MACROPRUDENTIAL REPORT

2021

'The only road to perfection is one
where people work for the common good.'
Count István Széchenyi

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Foreword

The 2008 international economic crisis fundamentally changed how the maintenance of financial stability was perceived. The painful lesson from the severe disorders in the financial system is that interventions that exclusively target the stability of certain financial institutions with a purely microprudential focus are not capable of maintaining the stability of the financial system. The mitigation of systemic financial risks and hence properly calibrated macroprudential regulations are also needed.

Act CXXXIX of 2013 on the Magyar Nemzeti Bank vested the MNB with strong authority and the proper means to efficiently manage financial systemic risks appearing at the national level, within its capacity as micro- and macroprudential authority, and through its consumer protection duties to support the preservation of trust in the financial system. The MNB applies its reinforced mandate proactively and in line with the regulatory framework of the European Union.

The purpose of the Macroprudential Report is to present the macroprudential instruments applied by the MNB to prevent and address the systemic risks identified and communicated in the Financial Stability Report, as well as the effects of those and the adjustment of market participants. It also provides an overview of resolution activity to support the smooth functioning of the financial system, and it also describes developments in the area of financial consumer protection that contribute to the maintenance of financial stability through strengthening trust in the financial system. In line with the MNB's Statute, macroprudential and supervisory strategy, the publication intends to make the MNB's measures supporting financial stability easy to understand both for the actors of the sector and the general public.

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Executive Summary

Act CXXXIX of 2013 on the Magyar Nemzeti Bank vested the central bank with strong authority to prevent and mitigate systemic financial risks. 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 currently applied macroprudential instruments, the adjustment of market participants, and how the instruments impact the sustainable contribution of the financial system to economic growth. In October 2021, the following key messages can be formulated in respect of the instruments in question:

1. Despite the temporary slowdown in credit market activity due to the coronavirus pandemic, government and central bank lending programmes and the partial halt in repayments due to the payment moratorium maintained the double-digit growth rate of loans. However, based on the evolution of cyclical systemic risks, lending to support the recovery of the Hungarian economy has still not reached the overheating phase. After the temporary slowdown, a gradual resumption of lending activity is observable, so that the build-up of the countercyclical capital buffer is expected to be postponed.

2. The borrower-based measures in place since 2015 have greatly helped households to have sufficient income buffers and shock resilience to face the economic hardship caused by the coronavirus pandemic and the repayment-increasing impact of interest rate hikes. The overstretching of new loans in terms of debt-service-to-income ratios (DSTIs) and loan-to-value ratios (LTV) and the clustering of new loans near regulatory limits remain unclear. In monitoring trends in household lending, the MNB also pays particular attention to (1) potential risks arising from the stock of loans under moratorium, (2) the extension of maturities of household loans, (3) the evolution of the financing of downpayment through personal loans, (4) the interest rate risk of the outstanding stock of mortgages with shorter interest rate fixation periods, and (5) the increasing use of digital lending channels. In addition to monitoring risks, the MNB continuously reviews the rules of the borrower-based measures based on market developments and the experience of market participants: the changes to the measures in early 2021 allow for the determination of the market value of real estate with statistical valuation methods. This will greatly support the digitalisation of mortgage lending processes, thus saving time and costs for market participants and clients.

3. The liquidity position of the banking system remains stable, with the banking sector's Liquidity Coverage Ratio (LCR) having risen sharply since the outbreak of the coronavirus in spring 2020, thanks to central bank measures. The EU-wide Net Stable Funding Ratio (NSFR) requirement, which came into force in June 2021, expects institutions to hold a sufficient amount of stable funding relative to their assets requiring stable funding, thereby reducing maturity mismatch. The introduction of the NSFR did not require significant adjustment for domestic banks. There is no funding constraint to the persistence of lending trends even taking into account the phasing out of the central bank's credit stimulus programmes.

4. The banking system meets the MNB's macroprudential funding requirements with adequate buffers and a favourable funding structure. The banking system has an adequate and stable external funding position despite the pandemic. In terms of currency mismatch, the banking system is now operating with a substantial foreign currency liability surplus, due to a reduction in corporate foreign currency lending and a substantial increase in foreign currency client deposits.

5. Banks are complying with the Mortgage Funding Adequacy Ratio (MFAR) requirement with increasing buffers. The regulation efficiently supports the development of the domestic mortgage bond market, in addition to increasing the ratio of stable forint funds. The MNB decided to amend the regulation in summer 2021. On the one hand, in order to achieve green objectives, it allowed for the preferential inclusion of green mortgage-backed funds in the calculation of the MFAR, thus encouraging future domestic issuance of green mortgage bonds, which could have a positive impact on the spread of green loans and on improving the energy efficiency of the underlying real estate portfolio. Second, to further strengthen financial stability and increase the sectoral forint maturity match, the expected minimum level of MFAR will be raised from 25 to 30 per cent from 1 October 2022, newly issued mortgage bonds will be required to be listed on the

stock exchange, and restrictions on interbank cross-holdings of mortgage bonds suspended in the wake of the coronavirus pandemic will be reinstated.

6. The scope of other systemically important institutions (O-SIIs) has not changed in the MNB's regular annual review in 2020. Identified banks should start to gradually rebuild the capital buffer that was released during the coronavirus pandemic from 2022. The lower threshold of 350 basis points previously used to identify O-SIIs has been lowered to 275 basis points by the MNB, justified by the shift in the distribution of scores capturing the relative degree of systemic importance and the relative position of credit institutions. In its 2021 review, the MNB will assess when the formation of Magyar Bankholding Zrt. justifies setting the systemic importance and the related capital buffer at the highest consolidation level of the new banking group instead of at the member bank level.

7. In spring 2020, the MNB suspended for an indefinite period the annual review of the Systemic Risk Buffer (SyRB) rates, with 0 per cent effective rates, in order to mitigate the expected negative effects of the pandemic. At present, non-performing project loan portfolios are low partly because of the payment moratorium. However, due to increasing restructuring in the context of the moratorium, there are already institutions for which the MNB would have imposed a positive capital buffer rate in the absence of the suspension. Following the end of the payment moratorium, non-performing loans are expected to increase, especially in the sectors most exposed to the crisis. It will therefore be necessary to decide on the modalities and timing of the reactivation of the SyRB, in particular for the portfolios taken into account for the determination of the rates, based on an assessment of the risks that could materialise after the expiry of the moratorium.

8. The MNB's financial consumer protection activities also make an important contribution to maintaining financial stability through confidence in the financial system. In this context, the central bank has paid particular attention in the past year to the information practices during and after the pandemic and to the management of the payment moratorium. The MNB has identified shortcomings in the post-contractual information provided by financial institutions and has set a uniform standard for the termination of payment services framework contracts and called on institutions to compensate for amounts wrongly withdrawn.

9. In 2020-2021, the MNB implemented professional developments resulting from the implementation of the Resolution Directive (BRRD2) rules. The most important of these was the revision of the MNB's principles for imposing the MREL in line with the new regulations. In the context of resolution planning, MREL under the new rules will be imposed in 2021. Institutions will be required to be fully compliant from 1 January 2024, essentially following a linear path of continuous adjustment.

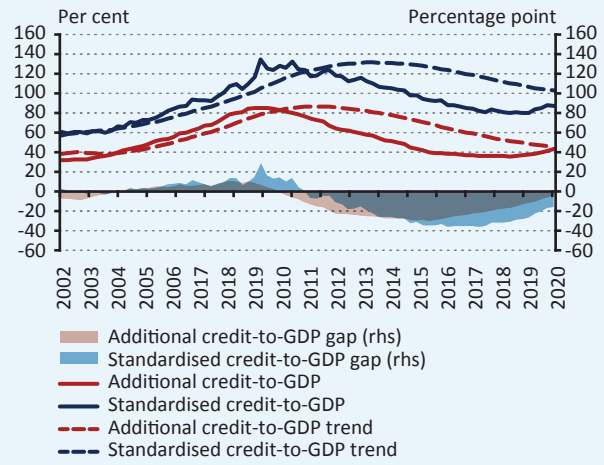
10. Persistent environmental changes associated with climate change can cause real economic losses and indirectly pose financial stability risks. The impacts are heterogeneous depending on the geographical and economic situation, and more detailed data are also needed to assess them accurately. The banking system can play an active role in greening the economy by financing projects that support this, for example by providing loans to modernise the outdated building stock and construct energy-efficient buildings. Such green loans can also be beneficial from a financial stability perspective due to their lower credit risk. The MNB has taken a number of measures to support green lending for housing, and in the future the macroprudential toolkit could be used more widely to address the financial risks of climate change and support the green transition.

11. Over the past decades, data assets have gained strategic importance, especially in the financial sector, which relies heavily on data collection and analysis for its overall operations. Nevertheless, at the national level, there is a significant backlog in the availability and use of data. This shortcoming increases the cost and time requirements of lending processes, dampens the potential dynamics of financial deepening, digitalisation and the uptake of green financial products, and weakens the competitiveness of the banking sector and the country. In addition to market improvements, improving access to government-managed databases would be a key priority for the digital transformation of banking operations.

1 Countercyclical capital buffer

The cyclical systemic risks to the domestic financial system remain low, also given the complex economic situation related to the coronavirus pandemic. Despite the temporary slowdown in credit market activity, government and central bank lending programmes and the partial halt in repayments due to the payment moratorium have contributed to the dynamic growth of loan volume and, through this, to mitigating the impact of the crisis. However, the set of overheating and vulnerability indicators of the cyclical systemic risk map signals a moderately increasing, but still low level of cyclical systemic risks. A rapid adjustment following the slowdown in economic growth could lead to an improvement in market lending trends, but a rapid build-up of credit market overheating is unlikely, given, inter alia, the still prevailing cyclical risks. It is currently not justified to start setting an effective countercyclical capital requirement and accumulating the capital buffer.

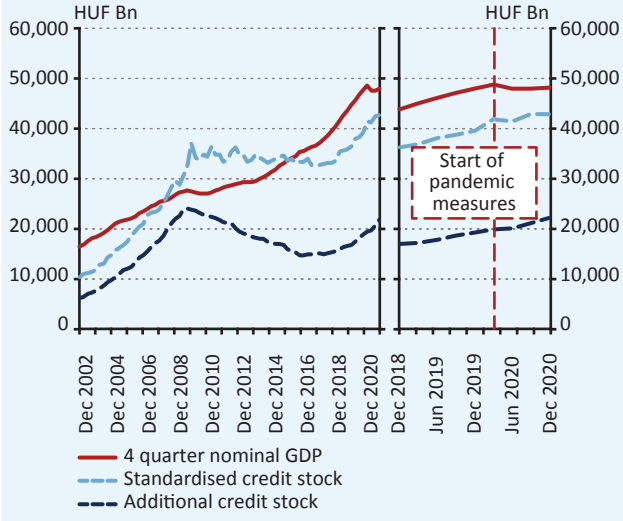
Chart 1
Development of benchmark credit-to-GDP gaps



Note: The gaps are overlapping, non-cumulated areas, in the foreground the closely monitored additional credit / GDP gap is depicted.

Source: MNB.

Chart 2
Developments in aggregates affecting major credit / GDP ratios and gaps



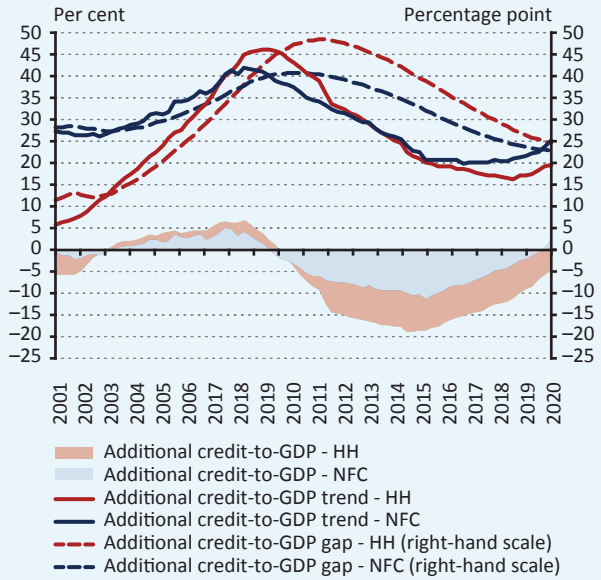
Source: MNB.

In addition to the shock to the real economy, the coronavirus pandemic has also had a significant dampening effect on bank lending. The spread of the coronavirus pandemic, which became global in spring 2020, and its first, second and third waves had severe negative economic and financial consequences. The resulting economic shock led to a 5 per cent fall in real GDP in 2020 and had a significant dampening effect on bank lending. In the wake of the coronavirus pandemic, the economy was hit by a substantial shock, but unlike in the previous crisis, significant government and central bank intervention, together with the government's payment moratorium reducing repayments, has succeeded in stabilising the loan stock and keeping it growing.

The Hungarian credit cycle has still not reached the stage indicating a credit overheating, based on monitored indicators. The continued narrowing of the credit-to-GDP gap ratios, regarded as the key indicators of the lending cycle[1] (*Chart 1*), and particularly the additional credit-to-GDP gap, which is the most closely monitored indicator, in the recent period, has been the result of a temporary fall in GDP and the resulting surge in the credit-to-GDP ratio *(Chart 2).* Credit-to-GDP gaps, except for the corporate ones, remained negative (*Chart 3*), i.e. overall, lending to the economy remained below the level implied by the long-term trend of credit-to-GDP, according to the indicators examined and despite relatively high growth in volume. The minimally positive corporate gaps are not considered unsustainable in the context of low corporate indebtedness by international standards (*Chart 4*), the moratorium, the sectoral composition and the denomination of loan portfolios and the terms of lending, as well as the GDP effects already mentioned above.

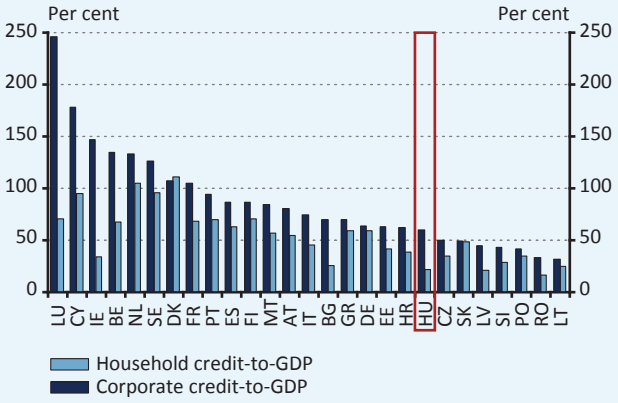
The values of the supplementary set of indicators monitoring the cyclical risks of the financial system signalled a level of cyclical overheating and vulnerability

Chart 3
Development of household and corporate additional loan stocks, loan-to-GDP ratios and gaps



Note: In case of gaps, overlapping, non-cumulated areas.
Source: MNB.

Chart 4
Household and corporate indebtedness in EU countries, 31 March 2021



Note: Credit includes loans from all sectors, in the case of corporates, on a consolidated basis.
Source: ECB.

not requiring intervention. The level and dynamics of the indicators of the cyclical systemic risk map showed an increase in overheating and vulnerability risks. However, in the complex economic situation created by the protracted pandemic, this should not be taken as a sign of overheating (*Table 1*). The increase in the ratio of housing prices to the disposable income of household by the end of 2020 was mainly due to the negative income shock caused by the pandemic, and therefore, with the recovery in economic activity, we do not expect a further significant increase in the indicator in the near future. The 'global credit-to-GDP gap', which measures foreign private sector over-indebtedness, has been boosted by the temporary effects of the coronavirus pandemic, similar to the Hungarian credit-to-GDP gap, and therefore the indicator does not point to a significant external financial shock in the future.

The level of stress in the financial system has fully normalised. The stress level of the financial system has been increasing less and less in the wake of successive pandemic waves and is currently in the low-risk range. Due to the strong capital market response, the level of financial stress as measured by the Factor-based Financial Stress Index (FSI) temporarily spiked significantly at the end of Q1 2020 and moved to a level representing a stressed position, but then quickly adjusted to normal as uncertainty eased. The FSI fluctuated mainly in response to developments in capital markets but did not reach the crisis level in its stressed position, and also increased to a lesser extent during the second and third waves of the pandemic, but adjusted back to its previous level as they eased (*Chart 5*).

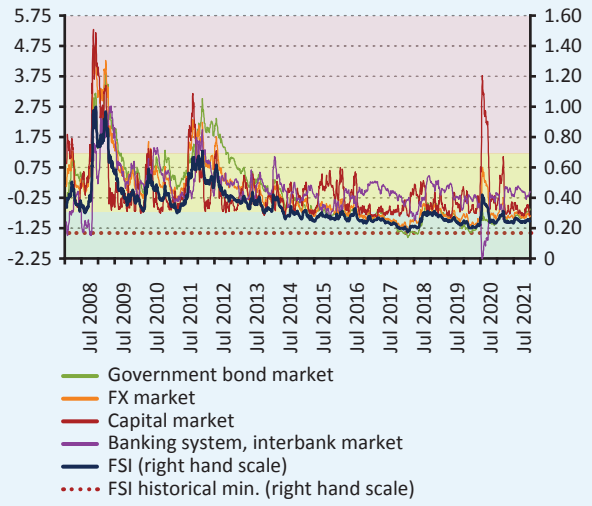
The date of the domestic imposition of the countercyclical capital buffer and the start of the accumulation of the capital buffer may occur later than expected before the emergence of the coronavirus. Given the monitored credit gaps, the indicators of the cyclical risk map and the expectations for growth and lending, a rapid increase in cyclical systemic risk is not expected. A cyclical recovery following the slowdown in economic growth could lead to a further improvement in market lending processes, but a rapid build-up of credit overheating is unlikely, inter alia, given the still prevailing cyclical risks. A change

Table 1
Changes in selected indicators of the cyclical systemic risk map, 2002–2020

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Global credit-to-GDP gap recommended by ESRB and BIS																			
Property price per income (MNB) (100 = avg of 2000)																			
Households' debt service burdens as a per cent of disposable income																			
Gross external debt as a per cent of GDP																			
Loan-to-deposit ratio of the banking sector																			
Ratio of FX loans to total loans (domestic financial institution)																			
Current account balance as a per cent of GDP																			
Capital adequacy ratio of the banking sector																			

Note: Green colour indicates low, yellow medium and red high cyclical systemic risk.
Source: BIS, HCSO, MNB.

Chart 5
Evolution of the Factor-based Financial Stress Index



Note: FSI values calculated on the basis of estimated four factors for 2005–2019, according to Szendrei, T. - Varga, K. (2017). In December 2008, the FSI approached a maximum of 1. Low stress level in green bar, stress status in yellow bar, high critical stress level in red bar. The historical minimum refers to values calculated since 2005. https://www.mnb.hu/letoltes/ccyb-modszertan-uj-hu-1.pdf
Source: MNB.

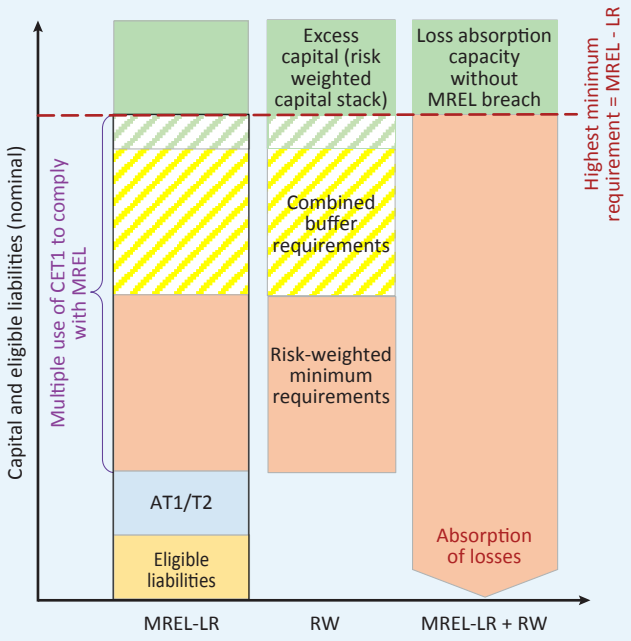
in the domestic capital buffer rate of 0 per cent over a 1-year horizon is unlikely, postponing the start of the capital buffer accumulation process, which supports the continued lending activity needed for the economic recovery.

The majority of EEA countries are maintaining the releasing measures taken to reduce the impact of the pandemic, but tightening measures already occur. Since spring 2020, the majority of EU countries have not changed their lax CCyB policies in the context of the protracted impact of the coronavirus pandemic. At present, only 5 countries - Bulgaria, the Czech Republic, Luxembourg, Norway and Slovakia - have effective countercyclical capital requirements. In the case of Luxembourg, a 0.25 percentage point rate increase came into effect from 1 January 2021, where a borrower-based measure-type tightening was introduced in view of longer-term financial stability risks related to real estate markets and lending. The Czech Republic decided in May this year to increase its CCyB rate by 0.5 percentage point to 1 per cent as of 1 July 2022, while Norway also announced a 0.5 percentage point increase in June 2021, bringing the requirement to 1.5 per cent as of 30 June 2022.

Box 1
The use of macro-prudential capital buffers - obstacles and future challenges

The Basel III regulatory package introduced macroprudential capital buffers[2] to ensure that banks can continue to provide financial services that are important to the real economy in a crisis without breaching minimum capital requirements. The purpose of the buffers is to increase the resilience of the banking system to shocks, so that lending is not reduced, and assets are not sold abruptly in circumstances where capital levels are expected to deteriorate due to a fall in profitability and an increase in credit losses. Capital buffers require the holding of additional capital on top of the regulatory capital requirements under Pillars I and II. However, the consequences of breaching the relevant requirements are much less severe compared to regulatory minimum requirements, namely it entails the limitation on distributions that reduce capital levels. These restrictions help to ensure by reducing distributions to owners and management that capital levels are not further eroded during economic downturns and are rebuilt over the appropriate time horizon. The use of buffers during a crisis effectively supports the maintenance of lending activity, which can also help the economy recover sooner, resulting in fewer losses in the longer term. This positive effect has been confirmed by calculations of the European Central Bank (ECB)[3].

Different capital requirements and their interaction



Note: All components expressed as Common Equity Tier 1 capital (CET1). MREL-LR: MREL based on leverage ratio requirement. RW: capital requirements in relation to risk-weighted exposure amounts. Eligible liabilities: available liabilities eligible in MREL. AT1/T2: additional Tier 1 capital and Tier 2 capital. It is assumed that MREL-LR is the highest requirement and that the consolidation levels are the same. The green and yellow shaded areas represent the additional requirements over and above the minimum requirement in relation to the risk-weighted exposure amounts.

Source: ESRB.

Whilst the use of capital buffers would have positive effects at the national economy level, at the individual level there may be a number of effects that may discourage banks from maintaining their lending even at the cost of falling below the capital buffer requirements[4]. Some of these are linked to market expectations and the effect of stigma: lower capital levels may be perceived negatively by market participants, leading to increased funding costs, reduced access to funding and ultimately downgrades. In addition, the current design of the regulatory framework may also hinder the use of buffers. The automatic triggering of payout restrictions could strongly discourage the use of capital buffers, with significant negative implications for the bank's investors and managers. This negative impact was mitigated when, in the economic shock of the coronavirus pandemic, authorities across Europe called on all banks to refrain from paying dividends, paying variable remuneration and buying back stocks[5]. Other regulatory compliance obligations, in particular for the leverage ratio or the minimum requirement for own funds and eligible liabilities (MREL), may also pose a barrier. These may overlap with the buffer requirements, so that in some cases a reduction in capital levels is not possible without breaching these requirements (see chart). In addition, uncertainty about the expected timing of capital buffer re-accumulation and future buffer increases may discourage banks from using capital buffers, as the rapid build-up of capital levels can be difficult and costly, especially in low profitability situations.

In the context of the coronavirus crisis, the impact of factors that hampered the use of capital buffers was observed, although to a limited extent so far. According to preliminary ECB results, it could be observed after the coronavirus that banks with capital levels closer to the combined buffer requirement have reduced their corporate lending more and tightened their lending conditions more than other banks after the crisis[6]. As there is still significant free capital available at EU level and only some of the banks' capital adequacy is strained, unused capital buffers and pro-cyclical adjustment have not yet had a major negative impact on the real economy. However, the problem could become systemic in a future crisis if more banks are involved.

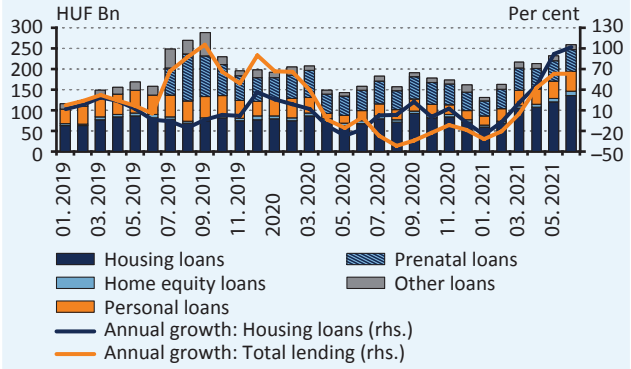
The use of capital buffers could also be supported by regulatory instruments. Clear and unambiguous communication by regulators can help reduce uncertainty about regulatory expectations and help manage those of market participants. It is important to stress to banks and other market actors that the use of buffers in a crisis is consistent with the regulatory framework. In addition, signals on the timing of the re-accumulation of buffers are also necessary to allow banks to plan for their solvency position. In the medium term, there may also be a need to rethink the regulatory framework for buffers, for example by increasing the proportion of buffers that can be released by regulators (i.e., freely used by institutions without negative consequences).

The redesign of the capital buffers regime could be a key issue for the 2022 review of the macro-prudential framework. By releasing the buffers by regulators in stress situations, banks could use their capital without triggering payout restrictions through breaching buffer requirements. However, the countercyclical capital buffer (CCyB) is the only buffer in the buffer framework specifically designed to be released in the event of an economic downturn. The CCyB rate, however, was zero or very low in most countries before the coronavirus, thus hampering the possibility of counter-cyclical action. Therefore, there is a need to increase the proportion of countercyclical buffers that can be released in the future, compared to the current higher proportion of structural systemic risk mitigating buffers. One option to achieve this would be to introduce a positive neutral CCyB rate. According to this, even in "normal times", i.e., in the absence of evidence of overheating of lending, authorities would impose some positive CCyB rate. This would serve the purpose of ensuring that capital buffers are available to be released in the event of shocks such as the coronavirus pandemic, i.e., unforeseen shocks that could materialise without increased cyclical systemic risks. While there is no consensus on the reform of the buffer regime, it could be a focus of the European Commission's 2022 review of the macroprudential framework[7].

2 Borrower-based measures

Borrower-based measures have increased the shock-resilience of the credit stock in recent years by holding back risky loans, while not significantly hampering healthy credit growth. The borrower-based measures in place may have contributed greatly to households facing the potential economic hardships due to the coronavirus pandemic and the increase in repayments due to interest rate hikes with adequate income buffers and greater shock resilience. In the case of household loans, the share of funding close to the limits for the debt-service-to-income ratio (DSTI) and the loan-to-value ratio (LTV) has not increased over the past year. In order to maintain the healthy structure of lending, the MNB continuously monitors (1) the potential risks arising from the loan stock under moratorium, (2) the increase in the maturity of household loans, (3) the evolution of the financing of the down payment by personal loans, (4) the interest rate risk of the outstanding mortgage loan stock with shorter interest rate fixation periods. In addition to monitoring risks, the MNB will pay particular attention to the use of digital lending channels, which have become increasingly prominent in the wake of the coronavirus pandemic, and the borrowers that use them in the context of banking competitiveness.

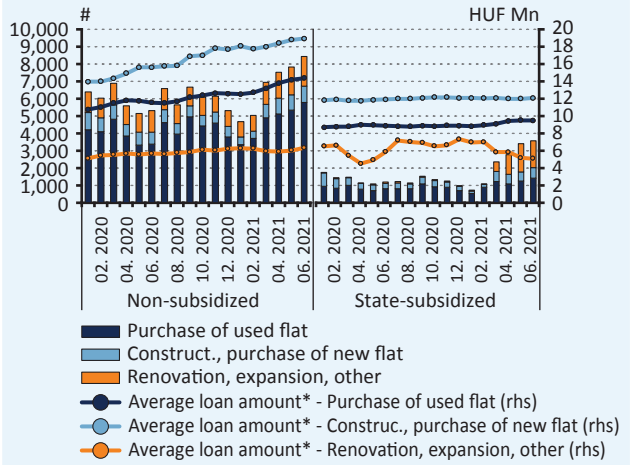
Chart 6
The household credit disbursement of credit institutions



Note: Excluding individual business loans.

Source: MNB.

Chart 7
The number and average amount of new housing loans



*Note: Excluding individual business loans. Credit institution sector. *3 month moving average.*

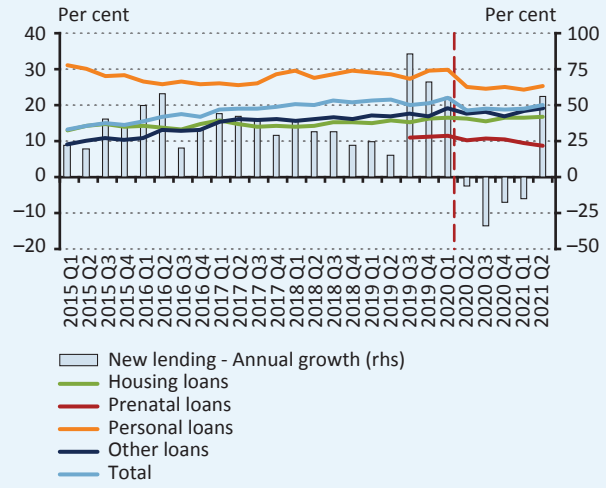
Source: MNB.

2.1 DYNAMIC LENDING IN A SUSTAINABLE AND HEALTHY STRUCTURE

By Q2 2021, the growth rate of household lending had returned to a stable positive range, mainly driven by a strong upward phase of housing lending. Lending activity started to slow down from March 2020, and from April onwards, lending activity declined compared to the same period of the previous year *(Chart 6).* The decline mainly affected personal loans and other unsecured loans for consumption purposes, as well as prenatal loans. For the former, the decline was caused by the time needed to develop products in line with the preferential Annual Percentage Rate of Charge (APRC) introduced during the emergency situation and the temporary risk aversion of banks and borrowers, while for prenatal loans the decline was due to the incorporation of strong credit dynamics of 2019 into the baseline. However, from March 2021, total lending started to increase again on an annual basis, supported mainly by the unprecedented increase in housing loans already visible from January on.

The record high housing loan growth is explained by both the increase in average loan amounts and the increase in the number of new housing loans. In terms of lending, loans for used housing and loans for renovation and expansion have grown the most, with annual growth of 21 and 75 per cent respectively in the first half of 2021, while the number of loans for construction and new home purchases has remained stable over the past year, at around 1,000–1,500 per month *(Chart 7).* In parallel, a strong increase in average loan amounts is also observable in the markets for both unsubsidised used housing along with new housing and construction loans. The average contract

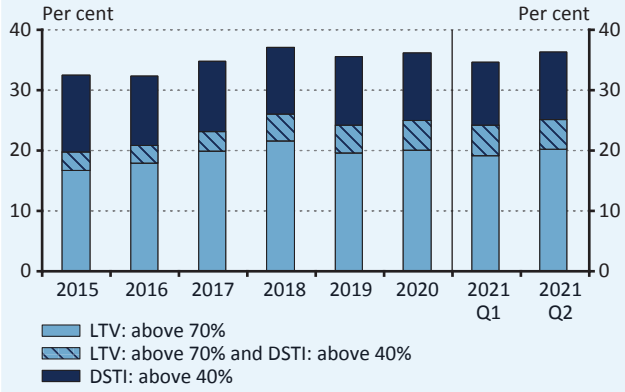
Chart 8
The share of loans lent with a DSTI value above 40 per cent by loan type



Note: By number of contracts, credit institutions sector. The red line indicates the outbrake of coronavirus pandemic.

Source: MNB.

Chart 9
Share of housing mortgages granted near the regulatory limits of borrower-based measures in new credit disbursement



Note: Distribution based on the number of contracts.

Source: MNB

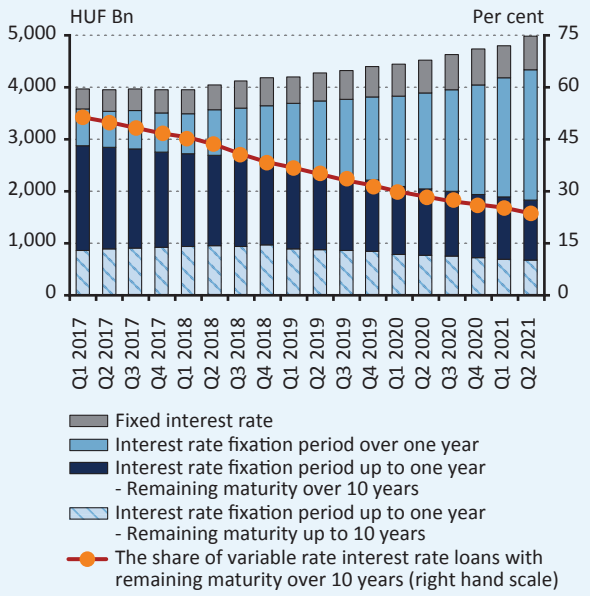
amount of these loans increased by HUF 2 and 3 million respectively over a year. The average amount of state subsidised loans for renovation was HUF 5 million.

In parallel with the easing of the coronavirus pandemic, a gradual normalisation of risk aversion can be identified. Prior to the outbreak of the coronavirus pandemic, the share of income-stretched loans with a DSTI above 40 per cent reached 22 per cent at sector level and 30 per cent in the personal loan market *(Chart 8).* However, after the outbreak of the pandemic, the risk aversion of lenders increased, reflected in a decrease in the share of loans with high DSTIs, mainly for unsecured consumer loans. By the beginning of 2021, as the pandemic eased, a resurgence of loans to more indebted borrowers was observable.

The borrower-based measures are a major support to the sustainability of lending flows. By June 2021, more than 80 per cent of the outstanding loan portfolio had already been disbursed in compliance with the borrower-based measures following their entry into force in 2015. Compared to the credit cycle prior to the introduction of the borrower-based measures, the sustainability of the current lending trends is substantially enhanced by the fact that the current credit cycle is denominated in forint, with fixed or long-term fixed interest rates, in compliance with the borrower-based measures, without a significant increase in the share of loans closer to the limits. In recent years, about 35 per cent of new housing loans were placed close to the LTV or DSTI limits and only about 5 per cent of lending fell close to both regulatory limits (*Chart 9*). This has not changed even with the substantial new mortgage lending in the recent period, indicating that the deepening of lending has continued without any meaningful increase in risk.

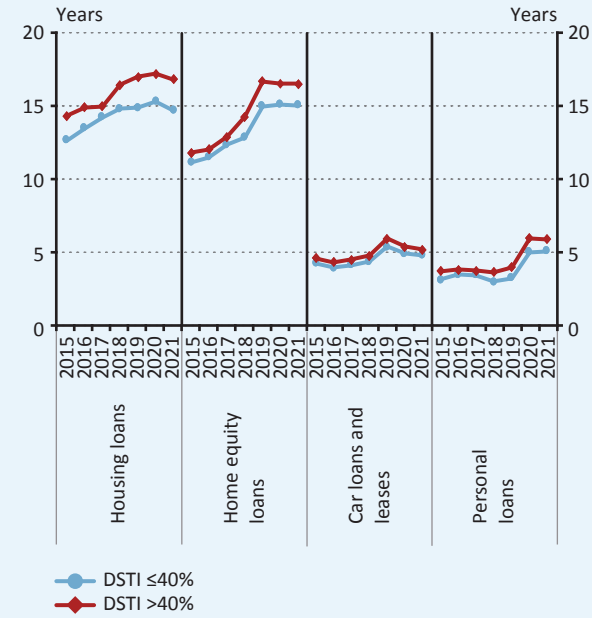
The outstanding stock of mortgages carries a gradually declining interest rate risk. As a result of a number of measures taken by the MNB[8], products with fixed interest rates for a longer period of at least 5 years have become dominant within new housing lending. At the same time, the weight of floating-rate housing loans, which are more exposed to interest rate risk, in new loans has become negligible. As a result of this restructuring, the stock of variable-rate mortgages with a longer residual maturity than 10 years, which are considered riskier, declined to HUF 1,155 billion by June 2021, or 23 per cent of the total stock of retail mortgage loans, a 16 percentage point decrease compared to October 2018, when the DSTI rules differentiated by interest rate period were introduced (Chart *10*).[9] As a result of the MNB's measures, the exposure of the loan stock to interest rate risk has thus been considerably reduced and borrowers have sufficient income buffers to offset any interest rate shocks.

Chart 10
Mortgage loan stock by interest rate fixation



Note: Performing bank loans only.
Source: MNB.

Chart 11
Average maturities by DSTI value and loan category



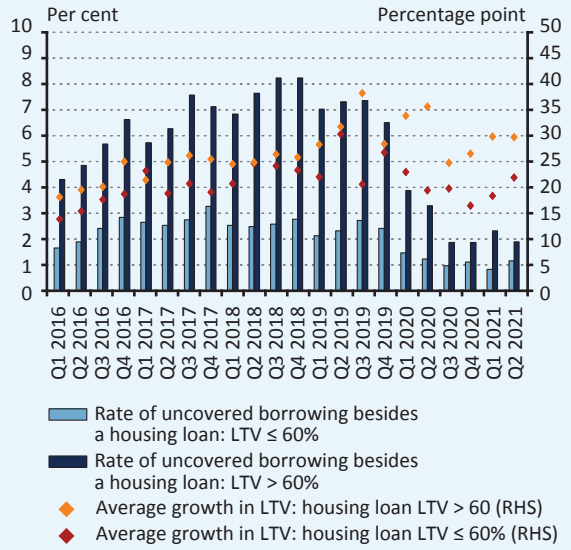
Note: 2021 data pertains to the first half of the year.
Source: MNB.

2.2 NO SUBSTANTIAL CIRCUMVENTION OF THE BORROWER-BASED MEASURES CAN BE IDENTIFIED

Significant improvements in DSTI compliance through maturity extension are currently not widespread. In recent years, the average duration of mortgage loans has gradually increased, stabilising at around 15 years by 2021. The average maturity of 15 years in Hungary is not considered to be an exceptional figure compared to the average maturity of around 25 years in Europe. The difference between the average maturity of loans taken out at DSTIs above and below 40 per cent remained stable at 1-2 years for both loan types, and no significant change in maturity distributions is visible, indicating the stability of the effectiveness of DSTI limits *(Chart 11).*

Personal loans taken into account as a down payment is considered by the MNB a particularly risky practice, and in its 2019 executive circular[10], which has been amended several times since then, it called on lenders to refrain from this practice and to develop procedures to eliminate it. As housing prices have risen and interest rates on personal loans have fallen, personal loans have become increasingly common as a precursor to home loans, presumably to supplement the down payment: Between 2017 and 2019, about 7-8 per cent of housing loans disbursed with a higher LTV of over 60 percent, has been preceded by uptake of personal loans *(Chart 12).* Therefore, the MNB expects that monitoring of compliance with the real down payment requirement expected for mortgage loans should be built into lenders' risk management and that transactions that already breach the LTV requirement by including personal loans should not exceed 5 per cent of the lender's annual lending. The MNB's communication in this regard and the rise of state-subsidised loans, in particular significantly lower-risk prenatal loans, may have contributed considerably to the fact that the level of supplementing down payments by personal loans was only 1-2 per cent of new housing loans by 2020.

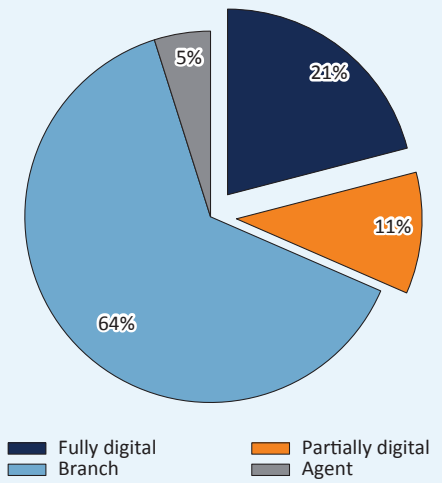
Chart 12
The estimated evolution of uncovered loans used for supplementing the down payment



Note: The share of housing loans within the total disbursement of each LTV category for which the principal debtor requested a personal loan 180 days prior to the disbursement. Excluding Prenatal loans.

Source: MNB.

Chart 13
The role of digital sales channels in personal lending (January - June 2021)



Source: MNB.

2.3 DIGITAL LOANS STILL ACCOUNT FOR A LOW SHARE OF TOTAL LOANS, FOR WHICH NO HIGHER RISK CAN BE IDENTIFIED

There is still room for further expansion of digital personal lending. The role of digital lending is most relevant for personal loans for consumption purposes, where the loan amounts are smaller, the product is simpler and thus does not require detailed advice and collateral valuation, and the regulatory environment is supportive (no need for written contracts and notarisation). Digitalisation has become even more prominent in the wake of the coronavirus pandemic. In the first half of 2021, the share of fully digital lending was 13 per cent and the share of digitally originated or managed transactions was 22 per cent of new lending, while two-thirds of personal lending continued to be entirely offline *(Chart 13).*

For the time being, digital loans are still more in demand by younger clients, so their amounts and terms are currently smaller and shorter compared to offline sales. The median age for offline lending channels is 43 years, while for fully online lending it is 39 years. The median loan amount for personal loans sold online is HUF 600 thousand lower and the median maturity is one year shorter. However, no significant differences are observed in the residence, indebtedness and income of borrowers (*Table 2*). Thus, overall, no change in the level of lending risks is apparent in the context of the spread of digital channels.

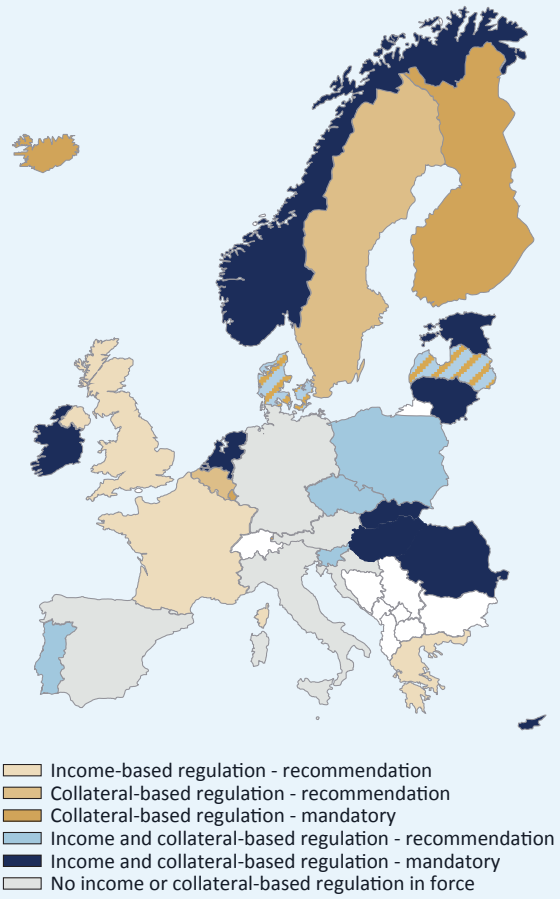
Table 2
The main characteristics of new personal lending by sales channel (January – June 2021)

	Non-digital	Partially digital	Fully digital
Average loan amount (HUF million)	1.8	1.5	1.2
Maturity (year)	6	5	5
DSTI (%)	30	29	32
Income (HUF ths)	261	283	260
Age (year)	43	43	39
By place of residence of the borrower (%)			
Big cities*	29	35	28
Other towns	34	32	36
Municipalities	37	33	36

Note: Budapest and cities with county rights. Credit institutions sector. Median values.

Source: MNB.

Chart 14
Borrower-based measures and requirements in Europe



Note: In Latvia and Denmark the LTV regulation is mandatory, while the income-based DSTI-limit was determined in the form of a recommendation. As of June 2021.

Source: ESRB, MNB.

2.4 KEEPING BORROWER-BASED MEASURES UP-TO-DATE IN HUNGARY AND INTERNATIONALLY IS OBSERVABLE

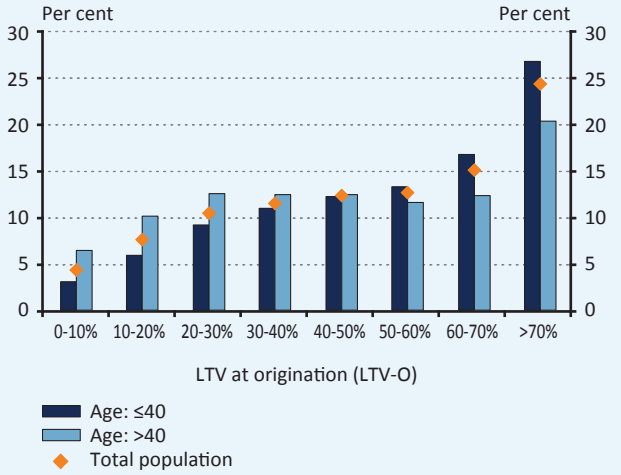
The authorities are responding to the rebound in the real estate markets and the potential liquidity difficulties of debtors after the pandemic by modifying the borrower-based measures. With the introduction of borrower-based measures already completed in most countries (only Luxembourg introduced new LTV rules last year), the authorities have taken steps to tighten LTV requirements in the past year as market conditions have recovered (FI, CY, IS; (*Chart 14*)). In addition, in response to labour market tensions caused by the pandemic in Norway, clients are exempted from the income-based measures when restructuring due to payment difficulties.

The MNB is also committed to keeping the regulations up-to-date and incorporating feedback from market participants. In order to set up a legal framework to simplify the valuation process for residential mortgage loans, the MNB has made it possible to calculate the LTV on the basis of the statistical valuation of real estate in February 2021.

Box 2
International practice on the reduction of the down payment requirement for first-time homebuyers

In the housing market, typically young, first-time buyers are often at a disadvantage when buying a home with a loan, as their lower income makes it difficult for them to meet the down payment requirement increasing with housing prices. At the same time, these potential borrowers may represent a lower credit risk for banks[11] as they mainly buy for housing purposes and their income is expected to increase over the life of the loan. The rise in housing prices in recent years has led to a significant deterioration in the possibility of buying a home with loans for several social groups, especially in Budapest. Although the availability of state subsidies has reduced the income needed to buy a home with a loan, but rising house prices have also increased the expected down payment requirement. For this reason, the LTV limit is now a more effective constraint for some clients, especially young borrowers. Around 25 per cent of new home loans have been issued in recent years with an LTV of between 70 and 80 percent, and for the under-40 age group the rate is now 30 percent, which significantly reduces the access to housing for younger, mostly first-time home buyers. In the case of the DSTI requirement, however, there does not appear to be a similar congestion of loans to younger age groups near the limits similar to the LTV requirement.

LTV distribution of new housing loans by the age of borrowers (2020)



Note: Distribution based on the number of contracts.
Source: MNB.

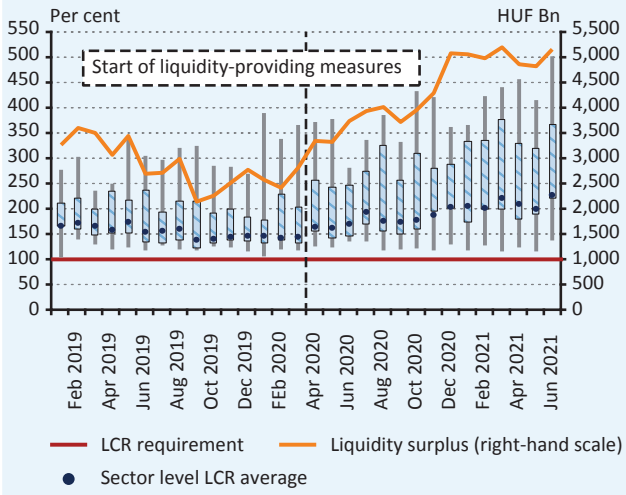
In several countries, the availability of home purchase with loans is being promoted by introducing higher LTV limits (lower down payment requirements) or looser DSTI requirements for first-time buyers. The definition of first-time homebuyers is typically linked to a home ownership condition (FI, IS, RO, MT), age below 35 (EE) or lack of prior borrowing (BE, IE, LU, MT). The preferential treatment of the target group concerned implies the application of LTV limits 5-10 percentage points higher, typically in the 90-95 per cent range (FI, IS, IE, EE, RO, MT), supplemented in some countries by a state guarantee (EE, RO). In the case of income-based regulations, young first-time homebuyers are treated more preferentially, with regulators mainly tolerating breaches of the relevant limits up to 10-20 per cent of new lending (IE, SK), allowing higher limits (RO) or exempting them from regulation (MT).

In Hungary, raising the LTV limit – which is more effective for younger age groups– for first-time homebuyers by 5-10 percentage points, , depending on lending and housing market developments, could help up to 20,000 clients a year to get a home. Assuming a 25-30 percent[12] share of first-time homebuyers in new mortgage lending, an increase of the LTV limit by 5-10 percentage points could directly support 5-20 thousand clients per year, based on 2020 lending data, depending on how overstretched they are according to LTV, affecting around HUF 70-200 billion of mortgage lending. In addition to the direct impacts, the indirect additional lending impact from the entry of clients who have so far been excluded from the housing loan market due to their too low savings would also be significant. The affected clients could thus have access to higher loan amounts, and thus to better quality or larger dwellings, and new home buyers could also enter the housing market. The risks arising from the higher loan amount that can be obtained through the preferential rate could be mitigated by the expected increase in income of typically younger borrowers and the higher repayment discipline resulting from the purchase of owner-occupied property. In the longer term, the introduction of lower LTV limits could be complemented and potential risks further mitigated by the introduction of credit insurance or a state guarantee covering the unsecured part of the exposure. Depending on market developments, the possible introduction of reduced LTV limits could be considered in the context of cooperation with market and public actors, taking into account the potential benefits and risks.

3 Basel liquidity and funding instruments

The liquidity position of the banking system remains stable, with banks meeting the Liquidity Coverage Ratio (LCR) requirement with significantly increased buffers since the outbreak of the coronavirus pandemic, mainly as a result of the MNB's liquidity-providing measures. The EU-wide Net Stable Funding Ratio (NSFR) regulation, which supports the stable funding of institutions over a 1-year horizon, entered into force on 28 June 2021. The introduction was not preceded by a significant degree of adjustment, institutions meet the requirement with a significant surplus. EU-wide liquidity and funding rules are therefore not an obstacle to the reviving lending.

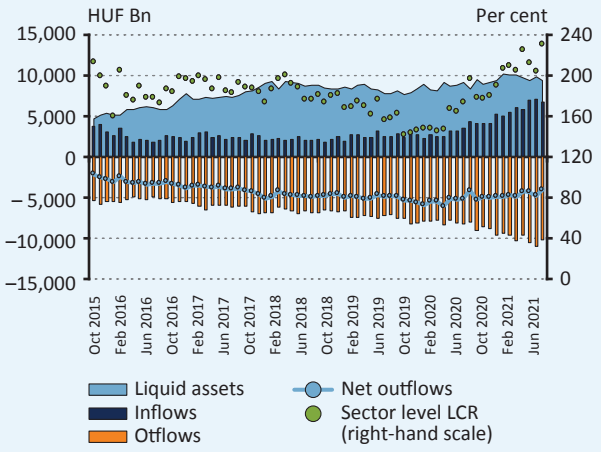
Chart 15
Institutions' LCR levels



Note: The first and ninth decile, first and third quartile values and averages are represented. Without mortgage banks and building societies. The liquidity surplus refers to that part of the liquidity buffer that is available in addition to what is required to meet the 100 per cent LCR.

Source: MNB.

Chart 16
Developments in LCR components on a sectoral level



Note: Without mortgage banks and building societies.

Source: MNB.

3.1 SINCE THE BEGINNING OF THE CORONAVIRUS PANDEMIC, CENTRAL BANK MEASURES HAVE LED TO A SIGNIFICANT INCREASE IN THE LCR OF DOMESTIC BANKS

Since the outbreak of the coronavirus in spring 2020, the LCR level of the banking sector has increased substantially. While before the coronavirus, the trend in LCR was downward in line with the cyclical situation, with an average LCR level below 150 per cent in early 2020, this trend has been reversed in the last year and a half thanks to the liquidity expansion measures taken by the central bank in response to the coronavirus: since December 2020, the banking sector LCR level has been consistently above 200 percent, reaching 228 per cent on 30 June 2021 *(Chart 15).* Although there are large differences in liquidity management and hence LCR levels across banks, none of them shows overly stretched compliance, with safe buffers in place in all cases.

The central bank measures, aimed at strengthening banks' liquidity position during the coronavirus pandemic, led to an increase in the LCR, mainly by increasing inflows. The MNB took a number of measures leading to an abundance of liquidity to counter the adverse liquidity impact of the uncertain financial market situation caused by the pandemic and the payment moratorium. Among the items that make up the LCR, inflows increased mainly due to the one-week MNB deposits that can be regarded as such, the stock of which has built up significantly since its introduction in spring 2020 and reached HUF 4,000 billion by end-June 2021. Meanwhile, outflows have also increased, mainly due to a rise in non-operational corporate deposits, which are more heavily weighted. However, net outflows, calculated as outflows net of inflows, still declined, which, together with a slight increase in liquid assets, led to an increase in the LCR level *(Chart 16).*

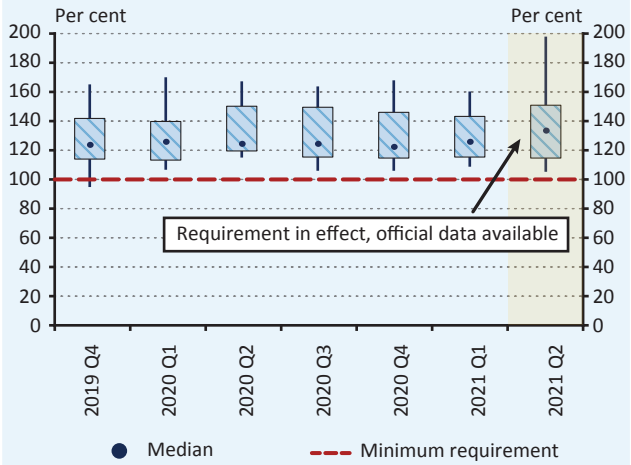
Chart 17
Simplified content and factors of required and available stable funding

Required stable funding (%)		Available stable funding (%)	
Liquid assets	0	Capital	100
Customer loans		**Deposits**	
within a year	50	stable*	95
over a year	85	other retail	90
mortgage	65	corporate	50
non-performing	100		
Wholesale claims		**Wholesale funds**	
-6 months	10	-6 months	0
6-12 months	50	6-12 months	50
12+ months	100	12+ months	100
Credit lines	5		

*Note: *Concept used in the LCR regulation: retail deposits are categorized into stable and less stable categories based on conditions affecting the probability of their outflow (duration of the relationship, other relations with the bank, regular salary transactions, deposit guarantee)*

Source: MNB.

Chart 18
Development of institutions' NSFR



Note: Lower and upper decile and lower and upper quartile. Until the first quarter of 2021 estimation based on bank balance sheet data, for the second quarter of 2021 data from official data reporting.

Source: MNB.

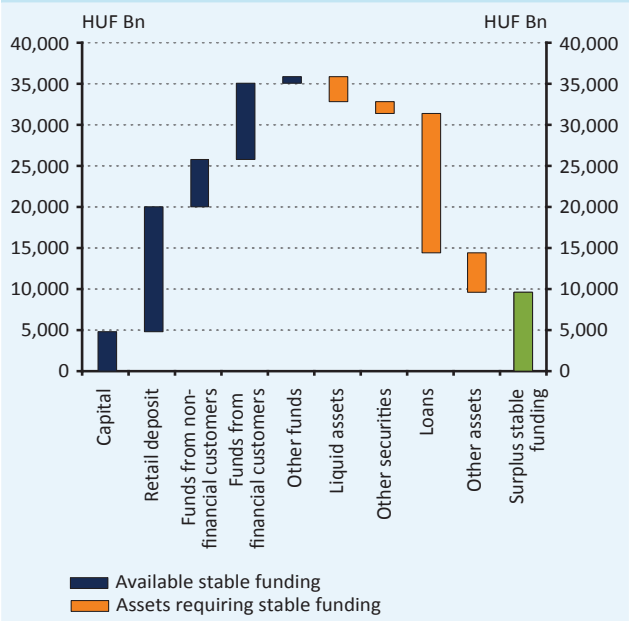
3.2 THE COMING INTO FORCE OF THE NSFR DID NOT REQUIRE MAJOR ADJUSTMENTS

The EU-wide Net Stable Funding Ratio (NSFR) requirement, which entered into force in June 2021, expects stable funding over a 1-year horizon in a forward-looking manner. The NSFR expects the holding of adequate volume of stable funds compared to institutions' assets requiring stable funding, thereby reducing the maturity mismatch. The regulation assigns weights to liabilities based on stability and expected renewal, and to assets and off-balance sheet items based on liquidity, encumbrance and drawdown probability, based on which Available Stable Funding (ASF) and Required Stable Funding (RSF) must be determined *(Chart 17).* The indicator is calculated as the ratio of these two aggregates, which must reach 100 per cent for all banks at both consolidated and individual level from 28 June 2021. National authorities have the possibility to deviate from the standard EU requirements at certain points, so the MNB has taken the opportunity to set a stable funding requirement for the minimum reserve requirements and the bank's cancellable credit lines at 50 and 5 per cent respectively[13].

The introduction of the NSFR requirement did not imply a major adjustment effort. Most of the Hungarian banks, with the exception of a few smaller institutions and mortgage banks, already met the 100 per cent minimum requirement, which may have been influenced by the positive impact of the previously introduced national funding rules *(Chart 18).* Compliance has been stable over the last year and a half, meaning that domestic bank funding has remained sound even in the face of the coronavirus pandemic. There was only a limited need for adjustment, mainly at the individual level of institutions belonging to a banking group, to which the banks concerned could respond by restructuring their intra-group operations.

Most of the stable funds banks have to hold are related to loans granted, which are mostly met by retail deposits *(Chart 19).* According to the data for the second quarter of 2021, loans granted are by far the largest item of the required stable funding items, accounting for nearly two-thirds of the stable funding requirement, with loans other

Chart 19
Development of the NSFR components (June 2021)



Note: Weighted by the factors used in the NSFR. The surplus stable funding refers to the stable funding available in addition to what is required by the NSFR.

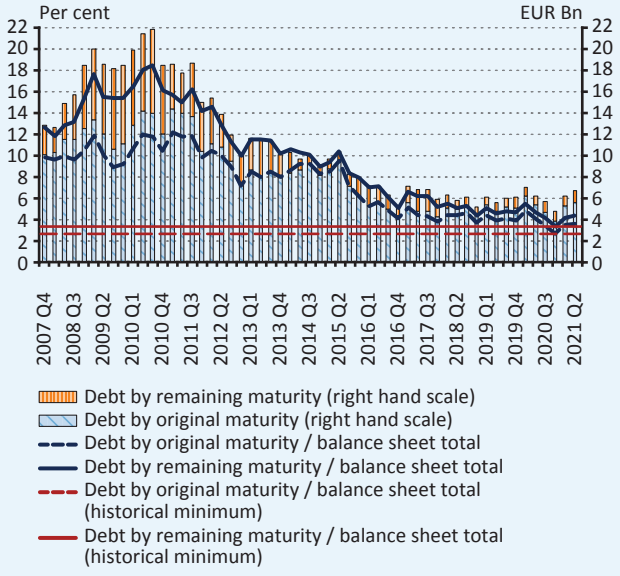
Source: MNB.

than mortgages to non-financial clients accounting for the largest share of required stable funding due to their higher weight. In addition, mortgage loans, loans to financial clients and liquid assets are also a significant source of required stable funding. Among the available stable funding, retail deposits play the most important role, supported by the relatively high share of retail deposits in bank funding and their high weight in the NSFR regulation. The next largest item is stable funding from financial counterparties, of which funding from the central bank accounts for 38 per cent. Other stable funding includes funding from non-financial counterparties and capital.

4 Funding instruments mitigating external vulnerability

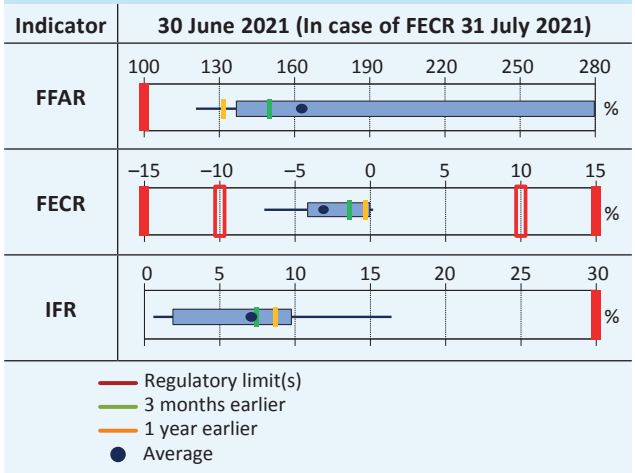
The banking system meets the MNB's set of macroprudential funding measures with adequate buffers and a favourable funding structure. The short-term external vulnerability of the banking sector is historically very low. The banks' funding position is therefore not an obstacle to financing the revival of lending activity following the pandemic.

Chart 20
Development of the short-term debt of the banking system



Note: Credit institutions sector, including the data of EXIM, MFB and KELER. Historical minimums are calculated from Q1 1998. Source: MNB.

Chart 21
Compliance with the MNB regulations targeting financing risks

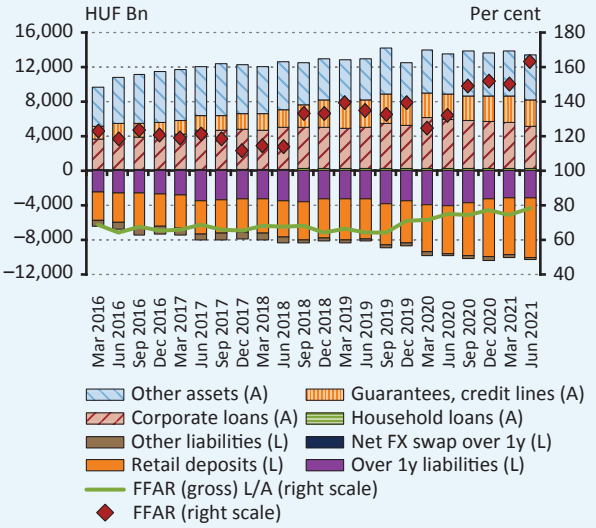


Note: In addition to the averages, first and ninth deciles and low and high quartiles are shown. In the case of FECR, the double red line indicates the limit temporarily effective between March 2020 and September 2020. Source: MNB

The banking system's short-term external debt-to-balance-sheet-total ratio is near historic lows. Banks' short-term external debt reached its lowest level in decades at the end of 2020 (Chart 20). In recent years, the MNB's monetary and macroprudential regulatory measures, in addition to the availability of funding on favourable terms even over longer maturities, have played a key role in keeping external vulnerabilities low. Over the past year, with the level of banks' short-term external debt remaining basically unchanged, the relative level of short-term external vulnerabilities has declined slightly, partly due to the increase in the balance sheet total as a result of government and central bank measures in response to the coronavirus.

The elements of the macroprudential toolkit that require prudent funding and also mitigate the risks of external vulnerabilities are met by the banking system with safe buffers (*Chart 21*). Domestic banks, both at the sectoral and individual level, operate in compliance with the regulatory requirements. The banking system has adequate and stable external funding, both in terms of own funds and non-capital funding, despite the pandemic. There are no funding constraints to the revival of lending, even when taking into account the phasing out of the central bank's credit stimulus programmes. However, for some specific banking models, not typically focused on client lending and subject to significant balance sheet volatility, more active liquidity management is required to comply with some of the regulations.

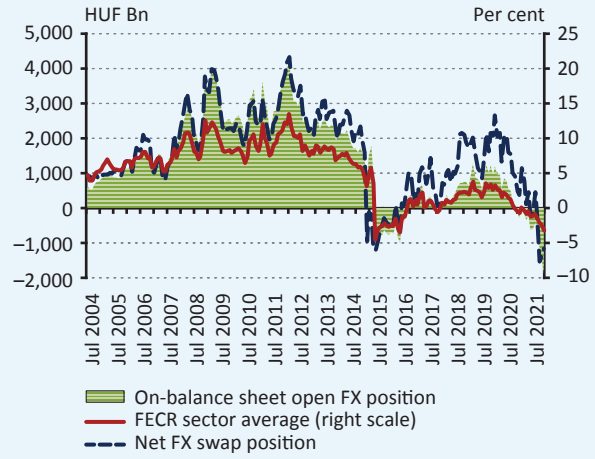
Chart 22
Asset and liability categories requiring and providing stable foreign exchange funding in FFAR



Note: Based on FFAR unweighted amounts. A temporary tightening was in place between March 2020 and September 2020.

Source: MNB

Chart 23
On-balance sheet open FX position and net FX swap position

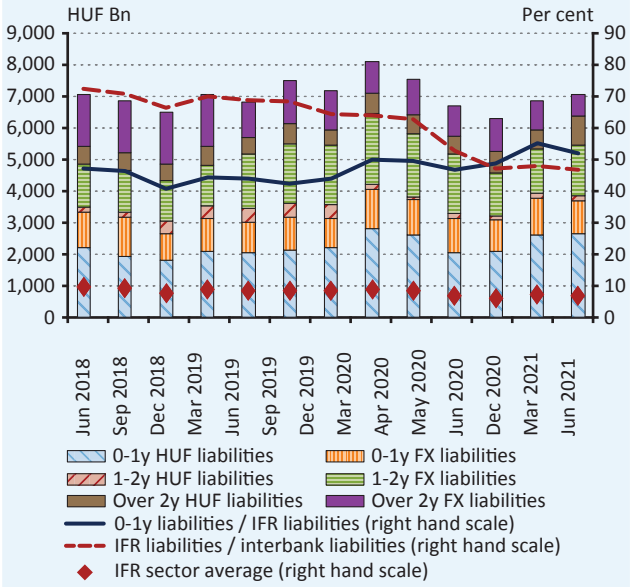


Source: MNB.

The improvement in foreign currency maturity match over the past year has been driven by an increase in foreign currency client deposits. On the foreign currency assets side, there has been essentially no change, as the stock of corporate foreign currency loans and the related volume and share of guarantee and credit line commitments have remained basically stagnant. In contrast, the volume of household and corporate foreign currency deposits increased, allowing banks to reduce the volume of long-term foreign currency liabilities outstanding and their external foreign currency funding needs, although to a much lesser extent than the increase in foreign currency deposits (Chart *22*). Consequently, both the banking sector average of the Foreign Exchange Funding Adequacy Ratio (FFAR) ratio and the ratio of the unweighted amounts of foreign currency liabilities and assets included in the FFAR are at their highest levels in the last 5 years.

The banking system is now operating with a substantial surplus of foreign currency liabilities. The banking system has been operating with an increasing foreign exchange liability surplus since the onset of the pandemic in Hungary in spring 2020, mainly due to a reduction in corporate foreign currency lending and an increase in foreign currency client deposits. The share of banks with foreign currency liability surpluses by both number and balance sheet total has continued to rise, to 64 and 73 percent, respectively. The net foreign exchange swap position of banks has accordingly turned negative, with the banking system now acting as a net forint receiver *(Chart 23).* Following the reinstatement of the Foreign Exchange Coverage Ratio (FECR) limit in September 2020 after the temporary tightening, the on-balance sheet open foreign exchange positions of some banks with a business model focused on foreign exchange carry trade transactions returned to the pre-tightening range of 10-15 percent. The restoration of the expected level of the FECR has therefore not led to increased risks compared to before, but has slightly reduced the need for these banks to actively manage liquidity needed to adapt.

Chart 24
Funds of the banking system originated from financial corporations targeted by IFR



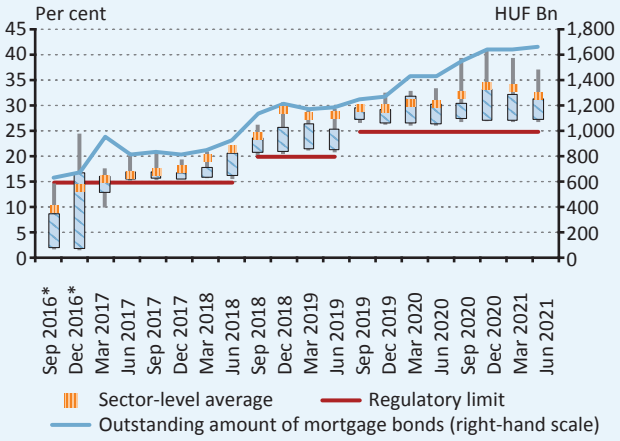
Note: Gross unweighted liabilities.
Source: MNB.

The volume and share of less stable funding from financial corporations have also declined substantially over the past year, mainly as a result of central bank lending programmes. Dependency on funds from financial corporations has been steadily low for several years and has declined further over the past year. The majority of banks, including the large ones, meet the Interbank Funding Ratio (IFR) requirement with significant buffers. The share of safer, mainly long-term central bank forint liabilities not targeted by the IFR has increased significantly within liabilities from financial corporations, but the share of forint liabilities backed by mortgages, also long-term, has also increased. In the meantime, however, the share of short-term, predominantly forint liabilities increased slightly within the liabilities targeted by the IFR *(Chart 24).* Over the past year, the total volume of funding from financial corporations has fluctuated more, mainly due to short-term forint funding.

5 Mortgage Funding Adequacy Ratio

Banks are complying with the Mortgage Funding Adequacy Ratio (MFAR) requirement with increasing buffers by the support of the MNB's mortgage bond purchase programme. In the summer of 2021, the MNB decided to amend the MFAR regulation to support green objectives, further develop the mortgage bond market and further strengthen the maturity match of forint assets and liabilities: from 1 July 2021, green mortgage-backed funding will be eligible with a preferential weighting, and from 1 October 2022, a 5-percentage point increase and other tightening measures will be introduced.

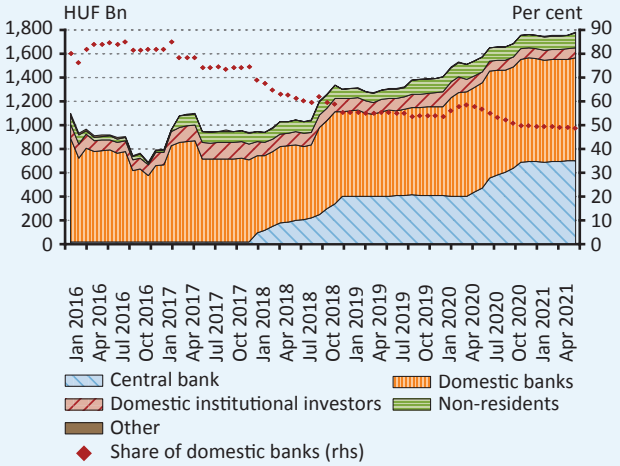
Chart 25
Development of MFAR compliance and the outstanding amount of mortgage bonds



Note: First and ninth decile values and lower and upper quartile values. The outstanding amount of mortgage bonds is at face value.
**Estimation only for large banks.*

Source: MNB.

Chart 26
Development of the outstanding amount of mortgage bonds by owner sector



Note: At market value.

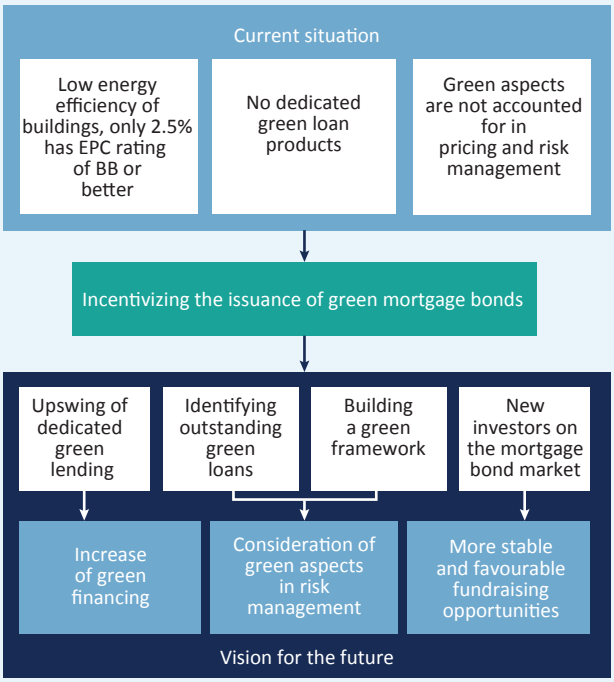
Source: MNB.

5.1 THE MFAR REQUIREMENT HAS CONTRIBUTED SIGNIFICANTLY TO THE DEVELOPMENT OF THE DOMESTIC MORTGAGE BOND MARKET

All banks are safely in compliance with the required minimum level of 25 per cent of the Mortgage Funding Adequacy Ratio (MFAR), effective from 1 April 2017 *(Chart 25).* To reduce the banking sector's forint maturity mismatch, the expected level of the ratio rose from the initial 15 per cent by 5 percentage points both in 2018 and 2019. Banks have successfully adapted to the level increase and the banking system average MFAR has continued to increase since the 2019 level increase, standing at 32.1 per cent in June 2021. The outstanding stock of mortgage bonds has also increased, reaching HUF 1,670 billion in June 2021, representing a 31 per cent increase compared to the end of 2019. The increase in the stock was driven by an increase of around 15 per cent in the stock of mortgages to be financed since end-2019 and an increase in the buffers accumulated above the MFAR expectation. A significant part of the increase in MFAR buffers can be attributed to the MNB's mortgage bond purchase programme, which the central bank relaunched in response to the coronavirus situation and under which purchases were made until November 2020.

Domestic banks remain the largest investors in the mortgage bond market. Bank ownership as a share of total market holdings has declined substantially compared to 2016, with essentially unchanged owned volumes. Most of the excess issuance of mortgage bonds following the introduction of the MFAR went to the MNB, acting also as a buyer in the market. Therefore, other investor activity, other than banks and the MNB, remained moderate *(Chart 26).* Since banks' mortgage bond crossholdings do not provide stable funding at sector level, and also increase the risk of contagion among the banks, they were discouraged also in the MFAR regulation before the coronavirus. However, a temporary suspension of the rules restricting

Chart 27
Effects of the emergence of green mortgage bonds



Source: MNB

Table 3
Amendments to the MFAR regulations and their entry into force

Amendments	Entry into force
1. Preferential treatment of green mortgage-based funds in the MFAR regulation: funds qualifying as green can be taken into account with a 1.5 weight	1 July 2021
2. Requiring a longer minimum maturity of green mortgage-based funds: requesting 5 years minimum maturity instead of 3 years	
3. Raising the required level: increasing the minimum level to 30 per cent	1 October 2022
4. Expectation of listing mortgage bonds on the stock exchange: requirement to issue on a regulated market	
5. Restriction of cross-ownership within the banking sector: introduction of a correction factor determined based on the share of ownership which reduces the numerator of the MFAR	
6. Technical amendment of the exception for mortgage bonds owned for market making: market making contracts with the stock exchange and with the issuer are both accepted	

Source: MNB

this was necessary to mitigate the impact of the financial market uncertainties created by the coronavirus outbreak.

5.2 IN JUNE 2021, THE MNB DECIDED TO AMEND THE MFAR REGULATION

In order to achieve the objectives set out in its Green Programme and to further develop the mortgage bond market, the MNB has allowed for the preferential recognition of green funds in the MFAR. From 1 July 2021, green mortgage funds can be included in the calculation of the ratio with a preferential weight of 1.5, in case of an original maturity of at least 5 years instead of the generally required minimum 3-year maturity. The amendment will encourage the future domestic issuance of green mortgage bonds, in line with the MNB's Green Mortgage Bond Purchase Programme, and through this the uptake of green mortgage loans to finance green real estate. On the one hand, these will support the reduction of energy consumption by financing improvements to the currently low energy efficiency of the housing stock, and on the other hand, based on preliminary international experience, they may also have more favourable credit risk characteristics and thus have a positive impact on financial stability. In addition, given the growing interest in green investments, green mortgage bonds could also represent a new, more diversified and stable source of funding for the banking sector in the future *(Chart 27).*

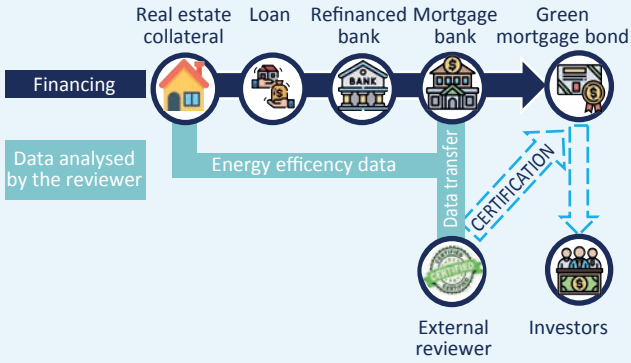
In order to further strengthen financial stability and increase the forint maturity match of the sector, the MNB has also decided on other, tightening amendments. From 1 October 2022, the expected minimum level of the MFAR will be increased from 25 to 30 percent, allowing sufficient lead time, newly issued mortgage bonds will be required to be listed on the stock exchange, and the restrictions on interbank mortgage bond cross-ownership, which were suspended due to the coronavirus pandemic, will be reintroduced in a new form, with preferential terms for holdings for market making purposes *(Table 3*). The changes could contribute to the development of the mortgage bond market and further reduce funding risks, while they are not expected to require major adjustments in view of the preferential treatment of green funds. Until October 2022, the level increase and the expected increase in mortgage lending are expected to result in the issuance of around HUF 150 billion of mortgage bonds, in addition to the HUF 215 billion of maturing mortgage bonds that will need to be renewed. In the case of issuing green mortgage bonds with a preferential weighting, the total funds to be raised will be reduced substantially from an estimated HUF 365 billion to around HUF 240 billion.

Box 3
The process of issuing green mortgage bonds and experiences to date in Hungary and the region

There is no uniform, internationally agreed definition of green bonds, including green mortgage bonds, but there are widely accepted standards set by market organisations to establish minimum quality criteria to be met by such instruments. The Green Bond Principles (GBP)[14], developed by the International Capital Market Association (ICMA), is the most widely accepted such green bond standard, providing a framework for the use of proceeds from the bonds, the process for project evaluation and selection, the management of proceeds and reporting. The Climate Bonds Standard (CBS)[15] is also considered self-regulatory, but is more stringent than the GBP, in fact it is a subset of the GBP. The basic principle is that CBS-compliant green bonds must be consistent with the economic trajectory set out in the Paris Climate Agreement (which allows for an average temperature rise of no more than 2 degrees Celsius). It also contains more specific definitions of the uses accepted as green, for example, in the case of residential mortgage financing relevant for mortgage bonds, the country-specific definitions of the energy characteristics of real estate collateral that qualify as green mortgages. In the case of GBP it is recommended, but not mandatory, that an external company reviews compliance with the requirements, while in the case of CBS it is mandatory. The MNB accepts mortgage bonds that meet either of the standards in its programmes supporting the issuance of green mortgage bonds, such as the MFAR and the Green Mortgage Bond Purchase Programme, but always requires verification of compliance by an external firm.

During the issuance process, the main difficulty for banks may be obtaining data on the energy characteristics of the real estate collateral. Knowledge of the data on the energy performance certificate of the property is necessary to identify mortgages potentially backing green mortgage bonds. This was not previously collected by banks during the lending process, so this information would only be available for future disbursements, however, taking only this information into account would be a very slow process to build up the minimum green stock required for issuance. Therefore, issuances would be greatly assisted if this data could be made available for existing stocks by ensuring that the energy performance certificate data held by the state (Lechner Knowledge Centre) is available to banks. While there may be other estimation methods that can be used to approximate the stock of green mortgages, these may severely limit the stock that can be considered green, and hence the volume of green mortgage bonds that can be issued, in order to compensate for inaccuracy.

The process of green mortgage bond certification



Source: MNB

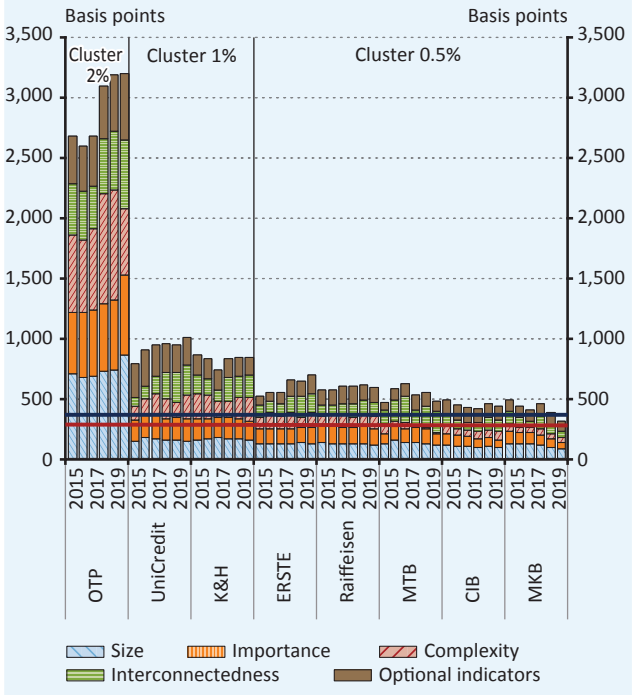
Internationally, green mortgage bonds still represent a relatively small but growing market. The first green mortgage bond issuance took place in Germany in 2014. Since then, several other green issuances have followed, with euro-denominated sustainable mortgage bonds amounting to EUR 21 billion by the first half of 2020, but representing only 6 per cent of the total euro sustainable bond market[16]. This low share is probably due to the higher level of constraints associated with the mortgage bond form, where the green loans financed must also meet the requirements for inclusion in the cover pool, and where, unlike other forms of green bonds, most issuers seek to have sufficient green loans available in the cover pool at the time of issuance. The largest volumes of green mortgage bonds were issued in France, Germany, Norway and Denmark, and Poland was the first of the Visegrád Four to issue such bonds. Three issuers have already entered the Polish market, with the first green mortgage bond issued in 2019 by PKO Bank Hipoteczny.

In Hungary, the first issuance took place in the summer of 2021 by OTP Jelzálogbank, but other mortgage banks have also started the process of planning their issuances. With the introduction of the MNB's Green Mortgage Bond Purchase Programme and the preferential treatment of green mortgage bonds under the MFAR regulation, Hungarian mortgage banks soon started their green issuances. The first issuance took place on 16 August 2021, when OTP Jelzálogbank issued HUF 5.02 billion of 10-year fixed-rate HUF green mortgage bonds, followed by another issue of HUF 90 billion on 5 October 2021. The mortgage bonds meet the requirements of the ICMA Green Bond Principles[17]. The issues attracted strong demand, with bids of HUF 10 billion for the first issue and HUF 121 billion for the second. Further green mortgage bond issues are expected in the near future from several issuers in the domestic market.

6 Capital buffer for other systemically important institutions

In the 2020 review, the identity of the domestic systemically important institutions (O-SIIs) and the gradual buffer build-up trajectories from 2022 put in place following the release introduced in the context of coronavirus epidemic were left unchanged by the MNB. The change in the distribution of scores representing systemic importance has justified a reduction in the 350-basis point threshold used in previous years for O-SII identification. The deepening of the integration under the recently formed Magyar Bankholding will create the second largest banking group in the Hungarian banking sector from a systemic risk perspective, which is expected to lead to another significant shift in scores.

Chart 28
Changes in the scores of other systemically important institutions



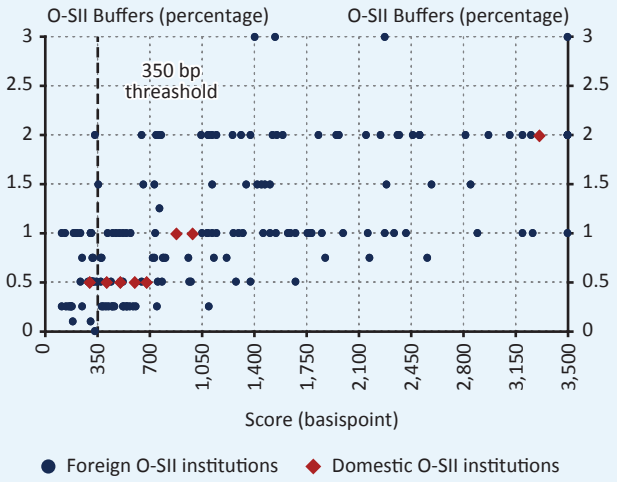
Note: The blue line indicates the previous 350 basis point, the red one the new 275 basis point threshold. From 2014 to 2019 applying year-end data.

Source: MNB.

The MNB has not changed the scope of systemically important institutions in its regular annual review in 2020. The MNB's identification of Other Systemically Important Institutions (O-SIIs) headquartered in Hungary for 2020 was once again based on the measurement aggregating the core indicators harmonised at EU level and the additional domestic indicators. This was used to determine the O-SII scores representing systemic importance[18], which for seven banking groups again exceeded the 350-basis point threshold considered in previous years as the benchmark for systemically important status. MKB's score did not reach this threshold at the end of 2019, in contrast to the scores of previous years. However, due to the MNB's decision to change the threshold for the identification of institutions in 2020, MKB continues to be classified as a systemically important institution *(Chart 28).*

The threshold for O-SII scores above which institutions are classified as O-SII has been reduced to 275 basis points. As a condition for the comprehensive identification of O-SII banks, and as required by the EBA Guidelines[19], the authorities should assess whether the 350 basis point standard threshold should be adjusted within a range of -/+75 basis points, based on the specificities of the banking system and the statistical distribution of scores. Across Europe, 8 Member States apply a threshold of below 350 basis points and a further 8 Member States identify institutions with a score lower than 350 basis points as systemically important without modifying the standardised threshold *(Chart 29).* The expansion of the activity of Hungarian credit institutions has varied considerably across banks in recent years in the financial markets monitored for the measurement of significance. In this context, the distribution of scores capturing the relative

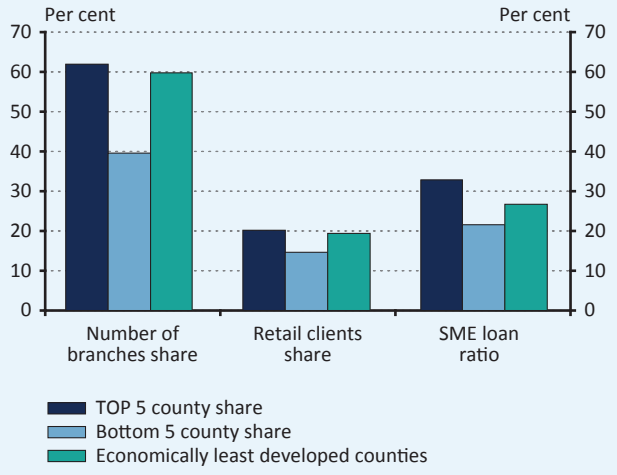
Chart 29
Correlation of score and buffer rates of O-SII banks



Note: There are 6 O-SII institutions with a score higher than 3500 basis points, which are shown at 3500 basis points in the figure.

Source: MNB.

Chart 30
Regional embeddedness of MBH's three major member banks (number of bank branches and market shares by retail and SME lending)



Note: Six least developed counties have been selected based on the first or second most unfavourable two values out of the five county indicators (unemployment rate, average monthly net earnings, registered companies per thousand inhabitants, industrial production per capita and built dwellings per 100 thousand inhabitants in 2021Q1) the HCSO selected for the less economically developed counties.

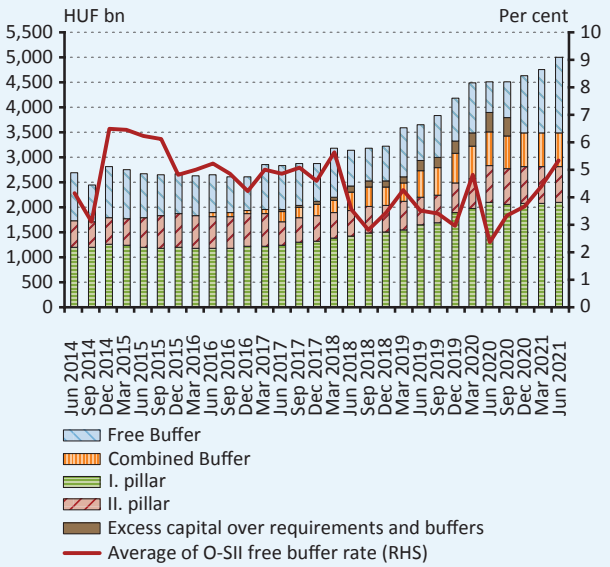
Source: MNB.

degree of systemic importance and the relative position of credit institutions has shifted somewhat. This has justified a lowering of the 350-basis point threshold for identifying O-SIIs to 275 basis points. This reflects the reduction in the relative importance of smaller O-SII banks in the distribution of scores, while still maintaining a significant distance from the threshold for banks not classified as significant.

The formation of Magyar Bankholding Zrt. is expected to create the second largest O-SII institution in the domestic banking market *(Chart 30).* In December 2020, the Magyar Bankholding (MBH) was formally established with the participation of Budapest Bank, MKB Bank and Takarékbank, bringing the three institutions under common control. MBH became the second largest banking group in terms of both total assets and loan portfolio among the banking groups operating in the country. The separate operations of the holding company's member banks are expected to be replaced by the organisationally unified big bank by 2023. Based on our preliminary estimate, MBH's O-SII score is expected to fall between 1,100–1,200 basis points, making it the second largest credit institution in the sector in terms of systemic risk importance. During the annual review of the identification and buffer requirements for O-SII banks in 2021, the MNB will assess whether in the process of deepening integration it has, become appropriate to calculate the systemic importance and set the associated capital buffer requirement at the highest consolidation level of the new banking group instead of the member bank (sub-consolidated) level.

The capital position of the O-SII banks has not weakened despite the release of the buffers, and there has been no need to adjust the planned buffer rebuilding trajectory over the past year. The extraordinary economic circumstances that unfolded in the wake of the coronavirus epidemic have made it necessary to prevent a possible contraction in credit supply and mitigate the associated systemic risks, supported by a reduction of the O-SII capital buffer rates to 0 per cent as of 1 July 2020. Systemically important banks, taking into account the MNB's capital buffer releasing measures, operated with a high voluntary capital buffer of close to HUF 1,300 billion at end-2020 (*Chart 31*), while lending activity has recovered in the second half of 2020 after the initial period of the epidemic. The buffer rates currently foreseen for 2024 would tie up around HUF 376 billion of the management buffers. The stable capital position and the recovery of lending growth provide an opportunity to gradually rebuild the buffers.

Chart 31
The evolution of the O-SII banks' free buffer rates



Source: MNB.

Table 4
The minimum buffer rates proposed by EBA

O-SII scores	Minimal O-SII buffer rate
-749	0.25%
750 - 1,299	0.50%
1,300 - 1,949	0.75%
1,950 - 2,699	1.00%
2,700 - 4,449	1.25%
4,450 +	1.50%

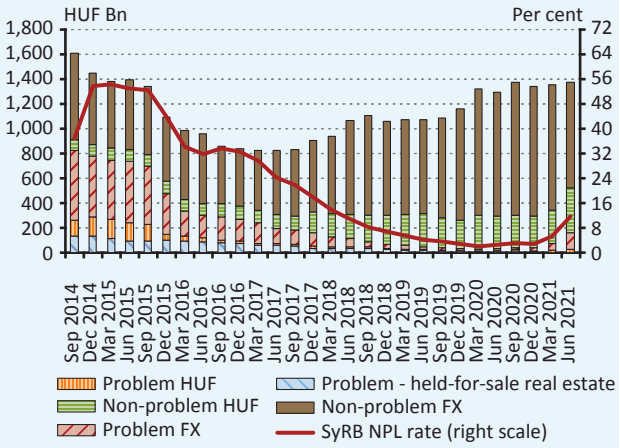
Source: EBA

The European Banking Authority is proposing to the EU legislation to introduce an EU-wide floor methodology for O-SII buffer rates from 2022. The CRDV introduced a mandate for the EBA to report to the European Commission on the appropriate methodology for the design and calibration of O-SII buffer rates by the end of 2020. In its report[20], the EBA concluded that buffer rates set by national authorities vary significantly in relation to the O-SII score, for example, currently there are O-SIIs identified with 325 and 6,787 scores operating with a 2 per cent buffer rate requirement. In addition, the CRDV allows for the possibility of setting a 3 per cent buffer rate at the discretion of the Member States, which has been used so far by only two Member States (CZ, DK). In order to reduce heterogeneity in buffer rates, the EBA first proposes to introduce buffer rate floors increasing stepwise as the O-SII scores increase, thereby limiting the number of excessively loose, i.e. low buffer rates relative to the score *(Table 4*). The outlined floor methodology will not, on the basis of the information available so far, require any changes to the final domestic rates in Hungary.

7 Systemic risk buffer

The MNB applied the systemic risk buffer (SyRB) to manage the risks of non-performing project financing loans secured by commercial real estate until the 2020 appearance of the coronavirus. At the time of the outbreak of the coronavirus pandemic, the domestic banking sector had a historically low stock of non-performing project loans, and this has not changed for the time being, even due to the trends of the period under review. However, once the payment moratorium expires, the non-performing portfolio is expected to increase, especially in the sectors most exposed to the crisis. In spring 2020, the MNB decided to suspend the application of the systemic risk buffer to avoid a capital constraint on the recovery from the crisis that would amplify pro-cyclical effects and dampen lending. To address the challenges faced by the banking system as a whole because of the expected deterioration in portfolio quality, a review of the application of the systemic risk buffer, with a possible extension to other loan and client segments besides corporate project loans, should be considered, with appropriate timing and in a favourable cyclical situation.

Chart 32
Domestic commercial real estate project loan exposures and held-for-sale real estates



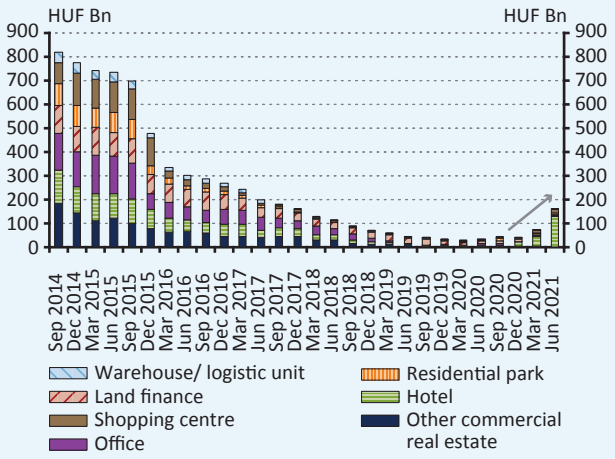
Note: Problem project loan exposure according to SyRB compared to all domestic project loan exposures.

Source: MNB.

7.1 SYSTEMIC RISK ASSOCIATED WITH COMMERCIAL REAL ESTATE EXPOSURES IS NOT YET SIGNIFICANT

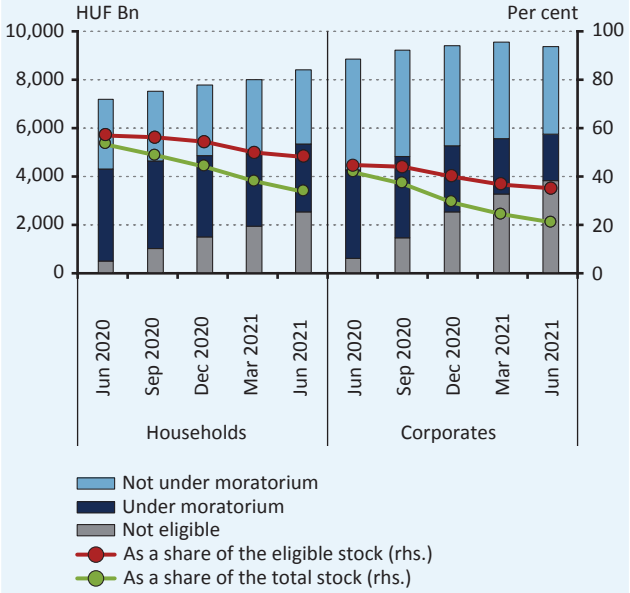
The MNB will continue not to require the maintenance of the Systemic Risk Buffer (SyRB) in 2021. In spring 2020, the MNB has suspended the annual review of the SyRB rates for an indefinite period, with the rates in force at 0 percent, to mitigate the expected negative effects of the pandemic. The risks targeted by the SyRB were not realised by the end of 2020, with no banks having built up a targeted project loan portfolio justifying a SyRB *(Chart 32).* Non-performance indicators currently do not give a complete picture of the quality and risks of the loan portfolio, as the payment moratorium prevents debtors from defaulting on their bank debts. Nevertheless, the volume of problem exposures, as defined by the SyRB, which also includes risky exposures other than non-performing transactions, and in particular restructured exposures, and their share in the total portfolio, increased substantially by Q2 2021. This was mainly due to the reclassification for precautionary purposes of project finance transactions – mainly involved in tourism and catering – in moratorium for over 9 months to the restructured, problem category under the SyRB framework, in line with the MNB's management circular[21], rather than actual payment problems *(Chart 33).* Since ongoing restructurings are also considered problematic from a domestic SyRB perspective, these transactions initially increase the volume of the stock currently targeted by the capital buffer calibration. Based on the SyRB calibration in place prior to the pandemic, in the absence of the current suspension, there would be banks that would be required to maintain a SyRB with the current problem stock levels. This also underpins the need for the suspension in spring 2020, as without it, a positive excess capital requirement would be imposed that would reduce lending capacity or a costly balance sheet adjustment would be required.

Chart 33
Domestic problem commercial real estate project loan exposures by type of real estate



Source: MNB.

Chart 34
Credit stock under moratorium



Note: Credit institution sector.
Source: MNB.

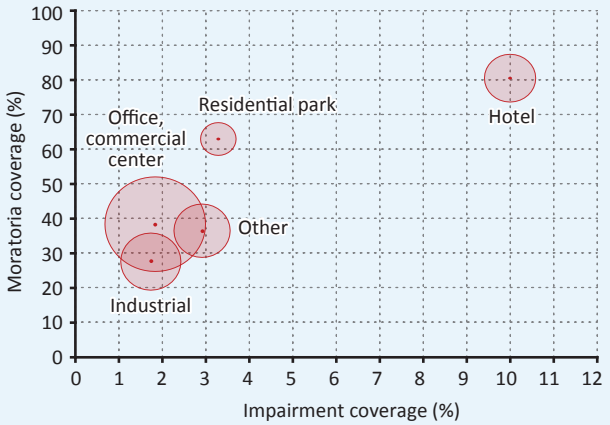
At EU level, only a few countries have decided to reduce or completely release the SyRB in connection with the coronavirus pandemic. Apart from Hungary, 4 other countries decided to modify the SyRB requirement in spring 2020: Estonia, Finland and Poland fully released the SyRB requirement, while the Netherlands partially reduced the required rates (and a full release was introduced from December 2020, irrespective of the pandemic situation, in the context of the entry into force of the CRDV).

7.2 A SURGE IN PROBLEM STOCKS IS EXPECTED AFTER THE END OF THE MORATORIUM

Since the introduction of the moratorium, the loan portfolio under moratorium has been gradually decreasing. In the retail segment, participation in the moratorium, which reached 1.6 million individuals and around HUF 3,700 billion of bank loans after the moratorium was introduced, fell to around 1.15 million individuals and HUF 2,800 billion of loans by June 2021. In parallel, the share of loans under moratorium as a share of eligible loans fell from 58 per cent to 48 percent, while it accounted for only one-third of total household loans. In the corporate segment, the number of firms participating in the moratorium declined faster than the retail participation, reducing the stock of loans involved from an initial amount of around HUF 3,800 billion to around HUF 2,000 billion by June 2021 *(Chart 34).* Overall, we estimate that the vulnerable retail and corporate borrowers participating in the moratorium account for 10-12 per cent of total outstanding loans at the end of 2020, representing a manageable level of risk for the banking system.[22]

Certain types of project loans may have a higher risk and it is expected that these segments will experience effective credit risk problems after the moratorium expires. In this respect, it is mainly the more vulnerable sectors exposed to the pandemic, such as hotels and hospitality projects, that may be problematic, but other types of projects may also have been adversely affected by the downturn. These transactions, which were the most booming in the pre-crisis cyclical environment, have the highest rates of moratorium participation and the highest rates and changes of coverage by impairment (*Chart 35*), which could lead to actual defaults or restructurings in the future. The accounting reclassification obligation for moratorium transactions is not necessarily a default problem, however, under the current conditions of SyRB application, it could lead to an effective SyRB rate for some of the banks[23]. For projects that have been in moratorium for at least 9 months, this is underpinned by the potential profitability or payment difficulties of the project.

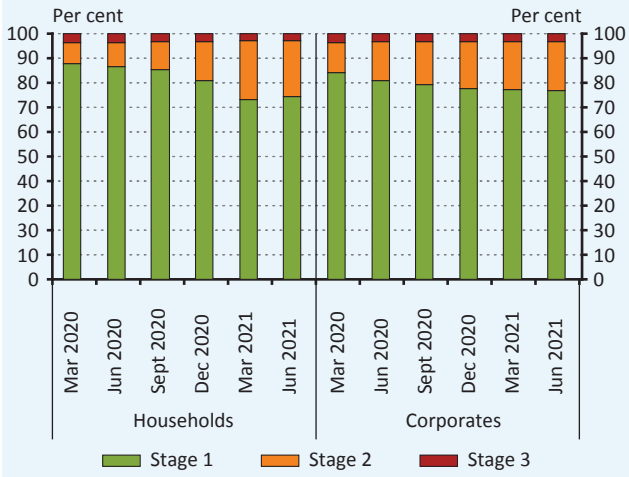
Chart 35
Impairment and moratoria coverage of commercial real estate project loans by type (30 June 2021)



Note: Impairment according to the difference between the gross value and the net value. Bubble size based on the gross value of the stock concerned.

Source: MNB.

Chart 36
Distribution of retail and corporate loans by quality



Source: MNB.

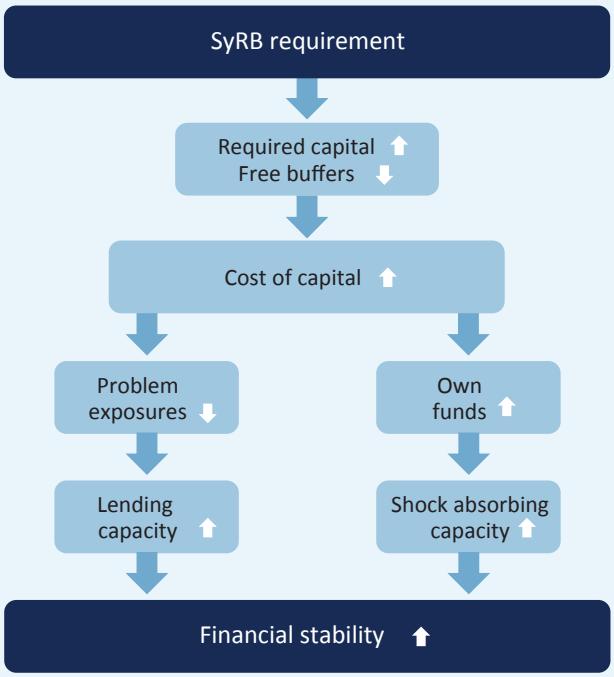
For the other loan portfolios, there is no observed difficulty with regards to non-performing loans yet, but the problem stock may increase after the moratorium. None of the loan portfolios show an increase in the non-performing loan ratio due to the moratorium so far, but other signs point to an increase in credit risk *(Chart 36).* In terms of the retail loan stock, loans in moratorium of those employed in sectors vulnerable to the coronavirus crisis account for 10 per cent of the total retail loan stock at the end of 2020[24]. As regards to household loans, increasing impairment and the rising share of loans in Stage 2 meaning an increased credit risk may also point to credit risks that can potentially materialise after the moratorium expires. The picture for corporate loans is similar, with the increase in the Stage 2 ratio and the increase in the level of impairment charges for corporates also pointing to an increase in credit risk. Loans to financially strained companies in moratorium, which are considered to be highly risky, could account for nearly 12 per cent of corporate loans at the end of 2020.

The participation in the targeted moratorium extension until June 2022 could have a material impact on bank portfolio quality. Based on the Government's decision, the moratorium will be extended until October 2021, and will be continued in a narrower form from November 2021 until June 2022 for vulnerable and socially privileged groups and companies that have suffered a fall in revenues. Some 800,000 retail and 8–9,000 corporate borrowers may be eligible to remain in the moratorium from November 2021. This is expected to further postpone the growth of non-performing stocks, but the inclusion of additional groups in the retail segment alongside those in need could increase longer-term repayment risks.

7.3 THE SYSTEMIC RISK BUFFER CAN ALSO BE AN EFFECTIVE TOOL TO SUPPORT BROADER PORTFOLIO CLEANING

It is appropriate to maintain the suspension of the SyRB until the end of the moratorium. An accurate picture of the quality of the loan portfolio, the number of debtors with payment difficulties and the evolution of the problem stock will be obtained by the MNB on the basis of data on repayments starting after the end of the moratorium. The uncertainty until then, and the current stage of the recovery, justifies maintaining the SyRB suspension on a preventive basis also during the upcoming review for the Q3 2021 reference period. Once the moratorium ends, a decision on how and when to reactivate the SyRB will be taken on the basis of the examination of available data.

Chart 37
Impact mechanism of the SyRB



Source: MNB.

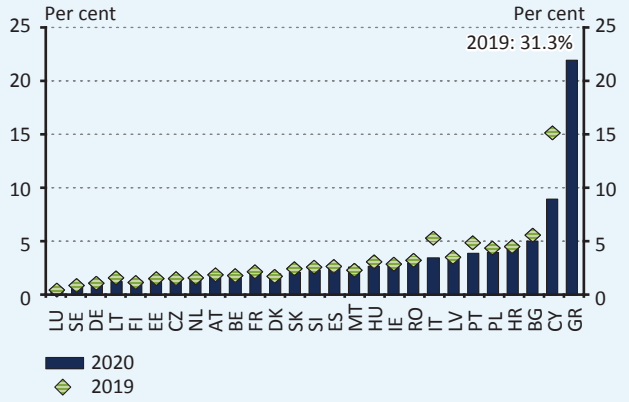
The SyRB can be an effective tool again to mitigate banking system vulnerabilities related to problem portfolios after the end of the crisis related to the coronavirus pandemic, also in the light of past experience. In the event of a build-up of non-performing loans or their prolonged retention in banks' balance sheets, the SyRB's requirement encourages portfolio cleaning or, in the absence thereof, capital accumulation to ensure adequate shock absorbing capacity *(Chart 37).* Depending on the speed of recovery from the economic downturn caused by the coronavirus, the timing and future form of the SyRB requirement should be reconsidered. On the one hand, it may be necessary to align the conditions of application of the SyRB with the principles and expectations of transaction reclassifications, considered exceptional compared to the past, associated with the payment moratorium. On the other hand, there is also the issue of applying a capital buffer requirement to non-performing loan portfolios other than project loans to discourage their being stuck in bank balance sheets as seen after the 2008 crisis.

Box 4
Options for managing the expected increase in non-performing loans

The stock of non-performing loans has not increased substantially so far as a result of the coronavirus pandemic, but this may change in the future as government and central bank measures are phasing out. The stress situation related to the coronavirus has so far not led to a substantial increase in the non-performing loan ratio, with no increase in EU countries compared to end-2019. This is largely due to government and central bank measures to reduce the financial distress and liquidity needs of households and firms, such as government loan and guarantee schemes, moratoria, government subsidies and central bank credit stimulus measures. However, these extraordinary measures are expected to end in the near future and banks will have to face the real impact of the economic shock. Therefore, the number of clients in payment difficulties is likely to increase after the measures are phased out, meaning that the share of non-performing loans is also likely to rise.

The accumulation of non-performing loans in banks' balance sheets and the persistent rolling over of payment problems could have negative effects on bank lending and, indirectly, on the real economy[25]. High levels of non-performing loans could weaken the banking system and impair the financial system's ability to finance the economic recovery, as was the case following the 2008 crisis. The higher stock of non-performing loans reduces bank profitability due to lower interest income, an increase in loan loss provisions, and increased compliance and funding costs resulting from higher returns expected by investors due to increased risks. In addition, non-performing loans can lead to higher risk weights and hence higher capital requirements, which may force banks to cut back on lending activity to maintain capital adequacy. Furthermore, the management of non-performing loans can overly absorb bank resources, diverting them from more profitable activities that could support also economic recovery.

Non-performing loan ratio in the EU in 2019 and 2020



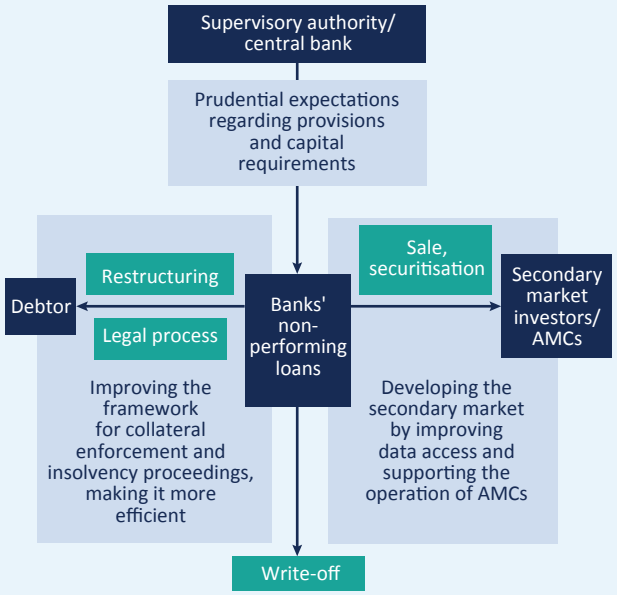
Source: ECB, MNB.

There are several ways to clean non-performing loans from bank balance sheets.[26] The first possible solution is to restructure the loan, either in the short term and temporarily by rescheduling repayments, or in the longer term by waiving part of the debt. However, loan restructuring can only be a good solution for debtors facing temporary payment difficulties, but for companies struggling with deeper problems, such as those that are unviable or close to bankruptcy, restructuring will only delay the reclassification to non-performing loan category and the necessary impairment. In the case of uncooperative or non-viable debtors, the most common method is to initiate legal proceedings, which means enforcing the collateral or guarantee, or initiating insolvency proceedings. If these solutions are not successful, the bank can write off the loan, i.e., derecognise it in the balance sheet while acknowledging the loss. Another method is the sale of non-performing loans, where the non-performing portfolio is transferred either to investors on market terms or to public asset management companies.

Regulatory incentives to clean up non-performing loans as soon as possible are also needed to avoid the build-up of systemic risks. On the one hand, it is important for banks to recognise in a timely manner the appropriate level of impairment charges for doubtful loans, which should be supported by the prudential framework and supervision. The management of risks not covered by impairment (even at systemic level) may also be supported by additional capital requirements imposed in relation to the exposures concerned. In addition, the sale of non-performing loans can be facilitated by improving the secondary market, for example by reducing information asymmetries, i.e., by improving access to data on loans and debtors. It would also be important to improve the effectiveness of the legal

framework for insolvency proceedings and creditors' rights. In the case of systemic problems and market failures, setting up public asset management companies is also an option, but how this should be done may depend on many factors. Progress has been made on these issues since the 2008 crisis, but there is still work to be done to promote portfolio quality improvement through cleaning.

Options for clearing non-performing loans and improve portfolio quality



Note: AMC: asset management company. Light blue text boxes indicate regulatory options.

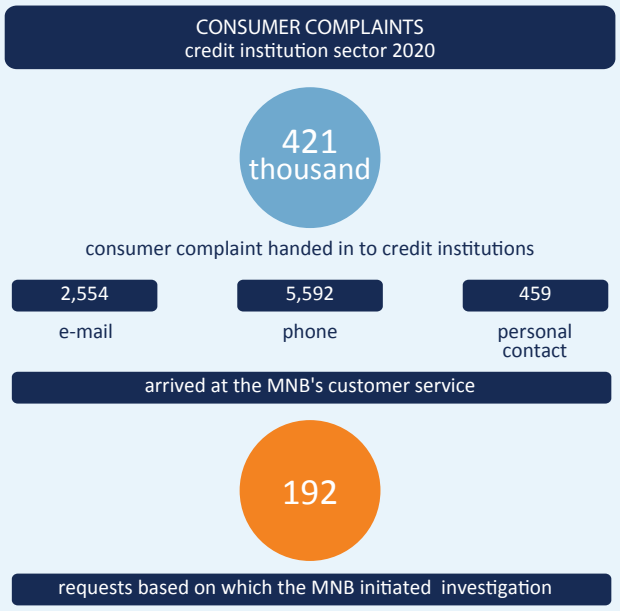
Source: MNB.

The European Commission's Communication on Tackling non-performing loans in the aftermath of the COVID-19 pandemic[27] stresses the need for further targeted measures and proposes new solutions to address the expected increase in non-performing loans. The Commission encourages the improvement of the quality and comparability of data on non-performing loans, including through the development and use of standardised templates and the establishment of a central platform at EU level, in order to deepen and make more liquid the secondary market for non-performing loans. The platform would be a comprehensive, regularly updated electronic database accessible to market participants, which would collect and store anonymised data on relevant transactions and their market prices, and could even provide information on the subsequent performance of the assets purchased by the buyers of such loans. In order to enhance cooperation and create synergies between national asset management companies, the Commission proposes the establishment of an EU-wide cross-border network where national asset management companies could share best practices and experiences, set standards for data and transparency and, where necessary, coordinate their activities to increase their efficiency. The Commission is also making proposals to reform the insolvency, debt recovery and debt restructuring frameworks, which would help prevent the accumulation of non-performing loans and their permanent retention in the balance sheet, and would also help to reduce undesirable stock levels effectively.

8 Financial consumer protection activity of the MNB

Through the trust in the financial system, the MNB's financial consumer protection activity – which has become increasingly complex and emphasised – makes substantial contribution to the maintenance of financial stability. Accordingly, the ensuring of strong, product-focused financial consumer protection has a prominent role also in the MNB's supervisory strategy for the period of 2020-2025. In 2020 consumer protection supervision received particular attention especially regarding the information practices during and after the pandemic and the management of the payment moratorium.

Chart 38
Consumer complaints in 2020 in the credit institution sector



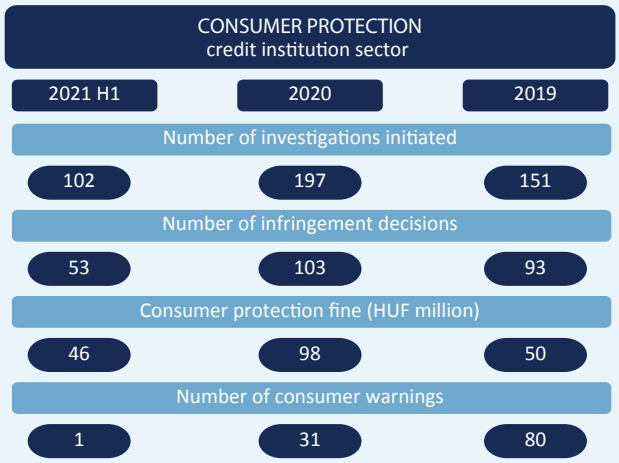
Note: The credit institution sector refers to credit institutions and their financial corporations.

Source: MNB.

8.1 IN ADDITION TO ONGOING SUPERVISION, IN 2020 THE MNB STRENGTHENED ITS CLASSICAL SUPERVISION ACTIVITIES AND ALSO FOCUSED ON PAYMENT MORATORIUM ISSUES

In 2020, the number of complaints received by the credit institution sector increased and so did the number of consumer applications to the MNB. In 2020, the number of complaints received by the institutions was more than 12 per cent higher than the previous year, also due to the payment moratorium, while the number of investigations initiated upon request was almost 60 per cent higher *(Chart 38).* In the first half of 2021, the number of investigations initiated is almost the same as in 2020, on a pro rata basis *(Chart 39).* In line with the increase in the number of proceedings, the volume of consumer protection fines imposed in 2020 almost doubled compared to the previous year *(Chart 40).* In complaints received by credit institutions in 2020, consumers mainly complained about order execution, financial abuse, settlement and quality of service.

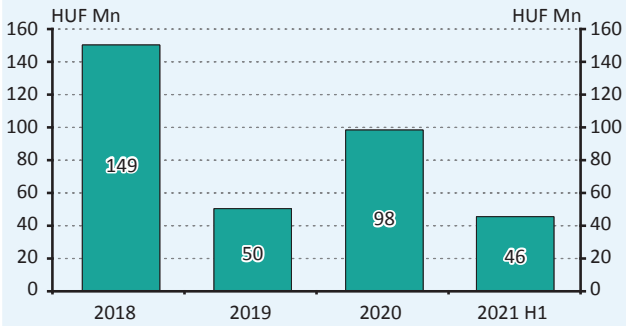
Chart 39
Data on consumer protection activity in the credit institution sector



Note: The credit institution sector refers to credit institutions and their financial corporations.

Source: MNB.

Chart 40
Developments in consumer protection fines in the credit institution sector

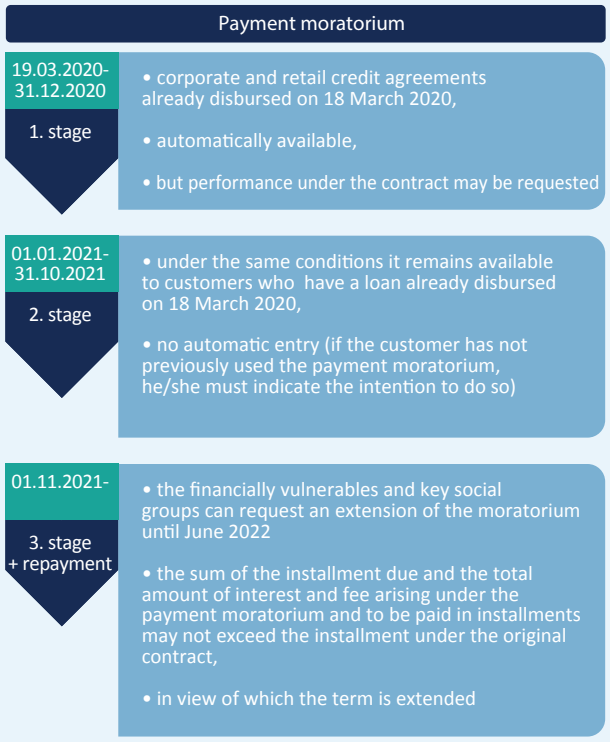


Note: The credit institution sector refers to credit institutions and their financial corporations.

Source: MNB.

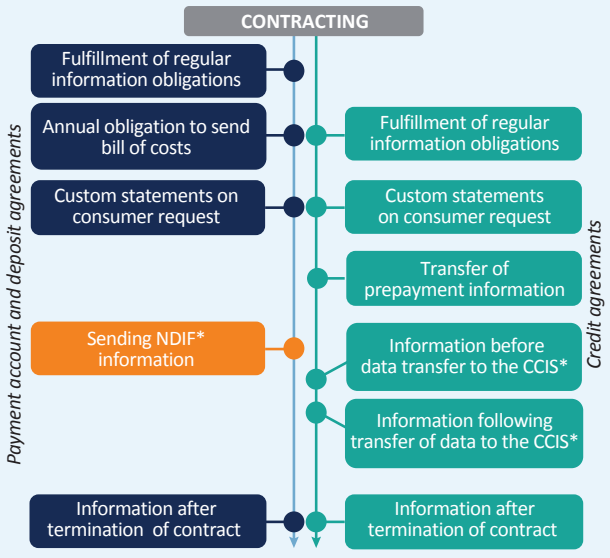
Compliance with the payment moratorium rules and the associated consumer risks are constantly monitored by the MNB. The MNB places particular emphasis on ensuring that institutions inform consumers adequately about the specificities of each stage of the moratorium (e.g. rules on automatic or consumer initiated participation) and that consumer requests to enter or exit the payment moratorium and the related principal, interest or fee charges are carried out in accordance with the consumer's intent (e.g. for clients exiting the moratorium before the end of stage 2 of the moratorium, repayment of the principal amount, interest or fees accumulated up to that time should only be initiated upon explicit request) *(Chart 41).* To this end, the MNB, also taking into account the consumer requests received, as part of its ongoing consumer protection activities contacted institutions, issued consumer protection warnings where necessary and published frequently asked questions and relevant answers on its website to ensure uniform institutional practices. The MNB has also issued executive circulars requiring institutions to provide consumers with monthly information on the amount of debt they have accumulated during the payment moratorium, and to offer free early repayment or contract modification options after the expiry of the moratorium for consumers who request early repayment of their accumulated debt or who would agree to pay a higher repayment amount for a shorter term. Furthermore, given that significant amounts of debt may accumulate during the payment moratorium, which may lead to a significant increase in the maturity of contracts, the MNB has and will continue to encourage in its public communication the repayment of loans during the period of moratorium, where debtors are able to do so due to their income situation and vulnerability.

Chart 41
Stages of the payment moratorium



Source: MNB.

Chart 42
Consumer information after contracting



**CCIS: Central Credit Information System*
NDIF: The National Deposit Insurance Fund of Hungary

Source: MNB.

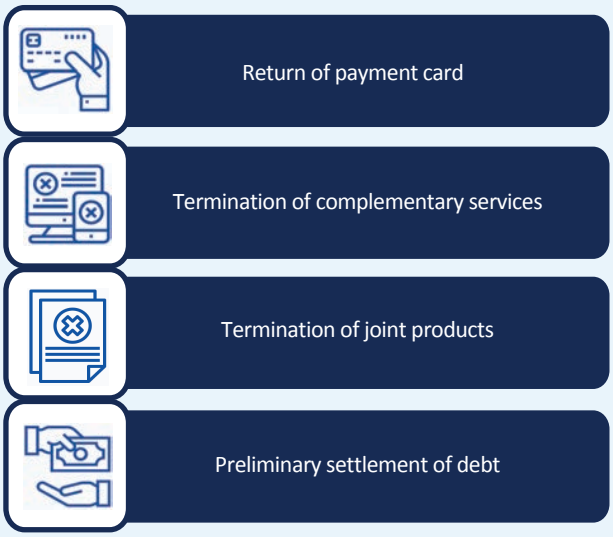
8.2 THE MNB HAS IDENTIFIED SHORTCOMINGS IN THE POST-CONTRACTUAL INFORMATION PROVIDED BY FINANCIAL INSTITUTIONS.

In the consumer protection thematic review launched in 2020 to check the adequacy of post-contractual information provided to clients, the MNB identified shortcomings in all the financial institutions examined. The MNB carried out a thematic review of the post-contractual information practices of 10 financial institutions *(Chart 42*), including the adequacy, verified sending and delivery of information. In all institutions reviewed, the investigation found breaches of the law affecting at least some consumers, typically in the provision of information following the termination of a payment account or loan agreement, the provision of information related to early repayment, compliance with the legal provisions on information before and after the transmission of data to the Central Credit Information System (CCIS), and the obligation to send the annual Statement of Fees. A total of HUF 44.7 million in fines were imposed for the deficiencies identified by the end of August 2021. The MNB will follow up on the correction of the deficiencies and the modification of the faulty processes at the institutions concerned.

8.3 THE MNB HAS SET A UNIFORM STANDARD FOR THE TERMINATION OF PAYMENT SERVICES FRAMEWORK CONTRACTS AND CALLED ON INSTITUTIONS TO COMPENSATE FOR AMOUNTS WRONGLY WITHDRAWN

In a management circular issued on 30 July 2021, the MNB called on financial institutions to ensure consumers' right to terminate framework contracts without attaching conditions to it. In the course of its ongoing supervision, the MNB has examined the practices of financial institutions regarding the termination of payment services framework contracts and found that in several cases institutions have limited the right of termination by making the termination subject to certain conditions *(Chart 43).* Based on the MNB's executive circular on the interpretation of the law on the termination of framework contracts, institutions need to adapt their processes to allow consumers to exercise their right of termination without any restriction. The MNB will monitor institutional compliance with the circular in the last quarter of 2021.

Chart 43
Factors preventing the termination of a framework



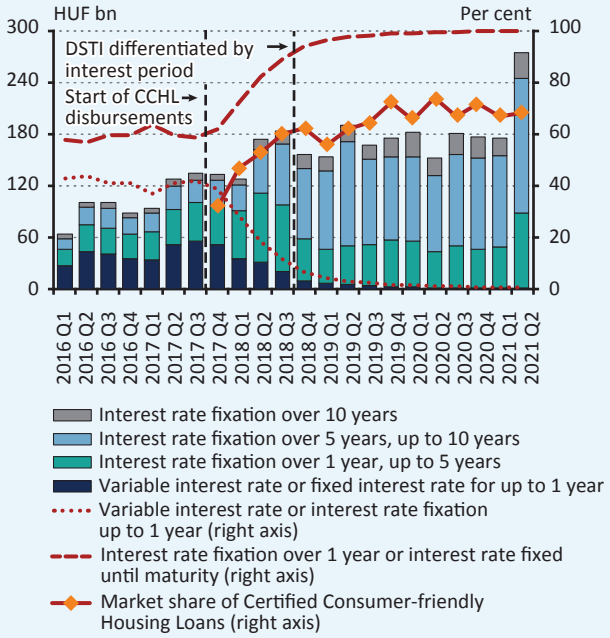
Source: MNB.

By means of the MNB's consumer protection measures, financial institutions have refunded nearly a quarter of a billion forints charged in an unauthorised manner to consumers since 2019. In the past almost 3 years, in its consumer protection investigations and continuous monitoring activities the MNB has identified several practices that are in breach of law, due to which affected consumers paid higher fees and interest rates for a given service. Some institutions have also incorrectly set interest rates, made unjustified currency conversions, charged fees for unjustified SMS notifications and charged fees contrary to the repayment agreements of terminated mortgages. The MNB also called on financial institutions to refund the amounts unjustly charged and to terminate the situation being in breach of law, thus a total of HUF 246 million of unjustly charged amounts were returned to the affected retail clients.

Box 5
Experience to date with the introduction of the certified consumer-friendly product line

The MNB launched the Certified Consumer-Friendly certification framework in the summer of 2017 to strengthen the competitiveness of the banking system and financial stability, also with consumer protection aspects in mind. After the initial success of the certified products, the MNB decided to expand the certification framework in several steps, so that by 2021, consumers will be able to access the Certified Consumer-Friendly products in three segments: first, the Certified Consumer-Friendly Housing Loan (CCHL) was introduced in 2017, followed by the Certified Consumer-Friendly Home Insurance (CCHI) in 2020, and then the Certified Consumer-Friendly Personal Loan (CCPL) became available to consumers in January 2021.

New CCHL products by length of interest fixation period



Note: The share of CCHL products was calculated among the potentially qualifiable bank housing loans.

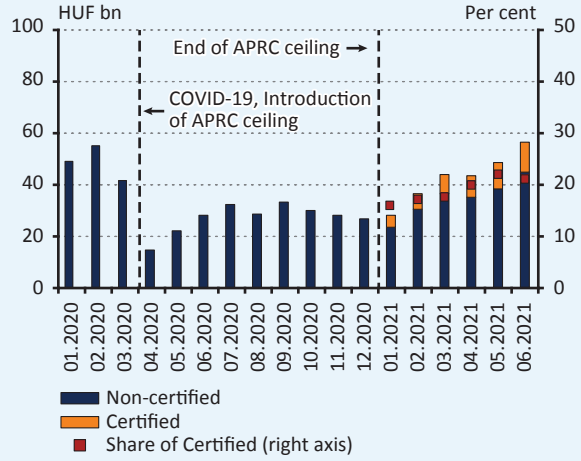
Source: MNB

Certified products support the stimulation of market competition by requiring easy-to-compare consumer information, by operating an independent online comparison site run by the MNB and by encouraging the digital transition. Certified products provide consumers with a standardised, easily comparable and transparent offer and information on the main parameters of the products, which serves the stimulation of competition, protection of consumers and the increase of financial awareness. The development of certified products is also intended to strengthen market competition by supporting the digital transition; therefore, full online contracting has become mandatory for the most recently introduced CCPL products. In addition, clients can start the contracting process by navigating directly from the MNB's Comparison site to the lender's website, without having to re-enter the data already provided on the MNB's website.

Many consumers have already taken advantage of the favourable conditions of certified products. By the second quarter of 2021, households will have taken out more than 130,000 Certified Consumer-Friendly Housing Loans worth around HUF 1,700 billion since the launch of the product. This means that the market share of CCHL products among potentially qualifying home loans has been consistently around 70 per cent in recent years. In addition to housing loans, seven insurers have already successfully applied to sell CCHI products following the launch of the CCHI products, with nearly 3,000 contracts signed and three insurers already accounting for around 10 per cent of new contracts. In the personal loan market, the popularity of CCPL products is shown by the fact that since the launch in January 2021, a total of 13,000 contracts have been signed, amounting to nearly HUF 50 billion. CCPL products now account for more than 20 per cent of new loans in the financial sector as a whole, while the share among institutions selling certified products is over 30 percent.

In 4 years, CCHL products have become a dominant product in the housing loan market and have contributed significantly to reducing the interest rate risk of the housing loan portfolio and lowering interest rate spreads. Prior to the emergence of certified housing loans, the share of variable-rate transactions in new housing loan originations reached around 40-50 percent, carrying significant interest rate risk for clients. In order to increase the predictability of housing loan repayments, CCHL products are only available with interest rate fixation for a period of 5 years or more, but products with interest rate fixation for 10 years or for the full term are decisive within the actual lending.

Volume development of new personal loans by Certified Consumer-friendly and Non-certified Consumer-friendly



Note: Total financial sector

Source: MNB.

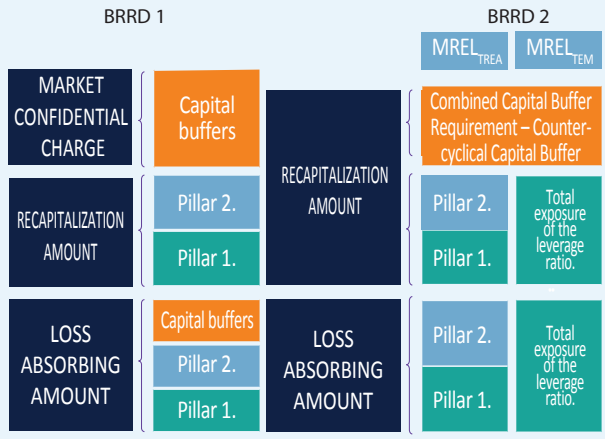
In June 2021, the share of products with fixed interest rates for 10 years or for the full maturity was around 78 per cent of total CCHL lending. In parallel with the rise of certified consumer friendly housing loans, the overall structure of lending for housing purposes has also changed, with fixed-rate transactions for at least 5 years becoming predominant, significantly reducing the interest rate risk of housing loans and increasing financial stability. In addition, the rise of CCH loans may have helped to reduce interest rate spreads by stimulating bank competition and crowding out the most expensive products. The APR spread over the reference rate on the CCHL products, depending on the loan attributes, may be lower by 1 percentage point compared to the non-certified housing loans. As CCH loans have gained ground, spreads of 4-5 percentage points, which were typical before the introduction of the certification, have fallen to close to 2 percentage points by early 2021.

CCPL products have already had a positive impact on market competition since their launch. The main aspect of the design of CCPL products was to stimulate banking competition by increasing comparability and maximising applicable spreads. Accordingly, the CCPL products are free purpose and/or refinancing purpose loans with maximum maturity of 7 years and interest rate fixed for the whole tenor. The applicable interest rate spreads are capped at 15 percentage points above the reference rate chosen by the lenders up to a loan amount of HUF 500 000 and 10 percentage points above a loan amount of HUF 500 000, which currently requires more favourable pricing compared to non-certified products for most institutions and provides substantial savings for borrowers. CCPL products also focus on improving the online lending process, which has gained even more importance due to the coronavirus, by making it mandatory to provide clients with a full online borrowing facility. After the launch, around 20 per cent of the contracts were concluded in the online space. Experience so far shows that CCPL products are issued in higher amounts, with longer maturities and lower interest rates than non-certified products. The average loan amount of the Certified Consumer-Friendly Personal Loans was HUF 1.6 million higher than that of the non-certified products, reaching HUF 3.6 million. On average, the maturity of CCPL products is by half a year longer than that of non-certified products, while their average APRC is 2.2 percentage points lower than that of non-certified transactions. Thus, if these loans become widespread, consumer protection aspects could be strengthened and the level of spreads in the personal loan market could be significantly reduced.

9 Resolution activity of the MNB

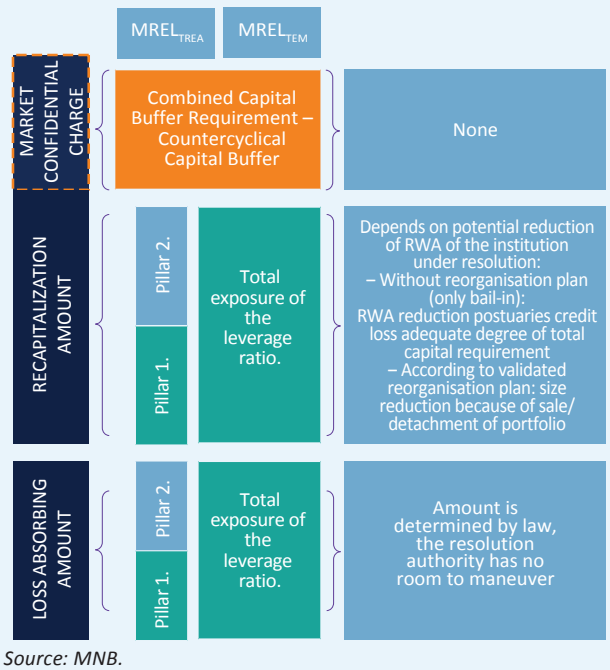
In 2020-2021, the MNB carried out professional developments resulting from the implementation of the Resolution Directive (BRRD2) rules. The most important of these was the revision of the MNB's principles for imposing the MREL in line with the new regulations. The principles have been developed by the MNB in cooperation with the institutions concerned, transparently and in a manner requiring the least additional adaptation. In 2020, the MNB has postponed compliance with the interim MREL (Minimum Requirement for own funds and Eligible Liabilities) targets by six months in view of the coronavirus pandemic, to help the institutions concerned. The implementation of the BRRD2 rules will bring additional benefits to institutions in terms of the timing of compliance. The MNB will develop and operate resolution planning practices in line with EU and national legislation.

Chart 44
MREL under BRRD1 and BRRD2



Source: MNB.

Chart 45
MREL requirement for large banks



Source: MNB.

9.1 THE MNB PRINCIPLES FOR CALCULATING MREL HAVE BEEN UPDATED AS A RESULT OF BRRD2

The MNB, considering the international legislative changes and the expected implementation thereof in Hungary, revised the principles related to the MREL calculation. The changing of the principles was necessitated by the implementation of BRRD2 in Hungary in December 2020. In developing its principles, the MNB has taken into account international best practice and, where necessary and possible, adapted them to national circumstances. Upon reviewing the principles, the MNB will continue to pay special attention – in addition to adequate strength of the financial stability backstop – to ensuring equal competition and international competitiveness of Hungarian institutions.

Following the implementation of BRRD2, the combined capital buffer will no longer be part of the loss absorbing amount and the MREL will be imposed both through the capital requirement and leverage. (*Chart 44*). Institutions have to meet both requirements simultaneously and continuously, but in Hungary the capital-based charge is the effective one.

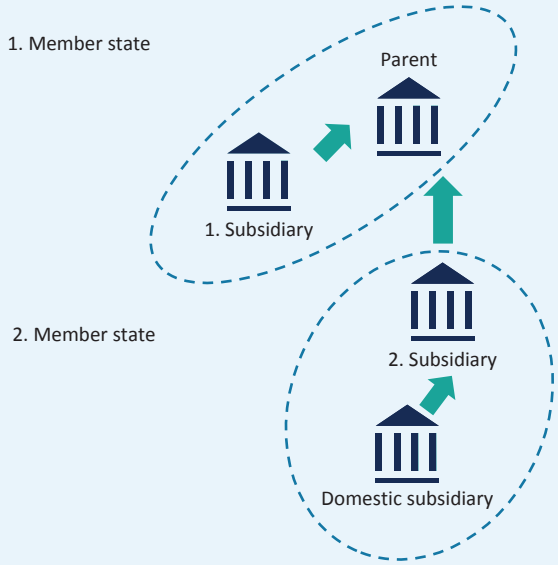
The MNB still does not consider it justified to impose a market confidence requirement in its principles. *(Chart 45).* The MNB's assessment is that, at present, taking into account the funding structure of Hungarian institutions, the funding of the institutions concerned following a possible resolution could be secured over the expected time horizon of up to one year without the imposition of the market confidence charge, if bail-in was to be applied.

In the context of resolution planning, MREL under the new rules will be imposed in 2021, and institutions will be required to be fully compliant from 1 January 2024, essentially following a linear path of continuous adjustment. According to the new regulation, the MNB

Chart 46
The timeline for meeting the MREL

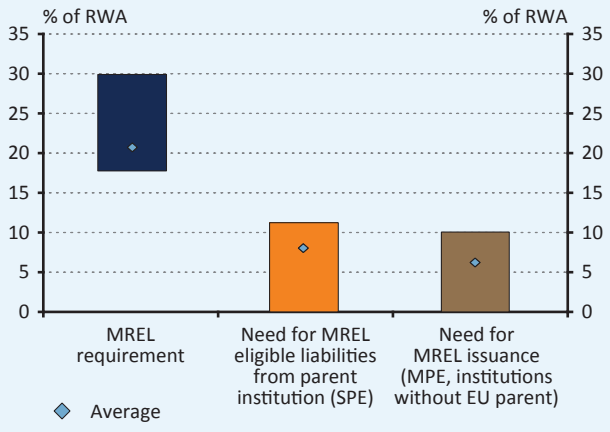
Source: MNB.

Chart 47
Specific (internal) MREL



Source: MNB.

Chart 48
MREL for large banks as a ratio to TREA and the size of MREL shortfall for different resolution strategies



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

will set an interim mandatory target for 1 January 2022 and a planned MREL level for 1 January 2023. (*Chart 46).*

9.2 DURING THE RESOLUTION PLANNING PROCESS OTHER NEW RULES MUST BE COMPLIED WITH

The MNB may require certain large banks that have a major impact on the financial intermediation system in a potential crisis situation (fished banks) to comply with a statutory minimum MREL. For institutions defined according to a uniform, legally compliant methodology, in addition to the individually defined requirement, a minimum MREL of Pillar 1, defined in the legislation, of 13.5 per cent as a percentage of RWA and 5 per cent as a percentage of total exposure ratio (TEM), must be met. According to the MNB's preliminary assessment, these legal minima do not constitute an effective restriction and will therefore not impose any significant restrictions on the domestic institutions concerned.

The new regulation requires not only a consolidated but also an individual (internal) MREL for a resolution group, while in certain cases some of these individual institutions may be exempted from the individual MREL on a mandatory or individual basis. In order to be able to remedy losses incurred by members of the resolution group without being subjected to resolution, subsidiaries are typically required to issue specific internal MREL-eligible liabilities to the parent (the intervention point in resolution), which can be written down or converted to absorb losses and, if necessary, restore capital levels required for operation. *(Chart 47).* These will be included in the 2021 resolution planning. The individual internal MREL can also be met by a parent bank guarantee, subject to legal conditions.

The MNB, acting in its resolution function, has the discretion to decide on the exemption from individual (internal) MREL, subject to the adherence to relevant legislation and on the basis of a uniform methodology. Based on our preliminary examination, the conditions for a mandatory exemption in Hungary are not met by the institutions. In addition, depending on the resolution strategy of the resolution group and the importance and riskiness of the subsidiary concerned, individual exemptions may be granted.

The MNB will impose the MREL on the institutions concerned during resolution planning, while monitoring the adjustments needed at the individual institutions. At present, the MREL represents additional capital requirement only for those institutions for the resolution of which bail-in has been defined as the preferred resolution tool. The majority of the respective institutions are compelled to adjust in order to fulfil the MREL. *(Chart 48)*

10 Focus topic: Possible financial systemic risk implications of climate change and their tackling

The physical damage and economic-technological adjustment costs resulting from climate change through the real economic performance and the change in the value of collateral backing the loans may indirectly increase the risk of credit institutions and the payments on claims of certain insurance business lines. With less and less time available for a green transition, financial institutions financing GHG-intensive activities and regulatory authorities must also be prepared for the potential devaluation of unsustainable businesses and polluting inputs. The banking system, however, can play an active role in greening the economy by financing projects that support the transition, for example by providing loans to modernise the outdated building stock and construct energy-efficient buildings. This can reduce its exposure to climate change risks and contribute to reducing systemic risks, if green real estate or corporate projects are proved to retain their value better. The MNB has already taken a number of measures to support green lending for housing, and in the future other macroprudential tools could be used to address the financial risks of climate change and support the green transition.

Chart 49
Ranking of the Climate Economics Index in Europe, which summarizes the potential economic effects of climate change

Note: The index summarises the estimated GDP impact of chronic natural changes, measures acute natural phenomena through changes in temperature and precipitation, and the adaptive capacity through institutional and macroeconomic variables.

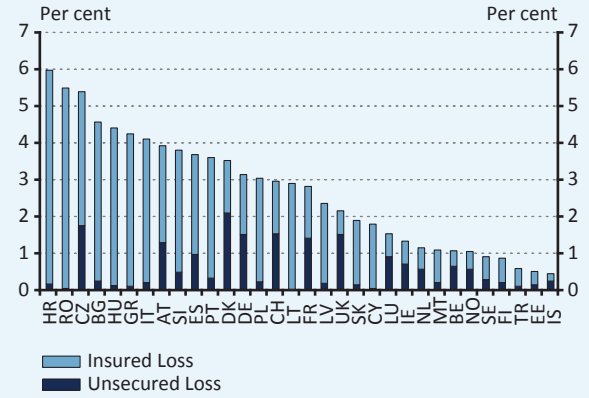
Source: SwissRe

10.1 FINANCIAL SYSTEMIC RISKS OF CLIMATE CHANGE-RELATED NATURAL DAMAGES AND THEIR MITIGATION

The physical damages potentially becoming more frequent as a consequence of climate change could cause significant real economic losses, disruptions and, indirectly, financial losses. The IPCC, 2021 Sixth Assessment Report confirmed that without immediate and substantial reductions in greenhouse gas (GHG) emissions, we can expect an intensification of the extreme weather and natural damage events we are already experiencing and of the lasting environmental changes that will require economic adaptation. The indirect financial risks associated with the physical impacts of complex climatic processes should be assessed by a sufficiently precise knowledge on the one hand of regional natural conditions, and on the other hand the location of the economic activities and production chain financed, as well as the estimation of the adaptation options available or likely to be exploited to avoid or share risks and damages. The physical effects, now increasingly observed and still only hypothetical, thus show a heterogeneous picture depending on the geo-economic context (see Chart 49 for an approximation of the differences at country level).

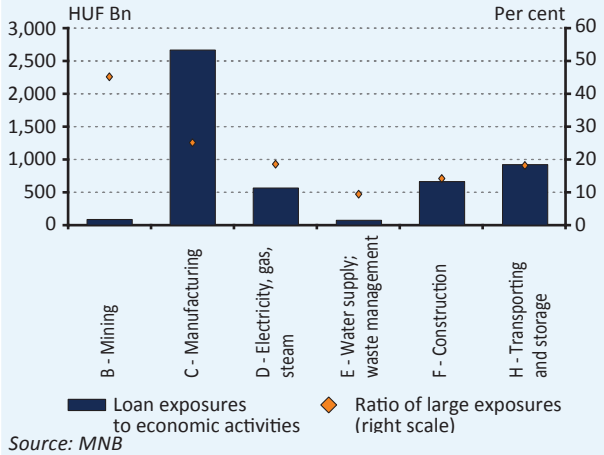
The systemic risk contribution of insurers may increase with their engagement in providing risk sharing against extreme weather events. The increasing frequency of extreme natural phenomena (floods, droughts, forest fires, etc.) damaging collateral increases the value of the availability of effective risk-sharing. The significantly increased involvement of insurers in the future is not yet

Chart 50
The cost of extreme weather and climate damage as a proportion of GDP between 1980 and 2019 in Europe



Source: EEA, MunichRe, Eurostat

Chart 51
Loan exposures to non-financial companies' economic activities with large GHG emissions of the large banking groups and the ratio of debt instrument type large exposures (2021 Q1)



Source: MNB

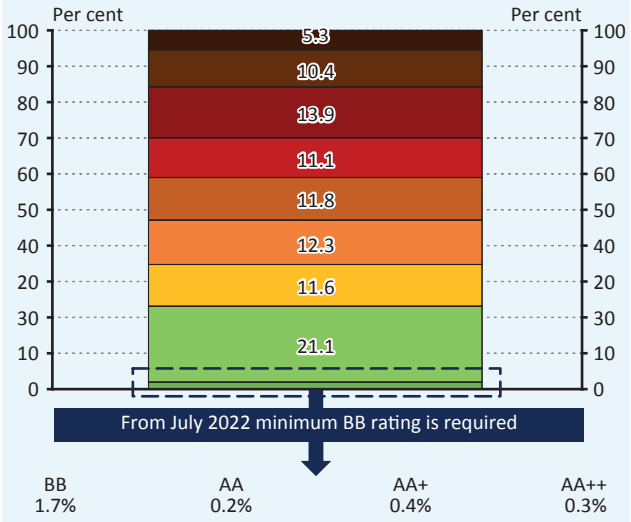
certain, and the supply and use of insurance products available for this purpose may remain too low due to uncertainties surrounding climate change and insurance market mechanisms[28] (see Chart 50 for experiences). If, however, insurance coverage significantly expands as a result of climate change, this could not only increase the risk assumed within the insurance sector, but also increase the financial interconnectedness and systemic risk importance of the sector.

The returns on economic activities and assets that are incompatible with the green transition and that rely primarily on them in the value chain may be significantly reduced as a consequence of regulatory requirements and green technological innovation. To assess the green transition and financial stability requiring extensive structural transformation of the economy, it is necessary to identify the economic activities and the companies that engage in them, whose profitability may be hampered by regulations that limit intensive GHG emissions. However, this requires looking behind the less granular economic activity categories at a highly aggregated macro-level, as both GHG emissions and the financing of financial institutions can be concentrated *(Chart 51*) at a relatively small number of companies operating with high emissions (ECB-ESRB, 2021).

10.2. GREEN FINANCING CAN PLAY A KEY ROLE IN IMPROVING THE ENERGY EFFICIENCY OF THE BUILDING STOCK CONTRIBUTING STRONGLY TO CLIMATE RISKS

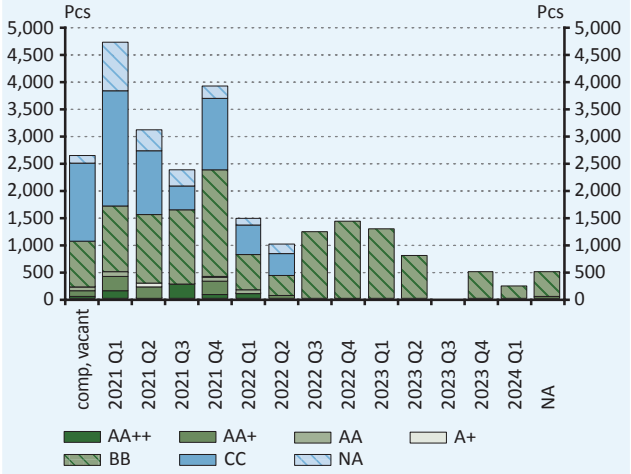
Through its financial services, the banking sector can effectively encourage the implementation of "green" investments. This is also very much needed, as domestic buildings are obsolete in technical and energetic terms, and their share within energy consumption is high, as well shown by the fact that domestic buildings contribute with 45 per cent to the country's final energy consumption, and within that the contribution of residential buildings is 33 percentage points[29]. The overall obsolescence of the Hungarian building stock is also evidenced by the composition of energy performance certificates issued in recent years: only 2.6 per cent of energy performance certificates issued for residential buildings since 2016 have a nearly-zero energy (BB) or better rating, as required from July 2022 *(Chart 52*), and on the basis of estimates relying on the use of renewable energy, even a significant share of new housing is below this rating *(Chart 53).* Encouraging energy-efficient renovations and the uptake of energy-efficient buildings is therefore of national economic interest.

Chart 52
Distribution of residential buildings with energy performance certificates issued since 2016 by energy efficiency ratings



Source: MNB, e-certificate

Chart 53
New condominiums under development and sale nationwide by quarter of expected completion and estimated energy efficiency rating in 2021 Q1



Note: Based on 4-apartment or larger condominiums in Budapest, and 10-apartment or larger condominiums in the countryside. Estimated energy efficiency ratings: where the energy efficiency rating is not known, BB rating is assumed if renewable energy is used, and CC rating otherwise.

Source: ELTINGA – Housing report, MNB.

The spread of green housing loans supporting energy efficiency improvements in buildings can also be beneficial for financial stability. The "green hypothesis" is becoming more widely accepted, according to which loans backed by energy-efficient property, i.e. green housing loans, have a lower credit risk than other loans. There are two main reasons for this. On the one hand, because of lower utility costs, people living in energy-efficient properties will have a higher income disposable for debt repayment after paying their utility bills, which reduces the probability of defaulting on their loan (lower PD). On the other hand, due to rising demand and tightening regulation, green properties are expected to be more stable in value in the long run, and thus the mortgage collateral can be enforced at more favourable terms in case of default (lower LGD). Several studies have tested the hypothesis and have been successful on smaller datasets[30], although the link between energy efficiency and credit risk is not yet statistically significantly supported on a larger sample due to lack of data.

The MNB already supports the spread of green mortgages through a number of measures. On the microprudential side, the Green Preferential Capital Requirement Programme[31] encourages green lending through lower cost of capital. In macroprudential regulation, preferential treatment of green funds financing green mortgages in the Mortgage Funding Adequacy Ratio (MFAR) could provide an incentive (see Chapter 5). Through the monetary policy toolkit, the MNB supports the issuance of green mortgage bonds financing green mortgage loans through the Green Mortgage Bond Purchase Programme. On the other hand, as part of the Funding for Growth Scheme (FGS), the Green Home Programme will be launched in October 2021, under which the MNB will provide refinancing funds at a 0-percent interest rate to credit institutions, which can lend them forward at up to 2.5-percent interest rates to retail clients for the construction or purchase of new energy-efficient dwellings and family houses.

10.3. ADDRESSING CLIMATE-RELATED FINANCIAL STABILITY RISKS IS EXPECTED TO BE AN INTEGRAL PART OF THE FUTURE MACROPRUDENTIAL FRAMEWORK

Macroprudential regulation can also contribute to supporting green transition and addressing the risks arising from the lack of transition. In the short term, this can be achieved mainly by reviewing existing instruments from a green perspective, but in the longer term, the introduction of new instruments specifically targeting climate risks may also be considered[32]. The fine-tuning of macroprudential instruments in a green direction could involve both

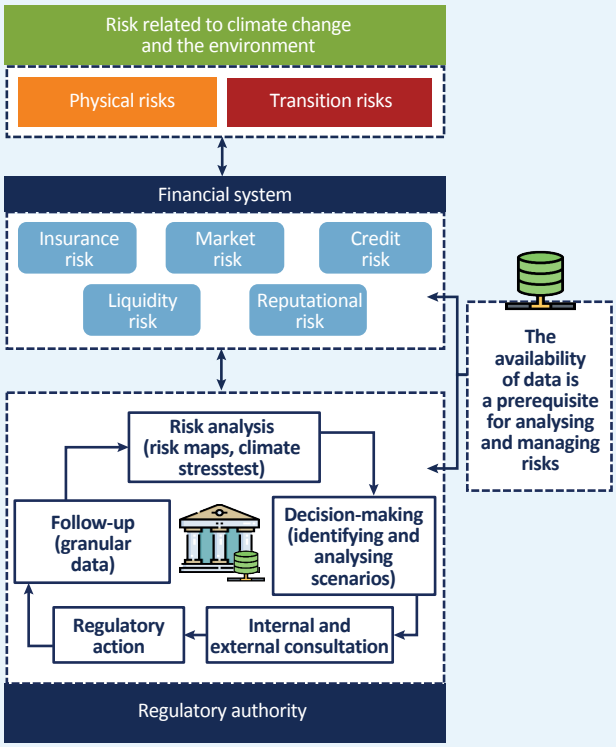
Table 5
Possibilities to take into account green aspects in the macroprudential toolkit

	Capital	Liquidity	Borrower-based measures
Preferential treatments		Preferential treatment of green funds (e.g. in the MFAR requirement)	More favourable DSTI and LTV limits for green buildings and green loans
Restrictions	Increasing capital requirements (e.g. SyRB) for exposures that are harmful for the environment	Determining a minimum expectation for green funds (e.g. in the MFAR requirement)	Applying stricter DSTI and LTV limits where the purpose of the loan is harmful for the environment

*Note: * Green aspects already appear in Hungarian microprudential capital requirements through the Green Preferential Capital Requirement Programme. Note: SyRB: Systemic Risk Capital Buffer; MFAR: Mortgage Funding Adequacy Ratio; LTV: loan-to-value; DSTI: debt-service-to-income.*

Source: MNB.

Chart 54
The effects of climate change on risks of the banking system and regulatory processes aimed at mitigating them



Source: BIS, MNB.

prohibitive measures setting minimum green requirements and measures relying on positive incentives favouring less environmentally risky activities. *(Table 5).* When designing financial regulation, care should be taken to ensure that financial stability objectives are not compromised while mitigating climate risks and environmental damage. On the one hand, if regulation fails to incorporate green targets in a timely and sufficient manner, this may slow down their achievement, which could cause significant damage in the longer term, not only from a social but also from a financial stability perspective. On the other hand, however, due to the limited empirical information available so far, it should be ensured that prudential risk mitigation is not overshadowed in the short term.

Most elements of the toolkit could be used to mitigate climate risks and integrate green considerations where justified. Among the capital requirements, the Systemic Risk Buffer (SyRB), in particular, may be suitable because of its flexible calibration, for example by imposing higher buffer rates for more environmentally risky exposures. This would increase the cost of funding of such exposures, thereby discouraging banks from financing such activities while increasing their resilience to the transitional and physical risks associated with such exposures. In the longer term, if the green hypothesis is proven, there may be a case for relaxing the borrower-based measures for green exposures, or even tightening them for more polluting properties. As regards liquidity and funding rules, the MFAR has already been amended to this effect, but other changes may be justified in the future.

Having the right data is a prerequisite for incorporating green sustainability considerations into the banking risk analysis and lending practices as well as regulatory decision-making and risk monitoring *(Chart 54).* Currently, there is very little data available to assess the environmental impacts of individual financial services. As noted in the ECB-ESRB, 2021 report, the risk assessment may require detailed data on the climate risk exposure of clients that banks have collected scarcely or not at all so far. Therefore, on the one hand, it would be important for banks to start collecting such data, and on the other hand, the use of the data assets available at the state could also play an important role in the future. To this end, several initiatives have already been launched by regulators and market actors at both national and international level. A first step would be to collect and analyse in detail the energy data on property collateral already available in most cases and already held by the state (see Chapter 11).

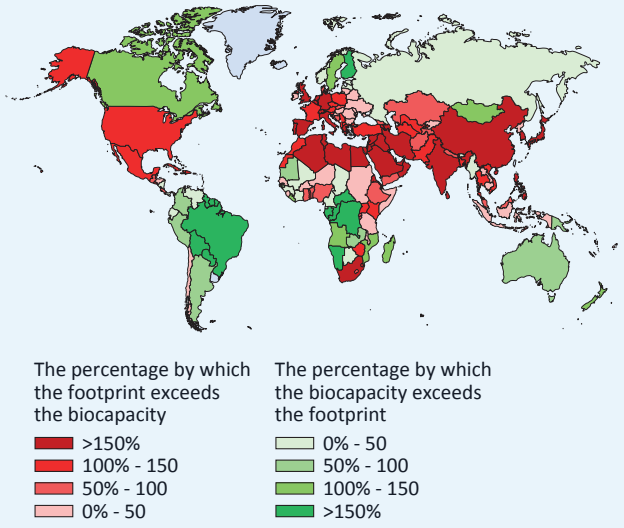
Box 6
Economic and financial risks of damage to natural resources and biodiversity

In addition to the risks triggered by climate change, increasing attention is being paid to economic processes that while potentially amplify the risks of the financial system, also destroy environmental capital and biodiversity. Without denying the global significance of climate change, rather complementing it, the idea that it may be worthwhile to take into account other significant environmentally damaging activities in addition to those that cause climate change is gradually gaining ground in green, environmentally conscious financial thinking. The latter can also be so destructive to nature that their external backlashes can jeopardise economic performance and expose the financial system to additional risks. One focus of research in this area is damage to biodiversity[33]. Biodiversity can include not only the diversity of species and genetics of living organisms, but also the conservation of their natural habitats, the variability and self-sustainability of ecosystems, and the diversity of the ways in which social and ecological systems coexist. Several factors explain the topicality of the damage to natural capital and the biosphere. On the one hand, their loss worldwide is extremely rapid, with a quarter of all species on the planet becoming endangered in the last 30 years (NGFS, 2021). On the other hand, biodiversity also interacts with climate change and its consequences. Thirdly, the risk of pandemics such as the COVID epidemic could also be increased by the threats to biodiversity. Finally, some estimates suggest that (Herweijer et al., 2020, Swiss Re Institute, 2020), more than half of global output and value-added production is exposed to the availability of natural capital and the state of the ecosystem through factors of production, research and development, business and operation, protection of economic assets and other channels of dependence.

As with the risk channels of climate change, the risk consequences of biodiversity loss can be categorised into physical and transition risks. Physical impacts can cause progressively deteriorating and permanent, "chronic" damage to environmental and economic assets, such as reduced crop yields due to the loss of pollinator species[34], or "acute" economic disruptions with a more rapid course, such as crop destruction by pests growing as predator species loose ground, or both. Transitional risks may arise due to regulations to protect the environment. For example Van Toor et al., 2020 examined the locations of multinational corporate exposures of Dutch financial institutions based on whether their location is currently and, in the event of a potential tightening of regulations, is in an area of high environmental-ecological value, which is already the case for nearly a tenth of locations.[35] With further development of the method Svartzman et al., 2021 estimates that 42 per cent of the value of securities portfolio of French financial institutions finances corporate activities that are highly dependent on the state of the ecosystem. Financial intermediaries that finance nature-destroying activities may also face significant reputational and liability risks during the green transition.

Financial institutions in the market are increasingly conscious of the need to protect biosphere and

Ecological deficit / reserve



Note: An ecological deficit (reserve) occurs when the ecological footprint of a population exceeds (is smaller than) the biocapacity of the area available to that population. The ecological footprint measures the biologically productive resources which have been utilized domestically and in trade to produce the consumption goods and to absorb the waste this generates (measured in global hectares). Biocapacity is the ecological capacity of the surface area to produce and renew biological materials used by people and to absorb waste material generated by humans (expressed in global hectares).

Source: Global Footprint Network

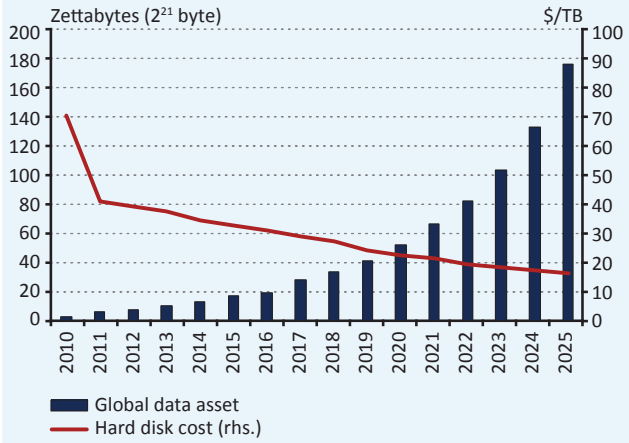
biodiversity in their sustainability programmes. In 2020, 39 global financial institutions undertook the Finance for Biodiversity Pledge programme to expand the positive impact of their financing on biodiversity and to provide transparent information. In the same year, 49 global financial institutions, public bodies and professional organisations established the Taskforce for Nature-Related Financial Disclosures (TFND) modelled on the Task Force on Climate-related Financial Disclosures (TCFD), which aims to provide information to financial institutions about the impacts of the economic activities they finance on the biosphere and its natural environment, and the financial systemic and other risks arising from environmental damage under an internationally consistent analysis and disclosure framework. It is planned to have guidelines ready for widespread market use from 2023. In 2021, under the UN Environment Programme, quantifiable, effective and verifiable information on how to develop 'beyond-business-as-usual' financing targets and risks that support biodiversity and are 'nature positive' will be published under the Principles for Responsible Banking (PRB) guidelines, supported also by the MNB. (UNEP FI és UNEP-WCMC, 2021). According to some estimates (Paulson Institute, 2020, PwC-WWF, 2020), there is a global financing gap of US$600-800 billion per year for the transition to preserving biodiversity, of which market sources only account for a fraction. Although not unknown among ESG commitments, for example, the ICMA Green Bond Principles set it as a target and recently proposed for impact measuring (ICMA, 2020), it is only in recent years that the market has begun to take notice of the need to mainstream dedicated funding considerations to preserve biodiversity and promote transparent communication.

Typically, it is still a new challenge for financial regulators and central banks to understand the correlation between the environmental drivers of sustainability beyond those of climate change and financial risks. UN Sustainable Development Goals include the protection of terrestrial ecosystems and a number of environmental objectives supporting this. In November 2021, a European Commission working group will present technical assessment criteria for the EU taxonomy of sustainable finance for economic activities that conserve and restore biodiversity and ecosystems, the preliminary report on which is currently under consultation. Some central banks (DnB, BdF, BoE) have already begun to look at the broader correlations between the risk exposures of the financial system and environmental degradation, and there are some that would consider it in their investment strategies (BdF).[36] A broader interpretation of environmental risks also occurs among supervisory authorities, for example the ECB's 2020 supervisory expectations and guidelines on the assessment and disclosure of climate-related and environmental risks due to biodiversity loss and the resulting environmental pollution activities are identified as a potential source of risk. From EBA, 2021 report on ESG risk management and monitoring also identifies damage to natural resources and the biosphere as a measurable risk factor.

11 Focus topic: Data as a key to the competitiveness of the financial system

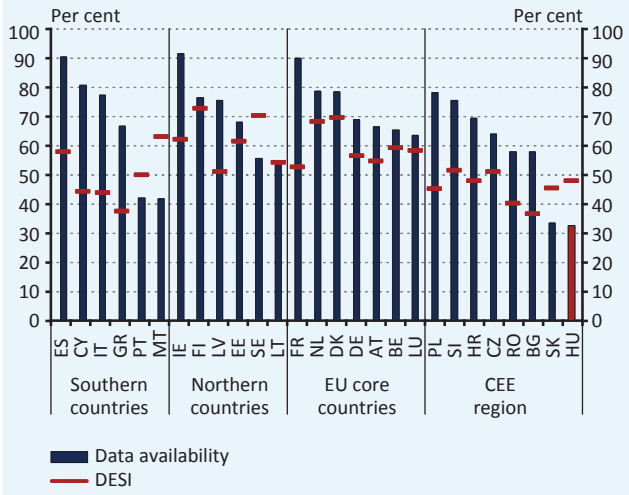
Over the past decade, the possession and use of data has gained strategic importance at both corporate and national level. Nevertheless, the use of domestic data is still low by European standards. In the banking sector, this shortcoming increases the cost and time requirements of lending processes, dampens the potential dynamics of financial deepening, digitalisation and the spread of green financial products, and weakens the competitiveness of the banking sector and the country. Solving this problem requires joining public databases and making them widely accessible to creditors. In the financial sector, by using the available data volume, a small investment can have a big impact.

Chart 55
Growth of global data volume



Source: hblok.net, backblaze.com, blocksandfiles.com.

Chart 56
Open access data in Europe (2020)



Note: The DESI data availability indicator measures the extent to which countries have an open data policy in proportion to the maximum score available.

Source: European Commission

11.1 DOMESTIC DATA HAVE SIGNIFICANT VALUE CREATION POTENTIAL THAT IS WAITING TO BE EXPLOITED

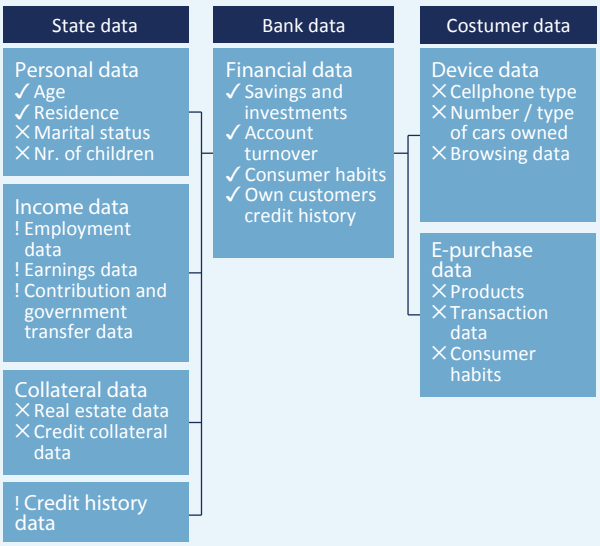
Over the past decades, data have gained strategic importance, especially in the financial sector. As a result of technological progress, the cost of storing and transmitting data has fallen exponentially: by 2020, the cost of storing a gigabyte has fallen to its one-twentieth, to half a dollar per gigabyte, and the cost of transmitting a megabyte to its one-hundred-thousandth, compared to the early 2000s *(Chart 55).* This has led to an exponential increase in data availability. The use of data for business, financial and economic policy making has significant value creation potential. Increasing data accessibility, data analysis and the use of the information extracted has therefore become by today an area of strategic importance.

Nevertheless, the exploitation of domestic data is still low even in an international comparison. Both the EU and the other V4 countries are well ahead of Hungary in terms of the collection, processing and accessibility of available data by the banking sector. According to the Digital Economy and Society Index (DESI), Hungary has an open data index of 32 per cent compared to the EU average of 66 percent. Hungary is among the countries lagging behind in the availability of public data *(Chart 56).*

Chart 57
The main dimensions of the efficiency improvement of the digital transition of banks

Source: MNB.

Chart 58
Key data and sources used by banks



Note: Based on the current practice of banks, the data they use according to the availability of electronic access to them: P available; ! partially available; X not available.

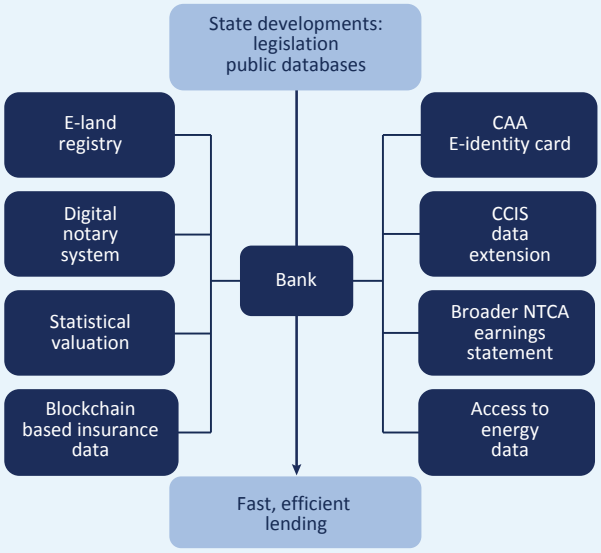
Source: MNB.

11.2 THE BANKING SECTOR CAN BE A GOOD STARTING POINT FOR EXPLOITING THE POTENTIAL OF THE OPEN DATA ECONOMY

Making good use of data and ensuring widespread access to it is a prerequisite for the digital transition of banking. More intensive data use and analysis will make banking processes such as client acquisition, cross-selling, data recording and retrieval, fraud detection, lending or risk management faster, cheaper and more efficient *(Chart 57).* The digital transition of banking is also increasingly being supported by the authorities on the regulatory side (e.g. with regard to the EU Payment Services Directive 2, which aims to open up payment markets to new actors, thus increasing competition and ensuring greater supply and better prices for clients). However, there is still a need to join the relevant market and, in most cases, public databases and to develop electronic means of access. However, in addition to public action, the active involvement of banks is also essential: e.g., in the development of APIs, the collection and use of energy performance data, the development of credit scoring models.

Improving the accessibility of public databases can bring significant results in terms of digitisation of the financial sector even at low cost. Public involvement means on the one hand regulatory support for data-driven, forward-looking digital operating models (e.g. online lending). On the other hand, the state, as the controller of a significant part of the domestic data volume, needs to ensure, within the appropriate regulatory framework, the wide accessibility of this data to creditors. Currently, the accessibility of the banking sector to data is limited, which means that the cost and time requirements of the lending process cannot be reduced significantly, and financial deepening is not enhanced *(Chart 58).* In many cases, the lack of data also undermines the effectiveness of strategic and regulatory decision-making, which is particularly true for decisions needed for the green transition. Currently, this requires in many cases not only IT improvements but also the removal of legal obstacles.

Chart 59
Lending in the 21st century



Note: CAA: Central Authentication Agent; CCIS: Central Credit Information System; NTCA: National Tax and Customs Administration.
Source: MNB.

Table 6
Data managed by credit information providers

	Mortgages	Consumer loans	Current account credit lines	Quick loan	Leasing agreements	Parcel delivery merchants	Utility contracts	Telecommunication services	Tv services	Apartment rentals	Health and other insurance
UK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	☑
DE	✓	✓	✓	✓	✓	✓	✓	✓	✓	☑	☑
PL	✓	✓	✓	✓	✓	☑	✓	✓	✓	✓	☑
DK		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
CH	✓	✓	✓	☑	☑	✓	✓	✓	✓	☑	☑
CZ	✓	✓	✓	✓	✓	☑	☑	✓	☑	☑	☑
ES	☑	✓	☑	✓	☑	☑	✓	✓	☑	☑	✓
IS	✓	✓	✓	✓	☑	☑	✓	✓	✓	☑	☑
SK	✓	✓	☑	✓	✓	☑	☑	☑	☑	☑	☑
RU	✓	✓	✓	✓	☑		☑	☑	☑	☑	☑
SE	✓	✓	☑	✓	☑	☑	☑	☑	☑	☑	☑
FI	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑	☑
HU	✓	✓	✓	✓	✓						
HR	✓	✓	✓		✓						
NL	☑	✓	✓		✓						
IT	✓	✓	✓		✓						
BE	✓	✓	✓			✓					
GR	✓	✓	✓	✓	✓						
AT	✓	✓	✓		✓						
CY	✓	✓	✓		✓						
RO	✓	✓	✓								
RS	✓	✓	✓								

✓ Positive data ☑ Negative data
Not available data

Source: Based on ACCIS Survey of Members (2017)

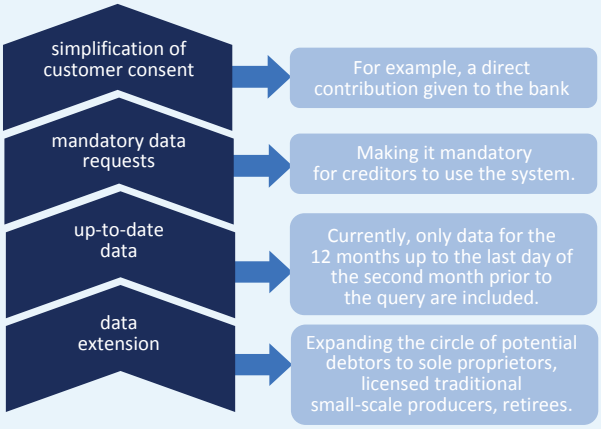
The establishment of the National Data Assets Agency is a step in the right direction, but a larger scale and rapid action is needed in the financial sector, in particular in the following 6 areas *(Chart 59):*

1. **Data on credit history** In European comparison, the scope of data stored in the Hungarian Central Credit Information System (CCIR) is narrow, while several countries have already managed to overcome the problem of data access within the same EU data protection framework *(Table 6).* With more than 1 million retail lending transactions per year, the efficiency of banks' risk management would be improved by extending the range of data stored in the CCIS (e.g. to include positive credit history, utility debts) and by expanding the range of users (e.g. financial intermediaries, telecom companies, utility providers). Furthermore, under the current regulation, as a general rule, client consent is required to query the data stored in the CCIS by another reference data provider, with the exception of negative credit history data. Providing access to positive credit histories, independent of client consent, would also greatly improve the efficiency of credit assessment.

2. **Earnings statement of the National Tax and Customs Administration:** The online earnings statement of the National Tax and Customs Administration (NTCA) is already available to lenders, but a number of improvement directions can be identified to improve the currently low level of usability and to replace the more than 1 million typically paper-based proofs of income documents per year. There is a need to extend the data coverage to sole proprietors, licensed traditional small-scale producers and pensioners, to ensure up-to-date data, to simplify client consent and to make it mandatory for lenders to request data from the system *(Chart 60).*

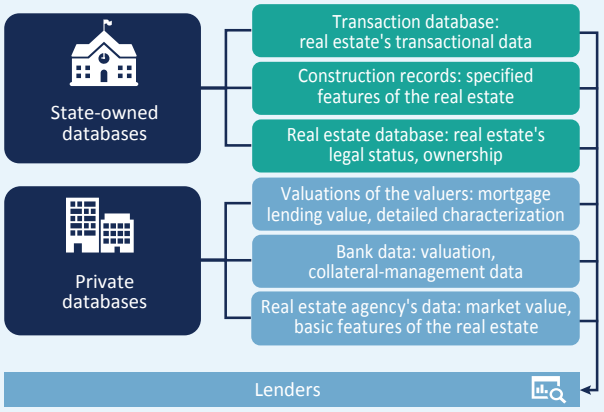
3. **Appraisal:** The time- and cost-intensive valuation processes associated with mortgage lending would be improved by the spread of automated, statisctical property valuation. Although the methodology is already allowed by the legislation, its widespread application requires the creation of a central database containing the data needed for statistical valuation, which is uniformly available to all lenders *(Chart 61)*, which in the longer term would allow the replacement of at least 30-40 thousand on-site valuations per year and could also significantly increase competition between banks.

Chart 60
NTCA's Development opportunities of online statement of earnings



Source: MNB.

Chart 61
Databases that can be used for statistics based valuation



Source: MNB.

4. **Energy performance certificate data:** It would be important for lenders, also from a climate protection and financial stability point of view, to pay attention to the most basic energy characteristics of the properties offered as collateral. At present, this data is not available to lenders, but the Lechner Knowledge Centre stores energy performance certificate data of around 1.5 million homes. The uptake of green mortgage lending and the solutions to finance it (e.g. green mortgage bonds) require the automatic and electronic availability of energy performance certificates by banks. Providing access to data could significantly help bank product development, the development of dedicated green loans and thus the energetical upgrade of the domestic housing stock, which is estimated at 4.5 million homes.

5. **Land registration:** Online lending and the simplification of lending processes would be greatly assisted by the earliest possible implementation of the e-land registry project, which aims to digitise land registry data. The project aims to develop an IT system that electronically supports land registry procedures, workflows and data provision, reducing the lead time and costs of domestic land registry procedures, which could reduce the administrative burden of nearly 100,000 housing loan applications per year.

6. **Insurance data:** Knowledge of insurance data on collateralised properties could be an important risk monitoring tool for lenders. However, there is currently no secure, cost-effective and automated information sharing channel between insurance companies and banks. In 2019, the MNB launched its first project based on distributed ledger technology (DLT), known as blockchain, which aims to solve data exchange problems between banks and insurance companies and reduce the administrative burden for clients in relation to mortgage insurance.

Endnotes

[1] The definitions of the more important monitored indicators are as follows. *Standardised credit-to-GDP gap:* The deviation of the GDP-proportionate outstanding lending from its long-term trend, calculated in accordance with the baseline scenario specified in the ESRB methodological recommendation (ESRB/2014/1, https://www.esrb.europa.eu/pub/pdf/recommendations/140630_ESRB_Recommendation.en.pdf). *Additional credit-to-GDP gap:* A version of the standardised credit-to-GDP gap calculated in accordance with a methodology modified for the special features of the Hungarian financial system. For more details, see: https://www.mnb.hu/letoltes/ccyb-modszertan-uj-hu-1.pdf. *Multivariate additional credit-to-GDP gap:* The version of the additional credit-to-GDP gap calculated with the help of the indicators measuring economic developments related to the credit cycle and compiled based on accurate statistical requirements. For more details, see: Kocsis, L. and Sallay, M. (2018): Credit-to-GDP gap calculation using multivariate HP filter, MNB Occasional Papers, No 136. https://www.mnb.hu/letoltes/mnb-op-136-final-1.pdf

[2] For more details, see: https://www.bis.org/basel_framework/standard/RBC.htm

[3] Buffer use and lending impact (europa.eu)

[4] For more details, see: Macroprudential capital buffers – objectives and usability (europa.eu)

[5] System-wide measures on banks' distributions – motivations and challenges (europa.eu)

[6] Financial Stability Review, May 2021 (europa.eu)

[7] The General Board of the European Systemic Risk Board held its 41st regular meeting on 25 March 2021 (europa.eu)

[8] For more details see in Macroprudential Report 2020

[9] Recommendation No. 9/2019. (IV.15.) of the Magyar Nemzeti Bank, https://www.mnb.hu/letoltes/9-2019-kamatkockazat. pdf

[10] https://www.mnb.hu/letoltes/vezetoi-korlevel-a-lakossagi-jelzaloghitelhez-szukseges-onero-ertekeleserol-alairt-20210115.pdf

[11] See, for example: Kelly, R., O'Malley, T., & O'Toole, C. (2014). Do first time buyers default less? Implications for macro-prudential policy (No. 14/EL/14). Central Bank of Ireland.

[12] Based on Dunahouse data: https://dh.hu/barometer

[13] https://www.mnb.hu/letoltes/2-2021-qa-forrasellatottasag-kotelezo-tartalek.pdf, https://www.mnb.hu/letoltes/3-2021-qa-forrasellatottsag-egyeb-merlegen-kivuli-kotelezettseg.pdf

[14] Green-Bond-Principles-June-2021-140621.pdf (icmagroup.org)

[15] climate-bonds-standard-v3-20191210.pdf (climatebonds.net)

[16] ECBC-Fact-Book-2020.pdf (hypo.org)

[17] https://www.otpbank.hu/portal/hu/Hirek/Zold_jelzaloglevel

[18] 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-hu-honlap.pdf

[19] See title II, item 9 and title III, item 13: https://www.eba.europa.eu/sites/default/documents/files/documents/10180/1045622/07f4c556-6af7-4f89-a617-c393064ab808/EBA-GL-2014-10_HU_GL%20on%20O-siis.pdf?retry=1

[20] See the Report: https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2020/961796/EBA%20report%20on%20calibration%20of%20OSII%20buffer%20rates.pdf

[21] Executive Circular on using macroeconomic information and the factors indicating a significant increase in credit risk under the IFRS 9 standard https://www.mnb.hu/letoltes/vezetoi-korlevel-az-ifrs-9-standard-alkalmazasaban-a-makrogazdasagi-informaciok-felhasznalasarol-es-a-hitelkockazat-jelentos-novekedeset-jelzo-tenyezokrol.pdf

[22] Report on Financial Stability, June 2021

[23] According to the relevant reporting regulation, reclassified transactions are classified as problematic according to the SyRB definition for at least one year, i.e. beyond the third quarter of this year, which is the reference period for the annual SyRB determination, and a minimum of 1 year of principal repayments above 3 per cent is required to escape this classification.

[24] Report on Financial Stability, June 2021 penzugyi-stabilitasi-jelentes-2021-junius.pdf (mnb.hu)

[25] Prevention and management of a large number of corporate insolvencies (europa.eu)

[26] For a detailed description of the methods, see: FinSACCOVID19andNPLPolicyNoteDec2020.pdf (worldbank.org)

[27] https://eur-lex.europa.eu/legal-content/HU/TXT/PDF/?uri=CELEX:52020DC0822&from=HU

[28] On the problem of the protection gap and the outlook, see EIOPA, 2021 report https://www.eiopa.europa.eu/content/report-non-life-underwriting-and-pricing-light-of-climate-change_en

[29] https://www.ebrd.com/cs/Satellite?c=Content&cid=1395295133515&d=&pagename=EBRD%2FContent%2FDownload-Document

[30] See, for example: https://eemap.energyefficientmortgages.eu/wp-content/uploads/EeMAP_D5.3_UNIVE_Final.pdf

[31] GreenFinance (mnb.hu)

[32] See, for example: Frankfurt School of Finance & Management (2014): Delivering the green economy through financial policy and D'Orazio P. and L. Popoyan (2018): Fostering Green Investments and Tackling Climate-Related Financial Risks: Which Role for Macroprudential Policies? Ruhr Universität Bochum. Economics Paper No 778.

[33] However, this is by no means an exclusive focus, for example, if we look at the EU Taxonomy Regulation, all four objectives beyond climate change, i) sustainable use and protection of water and marine resources, ii) transition to a circular economy, iii) preventing and reducing pollution, and iv) protection and restoration of biodiversity and ecosystems, may be relevant from a systemic risk perspective and may interact with each other

[34] Over 80 per cent of agricultural crops in the EU are pollinated by insects, with an estimated economic benefit of €15 billion. https://www.eurosite.org/brussels/pollinators-in-europe/

[35] According to the EU Biodiversity Strategy at least 30 per cent of EU terrestrial area (and also at least 30 per cent of marine areas) must be granted protection status by 2030, suggesting the protection of 4 per cent more terrestrial area compared to the current situation. Furthermore, 10% of both terrestrial and marine areas should be strictly protected. In Hungary, about 21 per cent of Natura 2000 areas, and according to the HCSO records 891 thousand hectares are protected areas, of which 127 thousand hectares are specially protected areas, and 7,319,000 hectares are cultivated areas. Additional objectives of the EU Biodiversity Strategy are to significantly reduce the use and risk of chemical pesticides, fertilisers and pesticides in agriculture, increase organic farming, soil quality, forest quantity and resilience, the use of forest biomass for energy production, and free flow of water in rivers by 2030.

[36] The latter, i.e. a reassessment of the environmental risks of central bank portfolios, is also encouraged by the study of Kedward et al, 2021, which found high exposure to environmental degradation and negative impacts of financed activities in central bank portfolios.

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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