the greening of the economy. Accordingly, from April 2023, CCHL loans granted to finance a specific green credit objectives in line with the MNB's Green Preferential Capital Requirement Programme cannot be subject to disbursement fees, or charges and other costs related to the verification of the green credit objective. Moreover, the creditor is obliged to assume the cost of the Energy Performance Certificate on a single occasion. Furthermore, the lender may grant a green interest rate reduction if the achievement of green credit objectives has been verified. By 2023 H2, several institutions have started selling dedicated green CCHL products (see Box 1 for more details on green CCHL lending).

In order to minimise the in-person processes of taking out a home loan, reduce administrative burdens and support the wider adoption of online lending processes, the MNB decided to move the CCHL processes to online platforms in spring 2023. From 1 January 2024, customers will have the option to complete the pre-contractual loan application processes electronically (via email and the lender's online platform) for all CCHL loans, ensuring that they only need to visit the lender's branch on a single occasion, to sign the contract. Moreover, in order to ensure fast and efficient administration, the creditor will, at the request of the client, ensure that notarisation be carried out on the day the contract is concluded, at the place of concluding the contract, provided that the client agrees to pay the related notarial costs. In order to further enhance the efficiency of online lending, it is a mandatory requirement to operate institutional online lending platforms, which will be linked to the MNB's Comparison page for qualified products from 1 April 2024, i.e. institutions will be obliged to transfer the data provided by potential borrowers to their own interfaces.

In the personal loans market, Certified Consumer-Friendly Personal Loan (CCPL) products also have a significant market share and are a major driver for the take-up of full online lending. After the introduction of the rating in 2021, CCPL products have had a stable market share of around 20 per cent, with lenders disbursing a total of nearly HUF 266 billion and signing around 70,000 contracts by June 2023. A key objective of the CCPL certification is to promote online personal lending processes. Accordingly, distributors must provide consumers with fully comprehensive online lending process. Thus, the share of online loans in CCPL lending reached nearly 35 per cent in 2023 H1, about twice the share of non-certified loans.

Change in the share of online personal lending by rating



Note: Share by volume. Credit institutions sector. 2023 data are for the first six months of the year.

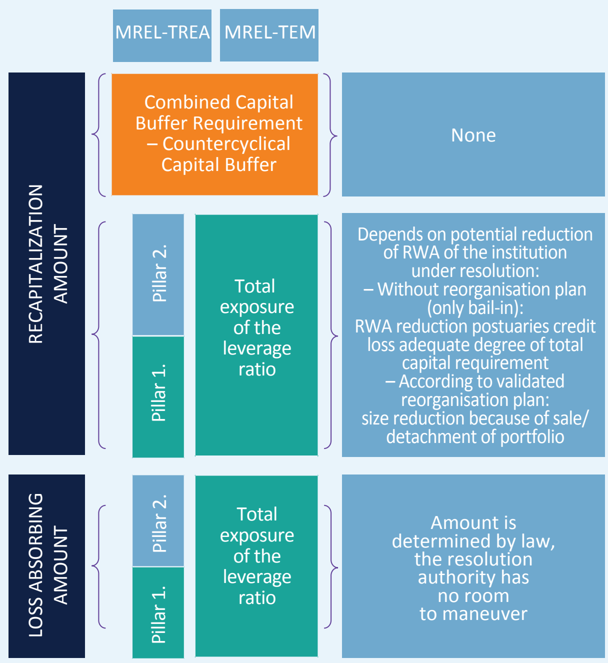
Source: MNB.

Certified Consumer-Friendly Home Insurance (CCHI) is becoming increasingly popular in the home insurance market. By June 2023, CCHI is offered by 12 insurers, with nearly 36,000 contracts signed since its launch and HUF 1,763 billion in insured assets. The 15 per cent unit growth of CCHI products in 2023 Q2 was supported by the information requirement laid down in the Government Decree on the use of the CCHI calculator when taking out property insurance as a condition for mortgage loan contracts.

9 The MNB's resolution activity

The MNB updated the MREL requirement for the institutions concerned according to the current principles published in 2022. Credit institutions complied the MREL requirements by the mandatory compliance date of 1 January 2023. The MNB is closely monitoring preparations for mandatory compliance on 1 January 2024. While credit institutions concerned have been steadily increasing their MREL-eligible liabilities, the cost of borrowing this year and for the remainder of the year has increased. While the postponement of the activation of the countercyclical capital buffer rate in 2023 has reduced the MREL requirement, institutions are still required to make an adjustment of HUF 655 billion by 1 January 2024. In 2023, the MNB has initiated to improve the data reporting capability for the institutions concerned, with a focus on providing the information needed for independent valuation during resolution.

Chart 44
MREL requirement for large banks



MREL TREA: risk-based MREL requirement set as a proportion of the total risk exposure value

MREL TEM: MREL requirement set as a proportion of the total exposure value

Pillar 1: Pillar 1 capital requirement

Pillar 2: Pillar 2 capital requirement

Source: MNB.

9.1 MREL REQUIREMENTS HAVE BEEN UPDATED IN LINE WITH THE NEW REGULATION AND THE LATEST BANKING DATA

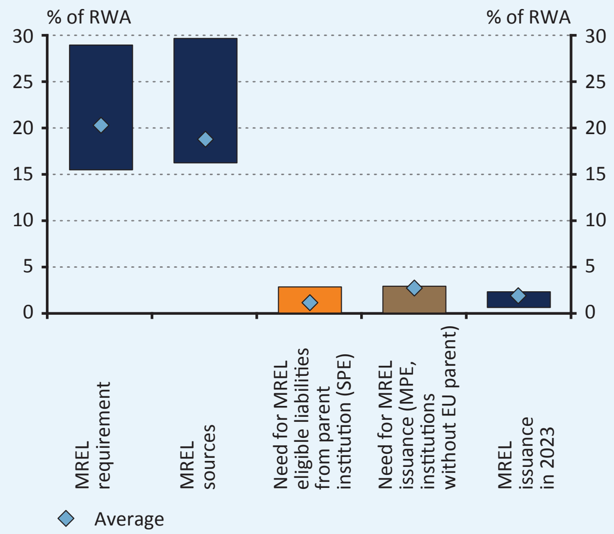
Taking into account the latest data from the banks concerned and changes in the principles for calculating MREL requirements, the MNB has updated the requirements in the context of resolution planning. The change in principles, as described in our previous report, was necessitated by the domestic implementation of BRRD2 in December 2020. The transposition of the new regulation into principles and the obligation to meet the MREL requirement's target levels set on the basis of the new regulation entered into force from 2022. In transposing the principles, the MNB will continue to give priority to ensuring a level playing field and the international competitiveness of domestic institutions (*Chart 44*).

An important substantive change to the principles has been that core Tier 1 capital held to meet capital buffers is no longer regarded as an MREL-eligible liabilities because of the prohibition on its use for various purposes at the same time. In the calculation of the MREL requirement, capital buffers were excluded from the calculation, while the core Tier 1 capital (CET1) that covers capital buffers is not part of MREL-eligible liabilities. Consequently, the deferral of the activation of the countercyclical capital buffer rate in

Chart 45
Compliance with the MREL requirements

Source: MNB.

Chart 46
MREL requirement for large banks as a proportion of TREA and the degree of adjustment required depending on the resolution strategy



Note: The chart shows minimum and maximum values.
Source: MNB.

2023 reduces the MREL requirement, i.e. it increases the amount of MREL-eligible liabilities.

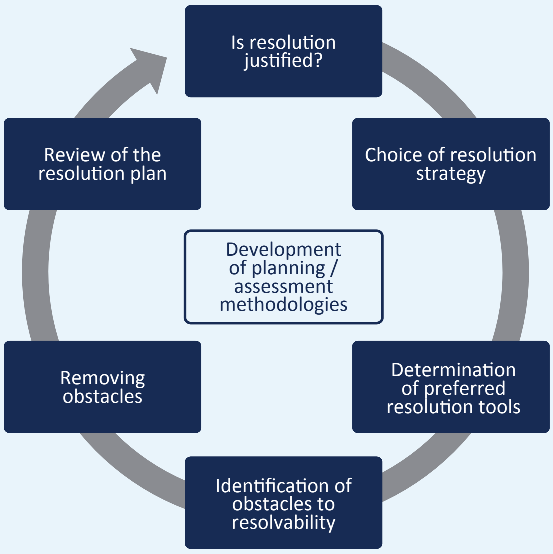
In resolution planning, institutions should fully comply with MREL requirements from 1 January 2024, essentially following a linear path of continuous adjustment. Under the new regulation, the MNB has set mandatory intermediate targets, the achievement of which has been closely monitored by the MNB (*Chart 45*).

9.2 MREL REQUIREMENTS ARE CONTINUOUSLY MONITORED BY THE MNB, WHILE ANOTHER SIGNIFICANT IMPROVEMENT OF THE METHODOLOGY SUPPORTING RESOLUTION PLANNING STARTED IN 2023

The credit institutions concerned have met the interim MREL requirements of 1 January 2023. The MNB has been monitoring the compliance of credit institutions with MREL requirements on a quarterly basis since 2022. In our experience, the institutions concerned are adapting by issuing different types of equity instruments (T1 capital, senior bonds), by issuing MREL eligible non-equity (non-priority unsecured, senior non-preferred) bonds, and by relying on parent bank funding. Of the above, T1 capital is considered as the most expensive source of financing, while non-priority unsecured bonds and parent bank funds are the least expensive.

Based on issuances to date, the adjustment until the first half of the year, the issuance of funds needed to comply with the MREL, costs banks around HUF 105 billion a year. The price of various bond issues has risen substantially compared to 2021. Therefore, this year's adjustment demand, which is still ahead of us, is expected to take place in a higher yield environment than before 2022, with pricing similar to the issues of recent months, and with the total cost of these issues highly dependent on market yields at the time of issuance. While the credit institutions concerned have been steadily increasing the amount of their MREL eligible liabilities, uncertainty has increased concerning the pricing of this year's financing and still outstanding financing. Based on the iTraxx Europe Financials indices, which measure the spreads of issuances by European banks, yield spreads have been increasing and becoming more volatile since 2022 Q2. While yields have broadly returned to levels seen in early 2022 by 2023 Q2 (spreads of around 80 basis points for senior bonds), volatility has remained significant. Yield spreads on domestic bank issues are higher, but show a similar trends. In addition to all of these, it is reassuring that the need for adjustment

Chart 47
The resolution planning process



Source: MNB.

is steadily decreasing, and the issuances by banks are continuous (*Chart 46*). While the deferral of the activation of the countercyclical capital buffer rate in 2023 reduced the MREL requirement, institutions were still required to issue HUF 655 billion of MREL-compliant funds by 1 January 2024, based on 2023 Q1 data.

In resolution planning, the development of methodologies to support resolvability and the identification and removal of impediments to resolvability is a priority. The MNB continuously identifies any impediments to resolvability during its annual valuations of resolvability, requiring the credit institutions concerned to remove any impediments identified (*Chart 47*).

One of the key dimensions of resolvability is the provision of the information needed for resolution planning and for a possible resolution. Providing the information needed for independent assessments at the time of resolution is crucial to underpin decisions on resolution. To ensure that such information is produced in the appropriate form and content, in 2023, the MNB initiated data capability improvement for the institutions concerned, with a view at ensuring that they are able to provide information of sufficient quality and timeliness, in particular for independent assessments during resolution. In 2023, a timetable for the implementation of the above tasks will be defined individually with the institutions concerned, in order to develop these capabilities in each institution by the end of 2025.

Box 4
International banking crises and development directions for EU banking crisis management

In the first quarter of this year, the crisis of the Silicon Valley Bank (SVB) in the USA and the Swiss Credit Suisse AG (Credit Suisse) did not have any direct negative impact on Hungary, thanks to the solid foundations and stability of the Hungarian banking system. In both cases, significant withdrawals of deposits played a role in the crisis. As part of the resolution process, the SVB's deposits were taken over by a bridge bank, while Credit Suisse's critical situation was settled through exceptional government measures and a substantial central bank credit line rather than by resolution. Litigation is still pending to determine the order of loss-bearing (losses were incurred first by additional core capital items and were only later followed by primary core capital items). The bank was eventually bought by UBS, the largest Swiss bank. The experience of these banking crises clearly shows that advances in financial digitalisation, combined with the growing role of social media, have meant that when market confidence in a bank is shaken, the process of deposit outflows can accelerate significantly compared to the earlier situation.

Regardless of the recent banking crises in the US and Switzerland, in April 2023, following a multi-year consultation process, the European Commission ('Commission') published a proposal for a review of the EU's Crisis Management and Deposit Insurance (CMDI) regulation. The proposal would, among other things, extend the protection provided by the Deposit Guarantee Scheme to particular public institutions, municipalities, certain health and educational institutions, among others. Compared to the currently very limited scope of application, the use of deposit insurance funds for resolution purposes would also be facilitated, in particular through the use of asset sales and bridge institutions (transfer strategies) as resolution tools. Moreover, the deposit insurer could, under certain conditions, also be involved in the 8 per cent burden sharing between owners and creditors as a precondition for access to resolution funds. The current arrangement of deposits being classified into three different, consecutive classes would be replaced by a scheme in which all deposits are classified in a separate single class in the order of satisfaction (loss bearing) during the winding-up procedure (single-tier depositor preference), making it more likely that the strict condition that the deposit insurer can only contribute to the funding of the resolution if the losses are also borne by the deposits subject to the obligation to indemnify is met. During a resolution, however, the idea may have the consequence of violating the principle that 'no creditor should be worse off in a resolution than it would have been in an ordinary insolvency procedure', which should be avoided by introducing additional safeguards.

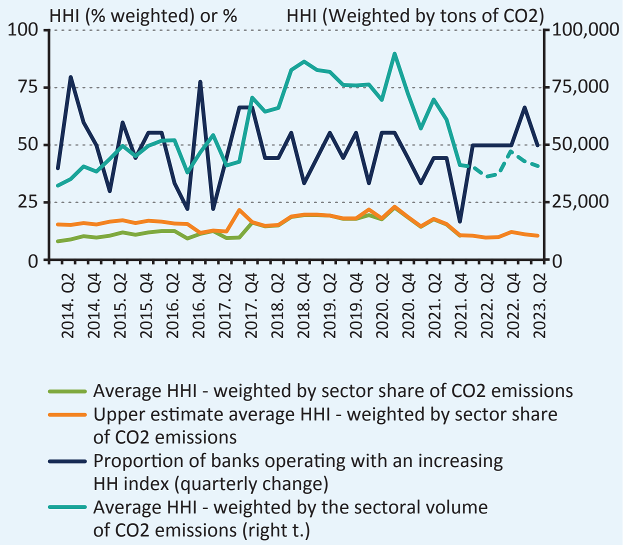
Deposit insurers in some Member States (no such option is available in Hungary) may, as a national option, provide funding through preventive and alternative measures other than compensation and resolution (e.g. support for deposit transfers). Institutional plans to demonstrate their soundness would be assessed by the supervisory authority under the CMDI proposal.

The revision of the CMDI mainly concerns provisions whose amendment has been considered necessary by the MNB for several years. In terms of the direction of the proposals, it is a positive move to extend depositor protection, to include provisions to enhance the protection of all depositors from loss taking beyond insured deposits below the compensation limit, to make the use of the deposit insurer and resolution funds for resolution purposes more flexible, to support the proper preparation of resolution and to address difficulties that have arisen in the course of enforcement. However, the MNB considers it necessary to reflect and consider further aspects of the detailed rules in order to develop rules that are as good as possible and can be applied effectively in practice, in particular with regard to the classification of deposits in the order of satisfaction in winding-up proceedings, given the risks pointed out above. Moreover, the possible introduction of preventive and alternative deposit insurance measures in Hungary requires a thorough impact assessment, taking into account the composition of the Hungarian banking system, the size of its members and its resource structure. It is important to stress that the final text of the CMDI is subject to significant change. Given the timeframe for transposition by Member States, the revised provisions are expected to take several years to enter into force.

10 Focus: Potential financial systemic risks of climate change and their management

The MNB considers that the assessment of financial risks potentially amplified by climate change is an important task, including from a systemic risk perspective. In that context, it is examining the exposure of corporate loan portfolios to high-carbon industries and the energy-efficiency distribution of residential mortgage lending collateral. The corporate segment has seen a concentration of exposures to high-carbon companies since 2019, while in the residential segment unfavourable energy characteristics of financed properties are still observed. The MNB also supports the achievement of climate protection targets through its macroprudential instruments. There are a growing number of international examples of the green application of debt brake rules, and the MNB is also exploring the possibilities of this in Hungary.

Chart 48
Carbon-weighted concentration indices (cwHHI) of the corporate loan portfolios of systemically important banks



Note: From 2022 onwards, the dashed lines in the chart are a reminder that recent sectoral carbon dioxide emissions data are not yet available, which means that 2021 data have been used for weighting. The chart shows individual bank cwHHI[13] values weighted by total capital outstanding for each bank. The upper estimation line is obtained by assigning the largest loan transactions that cannot be classified in the sector due to data shortages to the sectors with the highest emissions, maintaining the proportions observed during the period under review at the higher sector level and observed historically at the lower sector level to obtain a highly concentrated portfolio.[14]

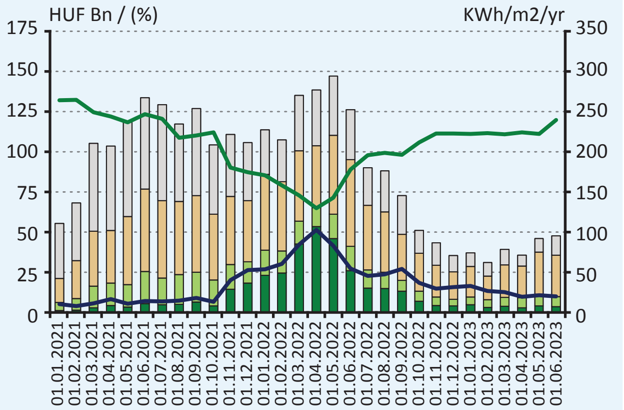
Source: MNB, Eurostat.

10.1 THE MNB IS CLOSELY MONITORING THE FINANCIAL SYSTEMIC RISKS OF CLIMATE CHANGE

In recent years, the previously increasing trend in the concentration of exposures to high-carbon industries in the largest corporate loan portfolios has stopped has reversed. A potential systemic risk associated with climate change that is often examined is the concentrated exposure of corporate loan portfolios to transition risks. This can be the result of large exposures to large companies responsible for a significant share of carbon emissions, on the one hand, and concentrated exposures to sectors with high carbon emissions, on the other. An analysis of the former is outlined in Macroprudential Report 2022. One of the tools to capture the latter risks could be to combine indicators measuring the concentration of loan portfolios and the transition risks. One of the proposed indicators is the carbon-weighted Herfindahl-Hirschman index (cwHHI), which, according to initial analyses, can provide a link between the measurement of concentration risks and expected losses from the risks of a technology switch (ECB, 2022). It is used primarily to characterise the direction of changes in concentration. The increase in average cwHHI calculated on the corporate portfolios of systemically important banks in Hungary until 2018 reverted *(Chart 48)*. It is important to note, however, that data availability is limited. Carbon emissions data are only available at sectoral level and with a time lag of several years, and the sectoral classification of the economic activity of borrowers cannot be fully identified.

The weight of properties with modern energy rating in the domestic housing loan portfolio remains low. Within household loans, housing loans are the most directly linked to climate risks, i.e. monitoring them is of

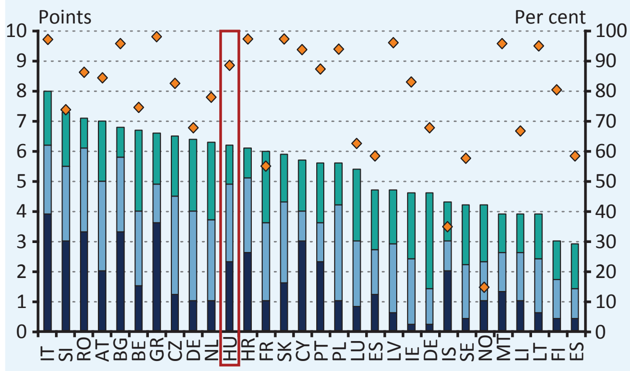
Chart 49
Distribution of new housing loans by the energy classification of financed homes



*Note: The distribution of the energy rating was estimated using the central bank's credit register (HITREG) and real estate transaction (ING) data. *The unavailability of data may be explained by exemption rules for obtaining an energy performance certificate and data quality reasons.*

Source: MNB

Chart 50
Natural disaster risk level and uninsured loss ratio



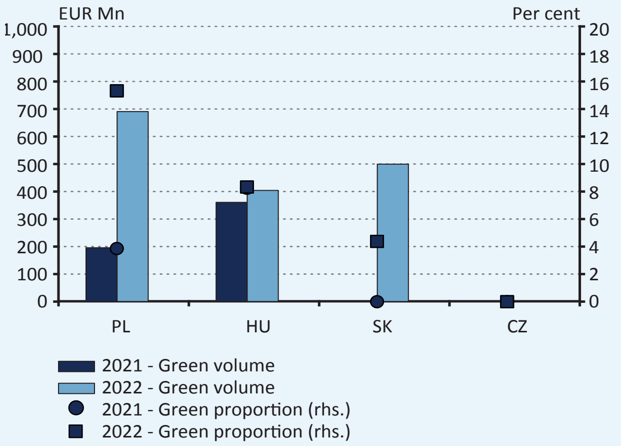
Note: The EIOPA methodology assigns risk scores to the modelled loss-to-GDP ratio. The risk represented by the scores (per risk type) is low up to a score of 1, medium up to 2, high and very high up to and above 3; for details, see EIOPA Technical Description (2022).

Source: EIOPA

paramount importance. As a result of the improvement of the MNB's monitoring system, by 2023, data on the energy performance of the properties financed by the loan issuance in the given period are available for the vast majority of housing loan disbursements. This shows that only a limited part (about 10 per cent in June 2023) of Hungarian home loans have been disbursed to finance properties with better than modern (> BB) energy performance *(Chart 49)*, a situation that was temporarily improved in the past only by loans under the Green Home Programme. As in 2021, the contract-weighted average energy performance of financed residential properties was around 250 KWh/m2/year in July 2023, which corresponds to an average FF energy classification. Looking ahead, therefore, support for green mortgage lending could play a key role in promoting the energy efficiency upgrading of domestic housing.

Across Europe, including for the domestic financial system, systemic risks associated with climate change may be increased by demand and supply constraints for insurance against natural disasters. With the expected increase in the risk of climate-related natural disasters and the severe industry consequences already observed, it is becoming increasingly important to assess the extent to which widely available insurance can support risk sharing and, in turn, faster economic recovery that may be demonstrated by empirical studies (ECB-EIOPA, 2023). From a systemic risk perspective, effective risk-sharing can mitigate the depreciation of collateral assets and disruptions to production chains that can affect a wide range of lending and investing institutions when physical risks materialise. A set of indicators standardised to enable EU-level comparison[15] provides a mixed picture of domestic insurance risks and penetration. The moderate nature of risks is indicated by the fact that the modelled losses fall in the medium-to-low range *(Chart 50)*, while the share of the value of exposures insured by domestic insurers in the risk categories shown in the chart is estimated to be around 57 per cent of estimated domestic non-financial assets. However, the proportion of uninsured losses that actually occur has been historically very high, especially for flood-related claims. To counter the intensification of physical risks related to climate change, EU supervisory authorities have come up with a number of conceptual proposals, such as supply-side adaptation incentive insurance products, better access to capital markets for reinsurers and the involvement of national and EU fiscal resources in the insurance system (ECB-EIOPA, 2023).

Chart 51
Value of covered green bonds in V4 countries



Source: MNB, EMF

Table 3
Housing loan schemes available among CCHL distributors (as at 31.08.2023)

Distributing institution	CCHL	Non-CCHL Green	Green CCHL
ERSTE Bank	✓	×	✓
K&H Bank	✓	✓	×
MBH Bank	✓	✓	✓
OTP Bank	✓*	✓	×
Raiffeisen Bank**	✓	✓	×
CIB Bank	✓	✓	✓
UniCredit Bank	✓	×	×

*Note: Banks offering green interest rate reductions are marked in dark green. *OTP Bank only offers state-subsidised CCHL programmes. **Raiffeisen Bank offers a green interest rate discount for the purchase of energy-efficient properties, regardless of the housing loan structure.*

Source: MNB collection

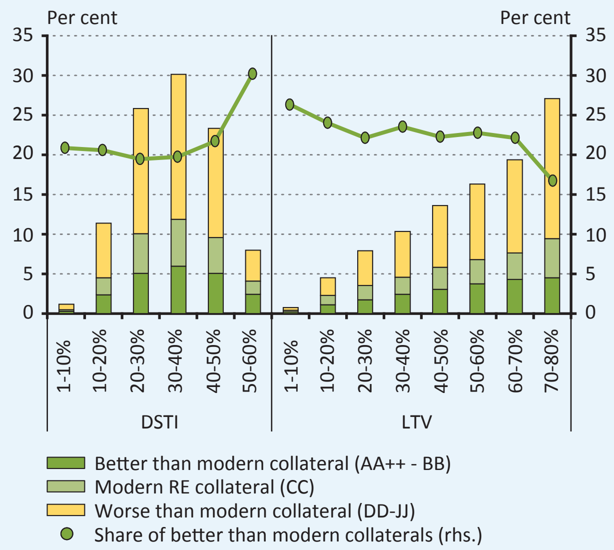
10.2 THE MNB HAS ADOPTED MACROPRUDENTIAL MEASURES TO SUPPORT THE ACHIEVEMENT OF CLIMATE CHANGE TARGETS

Environmental sustainability considerations first appeared in the MNB's macroprudential policy by the central bank promoting domestic green mortgage bond issuance. The launch of a green mortgage bond market supports both financial stability objectives and green considerations. On the one hand, it can contribute to an increase in green mortgage lending as collateral for green mortgage bonds, which is also beneficial from a financial stability perspective due to the potentially lower credit risk. On the other hand, green mortgage bonds contribute to the development of the domestic mortgage bond market, which is important for the stable funding of banks, for example by attracting a new and wider range of investors. By June 2023, all domestic mortgage banks had issued green mortgage bonds, bringing the total stock of green mortgage bonds in Hungary to nearly HUF 200 billion by that date, accounting for nearly 10 per cent of the total outstanding stock of mortgage bonds. At the end of 2022, the share of domestic green stock was the 2nd highest in V4 countries *(Chart 51)*.

Since 1 April 2023, the green extension of the Certified Consumer Friendly Home Loan Framework has also supported green mortgage lending and the renewal of the domestic housing stock. When financing green lending targets defined in the framework, lenders are not allowed to charge disbursement fees, are obliged to waive the fee for a certified energy certificate and can also offer a green interest rate rebate. CCHL green loan schemes are now offered by several major banks (Table 3). The rating framework can thus support the promotion of energy efficiency renewal in the domestic housing stock.

In addition to the above, the domestic macroprudential toolbox provides the most necessary preconditions for differentiating debt brake rules according to climate risks. On the one hand, there is considerable variation in the energy efficiency of the properties financed by new lending. Among the debt brake requirements, the share of low energy efficiency properties is substantially higher for loans to borrowers near the LTV limits, i.e., borrowers who are considered as being stretched in terms of deposit provided (*Chart 52*). This may suggest that borrowers with insufficient down payment have less access to generally more expensive, higher energy-efficient properties compared to borrowers with higher savings. Second, the first Hungarian studies are already available on the 'green hypothesis', which suggest that energy-efficient real estate-backed loans exhibit a lower default risk and a lower

Chart 52
Distribution of DTI and LTV values of residential real estate transactions by the energy efficiency of collateral properties (2021 Q1 – 2023 Q2)



Note: Estimate based on HITREG data.
Source: MNB

Table 4
Regulatory examples of differentiation of debt brake requirements according to energy efficiency (May 2023)

SK	For consumer loans to improve energy efficiency: • Once the DSTI limit of 60 per cent is reached, the monthly repayment can be increased by up to EUR 50. • Higher maturity limit: 10 years instead of 8.
NL	• A certain part of the loan amount may be disregarded when assessing the income exhaustion of the debtor. • Application of higher LTV limits: 106 per cent instead of 100 per cent
FR	• Higher maturity limits for specific loan purposes: 27 years instead of 25. • When claiming a tax credit for energy efficiency renovations, the savings can be included as income when calculating the DSTI limit.
PT	• Higher maturity limits for specific loan purposes: 10 years instead of 7.
LT	• Loans that supplement government subsidies for the renovation of residential buildings are exempted from the application of the debt brake rules.
EE	• State guarantees for financing modern energy properties, for which a higher LTV limit of 90 per cent instead of 85 per cent can be applied.

Source: MNB, ESRB

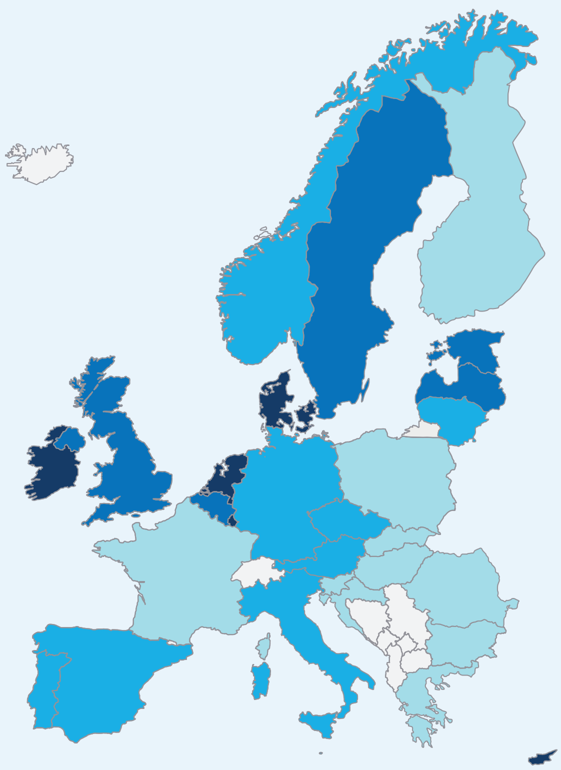
default loss rate compared to loans backed by less energy-efficient real estate[16]. Third, there are a growing number of international examples of differentiation of debt brake standards according to energy efficiency (Table 4). It is therefore appropriate to review the application of energy differentiated debt brake provisions in the future.

Greenwashing may amplify systemic risks for the market and hinder the achievement of prudential objectives. In the financial system, the term 'greenwashing' refers to the unfair competitive advantage to be gained by promoting a financial product, company or economic activity to investors as environmentally friendly, while the objectives set are unlikely to be met. On the one hand, this could amplify reputational risk, shake confidence in financial products and ESG markets that are considered sustainable, and even lead to massive capital withdrawals and asset sales by the companies or industries concerned. Furthermore, it may entail significant legal risk and associated costs for both large borrowing companies and lenders due to potential litigation costs and compensation liabilities. On the other hand, it could hinder the implementation of regulations to mitigate climate change risks and the green transformation of the financial system. To mitigate the risk of greenwashing, it is necessary to develop a stable and robust monitoring framework, which includes convergence of the international interpretative framework and definitions, reduction of data gaps and improvement of the quality of disclosures.

11 Focus: Shadow banking systemic risks and their management

Over the past decade, the global shadow banking system has also grown significantly in terms of financial assets and its relative size compared to the credit sector. In addition to the general financial deepening, regulatory changes and technological developments have also played a role. In the domestic financial system, the presence of risk related to non-bank and, in particular, shadow banking is much more limited than in developed financial markets with deep capital markets and extensive non-bank financial intermediation. The interconnectedness of domestic banks with non-bank financial sub-sectors and therefore the risk of contagion is low.

Chart 53
Ratio of shadow banking institutions' assets to monetary financial institutions (other than the central bank), 2023 Q1



Note: Institutions in the shadow banking sub-sectors according to ESA statistical classifications include investment funds, other financial intermediaries, financial auxiliaries and private financial institutions. For the United Kingdom, only 2021 data are available, while only 2022 data are available for Norway. The Hungarian ratio does not include the private financial institutions sub-sector, as they do not have a significant link to the financial system, typically performing asset management (holding) or group financing activities.

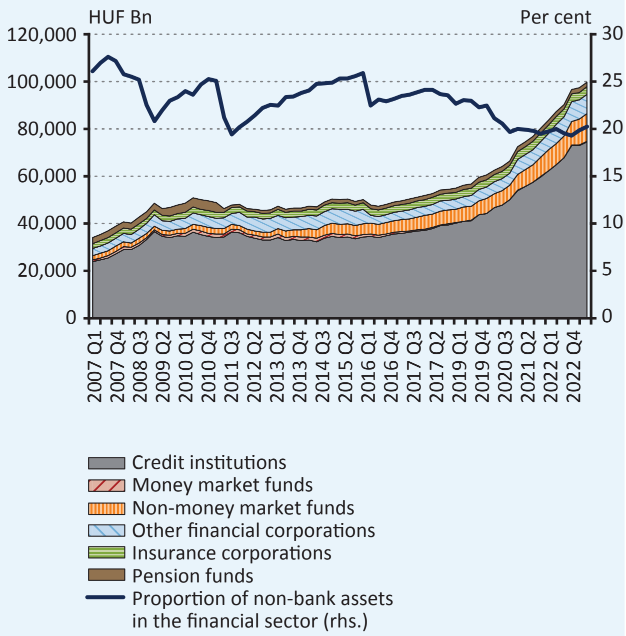
Source: ECB

11.1 INTERNATIONAL GROWTH OF THE SHADOW BANKING SYSTEM

Over the past decade, the role of non-bank financial institutions in the financial system has shown substantial global growth. In ten years, by the end of 2021, the share of non-bank sector assets in the global private financial system have risen by around 7 percentage points to close to 57 per cent. While the rapid expansion of the Chinese financial system played the biggest role in that global growth, the share of the non-bank financial sector in the euro area also grew rapidly, by 14 percentage points over the same period. A part of the non-bank financial sector can still be classified as so-called shadow banking activities, which provide credit-type financing or credit risk transfer, often regulated more loosely or at least differently than banks. The sub-sectors most involved in shadow banking activities (money and capital market investment funds, other financial intermediaries, financial auxiliaries, closed-end financial institutions) reached a 46 per cent share of the total financial system by 2023 Q1, although their share of banking intermediation still varies significantly between core Member States and subsequently acceding Member States *(Chart 53)*.

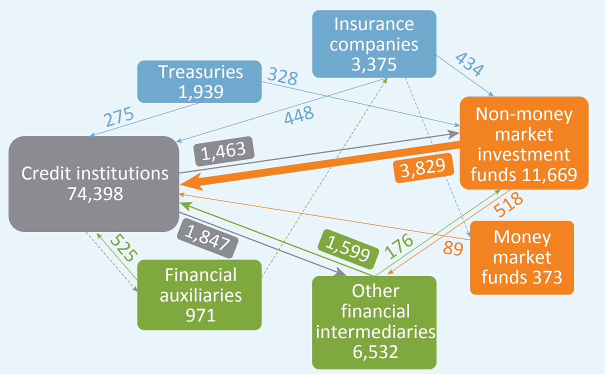
In developed economies, monetary tightening following a low interest rate environment also amplifies systemic risks associated with shadow banking. The shadow banking and other non-banking financial sub-sectors are financially closely interlinked both with each other and with the banking system: on the one hand, they finance each other's activities directly, and on the other hand, the valuation of their poorly diversified individual institutional portfolios can be highly correlated. Based on international risk analyses (IMF, 2023; ESRB, 2023), leverage risk in developed economies has increased significantly during the recent period of persistently low interest rates. The liquidity risk

Chart 54
Assets of the domestic financial system by sub-sector



Note: the sub-sectors do not include financial intermediaries.
Source: MNB

Chart 55
Domestic financial subsectors' claims on and liabilities against each other (billion HUF, 2023 Q1)



Note: The unit of measurement is billion forints, the numbers in the boxes represent the total asset value of the subsector, the numbers on the arrows represent the value of the link; the arrows point from the financier to the subsector financed. The dashed arrows indicate financial relationships that are lower than HUF 100 billion in value, but are at least 1 per cent of the size of a related sub-sector. Non-banking subsidiaries and funds that are part of the banking group are shown separately in the relevant sub-sector.
Source: MNB

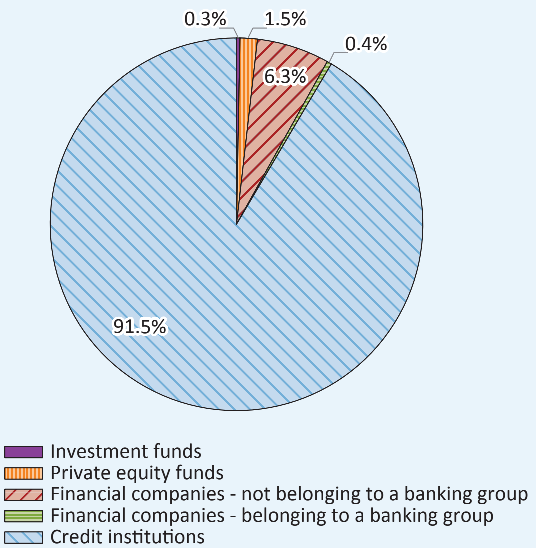
of the institutions concerned is also significant, as illustrated by the redemption shock of money market funds during the COVID-19 epidemic or the drop in asset prices caused by the UK sovereign turmoil in September 2022. The importance of systemic risks to the non-bank financial system, managing vulnerabilities and increasing resilience was pointed out in the ESRB General Risk Warning September 2022[17].

11.2 POTENTIAL DOMESTIC SHADOW BANKING RISKS

A systemic feature of the domestic financial sector is the predominance of banking intermediation and the moderate interconnectedness between the banking and non-banking financial sub-sectors. In 2023 Q1, the non-banking financial sector accounted for a mere 20 per cent of the domestic financial system *(Chart 54)*. The largest sub-sectors are non-money market investment funds and other financial corporations. These subsectors have moderate direct financing relationships with credit institutions and with each other *(Chart 55)*. Investment funds and other financial institutions accounted for 4.4 per cent of total bank funding, while they themselves accounted for a larger share of 7.3 per cent of bank funding[18] at the end of 2023 Q1. Among the non-banking sub-sectors, insurance companies and pension funds are the main users of the investment services of funds, accounting for 12.9 per cent and 16.9 per cent of their assets respectively at the same time. Of the non-banking sub-sectors, investment funds are the most exposed to foreign money and capital markets, which, depending on the risks of the investments, can be a source of international financial contagion. Foreign exposures account for more than a fifth of non-money market fund assets, which is even higher for money market funds. However, the risk could be significantly reduced by the systematically low level of the domestic investments of funds with foreign exposures and of financial market sub-sectors. While various insurers operating in Hungary have credit institution subsidiaries within their parent group, giving the group direct exposure to credit markets, these are subject to extensive banking supervision under EU prudential rules.

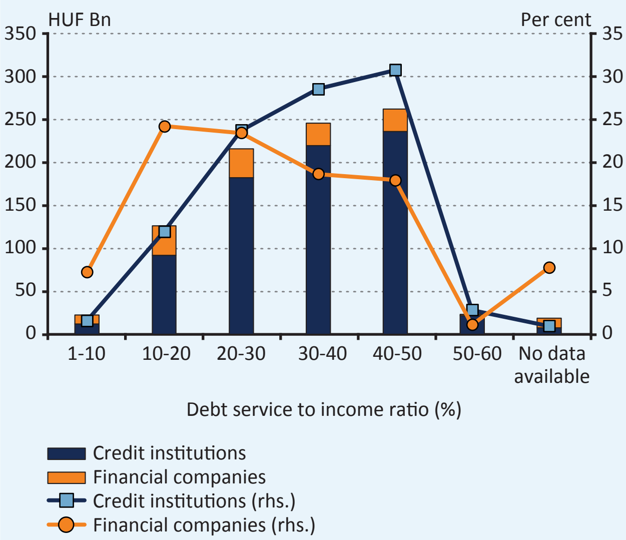
The systemic risk of domestic shadow banking lending activities is limited. Among non-bank financial institutions, the real economy, especially the corporate sector, is mainly served by specialised financial corporations (mainly leasing companies) *(Chart 56)*. Non-bank financial corporations accounted for nearly 75 per cent of shadow banking lending, with their balance sheet total growing at a rapid pace of 71 per cent to HUF 1,771 billion in the five years to 2022. Their loan portfolio consisted of around HUF 730 billion of corporate loans and HUF 160 billion of household

Chart 56
Loans granted by the domestic financial system in 2022



Source: MNB

Chart 57
Distribution of personal loans and car leases of credit institutions and financial corporations by volume (left-hand scale) and relative share (right-hand scale) according to DSTI categories



Note: 2022 Q1 to 2023 Q2.
Source: MNB

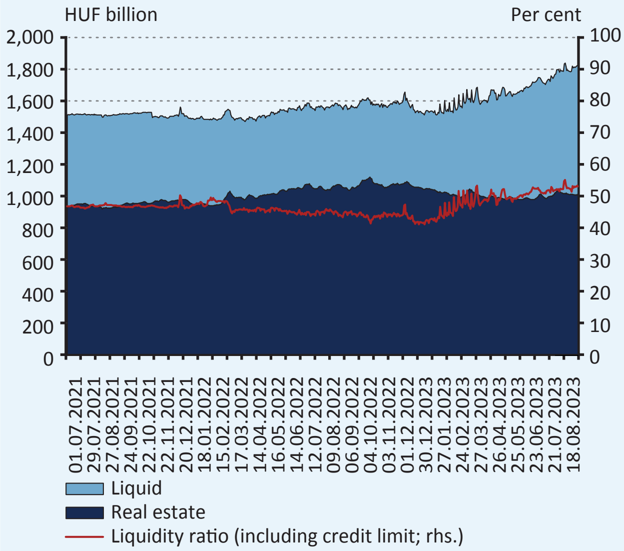
loans at the end of 2022. Shadow bank lenders to the real economy also include private equity and venture capital funds, which had a capital value of some HUF 467 billion in loan claims in 2023 Q2, representing 35 per cent of their total capital investment. The amount of loans granted by other investment funds was HUF 73 billion at the same date, which remains below 1 per cent of net asset value. For the most affected financial firms, the corporate loan portfolio is of good quality, with a default rate of 1 per cent (end-2022); for household loans, the MNB's debt brake ensures low risks *(Chart 57)*.

Corporate bonds do not create additional risks through non-bank intermediaries, either. The value of bonds concerned was HUF 2,715 billion at the end of 2022, and had grown rapidly in the previous three and a half years as a result of the Bond Funding for Growth Scheme (BGS). However, the domestic corporate bond portfolio of investment funds is only HUF 83 billion, while the total asset share of corporate bonds in the investment portfolio of insurance companies is 3.2 per cent, or HUF 97 billion.

The liquidity risks of investment funds are substantially mitigated by their liquidity buffers. During 2022 as a whole, net inflows into money market and short bond funds were exceptionally high at HUF 1,278 billion, driven by retail demand in an inflationary, high interest rate environment. Despite the increase, the public fund liquid asset ratio has increased steadily since December 2022 to above 50 per cent by 2023 (*Chart 58*). This is partly due to the fact that a share of capital inflows went into liquid assets, and partly because the MNB imposed requirements to improve the liquidity position of real estate funds. This means that units of new real estate funds issued from mid-May 2019 and new series of existing real estate funds can be redeemed after a minimum of 180 calendar days.

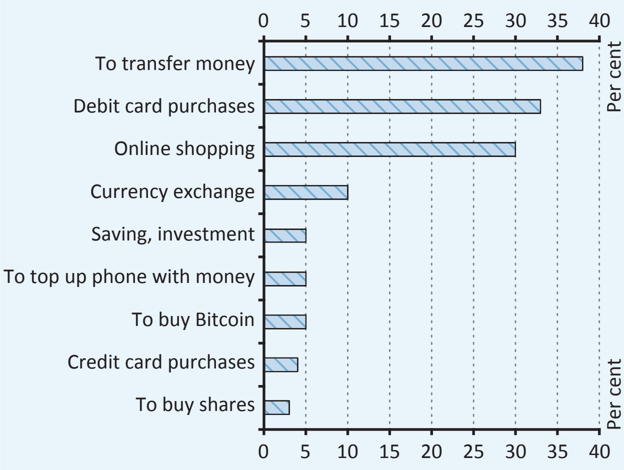
Despite potential future risks, systemic vulnerabilities attributable to new forms of financial intermediation have remained moderate. Risk analysis suggests that the EU's traditional financial systems are not yet closely linked to crypto markets (ESRB, 2023a,b; Bundesbank, 2023; Bloomberg, 2022), nor is the Hungarian financial system. Beyond payment services, the number of users of other banking services is negligible *(Chart 59)*. Moreover, experience to date has shown that innovative financial services providers intending to offer extensive banking services typically continue to operate as closely regulated and supervised banks after reaching a certain size.

Chart 58
Public real estate fund investments, real estate to liquid assets ratio



Source: MNB

Chart 59
Using and testing of Fintech service providers



Source: Scale Research – Bankindex research 2021

11.3 STRENGTHENING EU MACROPRUDENTIAL REGULATION FOR SHADOW BANKING AND NON-BANKING ACTIVITIES

Bank concentration risks vis-à-vis shadow banks are limited by aggregate and individual limits based on capital ratios. They were defined in EBA Guidelines for the assessment and management of shadow banking concentration risk and the MNB Recommendation implementing the EBA Guidelines. Banks that have appropriate risk management processes in place can set the limits themselves. Following the CRR revision, data reporting is extended to include the largest shadow banking exposures.

The revision of EU directives on investment funds could provide new tools to prevent systemic problems. The UCITS and AIFMD Directives have already set out tools to address systemic risk, such as requiring funds to have adequate liquidity management procedures, to perform regular liquidity stress tests and to comply with various leverage limits. A number of Member States use national legislation to regulate funds, as well as EU legislation. In the current review of the Directives, the amendments proposed by the Commission aim at making the tools to limit the risk of dilution and redemptions widely available. Fund managers that also engage in lending would be allowed to operate with stronger risk management procedures and diversification requirements vis-à-vis financial institutions and would be required to have a closed-end structure if the fund engages in significant lending.

The planned Solvency 2 revision would also broaden the macroprudential toolbox in the regulation of insurers. Insurers, who are much more deeply regulated than shadow banking institutions, have not yet been subject to specific systemic risk rules. The review would set out new tasks and tools such as the mandatory assessment of systemic risk in the Own Risk and Solvency Assessment (ORSA), the development of a liquidity risk management plan and liquidity risk indicators, and the temporary suspension of the right of redemption under exceptional circumstances.

Endnotes

[1] For more information on how to determine the CCyB rate, please see the related methodological information: https://www.mnb.hu/letoltes/ccyb-methodology-new-en-1.pdf

[2] For more information, see the ECB's Macroprudential Bulletin: https://www.ecb.europa.eu/pub/financial-stability/macroprudential-bulletin/html/ecb.mpbu202304_01~6eef01bb6a.en.html

[3] Executive Circular on the expectation of a liquidity buffer for credit institutions, DEPUTY GOVERNOR FOR THE SUPERVISION OF FINANCIAL INSTITUTIONS AND CONSUMER PROTECTION, 1 August 2023. https://www.mnb.hu/letoltes/vezetoi-korlevel-a-hitelintezetek-likviditasi-pufferere-vonatkozo-elvarasrol.pdf

[4] ICAAP-ILAAP-BMA Handbook, June 2023

[5] The background to the US and Swiss bank failures in spring 2023 is described in detail in Box 1 of the MNB's May 2023 Financial Stability Report.

[6] https://www.bis.org/fsi/fsibriefs19.pdf

[7] Skillfully sailing through stormy waters (europa.eu)

[8] Rising interest rates and implications for banking supervision (bis.org)

[9] For more details on the identification methodology and the methodology for calibrating the capital buffer rates of other systemically important institutions, see the MNB's Methodological note: https://www.mnb.hu/letoltes/modszertani-tajekoztato-en-honlap.pdf

[10] As noted in the MNB's May 2023 Financial Stability Report, 84 per cent of the increase in total risk exposure was related to credit risk exposures, including exposures to corporates and central governments and central banks.

[11] https://www.esrb.europa.eu/news/pr/date/2023/html/esrb.pr230125~f97abe5330.en.html

[12] MNB Commercial Property Market Report, April 2023 https://www.mnb.hu/letoltes/commercial-real-estate-market-report-april-2023.pdf

[13] The carbon-weighted Herfindahl-Hirschman index , in which index i represents loans (capital debt) in a bank's corporate portfolio and is a measure of the carbon emissions of sector j relevant to the activity of the company financed by loan i. The latter weight can be the percentage share of the sector in the total carbon dioxide emissions of all industries or the value of the sector's emissions in tonnes. For the latter, there is no mathematical upper limit on the value of the cwHHI; however, they also represent level differences in addition to changes in the distribution of carbon dioxide emissions in the sector concerned.

[14] Loans that cannot be allocated to a sector due to a shortage of data are allocated to sectors in such a way that credit exposures are normally allocated to a sector with higher carbon emissions and distributed in proportion to the average sectoral exposure of the institution as of 2016, taking into account the distribution by sector available under FINREP.

[15] The set of indicators has been developed by the European Insurance and Occupational Pensions Authority (EIOPA Dashboard on Insurance Protection Gap) in collaboration with Member State authorities.

[16] See Hajnal et al. (2022), and Ertl et al. (2021) on the price premium associated with energy efficiency improvements in detached houses. For a Hungarian study on the lower probability of default for loans with better energy-efficiency property collateral, see the MNB's Green Finance Report (2022) pp. 86-88; for international studies, see the EEMI (2022) summary.

[17] https://www.esrb.europa.eu/pub/pdf/warnings/esrb.warning220929_on_vulnerabilities_union_financial_system~6ae5572939.en.pdf?f98c6d1e2b1431616a2c1af59ed405c4

[18] Of other financial institutions, mutual funds are the largest type of institution; lending financial corporations are not allowed to collect deposits, which means that domestic and foreign credit institutions play a significant role in their ability to raise funds.

Count István Széchenyi

(21 September 1791 – 8 April 1860)

Politician, writer, economist, minister for transport in the Batthyány government whom Lajos Kossuth referred to as 'the greatest Hungarian'. His father, Count Ferenc Széchényi established the Hungarian National Museum and Library; his mother, Julianna Festetich was the daughter of Count György Festetich, the founder of Georgikon, an institution for the teaching of agricultural sciences.

With his ideas – whose message remains relevant even today – and his activities both as a writer and a politician, István Széchenyi laid the foundation for modern Hungary. He is one of the most eminent and significant figures in Hungarian politics whose name is associated with reforms in the Hungarian economy, transportation and sports. He is also known as the founder and eponym of numerous public benefit institutions, a traveller all across Europe and an explorer of England as well as the champion of economic and political development at the time. István Széchenyi recognised that Hungary needed reforms in order to rise, and considered paving the way for a Hungary set on the path of industrialisation and embourgeoisement to be his calling in life.

Published in 1830, his Credit outlined the embourgeoisement of Hungary and summarised its economic and social programme. Count Széchenyi intended this writing to make the nobility aware of the importance of the country's desperate need for a social and economic transformation. Another work of his, Stádium [Stage of Development] (1833) listed the cornerstones of his reform programme in 12 points, including the voluntary and compulsory liberation of serfs; the abrogation of avicitas (inalienable status of noble property); the right of possession for the peasantry; and the freedom of industry and commerce. This work of Széchenyi already conveyed the idea of equality before the law and the general and proportionate sharing of taxation.

After the revolution in 1848 István Széchenyi joined the Batthyány government and as minister embarked vigorously on implementing his transportation programme.

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