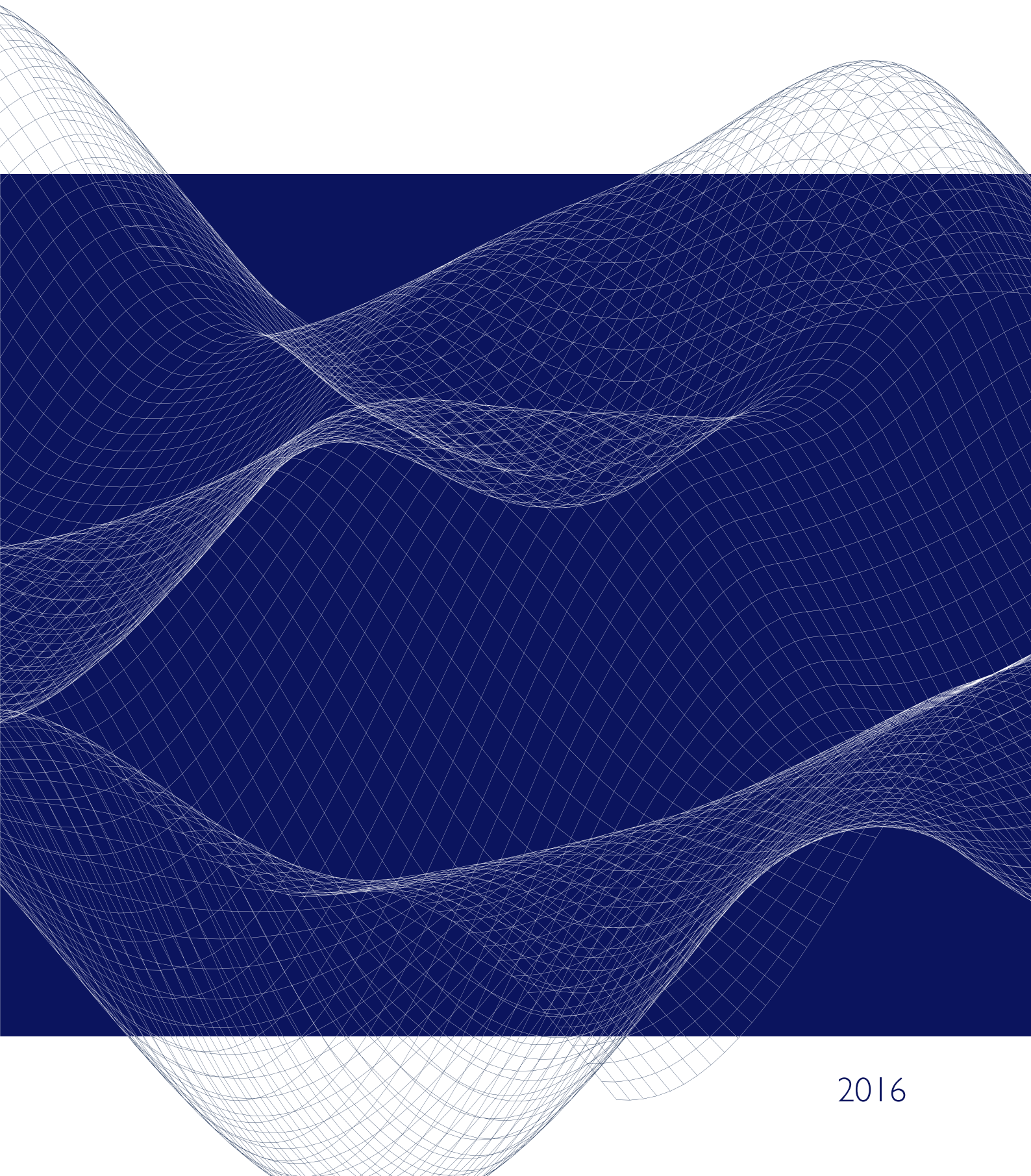
MACROPRUDENTIAL REPORT



2016

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

MACROPRUDENTIAL REPORT

2016

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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 of the financial system is that interventions aimed at the stability of certain financial institutions with a purely microprudential focus alone 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 proper means to, in its capacity as macroprudential authority, efficiently manage financial systemic risks appearing at national level. The MNB uses its reinforced mandate proactively and in line with the regulatory framework of the European Union.

The Macroprudential report is a new initiative of the MNB. Within the framework of the Financial Stability Report, the MNB identifies the business and economic risks threatening the entirety of the financial intermediary system and informs the participants of the financial system about current issues affecting financial stability. On the other hand, the purpose of the Macroprudential report, which is also novel by international standards and is to be published annually in the future, 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. In line with the MNB's Statute and macroprudential strategy, the publication intends to make the MNB's macroprudential measures easier to follow and understand both for the actors in the sector and the general public.

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Act CXXXIX of 2013 on the Magyar Nemzeti Bank vested the MNB with strong authority to prevent and mitigate systemic financial risks. In the period elapsed since entry into force of the Act, the MNB has formulated its macroprudential strategy, enhanced its framework for identifying and monitoring systemic risks and developed its macroprudential instruments necessary for efficient risk management. This has made it possible for the MNB to provide a comprehensive description of how the currently applied macroprudential instruments operate and to evaluate the adjustment of market participants in the Macroprudential report to be published annually in the future.

1. The MNB introduced the debt cap rules in Hungary prior to the upturn in the lending cycle. *The rules prescribed from 1 January 2015 for the household segment limit the loan amount that may be disbursed normally to 80 per cent of the collateral at the most, and as a general rule limit the instalment that can be taken on to 50 per cent of regular, legitimate income. The debt cap rules are effective at the level of contracts, and can thus efficiently curb households' overindebtedness, which in turn increases the resilience of the banks and thereby also mitigates the cyclicality of the financial intermediary system. At present, the debt cap rules do not significantly hinder lending, since – in line with their objective – the MNB calibrated them so as to exert their influence when lending would become excessive.*

2. Due to the low level of cyclical systemic risks, the MNB currently prescribes a countercyclical capital buffer rate of 0 per cent for market participants, which promotes a pick-up in lending*. As a base, the countercyclical capital buffer rate applicable since 1 January 2016 can be determined at 2.5 per cent of the total domestic exposure at the most. The capital buffer to be accumulated in parallel with cyclical systemic risks is able to primarily mitigate the negative impacts of a potential financial crisis on lending by the partial absorption of the losses that the banks may incur.*

3. With a view to maintaining the high liquidity buffers of the banking system, from 1 April 2016 the MNB raised – at an accelerated schedule – the expected level of the liquidity coverage ratio to 100 per cent. *The liquidity coverage requirement prescribed by the European banking regulations from October 2015 determine the minimum amount of liquid assets to be held by individual banks as a ratio of the 30-day liquidity requirement arising in a stress situation. Due to the already existing high liquidity buffers, the accelerated implementation in Hungary did not require a major additional adjustment by the banking system.*

4. The foreign exchange funding adequacy ratio (FFAR) and the foreign exchange coverage ratio (FECR) regulations, introduced by the MNB, may efficiently prevent the future build-up of excessive currency and maturity mismatches in the banking system. *From 1 January 2016 the FFAR, which had previously undergone gradual tightening, prescribes stable foreign exchange funding for 100 per cent of the assets requiring stable foreign exchange funding, while the FECR regulation limits the currency mismatch between the banks' foreign currency assets and liabilities to a maximum 15 per cent of the balance sheet total. The present levels of these two indicators, which entered into force after the conversion of the foreign currency loans into forint, did not require any substantial adjustment from the banking system. At present, these regulations play a risk prevention role.*

5. The mortgage funding adequacy ratio prescribed by the MNB is aimed at mitigating the forint maturity mismatch and promoting the development of the domestic mortgage bond market. *Starting from 1 April 2017, the MNB prescribes for banks the stable funding of long-term household mortgage loans with maturities of over 1 year in the form of mortgage-backed liabilities with maturities of over 1 year to at least 15 per cent. The regulation reduces rollover risk arising from the substantially increased forint maturity mismatch after the conversion of the foreign currency mortgage loans into forint; it may boost the supply of mortgage loans with*

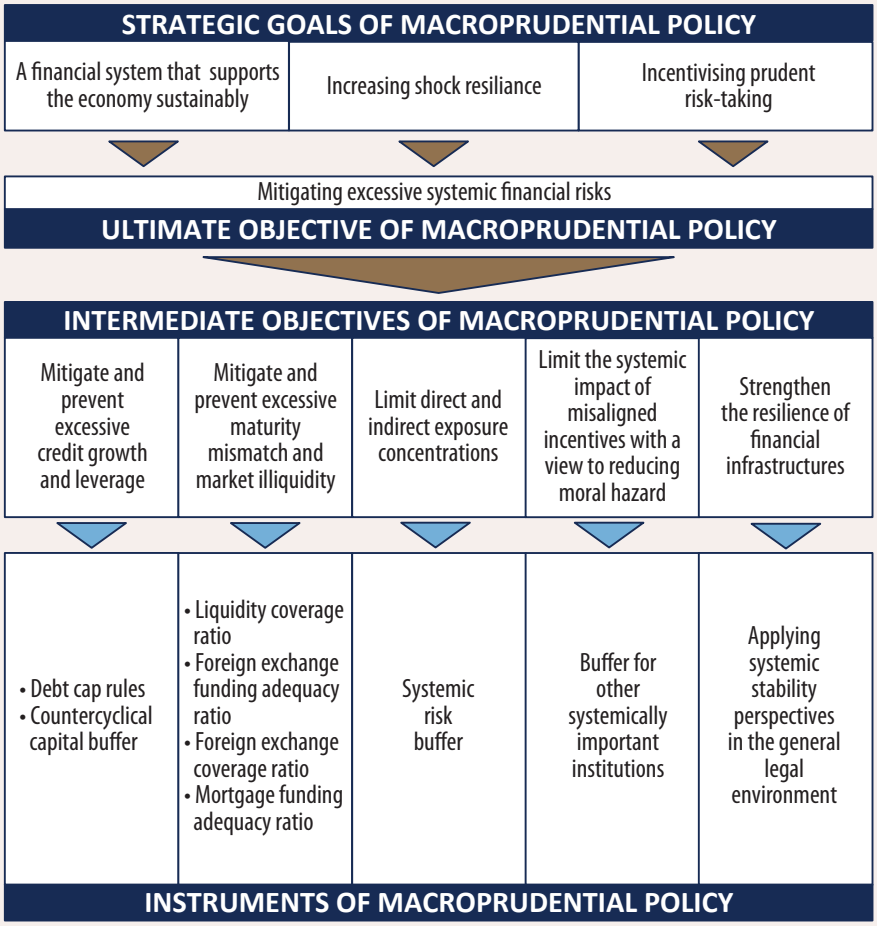
longer interest periods and – through the deepening of the mortgage bond market – it may also facilitate the raising of long-term funding with lower interest spreads. Until the effective date of the regulation, the issuance of mortgage bonds in the amount of roughly HUF 340-380 billion can be expected at the systemic level, also considering expiring mortgage bonds.

6. Gradual implementation of the capital buffer of other systemically important institutions over a period of 4 years helps to mitigate the risks attached to these institutions without impeding lending which is just gaining momentum. *The capital buffer of other systemically important institutions may be 2 per cent of the total domestic exposures at the most. The MNB has already identified the banks concerned and determined the capital buffer rates applicable to them, the primary objective of which is to increase banks' loss-absorbency. As a result, institutions will be less dependent on public aid, and the unjustified competitive advantage resulting from their priority status will decrease along with the moral hazard.*

7. Since the announcement of the application of the systemic risk buffer, the banking system's problem project loan portfolio has fallen by roughly HUF 500 billion. *In November 2014, the MNB notified market participants that it planned to prescribe a systemic risk buffer for those banks which have a large volume of problem project financing loans. The capital buffer determined on an individual bank basis must be accumulated by 1 July 2017 based on the end-of-March 2017 data on a consolidated basis, at the rate of maximum 2 per cent of the total domestic risk-weighted exposure value, in addition to other capital buffers. The capital buffer incentivises banks to reduce the problem exposures through the rising funding costs, while in the case of market players which are less active in portfolio cleaning it will increase shock-absorbing capacity. Upon an additional cleaning of the problem portfolio in the amount of around HUF 150 billion, none of the institutions would need to accumulate this capital buffer.*

Introduction

The MNB Act adopted in 2013 provided the Magyar Nemzeti Bank with strong macroprudential powers in the interests of preventing and mitigating systemic risks. The primary objective of the MNB is to achieve and maintain price stability; however, without prejudice to this primary objective, the MNB supports the maintenance of the stability of the financial intermediary system, the strengthening of the resilience of the financial system and its sustainable contribution to economic growth. In its macroprudential strategy entitled "Stability today – Stability tomorrow", published in 2016, the MNB laid down the intermediate objectives through the attainment of which the MNB supports the stability of the financial system.



In the recent past, by way of active risk management, the MNB has addressed the systemic risks identified based on the lessons learnt from the crisis and potential future systemic risks, the build-up of which may severely jeopardise financial stability. The introduction of the macroprudential instruments required for efficient risk management is largely completed. In the coming period, in addition to the active monitoring and possible management of existing and potentially emerging risks, the focus will shift to monitoring the impact mechanism of the existing instruments and their fine-tuning.

In accordance with the follow-up principles laid down in its macroprudential strategy, the MNB prepares an annual summary report. The report reviews the applied macroprudential instruments, also touching upon the calibration and the impact mechanism of such. In addition, banks' adjustment to the instruments and the analysis of the trends in the risks managed by the instruments play a key role.

The Macroprudential Report is a novel initiative by international standards as well. At the level of the European Union, the legislative environment regulating macroprudential policy (the so-called CRR/CRDIV regulatory package) entered into force on 1 January 2014, while a large portion of the instruments therein was introduced gradually, spanning over several years. The macroprudential framework was set up in many of the Member States by 2015,[1] but in view of the short time horizon, the follow-up of the macroprudential instruments in a public report – which is also urged by the recommendation of the European Systemic Risk Board (ESRB)[2] – is not yet typical in the EU countries.

[1] For more details on the macroprudential policy of the EU Member States see the review prepared by the ESRB on the EU Member States' macroprudential regulations; https://www.esrb.europa.eu/pub/pdf/other/20160513_esrb_review_of_macroprudential_policy.en.pdf.
[2] For more details see ESRB recommendation 2013/1. http://www.esrb.europa.eu/pub/pdf/recommendations/2013/ESRB_2013_1.en.pdf.

1. Debt cap rules

The high degree of risk-taking that characterised the Hungarian banking sector before the 2008 financial crisis led to an excessive outflow of credit. The wide scale spread of loans extended under overly liberal borrowing conditions and insufficient collateral resulted in a sharp increase in the non-performing loan portfolio after the crisis. As a result of this, the Hungarian banking sector recognised a loss of almost the same volume as the pre-crisis capital stock. Along with a number of other factors, the loss incurred, the deteriorating capital position and the increasing risk aversion resulted in a substantial decline in credit supply. With a view to preventing the reappearance of excessive lending, the MNB – in its capacity as macroprudential authority – has applied debt cap rules in the household segment since 1 January 2015. The debt cap rules limit the maximum loan amount to a proportion of the collateral value and limit the instalment which can be assumed to a proportion of income. These two rules can prevent households from becoming indebted beyond their means, which increases banks' resilience in the case of crises and thus also mitigates the cyclicality of the financial intermediary system. At present, the debt cap rules do not significantly hinder lending, since – in line with their objective – the MNB calibrated them so as to exert their influence when lending would become excessive. In parallel with the emerging rise in lending to households, the two macroprudential limits will gradually become effective.

Table 1
Required limits for loan-to-value (LTV) and payment-toincome (PTI) levels

		HUF	EUR	Other currency
PTI	Net monthly income lower than HUF 400,000	50%	25%	10%
	Net monthly income equal or greater than HUF 400,000	60%	30%	15%
LTV	Mortgage loans	80%	50%	35%
	Motor vehicle loans	75%	45%	30%

Note: Regarding financial leases, 5 percentage points higher LTV limits can be applied. The rate of the limits has not changed since their introduction.
Source: MNB

1.1. THE DEBT CAP RULES ARE CAPABLE OF RESTRAINING EXCESSIVE HOUSEHOLD LENDING TO A GREAT DEGREE

The MNB – in its capacity as macroprudential authority – was one of the first central banks in Europe to introduce mandatory, comprehensive debt cap rules. The MNB introduced its debt cap rules with effect of 1 January 2015.[3] According to the rules implemented, the amount of new household loans may not exceed 80 per cent of the loan-to-value (LTV) ratio, and – as a main rule – the related instalments may be 50 per cent of the borrower's regular, legitimate income at the most (payment-to-income ratio – PTI). With a view to offsetting the various risks, the threshold values – which are constant since the introduction of the regulation – are stricter for foreign currency loans and more permissive for borrowers with a higher income (Table 1).

It follows from their nature that the debt cap rules are also important in terms of consumer protection and they limit the possibility of regulatory arbitrage. In addition to their macroprudential role, the debt cap rules also bear importance in terms of consumer protection, as they are not only able to restrain excessive lending to the whole household segment,

3 MNB Decree No. 32/2014. (IX. 10.) on the Regulation of the Payment-to-Income Ratio and the Loan-to-Value Ratio.

but also protect each affected borrower from indebtedness beyond their means. The two ratios efficiently complement each other in terms of their objectives and coverage. On the one hand, the PTI primarily strives to ensure the solvency of borrowers, while the LTV reduces lenders' losses incurred on loans that may become non-performing. On the other hand, PTI limits also cover unsecured household lending, such as consumer loans. It is difficult to circumvent the debt cap rules as they apply to all household loan products and all lenders; moreover, in the case of the PTI instalment on previous loans must be also considered, while the eligible legitimate incomes are defined comprehensively and in detail.

The debt cap rules efficiently prevent borrowers from becoming excessively indebted, which substantially improves banks' resilience and mitigates the cyclicality of lending (Table 2). Overly risky loans are efficiently identified, as this takes place at the level of individual contracts, and hence it is accurately targeted and difficult to circumvent. As a result, banks compete with each other to an even greater degree in terms of prices and the quality of lending-related services, rather than in the riskiness of loans. The properly calibrated debt cap rules limit new loans only in parallel with excessive lending, rather than at the beginning of the financial cycle's upward phase. Over the short term, this may result in a deceleration of economic growth, which is compensated at the time of economic downturns, when – in a deteriorating income situation – borrowers are less likely to face debt problems, and the depreciation of collateral is also likely to increase banks' expected losses to a lesser degree. Mitigation of the lending cycle's swings also softens fluctuations in property prices, which may also hinder the development of asset price bubbles.

Table 2
Effects of LTV and PTI requirements

	Channels for adoptation	Effects in the banking sector	Effects outside the banking sector	Aggregate effects
LTV↓ PTI ↓	Regulatory arbitrage	Role of foreign credits could increase	Role of non-bank institutions in lending could increase	**Due to dampening credit cycle, and to reduction in PD and LGD values, the resiliance of the banking sector increases, the decline after a crisis decreases, and the recovery of the real economy is faster.**
	Loan market	Credit demand ↓ Credit supply ↓	Decreasing volatility in real estate prices	
	Expectations	Stricter risk assessment PD↓ and LGD↓		

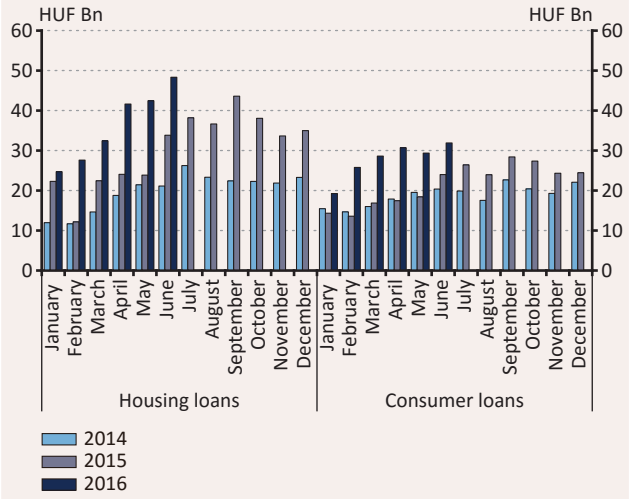
Note: PD: probability of default, LGD: loss-given-default.
Source: ESRB, MNB.

It is expedient to apply debt cap rules in a countercyclical manner. Over time, the idea that only more stringent LTV and PTI limits are capable of curbing excessive indebtedness may arise. During a crisis, however, when a credit crunch may be a real threat, there is usually leeway to ease the previously tightened limits. The MNB implemented the debt cap in domestic lending practices in good time, i.e. prior to a potential excessive lending period, and continuously monitors developments in the lending cycle with a view to "applying the brakes" in due course, if necessary.

1.2. THE DEBT CAP RULES DO NOT CURRENTLY REPRESENT A SIGNIFICANT CONSTRAINT ON LENDING

In line with the present cyclical situation of lending, the implementation of the debt cap rules has had no substantial negative impact on lending. In the period since the introduction of the rules, the volume of new lending to households has increased substantially (Chart 1). The payment-to-income ratios of new household loans disbursed in the first eighteen months after the regulation was introduced did not cluster excessively around the regulatory limits, suggesting that the regulation has had no substantial restraining effect on the loan contracts which were concluded (Chart 2). All of this is in line with the expectations of properly applied debt cap rules: they should not significantly constrain lending, which is far below its long-term trend.

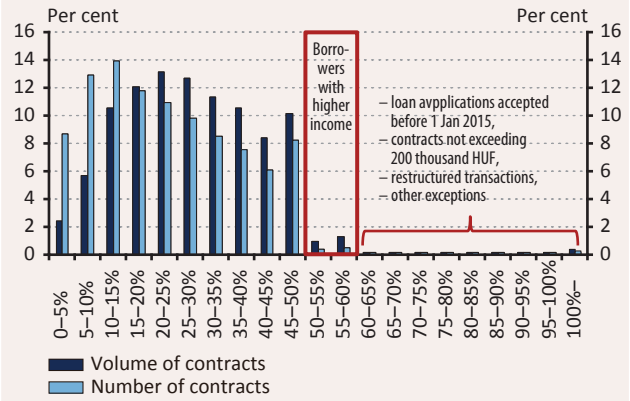
Chart 1
Credit developments in the household segment



Note: Excluding loans to sole proprietors.
Source: MNB.

In parallel with increasing household lending, borrowers are gradually coming closer to the regulatory limits, but the present level of household indebtedness cannot be deemed as excessive. By the end of 2015, the MNB house price index had rebounded from its 2013 trough to the pre-crisis level (Chart 3), which was accompanied by an expansion in housing market turnover and a substantial rise in housing loans, both of which started from a low level. According to MNB estimates, despite the dynamic rise in prices, at present residential property prices typically still do not exceed the level justified by macroeconomic fundaments, and thus the increase in property prices does not stimulate excessive household debt for the time being.[42] Rising house prices were accompanied by similar growth in the

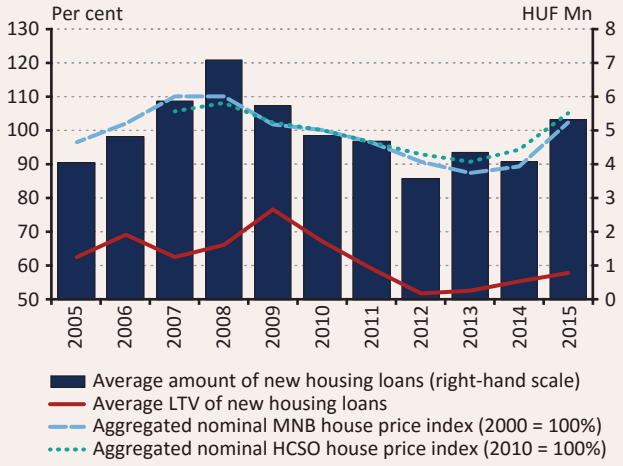
Chart 2
Distribution of new loans by PTI



Note: Loans disbursed between January 2015 and June 2016.
Source: MNB.

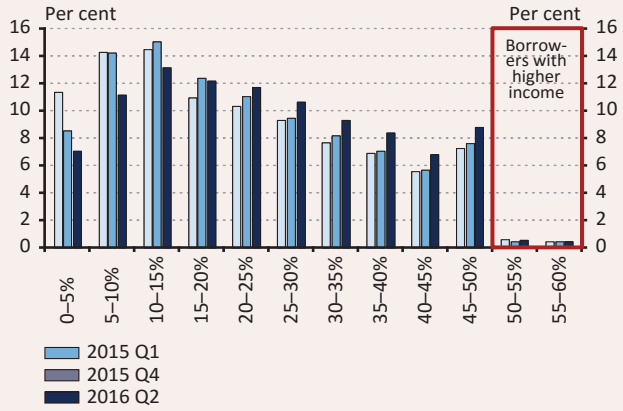
[4] The housing market processes and the deviations of the housing prices from the level justified by macroeconomic fundaments are analysed in more detail in the October 2016 issue of the MNB's Housing Market Report: https://www.mnb.hu/letoltes/lakaspiaci-jelentes-2016-okt-en.pdf.

Chart 3
Developments in housing prices, average amount of new housing loans and LTV ratio



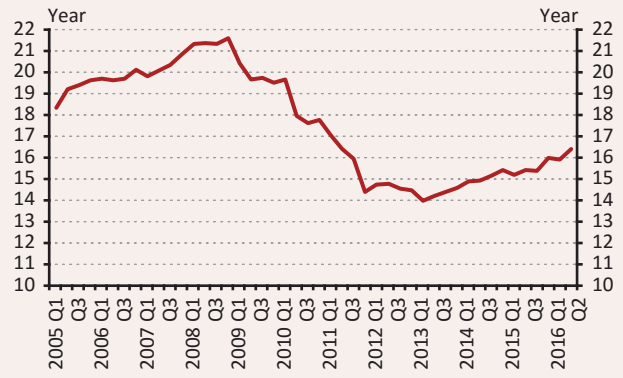
Source: HCSO, MNB.

Chart 4
Quarterly distribution of new loans by PTI



Note: Distribution by number of contracts, PTI categories.
Source: MNB.

Chart 5
Average original maturity of new housing loans



Note: All new housing loans, weighted by loan amount.
Source: MNB.

average loan amounts of new housing loans. Thus, the average LTV related to new loans increased only moderately in the past period (at present 58 per cent). Market trends generally point to a slow strengthening in the effectiveness of the LTV limits. In parallel with this, a gradual shift in the PTI values of newly disbursed household loans towards the regulatory limits can also be observed (Chart 4). Although in the first half of 2016 the average payment-to-income ratio of 28 per cent was still well below the maximum level prescribed by the regulation, the MNB also continuously monitors the distribution of the tightness of borrowers' income with a view to providing a timely response relying on the appropriate macroprudential instrument.

The increase in the average maturity of housing loans has not accelerated, despite the introduction of the PTI regulation. In order to increase the available loan amount, the restriction on assumable instalments may divert borrowers with a stretched income situation to longer-term loans, which facilitates the partial circumvention of the objective of the regulation. This is particularly true for the housing loans of high amounts. However, the average maturity of housing loans already started to increase slowly in 2013, before the introduction of the PTI regulation, and the regulation caused no major acceleration in this trend (Chart 5). Thus, the lengthening of the average maturity is much more attributable to the higher loan amounts related to rising house prices, rather than to the PTI regulation which was introduced in the meantime.

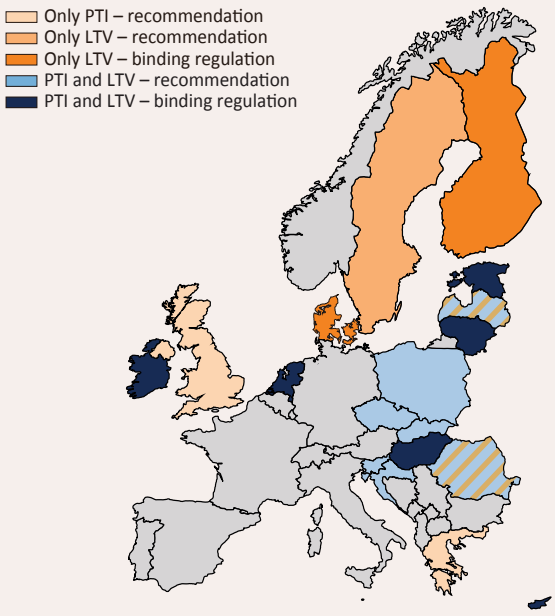
The debt cap rules also support sustainable lending through the expectations of economic agents. The new rules do not yet represent a significant constraint on current loan contracts, but this is likely to happen over time, following a lending boom. As a result of their early implementation, by now both the lenders and the borrowers are familiar with the consistently enforced debt cap rules which have been integrated into lending practices. This may also contribute to the development of price competition in the household credit market, as opposed to the problematic risk competition seen before the crisis.

Box 1

Debt cap rules in an international comparison

The countries of the Central and Eastern European region and the northern Member States of the EU have pioneered the application of debt cap-type rules. The use of debt cap-type macroprudential instruments is dominated by the Central and Eastern European and the northern Member States, while this type of regulatory activity is negligible in the core countries of the euro area. This may also be attributable to the stronger macroprudential activity necessitated by the lower shock-absorbing capacity of the new Member States' population. In the northern countries, there are examples of the application of both LTV and PTI. LTV requirements are applied in Sweden in the form of a recommendation, while they are applied in Denmark and Finland in the form of a law. In Estonia and Lithuania, the LTV is also supplemented by mandatory PTI requirements. As for the other EU Member States, Ireland applies mandatory PTI and LTV regulations, while in the United Kingdom only the consideration of the borrowers' payment-to-income ratio is regulated in the form of an optional recommendation. In contrast to the northern countries, among the southern Member States only Cyprus has mandatory PTI and LTV regulation, while Greece only issued a PTI recommendation.

Debt cap-type regulatory instruments in the EU countries



Note: In Romania and Latvia, LTV limits are mandatory, while PTI limits have been set in the form of recommendations.
Source: National authorities, MNB.

The debt cap rules implemented by the MNB, which also take into consideration Hungarian characteristics, may be deemed exceptionally effective, even in a European comparison. The Hungarian regulation, similarly to that of the Netherlands, has a wide institutional scope, as it covers both credit institutions and non-bank lenders, which reduces the possibility of circumventing the regulation. As regards the eligible sources of income, only the Cypriot and Estonian regulations, in addition to those of Hungary, contain in a regulated manner the need to confirm the taxed income in a prudent form, while in the rest of the countries applying mandatory regulation it is at the discretion of banks how they define the range of eligible incomes. In an international comparison, the LTV requirements mostly differentiate by denomination (Romania) or the property value (Ireland), while a similar breakdown of the PTI requirements so far has not become a common practice apart from Hungary.

With a view to increasing the targeted nature of the requirements, several EU Member States apply exceptions in their debt cap rules. In order to ease access to loans for certain, less risky groups of borrowers, some countries permit the disbursement of loans with LTV values exceeding the requirement to some extent (Czech Republic, Ireland). In addition, there are examples when the regulators permit the lenders to disburse loans, in a specific proportion to the total volume of loans disbursed, extended under a PTI value or loan-to-income (LTI) value exceeding the regulatory limit, if it can be confirmed that the borrowers' debt service capacity is outstanding (e.g. Estonia, Lithuania and the United Kingdom). In the countries characterised by high property prices, preferential LTV requirements are applied for young first-time property buyers to support their home creation (e.g. Ireland). The Baltic States, also with a view to facilitating home creation, determined preferential LTV limits for housing loans granted with state subsidy.

2. Countercyclical capital buffer

The severe losses incurred by the banking system following the crisis led to a substantial decline in credit supply, which in turn considerably prolonged the recovery of the real economy. With a view to avoiding this problem in the future, the MNB – in its capacity as macroprudential authority – applies the countercyclical capital buffer to be formed the upward phase of the credit cycle. In respect of smoothing the financial cycle, the countercyclical capital buffer is an efficient complement to the debt cap rules aimed at curbing excessive lending. The MNB introduced the countercyclical capital buffer requirement starting from 1 January 2016 and reviews the requirement on a quarterly basis. As part of this, it also publishes its assessment of the current situation of the financial cycle, which serves as a basis for this review. Considering the current state of the financial cycle and the developments in cyclical systemic risks, the MNB has set the countercyclical capital buffer rate applicable to domestic exposures at 0 per cent; hence, the requirement does not impede the development of momentum in lending.

2.1. THE COUNTERCYCLICAL CAPITAL BUFFER IS ABLE TO REDUCE THE NEGATIVE IMPACTS OF A FINANCIAL CRISIS ON LENDING

The MNB applies the countercyclical capital buffer (CCB) framework for credit institutions and investment firms from 1 January 2016. The rate of the countercyclical capital buffer may be between 0 and 2.5 per cent of the total risk exposure to a counterparty in Hungary, but in justified cases an even higher capital buffer rate may be stipulated. The MNB reviews the countercyclical capital buffer rate on a quarterly basis. Since implementation, the prescribed CCB rate has been 0 per cent. As a basis, in the event of an increase the new requirement must be met after one year, while a decrease can be enforced immediately. The methodology and procedure

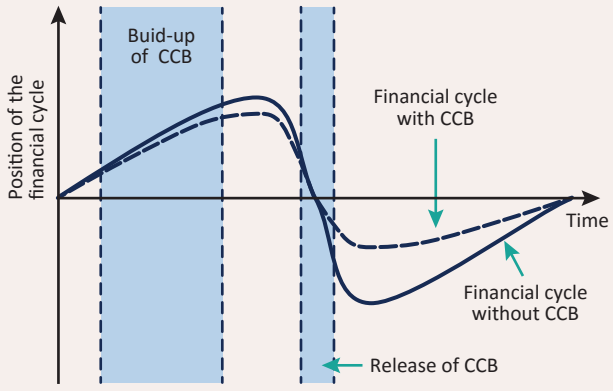
Table 3
Effects of raising countercyclical capital buffer

<table>
<tr><th>Individual bank reactions</th><th>Effects on loan market</th><th>Effects on financial systemic risks</th><th>Macroeconomic effects</th></tr>
<tr><td>Assets with high risk weight ↓</td><td>Credit supply ↓</td><td>Resilience of banking sector ↑</td><td>Procyclicality in lending ↓</td></tr>
<tr><td>Lending spread ↑</td><td rowspan="3">Offered interest rates on loans ↑</td><td>Procyclicality of banking sector ↓</td><td>Procyclicality in consumption ↓</td></tr>
<tr><td>Dividend ↓</td><td rowspan="2">Risk in non-banking sector ↑</td><td>Procyclicality in investment ↓</td></tr>
<tr><td>Issuance of new equity ↑</td><td>Procyclicality in GDP ↓</td></tr>
<tr><td>Voluntary capital buffers ↓</td><td colspan="3" rowspan="2">There is no effect in the extent of reduction in voluntary buffers and increase in regulatory arbitrage.</td></tr>
<tr><td>Risk of regulatory arbitrage ↑</td></tr>
</table>

Note: The green (red) arrows indicate the positive (negative) social impacts.
Source: MNB construction based on the paper "Operationalising the selection and application of macroprudential instruments" of Committee on the Global Financial System released in 2012.

supporting the application of the instrument were prepared in line with the ESRB's relevant methodological recommendation (ESRB/2014/1), also taking into account the special features of the Hungarian financial system. The countercyclical capital buffer must be applied in all EU Member States, and the CCB rates prescribed by the authorities of the other Member States must be recognised by all Member States as long as they do not exceed 2.5 per cent. This reciprocity forces credit institutions to maintain a capital buffer in respect of their exposures in a given Member State at the same CCB rate, which limits the room for circumventing the regulation and improves competition under equal terms.

Chart 6
Financial cycle smoothing effect of the countercyclical capital buffer

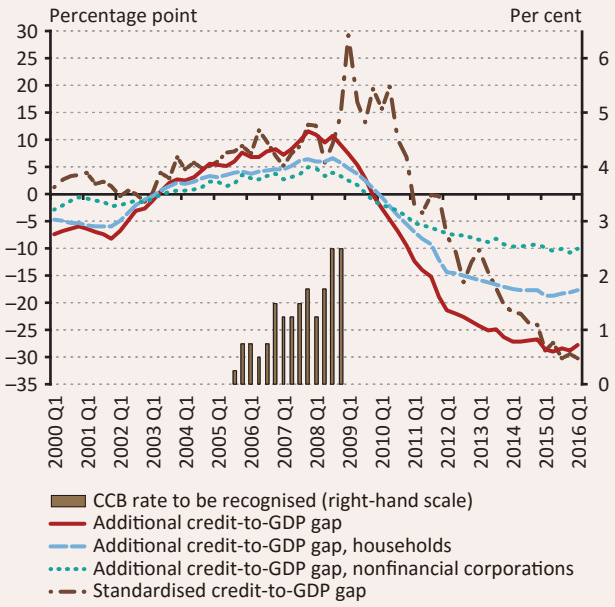


Source: Own edit based on The ESRB Handbook on Operationalising Macro-prudential Policy in the Banking Sector (2014).

The countercyclical capital buffer primarily absorbs the negative impacts of a potential financial crisis on lending and may also prevent excessive lending and the build-up of cyclical financial systemic risks. The buffer is able to cover a substantial part of the losses incurred by banks in a potential financial crisis. As a result, the capital position of credit institutions deteriorates to a lesser degree after the crisis. This makes it possible for credit institutions to avoid significantly restricting their credit supply, in order to comply with capital requirements intended to guarantee the stability of individual institutions, which also apply during the crisis (Table 3). Since during the operation of banks the expected return on equity is typically higher than on external funds, the recognition of countercyclical capital buffers increases funding costs. This may also incentivise the reduction of risk-weighted assets, which may mitigate other forms of excessive risk-taking as well, in addition to excessive lending. It follows from the impacts of the countercyclical capital buffer that it is sensible to raise the CCB rate in parallel with the build-up of cyclical systemic risks, while the recognised capital reserve should be released at the start of the financial crisis either in full or gradually (Chart 6).

The countercyclical capital buffer and debt cap rules complement each other efficiently in mitigating the cyclicality of the financial system. The debt cap rules restrain excessive household lending in the upward phase of the financial cycle, while the countercyclical capital buffer is mainly able to mitigate the severity of the financial crisis and facilitate recovery. In addition, the differentiated debt cap rules apply to individual contracts and primarily have an effect on credit demand, while the countercyclical capital buffer influences credit supply across the whole credit institution sector.

Chart 7
Standardised and additional credit-to-GDP gap, 2000–2016

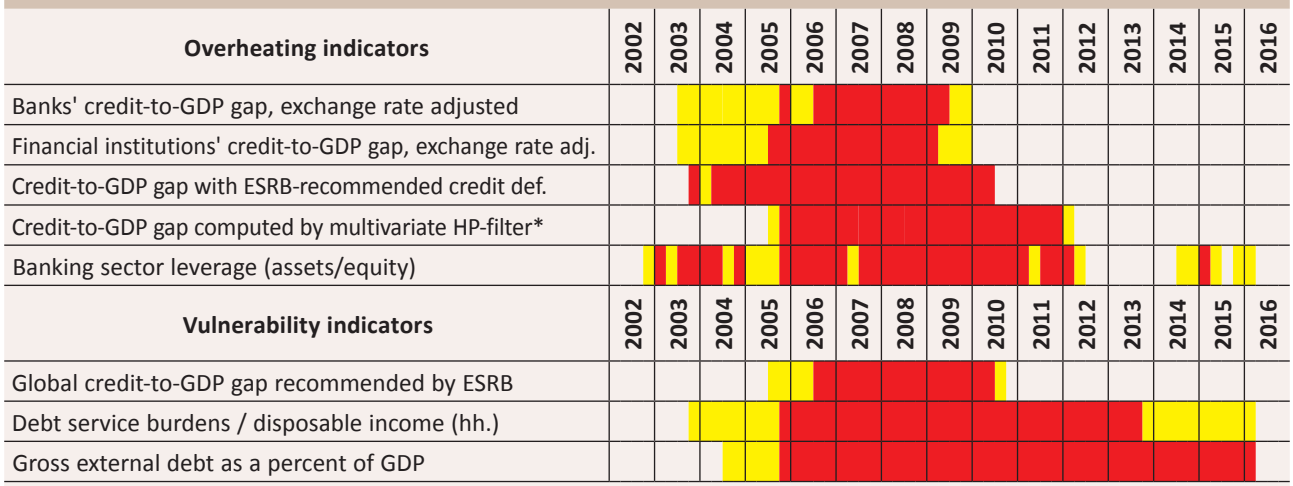


Note: The CCB rate to be recognised is the hypothetical regulatory requirement that would have been obtained by the presently applied methodology. For definition of different gap measures, see footnote 5.
Source: MNB.

2.2. DUE TO THE CURRENT POSITION OF THE FINANCIAL CYCLE, THE MNB DOES NOT CURRENTLY PRESCRIBE A COUNTERCYCLICAL CAPITAL BUFFER

There is no threat of excessive lending in 2016, and the financial system's vulnerability to external shocks is also low. According to international practice, the main tools for identifying excessive lending are the credit-to-GDP gap ratios, i.e. deviations of GDP-proportionate credit stocks from their long-term trends. The MNB continuously monitors several indicators of this type (in particular, the so-called standardised and the additional credit-to-GDP gaps[5]), which differ from each other primarily in the content of the outstanding lending taken into consideration, the exchange rate adjustment of the foreign currency loans and the methodology of the trend-cycle decomposition. After the crisis, all of the monitored GDP-proportionate outstanding loan amounts fell substantially below their long-term trends and the credit-to-GDP gaps determined by them are deeply in the negative domain. Until 2015 these indicators clearly followed a downward trend, but this halted in 2015 (Chart 7). Based on this, the growth in new

Table 4
Changes in selected indicators of the cyclical systemic risk map, 2002–2016



Note: In addition to the standardised and the additional credit-to-GDP gap, the MNB monitors changes in another 30 indicators on a quarterly basis. Together, these constitute the cyclical systemic risk map. Part of the indicators measure excessive credit expansion, while another part of them characterise the financial system's general resilience to shocks. Yellow signals a medium level of risk, while red indicates a high level of cyclical systemic risk. The last observations stem from the first quarter of 2016.
**Developed in MNB, Zs. Hosszú, Gy. Körmendi and B. Mérő (2015): Univariate and multivariate filters to measure the credit gap. MNB Occasional Papers 118.*
Source: MNB, HCSO, BIS.

[5] The housing market processes and the deviations of the housing prices from the level justified by macroeconomic fundaments are analysed in more detail in the October 2016 issue of the MNB's Housing Market Report.

corporate and household loans, which commenced in 2014 and 2013, respectively, does not yet pose a threat of excessive lending in the near future. This conclusion is also supported by other indicators in the MNB's cyclical systemic risk map, which measures the over-heatedness of lending (Table 4). According to the map, the vulnerability of the financial system to external shocks has significantly improved in recent years. It is only households' debt servicing burdens and the level of GDP-proportionate gross external debt that may be deemed substantial compared to the levels observed before the crisis. However, these indicators have been improving continuously and substantially since 2009 and 2011, respectively, and this trend is expected to continue in 2016 as well.

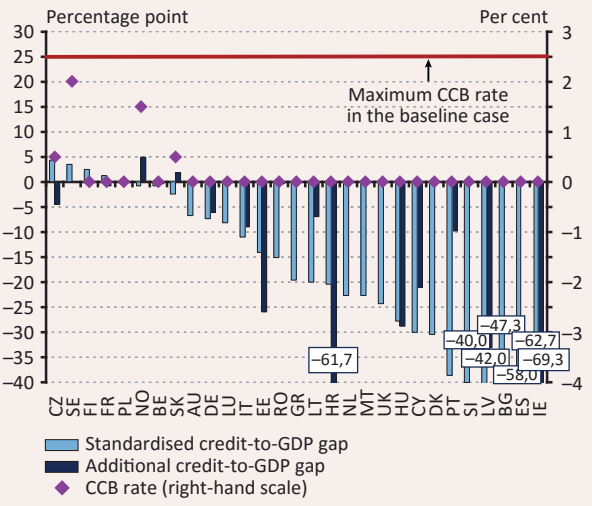
The MNB expects cyclical systemic financial risks to remain low in 2016 and is unlikely to change the 0 per cent CCB rate. Based on the foregoing, it is unlikely that cyclical financial systemic risks will reach such a level in the near future based on which the MNB would decide to raise the currently prescribed 0 per cent CCB rate. Accordingly, the countercyclical capital buffer is not expected to restrain the pick-up in lending that is emerging.

Box 2

Practice of applying the countercyclical capital buffer in Europe

In accordance with the statutory requirements, all EU Member States introduced their countercyclical capital buffer framework by 1 January 2016. The CCB rates in the EU Member States are decided by the national macroprudential authorities, in accordance with the EU legal framework and the ESRB guidelines. The ESRB, in line with the Basel recommendations, also recommends the monitoring of other indicators signalling the build-up of cyclical financial systemic risks, in addition to the monitoring of the credit-to-GDP gap type indicators measuring the degree of excessive lending. Credit-to-GDP gaps quantify the deviation of GDP-proportionate outstanding lending from the long-term trends. The European regulation permits, in addition to the mandatory calculation of the standardised credit-to-GDP gap, the application of the additional credit-to-GDP gap that better suits the special features of individual countries. According to the principle of guided discretion, the decisions on the CCB rate primarily rely on the indicators mentioned above ("rule" component), but it is also possible to consider

Credit-to-GDP gaps and CCB rates in Europe based on the data available in July 2016

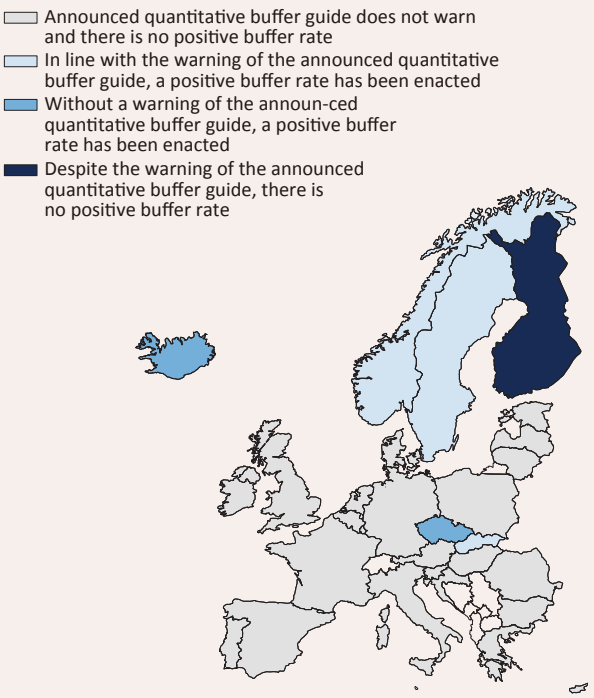


Source: ESRB.

other factors that are relevant for the country's financial stability ("discretional" component).

The current level of cyclical systemic risks in certain Member States of the European Economic Area (EEA) is generally low, but signs of overheating have already started to appear in some places. In the second quarter of 2016, signs of excessive lending were visible in several Scandinavian countries. In Sweden and Norway, the standardised credit-to-GDP gap exceeds 2 percentage points, while in Finland the additional credit-to-GDP gap may be deemed high. The applied CCB methodology also indicates excessive lending in two Central and Eastern European Member States: in the Czech Republic and Slovakia. In the first one, it is the value of the standardised credit-to-GDP gap and in the latter one the additional credit-to-GDP gap that is significantly positive. In the euro-area core countries and in the Mediterranean countries, credit-to-GDP ratios are still substantially below their long-term trend, i.e. at present the level of the cyclical systemic risks may be deemed low in these countries. Of the European countries that face increasing cyclical systemic risks, it was Sweden, Norway, Iceland, the Czech Republic and Slovakia that decided to introduce a positive CCB rate, while in Finland the banks are not required to apply a CCB rate higher than zero, even despite the signalling by the pre-set quantitative rule.

Relation between CCB rates and announced quantitative buffer guides in EEA countries in July 2016



Source: ESRB.

In the countries that prescribe the recognition of a countercyclical capital buffer, the cyclical systemic risks arose primarily in relation to the housing market. In these countries, the mutually reinforcing effects of high household indebtedness and rising property prices may generate significant debt problems in a potential financial stress situation. The development of the commercial property sector also contributed to this situation in Iceland and Slovakia. In addition to the countercyclical capital buffer, European countries are making efforts to reduce the cyclical systemic risks relying on other, complementary instruments as well. These may include the raising of the risk weight of loans secured by property, the application of debt cap rules limiting the volume of loans available for households and the prescription of minimum levels applicable to the loans' loss given default rate.

3. Liquidity coverage ratio

The lessons from the financial crisis highlighted the need for more stringent liquidity risk management. The crisis highlighted that – in addition to ensuring the liquidity of individual institutions – it is also of the utmost importance to ensure adequate systemic liquidity. The liquidity shortages appearing at the level of individual banks may simultaneously lead to liquidity disorders in several important institutions, due to the interconnectedness of the financial intermediary system's participants and the rapid withdrawal of funds arising from a confidence crisis. After the introduction in Hungary of the liquidity coverage ratio (LCR), which is defined at the European level, the MNB raised the prescribed minimum level of the ratio from 1 April 2016 to 100 per cent at an accelerated pace with a view to maintaining the high level of existing liquidity buffers. Accordingly, the instrument did not force the institutions to make additional adjustment, while it keeps the degree of individual and systemic liquidity reserves at a high level in the future as well.

Currently, the MNB maintains the banking system's liquidity buffers accumulated in accordance with the previous domestic liquidity requirements (balance sheet coverage ratio, deposit coverage ratio) using the LCR regulation. From 1 January 2016, i.e. after the introduction of the European Union's standard LCR regulation effective from 1 October 2015 in Hungary, the MNB phased out the rules applied in early 2012 for the management of short-term liquidity risks.[6] With a view to maintaining the liquidity buffers accumulated in the banking system, the MNB prescribed a 100 per cent LCR from 1 April 2016, thereby accelerating the European schedule.

Chart 8
Structure of the liquidity coverage ratio (LCR)

$$\text{LCR} = \frac{\text{Liquid assets}}{\text{Net outflows over the next 30 days [Outflows – Inflows (max. 75% of Outflows)]}}$$

Source: BIS.

The liquidity coverage requirement strengthens the systemic shock-absorbing capacity, in addition to mitigating risks at the individual level. The liquidity coverage requirement intends to ensure the liquidity necessary for the management of short-term stress situations at the level of individual banks for 30 days (Chart 8). Basically, the minimum LCR level can be met through two adjustment channels: by purchasing liquid assets or by reducing the net outflow (this may often be realised by prolongation of the maturity of liabilities). These actions may lower banks' profitability, as liquid assets have lower yields, while longer-term liabilities entail the payment of a liquidity premium. On the other hand, the better liquidity position mitigates the risk level of banks, which may reduce the interest on raised funds through the lower risk spreads (Table 5). The individual liquidity buffers may strengthen the stability not only of individual

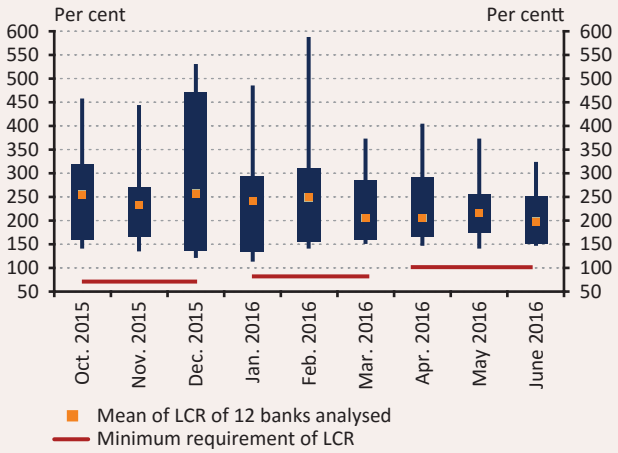
[6] The domestic regulation introduced the balance sheet coverage ratio and the deposit coverage ratio (BSCR and DCR) on 16 January 2012 (Government Decree No. 366/2011(XII .30).

Table 5
Effects of the liquidity coverage ratio

	Direct transmission channels	Effects within the banking system		Effects outside the banking system
LCR ↑	Amount of liquid assets ↑	Credit interest rate ↑	Cyclicality in lending ↓	Demand for government bonds ↑
	Maturity structure of liabilities ↑	Price of liabilities ↑	Profitability ↓	
	Maturity of credits ↓			
		Riskiness of banks ↓	Price of liabilities ↓	Lender of last resort ↓
			Profitability ↑	

Source: BIS, MNB.

Chart 9
Changes in LCR compliance



Note: Mean, 10th and 90th percentile, 1st and 3rd quartile. Mean is weighted by balance sheet total.
Source: MNB.

institutions, but also of the entire banking system. The development of systemic liquidity risks is significantly influenced by the individual institutions' shock absorbing capacity and their role in the financial network. Accordingly, ensuring high liquidity buffers at an individual level also helps maintain the proper level of systemic liquidity by avoiding contagion and confidence crises. This also reduces the need for the central bank's intervention as lender of last resort in the case of a potential liquidity crisis.

At present, the banking system has adequate liquidity buffers, and thus the LCR functions as a risk prevention instrument. In line with the current situation of the credit cycle, the banks' liquidity buffers are high. The LCR, which requires no effective adjustment for the time being, serves the maintenance of the present level (Chart 9). In the future, the prescribed minimum LCR level is likely to efficiently prevent the development of liquidity risks at the individual and the systemic level.

Box 3

Accelerated implementation of LCR regulation in other EU Member States

Several Member States tightened the scheduling of the implementation of the European LCR regulation, effective since 1 October 2015, within their own competence. According to the timetable developed by the EU, the liquidity coverage ratio is to reach 100 per cent on 1 January 2018. However, some of the Northern Member States (Denmark, Sweden, Lithuania), a few of the euro-area core countries (Belgium, the Netherlands), the United Kingdom and – alone in the CEE region – Hungary, opted for accelerated implementation. The majority of these countries already now prescribe 100 per cent compliance as a standard for all credit institutions. Exceptions include the United Kingdom, as it opted for gradual implementation, albeit at a faster pace than prescribed by the EU, and Denmark, where the higher requirement applies only to systemically important institutions. In Sweden, the higher level must be met by large banks[5] not only on aggregate in all currencies, but also separately in USD and EUR.

Statutory scheduling of the LCR implementation and countries opting for accelerated implementation

	1 Oct 2015	1 Jan 2016	1 Apr 2016	1 Jan 2017	1 Jan 2018
EU regulation	60%	70%	70%	80%	100%
Central and Eastern Europe					
Hungary	**60%**	**70%**	**100%**	**100%**	**100%**
Northern Europe					
Denmark	100%	100%	100%	100%	100%
Sweden	100%	100%	100%	100%	100%
Lithuania	100%	100%	100%	100%	100%
Western Europe					
Belgium	100%	100%	100%	100%	100%
United Kingdom	80%	80%	80%	90%	100%
Netherlands	100%	100%	100%	100%	100%

Source: Websites of national central banks.

[7] Banks with balance sheet total of at least SEK 100 billion.

4. Foreign exchange funding adequacy ratio and foreign exchange coverage ratio

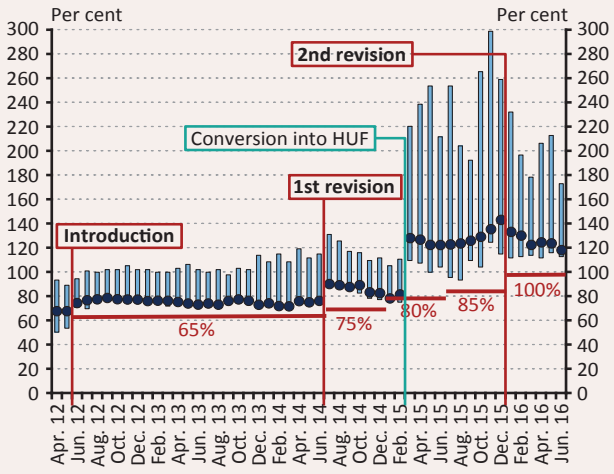
The foreign exchange funding adequacy ratio (FFAR), which entered into force in 2012 and prescribes the financing of foreign currency assets by stable foreign currency liabilities, ensured the sustainable financing of foreign currency assets in a gradually tightening manner. After the conversion of the foreign currency-denominated household mortgage loans into forint, the MNB, in its capacity as macroprudential authority, further tightened the FFAR requirement with a view to preventing risks, in order to ensure the further reduction of the systemic currency and maturity mismatch across the banking system. Simultaneously, to prevent the reoccurrence of excessive dependency on the swap market, which entails rollover and margin call risks, the MNB introduced the foreign exchange coverage ratio (FECR), limiting the on-balance sheet open foreign currency position. In the present market environment, the requirements do not represent an undue barrier to banks' operations.

Chart 10
Simplified structure of FFAR

$$\text{FFAR} = \frac{\text{Stable funding} + \text{net FX swaps with maturities of over 1 year*}}{\text{Required stable funding}}$$

**FX swaps are not eligible stable funding since 1 January 2016.*
Source: MNB.

Chart 11
Mean, distribution and required level of FFAR



Note: First and third quartile values. Points denote the average.
Source: MNB.

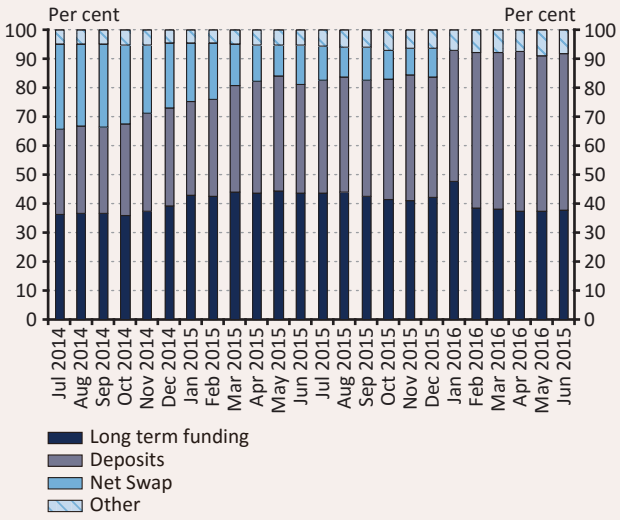
4.1. THE FOREIGN EXCHANGE FUNDING ADEQUACY RATIO AIMS TO ADDRESS LONG-TERM EXCESSIVE DENOMINATION AND MATURITY MISMATCHES

In order to improve the currency and maturity match, the MNB applies macroprudential regulation. The FFAR limit, which entered into force on 1 July 2012, prescribes stable foreign currency liabilities for a specific percentage of the assets requiring stable foreign currency funding, thereby managing the maturity mismatch following a similar logic as the Net Stable Funding Ratio (NSFR) included in the Basel III framework[8] (Chart 10). The regulation was tightened gradually, and from 1 January 2016 it prescribes the funding of foreign currency assets by stable foreign currency liabilities in 100 per cent.

The conversion of household mortgage loans into forint in early 2015 necessitated a review of the FFAR regulation. Due to the removal of the household foreign currency portfolio from the indicator, the immediate risks decreased, but in order to prevent the reoccurrence of the problem, the MNB decided to maintain and tighten the FFAR regulation. As a result of the conversion into forint, the compliance of most banks improved (Chart 11), which made it possible to

[8] http://www.bis.org/bcbs/basel3.htm

Chart 12
Composition of stable foreign exchange funding
(based on weighted amounts)



Source: MNB.

accelerate the original schedule of the gradual increase, and thus the prescribed 100 per cent level could enter into force on 1 January 2016. In addition, the foreign exchange swap portfolio, which decreased due to closure of the on-balance sheet foreign currency position, was also eliminated from stable funding, thereby moving the ratio closer to the international NSFR regulation to be introduced in the future. With these measures, the FFAR regulation limits the build-up of excessive currency mismatch and the excessive shortening of the foreign currency liabilities.

The regulation encourages banks to raise stable foreign currency funds. Compliance with the prescribed level of the FFAR may be achieved primarily by increasing the ratio of stable foreign currency liabilities. One of the most straightforward methods of banks' adjustment is to extend the maturity of short-term foreign currency liabilities. A similar effect can be achieved by increasing the ratio of foreign currency client deposits deemed stable in the funding structure (Chart 12). If banks' adjustment takes place via the prolongation of short-term liabilities, in addition to reducing the maturity mismatch, the short-term external debt of the banking system, and thereby the vulnerability of the national economy, may also decrease.

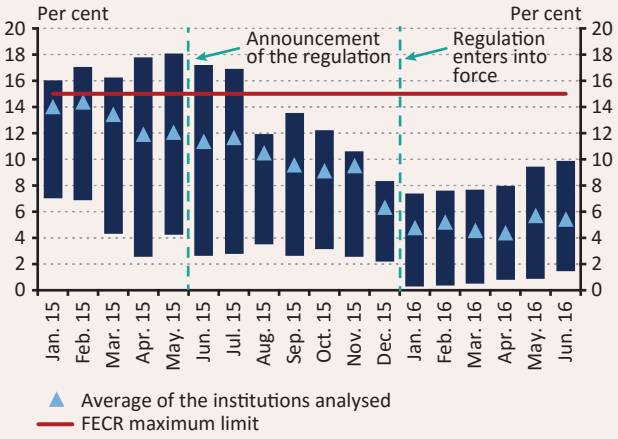
Due to the conversion into forint, compliance with the revised FFAR regulation required no major adjustment. Since households' foreign currency mortgage loans accounted for a substantial part of the foreign currency assets requiring stable foreign currency liabilities, after the conversion of those into forint, the stable foreign currency funding requirement to be maintained decreased considerably in the banking system. In line with the low level of systemic risks, the level of 100 per cent does not represent a major adjustment pressure for the vast majority of banks, even when maintaining an average surplus of 20 per cent. However, in the case of certain institutions, the lower voluntary buffers held in excess of 100 per cent also show that compliance with the requirement necessitates more active liquidity management on their part. In the future, with a view to ensuring preparation for the introduction of the NSFR regulation and smooth compliance, it may be justified to review the regulation.

Chart 13
Structure of FECR

$$\text{FECR} = \frac{\text{(FX assets – FX liabilities)*}}{\text{Balance sheet total}}$$

**In absolute value.*
Source: MNB.

Chart 14
On-balance sheet open foreign currency position of the banking system as a per cent of the balance sheet total



Note: The chart shows the first and third quartile values of 16 analysed institutions.
Source: MNB.

4.2. EXCESSIVE DEPENDENCY ON THE SWAP MARKET MAY BE REDUCED BY THE FOREIGN EXCHANGE COVERAGE RATIO

The instrument, which manages the risks of currency mismatches on a preventive basis, has been in effect since 1 January 2016. Similarly to the amendment of the FFAR limit, the MNB introduced the instrument which ensures the regulation of the currency match, after the conversion into forint. Based on the regulation effective since the beginning of 2016, the currency mismatch between banks' foreign currency assets and liabilities may be a maximum of 15 per cent of the balance sheet total (Chart 13).

The instrument reduces excessive dependency on the swap market. Banks mostly close the on-balance sheet open foreign currency position in the form of foreign currency swaps, which increases their dependency on such, thereby generating rollover and margin call risks. Hence, the reduction of the currency mismatch between assets and liabilities also reduces the reliance on foreign exchange swaps, irrespective of whether the foreign currency surplus appears on the asset or the liability side.

The FECR is a preventive regulation; prior to its implementation, only a few institutions had to perform significant adjustment (Chart 14). As the FECR regulation is by nature independent of the direction of the foreign currency position, a few institutions with a foreign currency liability surplus had to close their significant on-balance sheet exposure. They replaced short-term external foreign currency loans with swaps, which simultaneously reduced the on-balance sheet foreign currency position and the off-balance sheet net swap position. This form of adjustment had no major impact on profitability. Accordingly, the FCER regulation prevents the future opening of the on-balance sheet exposure, excessive dependency on swap markets and thereby the recurring increase of the banking sector's external vulnerability.

Box 4

International comparison of regulations similar to the FFAR and FECR rules

In international practice, there are relatively few examples of the management of the liquidity and financing risks of the currency and maturity mismatch similar to that in Hungary; in respect of the regulations with mandatory legal effect, the examples of Korea and Iceland are worth highlighting. Pursuant to the Korean regulation introduced in 1991, the foreign currency loans with maturity over 3 years had to be financed at least 70 per cent by foreign currency liabilities with maturity over 3 years. Since it was increasingly difficult for the banks to comply with the requirements – in parallel with the deepening of the banking market – in 1993 the earlier 70 per cent requirement was reduced to 50 per cent, and then in 2001 the regulatory authority reduced the liabilities' prescribed three-year maturity to one year.[9] In Iceland, the foreign currency funding ratio regulation was introduced in 2014 with a view to preventing the future development of the unsound pre-crisis liability structure in the banking system.[10] The example for the regulation was provided – similarly to the FFAR – by the NSFR requirement to be implemented in the Basel III framework. Similarly to the situation in Hungary, the purpose of the regulation in Iceland is to create a maturity match between foreign currency assets and liabilities. The risks of unstable deposits collected from foreign households, which made a substantial contribution in the previous crisis, required a separate solution due to the preferential treatment of deposits in the NSFR. The Icelandic regulatory authorities mitigated these risks by prescribing higher regulatory reserves for these and subordinated treatment in deposit insurance.[11]

In Malta and Luxembourg, the risks arising from the on-balance sheet currency mismatch are managed in the form of recommendations. The ESRB recommendation on foreign currency lending,[12] emphasises – in addition to the importance of the maturity and currency match of the credit institutions' assets and liabilities – the risks of excessive dependency on foreign currency swap markets. In the spirit of the ESRB recommendation, the central banks of Malta[13] and Luxembourg[14] formulated separate recommendations for market participants, in which they also highlight the need to mitigate risks related to the on-balance sheet open foreign currency position separately. Apart from these, there are also international examples of the management of the risk represented by the total open foreign currency positions: while in the EU the increase of the capital requirement in line with the Basel recommendations is applied,[15] Iceland also implemented a direct constraint, according to which the total open foreign currency position may not exceed 15 per cent of the regulatory capital either by currency or on aggregate.[16]

[9] For more information on the Korean macroprudential regulation, see the analysis prepared by the World Bank: http://www.worldbank.org/content/dam/Worldbank/document/Poverty%20documents/EMERGING_WB_CH07_227-280.pdf.

[10] For more information, see the summary by OECD https://www.oecd.org/iceland/iceland-putting-in-place-a-macro-prudential-framework-proportionate-to-financial-stability-and-investment-objectives.pdf and the relevant page of the central bank of Iceland: http://www.cb.is/financial-stability/liquidity-and-stable-funding/.

[11] http://www.cb.is/library/Skraarsafn---EN/Reports/S%C3%A9rrit%20nr%20%206%20Prudential.pdf

[12] https://www.esrb.europa.eu/pub/pdf/recommendations/2011/ESRB_2011_1.en.pdf – Recommendation F – Liquidity and financing

[13] https://www.esrb.europa.eu/mppa/cbmd/shared/pdf/Malta/2013-12-09_Foreign_currency_lending_Law.pdf?7ee6cc7acf8ec19e769b9c3573bda2c0

[14] https://www.cssf.lu/fileadmin/files/Lois_reglements/Circulaires/Hors_blanchiment_terrorisme/cssf12_538eng.pdf

[15] In Europe, the Basel recommendation is implemented by Articles 351-354 of Regulation 575/2013/EU (Own funds requirements for foreign exchange risk).

[16] http://www.cb.is/financial-stability/foreign-exchange-balance/

5. Mortgage funding adequacy ratio

With the conversion of long-term foreign currency mortgage loans into forint (despite this resulting in the exchange rate risk no longer burdening Hungarian households), the forint maturity mismatch increased substantially in the domestic banking system. The vast majority of mortgage loans converted into forint in February 2015 have maturities much longer than 10 years, which the banks typically finance by short-term forint funds. With a view to managing the risks arising from the maturity mismatch, the MNB prescribes the raising of longer-term mortgage-backed funds at the systemic level by applying a targeted macroprudential instrument, the mortgage funding adequacy ratio. In addition to reducing the maturity mismatch, the regulation may also have a favourable impact on the mortgage loan interest rates, through the deepening of the mortgage bond market. Until the implementation of the new requirement in 2017, the need to raise funds arises at most of the institutions; at the systemic level, mortgage bond issuance may be expected, also taking into consideration the expiring mortgage bonds, in the amount of roughly HUF 340-380 billion.

Chart 15
Structure of the MFAR

$$\text{MFAR} = \frac{\text{Mortgage-backed liabilities with maturities of over 1 year:}\\ \bullet\ \text{Mortgage bonds}\\ \bullet\ \text{Other mortgage-backed securities}\\ \bullet\ \text{Refinancing received from mortgage credit institutions}}{\text{HUF residential mortgage loans with maturities of over 1 year}}$$

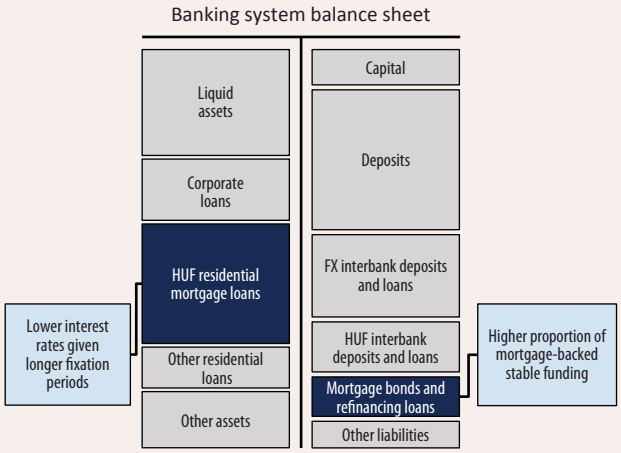
Source: MNB.

5.1. THE MNB MANAGES THE RISKS OF FORINT MATURITY MISMATCH USING A TARGETED INSTRUMENT

The MNB's regulation, which enters into force in 2017, prescribes the use of mortgage-backed long-term liabilities. The minimum requirement related to the mortgage funding adequacy ratio (MFAR), which enters into force on 1 April 2017, is a targeted macroprudential instrument. Based on the requirement, credit institutions must finance a given part of their forint residential mortgage loans by long-term mortgage-backed liabilities. In the present legislative environment, this is possible essentially through the issuance of mortgage bonds or mortgage-backed stable funds originating from mortgage credit institutions (refinancing) (Chart 15).

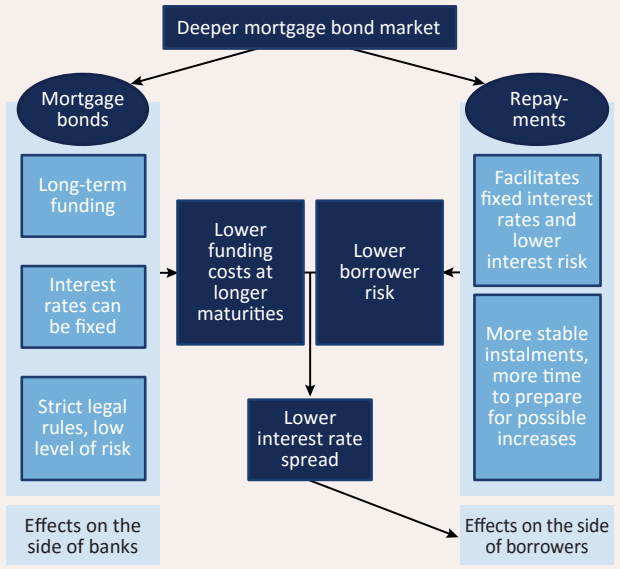
In calibrating this risk-managing instrument, the MNB also took into consideration the principle of efficient risk management and the current market environment. Since a complex instrument, permitting multiple adjustment channels (e.g. NSFR), would not be able to reassuringly manage the risks arising from the degree of maturity mismatch prevailing in Hungary, it became necessary to develop a properly targeted regulation. Upon determining the prescribed initial compliance level, the MNB considered the present legislative environment of the mortgage financing market, the relatively substantial need for banks' adjustment and the current low activity in the mortgage bond market. In accordance with these aspects, a relatively low, i.e. 15 per cent, initial minimum required level was specified.

Chart 16
Impacts of the MFAR requirement within the banks' balance sheet



Source: MNB.

Chart 17
Impact of the mortgage bond-based financing on the interest rate spreads at the banks and the clients



Note: Assuming that most of the issued mortgage bonds are fixed-rate bonds.
Source: MNB.

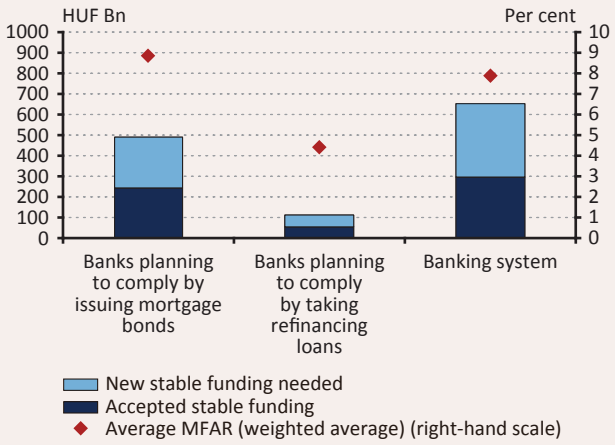
5.2. THE MFAR REGULATION MAY ALSO REDUCE MORTGAGE LOAN INTEREST RATES APPLICABLE TO LONGER INTEREST PERIODS, IN ADDITION TO DECREASING THE MATURITY MISMATCH

As a result of the requirement, the role of long-term mortgage-backed forint funds is likely to increase in the banking system's balance sheet. In accordance with this, both the number of mortgage banks and the amount of loans they extend to commercial banks for mortgage loan refinancing, are likely to increase. The use of longer-term liabilities reduces the banking system's cyclical vulnerability via the funds' decreasing rollover risk and falling interest rate risk, which is particularly important due to the recurring upturn in long-term housing loans. At the same time, due to the positive yield curve, the use of longer-term liabilities may generate extra costs for the banks compared to financing by deposits; however, this extra cost may substantially decrease upon the deepening of the mortgage bond market (Chart 16).

The sounder funding structure of mortgage loans not only reduces the rollover and interest rate risks arising from maturity mismatch, but may also result in lower spreads on loan interest rates. On the one hand, due to the higher credit risk rating mortgage-backed funds may be raised at lower spreads compared to other unsecured long-term liabilities, and thus they reduce funding cost of mortgage loans compared to funds with identical maturity. On the other hand, the typically fixed-rate mortgage bonds (and refinancing funds) may encourage the banks to extend mortgage loans with longer interest periods, with a view to reducing their interest rate risk. Consequently, the fixing of interest rates for longer periods may reduce default risks, which may lead to improving portfolio quality and lower interest rates on loans (Chart 17).

Compliance by April 2017 necessitates substantial preparation and external financing across the banking system. At present, the majority of institutions have no long-term mortgage-backed liabilities eligible in terms of the MFAR requirement. Accordingly, the regulation necessitates effective fund raising at most banks. At the sector level, this is expected to give rise to mortgage bond issuance in the amount of HUF 340-380 billion to meet

Chart 18
New stable funding needed for meeting the MFAR requirement



Note: Based on June 2016 figures. Taking into account funds maturing before 1 April 2017. The MFAR average is weighted by mortgage loan amounts.
Source: MNB.

requirements by April 2017[17] (Chart 18). To ensure compliance, the institutions with the largest mortgage loan portfolios have already established their own mortgage banks, and some of the institutions have already concluded the necessary refinancing agreements.

Box 5
Regulations in Europe supporting mortgage-backed stable financing

The stable financing of mortgage loans and thereby the mitigation of systemic maturity mismatch is implemented in several European countries on a market basis, by issuing mortgage-backed securities. The mortgage bonds fulfil a major role in the economy of several European countries. In the euro area core countries there are typically no minimum requirements for the issuance of mortgage bonds, nevertheless the size of the portfolio is still around 5-10 per cent of GDP (e.g., Austria, Germany, France). In terms of the degree of mortgage bond financing, the Scandinavian and Mediterranean countries stand out: in these countries the portfolio of mortgage-backed securities may be as high as 20-50 per cent of GDP (e.g., Portugal, Spain, Sweden, Norway).[18] At present, this ratio in Hungary is well below the European average, merely around 3 per cent. As regards the regulatory stimulus for the financing of the mortgage loans by mortgage bond, there are two EU Member States, Denmark and Slovakia, to be highlighted.

In Denmark the regulation prescribing the issuance of mortgage bonds dates back almost two hundred years. The core activity of mortgage banks, which take up three quarters of the residential mortgage loan stock, may only be mortgage lending accompanied by the issuance of mortgage bonds,[19] whereas universal banks may also issue mortgage bonds since 2007.[20] The protection of investors is guaranteed, among others, by the requirements related to the mortgage, the loan-to-value ratio and the term of the loan, as well as the strong interconnectedness maintained between the mortgage bonds and the collaterals. The financing structure that evolved as a result of the requirements substantially reduces the risks arising from the maturity and currency mismatch, as well as the interest rate risk.[21] The

[17] Including also the required rollover of the liabilities expiring until 1 April 2017.
[18] Source: European Covered Bond Council, Eurostat.
[19] For more details see the Act on mortgage lending and mortgage bonds Bekendtgørelse af lov om realkreditlån og realkreditobligationer m.v.): https://www.retsinformation.dk/forms/r0710.aspx?id=173399.
[20] For further information regarding the legislative environment of mortgage bonds, see the 2016 edition of the Danish Covered Bond Handbook: https://www.rd.dk/PDF/Investor/Library/Danish%20Covered%20Bonds/DanishCoveredBondHandbook_270916.pdf.
[21] In respect of the developments and risks in the Danish mortgage finance market, see the IMF report on the Danish financial system (https://www.imf.org/external/pubs/ft/scr/2014/cr14349.pdf).

strong regulatory framework guarantees in Denmark efficient mortgage lending even by European standards, and an active mortgage bond market, also ensuring favourable interest rates on mortgage loans. At present Denmark has the second largest mortgage loan portfolio relative to GDP in the EU, while it is first in terms of mortgage bonds secured by residential property mortgage, preceding even Germany, a much larger economy. This also entails one of the lowest mortgage loan interest rate levels in the EU.[22]

In Slovakia, similarly to Denmark, a regulation prescribes the expected minimum ratio of mortgage bonds to be issued for the financing of mortgage loans. The Slovakian banking regulation, similarly to the example of Denmark, prescribes the minimum level of mortgage bond issuance in the form of statutory definition: a mortgage loan is a housing loan with a tenor between 4 and 30 years, secured by mortgage and financed at least in 90 per cent by the issuance of mortgage bonds.[23] It is an important feature of the Slovakian housing loan market that two-thirds of the housing loan portfolio comprises of loans not meeting certain parameters of the mortgage loans specified in the statutory definition, but extended under mortgage collateral, and it is not necessary to finance such loans by mortgage bonds.[24]

[22] Detailed data on the mortgage loans and mortgage bonds are available at the websites of the European Mortgage Federation (http://www.hypo.org/Content/default.asp?PageID=413) and the European Covered Bond Council (http://ecbc.hypo.org/Content/default.asp?PageID=519).

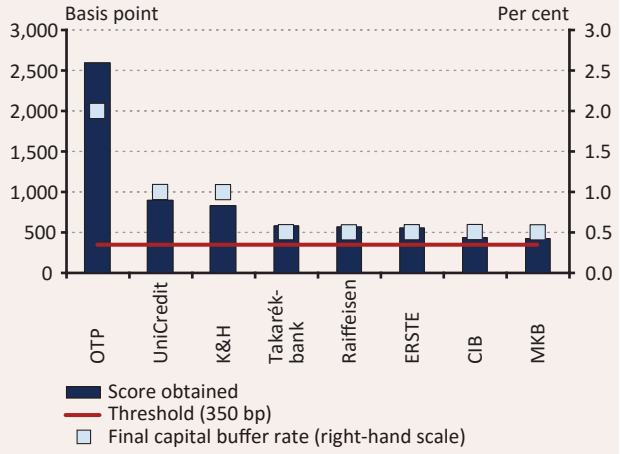
[23] According to the Slovakian regulation the 90 per cent may be reduced to 70 per cent in cases deemed justified by the central bank, a competence which was used by regulator during the crisis.

[24] For more information on the developments in the Slovakian mortgage loan market, see the European Commission's relevant report (http://ec.europa.eu/economy_finance/publications/eeeb/pdf/eb006_en.pdf).

6. Buffer for other systemically important institutions

One of the major lessons from the crisis is that certain financial institutions deserve special attention, due to their substantial weight in the financial system and in the financing of the real economy. This is because financial difficulties or bankruptcy at these institutions may – through contagion effects – significantly jeopardise the smooth operation of the financial intermediary system and may also indirectly generate whole economy problems. Institutions of priority status, counting on state aids from budgetary sources in a financial stress situation, are inclined to take excessive risks, which increases the probability of the occurrence of a future stress situation for them. In compliance with harmonised EU legislation, in December 2015 the MNB defined the group of important banks in the Hungarian banking system, and from 1 January 2017 it expects these banks to accumulate additional capital buffers. The primary objective of prescribing the capital buffer is to increase the loss-absorbency of the systemically important banks, which may help reduce the burdens arising from saving these institutions and make competition in the banking market more balanced. Hungarian banks are well capitalised, and thus the adjustment presumably will necessitate the accumulation of only a smaller volume of additional capital in 2017.

Chart 19
Banks classified by the MNB as systemically important (O-SII) and their capital buffer rates



Note: Based on the audited consolidated data of 31 December 2015. According to the EBA guidelines, credit institutions exceeding 350 basis points qualify as systemically important. The banks are required to reach the maximum capital requirement by 2020.
Source: MNB.

6.1. THE ADDITIONAL CAPITAL BUFFER SERVES TO STRENGTHEN SYSTEMICALLY IMPORTANT FINANCIAL INSTITUTIONS

The MNB identified systemically important institutions that are required to accumulate additional capital buffers. The MNB, in its capacity as macroprudential authority, prescribes additional capital buffers for systemically important institutions above the microprudential capital requirements from 1 January 2017. The MNB defines the group of these institutions annually and did so for the first time in 2015. As a result of the 2016 review, instead of the earlier nine systemically important institutions (O-SII), eight such institutions were identified[25] (Chart 19). This group of institutions is identified with the use of the standardised methodology published by the European Banking Authority.[26] The methodology has two components: the standardised methodology laid down in CRD and the optional supplementary methodology, tailored by national authorities to the domestic banking system. The standardised and the

[25] The EU regulation differentiates two types of systemically important institutions: Global systemically important institution (G-SII) and Other systemically important institution (O-SII). At present there is no global systemically important institution in Hungary.

[26] With a view to fulfilling its tasks arising from its lender of last resort function, the MNB used to identify the range of important institutions at the level of the financial system continuously, using its own methodology, already before the implementation of the regulation. It will perform this task in the future as well based on its own methodology, separately from the implemented European regulation, thus the range of institutions identified in its capacity as lender of last resort is not necessarily identical with the systemically important banks identified for the purpose of the European regulation.

Table 6
MNB methodology applied for the identification of other systemically important institutions

	Criterion	Name of the indicator	Weight
Basic methodology	Size	Total assets	20%
	Importance	Value of domestic payment transactions	20%
		Private sector deposits from depositors in the EU	
		Private sector loans to recipients in the EU	
	Complexity	Value of OTC derivatives (notional)	20%
		Cross-jurisdictional liabilities	
		Cross-jurisdictional claims	
	Interconnectedness	Intra financial system liabilities	20%
		Intra financial system assets	
		Debt securities outstanding	
Supplementary methodology	Supplementary indicators	Off-balance sheet items (credit facilities, guarantees)	20%
		Share in clearing and settlement system	
		Assets under custody	
		Interbank claims and/or liabilities (network analysis)	
		Market transaction volumes or values (network analysis)	

Source: MNB.

Table 7
Scheduling of the implementation of the O-SII buffer

Institution	Score (MNB methodology)	O-SII buffer rate			
		2017	2018	2019	2020
OTP	2 595	0,50%	1,00%	1,50%	2,00%
UniCredit	901	0,25%	0,50%	0,75%	1,00%
K&H	827	0,25%	0,50%	0,75%	1,00%
Takarékbank	582	0,125%	0,25%	0,375%	0,50%
Raiffeisen	574	0,125%	0,25%	0,375%	0,50%
ERSTE	553	0,125%	0,25%	0,375%	0,50%
CIB	440	0,125%	0,25%	0,375%	0,50%
MKB	430	0,125%	0,25%	0,375%	0,50%

Note: The scores were defined based on the audited consolidated data of 31 December 2015.
Source: MNB.

supplementary methodology together represent the methodology that is applied by the MNB (Table 6). Based on the calculated score, the MNB determines individual additional capital requirements for each institution identified as important, the rate of which may be calibrated between 0.5 and 2 per cent of the total risk-weighted exposure, in line with EU rules. The initial capital requirement was determined in the second half of 2016, considering the 2015 balance sheet data. The MNB opted for gradually increasing, four-stage implementation, and thus the banks must satisfy the full capital buffers identified individually by 2020 (Table 7).

The additional capital requirement improves shock absorbency, reduces the moral risk arising from priority status, but also generates extra costs. The long-term economic benefits of the additional capital requirement are likely to exceed the costs thereof. A positive expected impact of the measure is that the shock absorbency of the banks in question strengthens, and the probability of these banks' potential bankruptcy or of the occurrence of potential systemic problem through the contagion effects decreases substantially. The additional capital requirement also ensures that the owners bear a higher part of the potential losses of banks. This, on the one hand, reduces the potential need to use public funds to rescue the banks, and on the other hand, it encourages owners to take actions to reduce excessive risk-taking by banks. The buffer also has a levelling effect for competition by compensating the advantage of banks with implicit state guarantee compared to smaller competitors. Depending on its size, the buffer may also represent a counter-stimulus for important institutions for further expansion. However, the holding of the additional capital buffer may generate extra funding costs for these financial institutions, which may lower their profitability.

6.2. HUNGARIAN SYSTEMICALLY IMPORTANT INSTITUTIONS ARE WELL-CAPITALISED, AND THUS NO SUBSTANTIAL CAPITAL RAISING IS NECESSARY

The need for adjustment in Hungary presumably will not be substantial, as the banking system is well-capitalised. Based on the consolidated reports for the end of the first half-year of 2016, the aggregate free capital buffer of the institutions identified as O-SII is substantial, amounting to roughly HUF 780 billion. The anticipated maximum amount of the expected surplus capital to be accumulated additionally will be HUF 94 billion in 2017.

Box 6

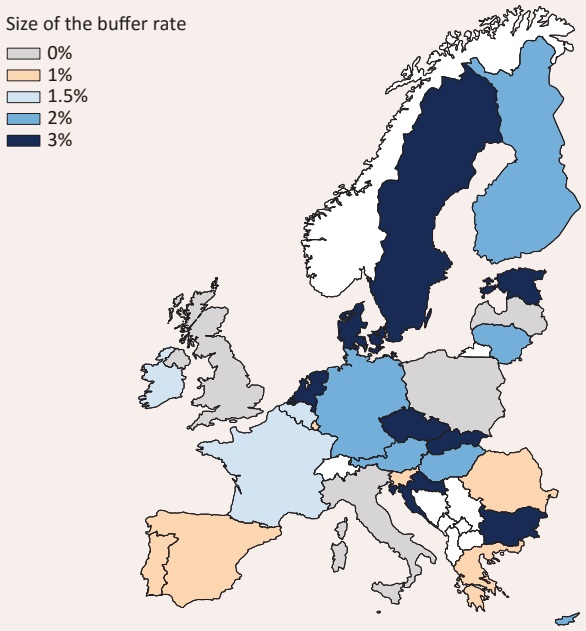
Capital buffers prescribed for systemically important institutions in the EU

Almost all EU Member States performed the identification of systemically important institutions, and most of them also prescribed additional capital requirement for these institutions. By the end of the first half of 2016, almost all competent authorities of the EU Member States performed the identification of the systemically important institutions in their jurisdiction. In most of the countries, these institutions are also required to hold additional capital buffers. This primarily meant the prescribing of the O-SII buffer; however, some of the Member States found the maximum permitted O-SII buffer rate of 2 per cent to be not sufficiently high for the management of this systemic risk. Where a capital buffer in excess of 2 per cent was prescribed, the systemically important institutions were typically subjected to the systemic risk buffer (SRB) (for more details, see Box 7).

Prescribing a high capital buffer for other systemically important institutions is typical in the Central and Eastern European region and in the Scandinavian countries. The majority of Central and Eastern European countries apply a 3 per cent SRB rate for the institutions concerned. The high additional capital requirement in the region may be attributable to the banking sector's important role in supporting the real economy, and to the openness of the economy. The Scandinavian member states also prescribed capital buffer rates higher than the European average, which is partially also attributable to the credit institution sector's substantial weight in the real economy. By contrast, in the euro-area core countries the typical capital buffer rates are between 0 and 2 per cent. On the other hand, the Mediterranean countries – citing the slow economic recovery – prescribed a low rate or do not apply such capital buffers at all.

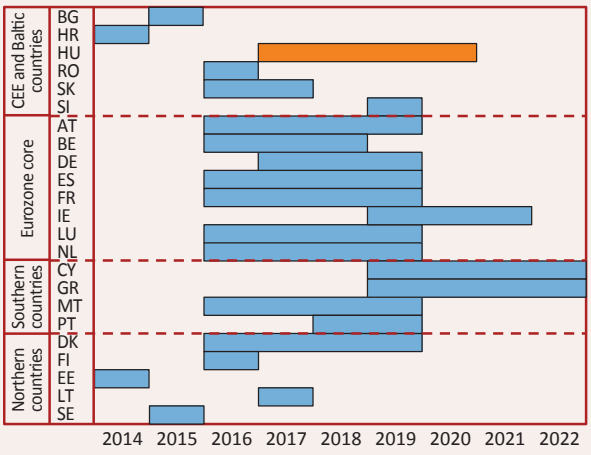
With a view to supporting lending and economic activity, several Member States opted for the gradual, deferred implementation of the buffer rates for systemically important institutions. In most cases, the Member States that start to apply the O-SII buffer from 2016 or in the subsequent years will raise the expected O-SII buffer rate gradually over a period of several years. In accordance with this, after the initial introduction, the expected O-SII buffer will reach its full rate in roughly 3 years on average. In several Member States, implementation will start only after 2016. The rationale behind this gradual implementation is that it may support lending activity, and it also leaves sufficient time for the institutions for a smooth adjustment.

Highest capital buffer rate (O-SII and/or SRB) imposed on the O-SIIs in the EU



Note: Bulgaria has not performed the identification, but rather prescribed an SRB of 3 per cent generally for all institutions. In Poland the identification of the institutions is in progress. The introduction of SRB is on the agenda in Romania.
Source: MNB, ESRB.

Periods of the gradual implementation of the O-SII buffer or of the SRB, applied for the substitution or supplementation of the first



Note: In those countries where both SRB and O-SII buffer apply, the scheduling of the instrument first introduced is shown.
Source: MNB, ESRB.

7. Systemic risk buffer

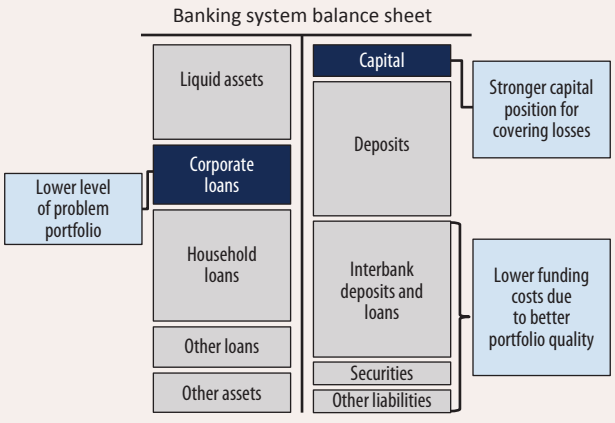
In Hungary, non-performing commercial property exposures represent one of the most important structural, systemic risks arising from excessive concentration. Problem exposures undermine bank profitability due to the low interest incomes, the tied-up resources and the microprudential capital requirement to be recognised for the portfolio, and they also carry the uncertainty of an ultimate loss. All of this results in restrained credit supply, thereby substantially limiting the banking system's sustainable contribution to economic growth. The high institutional and geographic concentration of the problem portfolio further exacerbates the systemic risk. The systemic risk buffer to be accumulated in accordance with the problem portfolio encourages banks to reduce problem exposures, while in the case of actors less active in portfolio cleaning it will increase their shock-absorbing capacity. The MNB announced its intention to apply the systemic risk buffer in November 2014, and in November 2015 it also published the detailed conditions of the instrument. The affected institutions must accumulate the capital buffer by 1 July 2017, based on the end-of-March 2017 figures. From the date of the announcement until mid-2016 the banking system reduced its problem exposure portfolio by roughly HUF 500 billion. Additional portfolio cleaning of about HUF 154 billion is necessary in order for the additional capital requirement not to be prescribed for any of the affected institutions.

Table 8
SRB capital requirements by the degree of the problem exposure

Problem portfolio as a proportion of the domestic Pillar I capital requirement	SRB rate
0.00 – 29.99 %	0.00%
30.00 – 59.99 %	1.00%
60.00 – 89.99 %	1.50%
Above 90.00 %	2.00%

Source: MNB.

Chart 20
Impacts of SRB in the banking system's balance sheet



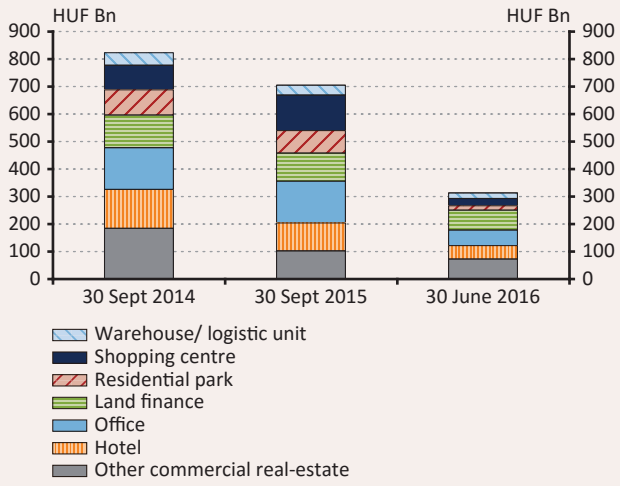
Source: MNB.

7.1. THE MNB APPLIES THE SYSTEMIC RISK BUFFER IN RESPECT OF PROBLEM COMMERCIAL PROPERTY EXPOSURES

The MNB prescribes a systemic risk buffer, to be accumulated by 1 July 2017, for problem commercial property exposures.[27] In the European Union's legislation, one of the key instruments for managing structural systemic risks is the systemic risk buffer (SRB). The permitted SRB rate essentially ranges between 1 and 3 per cent of the credit institution's risk-weighted exposure, by increments of 0.5 per cent, but in particularly justified cases a higher rate may also be prescribed subject to the European Commission's approval. The MNB determines the individual SRB requirement in accordance with individual banks' contribution to systemic risk, based on their domestic non-performing commercial property exposures relative to the domestic Pillar 1 capital requirement. When the ratio is over 30 per cent, the MNB prescribes an SRB rate of at least 1 per cent, while the highest, i.e. 2 per cent capital buffer must be met when the ratio is over 90 per cent (Table 8). Credit institutions with problem portfolios not exceeding HUF 5 billion are exempted from the requirement.

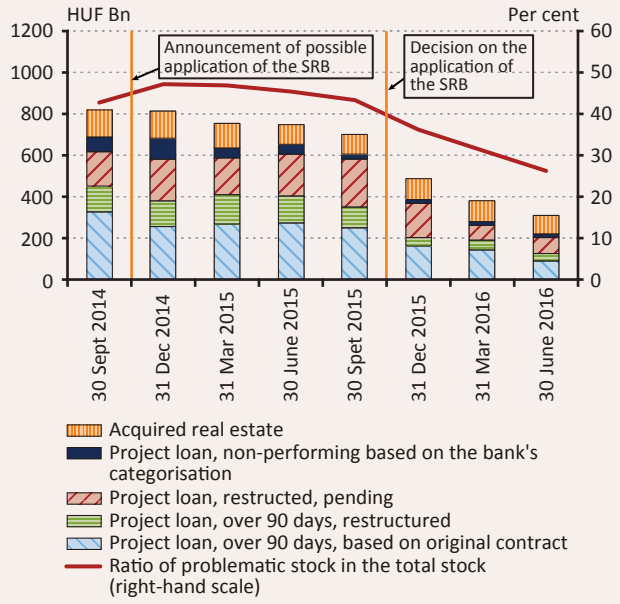
[27] The problem portfolio is the gross value of the domestic commercial project financing project loans and the acquired domestic real estate properties held-for-sale. Problem domestic commercial property financing project loans include the past-due loans over 90 days, restructured loans not yet performing in accordance with the contract and loans classified by the credit institution as non-performing.

Chart 21
Problem project loans and commercial real estate exposures by type of real estate collateral



Source: MNB.

Chart 22
Changes in problem project loans and commercial real estate exposures by the components of the SRB definition



Source: MNB.

The systemic risk buffer increases shock absorbency and encourages banks to clean their problem portfolio. The purpose of the prescribed additional capital is to cover future unexpected losses that may be realised on the portfolio, thereby ensuring that the additional write-downs do not significantly reduce the credit supply. The additional capital buffer increases the ratio of capital with higher expected return within the liabilities compared to other liability components, which increases funding costs. Accordingly, banks are encouraged to clean up their problem commercial property portfolio (Chart 20).

7.2. SINCE THE ANNOUNCEMENT OF THE INTRODUCTION OF THE SRB, THE AFFECTED DOMESTIC ACTORS HAVE UNDERTAKEN INTENSIVE CLEANING

Since the announcement of the measure, banks moved forward with substantial cleaning in their balance sheet. As a result, the portfolio of almost HUF 823 billion at the end 2014 Q3 fell by 62 per cent to HUF 311 billion by the end of 2016 Q2. The degree of the cleaning varied by institutions, but it was significant at the individual level as well. A major portfolio cleaning related to a resolution event also contributed to the decrease. The adjustment across the sector was implemented primarily by selling problem project loans rather than the capitalised properties (Charts 21 and 22).

Pending further balance sheet cleaning efforts, the capital buffer to be accumulated in 2017 may substantially decrease. In order to ensure that none of the credit institutions is required to accumulate an SRB, according to the end of 2016 Q2 data, further portfolio cleaning of a minimum of HUF 154 billion would be necessary across the sector.[28] The SRB calibration represents a further effective incentive for the adjustment even in the case of a substantially lower target portfolio.

[28] Upon portfolio cleaning, the domestic risk-weighted exposure and the Pillar 1 capital requirement may decline considerably, which means that the value of the indicator underlying the calibration of the SRB rate may increase. This indirectly may represent a larger need for adjustment than mentioned before.

Box 7

International and domestic features of the application of the systemic risk buffer

The SRB is primarily applied by Central and Eastern European Member States. Six of the ten Member States that introduced an SRB so far are Central and Eastern European countries, including Hungary. Two of the remaining Member State are Scandinavian, and the other two are euro-area core countries.

International practice shows that EU Member States use the SRB primarily for the early substitution of the O-SII buffer or to supplement its maximum rate of 2 per cent. It was introduced with this declared objective in some of the euro-area core countries, in Scandinavian countries and in the majority of Central and Eastern European countries, while Mediterranean countries do not apply this instrument at all. In addition, a large number of the Central and Eastern European countries that introduced SRB also considered the decrease in Pillar 1 capital requirements, resulting from EU legislation, as a justification for its application. As a result, in these countries the banks that do not qualify as systematically important institutions are also required to accumulate SRB. Hungary is the only EU Member State that introduces the instrument not in relation to a problem attributable to the systemic importance of a given institution, but to manage another structural systemic risk, which cannot be managed by other macroprudential instruments in a targeted manner. The restriction of the SRB to domestic exposures may be observed in Bulgaria, Hungary and Slovakia, i.e. in these countries the capital burden of the systemically important institutions may be substantially higher compared to the rest of the EU counties, as the respective institutions must accumulate the O-SII buffer and the SRB separately. In the case of the rest of the countries only the higher of the SRB or the O-SII buffer may burden banks.

International examples of the application of the systemic risk buffer

Reason for the implementation	**Country groups/countries**		
	Central and Eastern Europe	**Eurozone core countries**	**Scandinavian countries**
Early substitution of O-SII buffer and/ or complementing its maximum rates	Czech Republic, Estonia, Croatia, Slovakia	Austria, the Netherlands	Denmark, Sweden
of this in additional relation to the O-SII buffer	*Estonia, Slovakia*		
Capital requirement reducing effect of changes in CRD/CRR	Bulgaria, Czech Republic, Estonia, Croatia		
of this in additional relation to the O-SII buffer	*Bulgaria*, Estonia*		
Volume and concentration ratio of risky exposures (in additional relation to the O-SII buffer)	Hungary		

**The O-SII buffer has not yet been prescribed in Bulgaria, but the regulator has applied the SRB to domestic exposures, thus the two buffers should be added up.*
Source: ESRB, own collection.

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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