



# FINANCIAL STABILITY REPORT



2019  
MAY

*‘...a nation is strong where property and  
independence are guarded by free hands.’*

*Ferenc Deák*



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Financial stability is a state in which the financial system, including key financial markets and financial institutions, is capable of withstanding economic shocks and can fulfil its key functions smoothly, i.e. intermediating financial resources, managing financial risks and processing payment transactions.

The Magyar Nemzeti Bank's fundamental interest and joint responsibility with other government institutions is to maintain and promote the stability of the domestic financial system. The role of the Magyar Nemzeti Bank in the maintenance of financial stability is defined by the Central Bank Act.

Without prejudice to its primary objective – to achieve and maintain price stability –, the MNB shall support the maintenance of the stability of the financial intermediary system, the enhancement of its resilience, its sustainable contribution to economic growth; furthermore, the MNB shall support the economic policy of the government using the instruments at its disposal.

The MNB shall establish the macro-prudential policy for the stability of the entire system of financial intermediation, with the objective to enhance the resilience of the system of financial intermediation and to ensure its sustainable contribution to economic growth. To that end and within the limits specified in the Central Bank Act, the MNB shall explore the business and economic risks threatening the system of financial intermediation as a whole, promote the prevention of the development of systemic risks and the reduction or elimination of the evolved systemic risks; furthermore, in the event of disturbances to the credit market it shall contribute to the balanced implementation of the function of the system of intermediation in financing the economy through stimulating lending and by restraining lending it in the event of excessive credit outflow.

The primary objective of the Financial Stability Report is to inform stakeholders about the topical issues related to financial stability, and thereby raise the risk awareness of those concerned as well as maintain and strengthen confidence in the financial system. Accordingly, it is the Magyar Nemzeti Bank's intention to ensure the availability of the information needed for financial decisions, and thereby make a contribution to increasing the stability of the financial system as a whole.

The analyses in this Report were prepared by the Financial System Analysis Directorate, the department of Macroprudential Regulation, and the Financial Institutions Supervision Executive Directorate, under the general direction of Gergely FÁBIÁN, Executive Director for Financial System Analysis and Lending Incentives.

The Report was approved for publication by Márton NAGY, Deputy Governor.

The Report incorporates the Financial Stability Council's valuable comments and suggestions following its meetings on 9<sup>th</sup> April and 14<sup>th</sup> May 2019, and those of the Monetary Council following its meeting on 30<sup>th</sup> April 2019.

*This Report is based on information in the period to 8<sup>th</sup> May 2019. Since data frequency is divergent through the analyses, the analysis horizons may also alter.*



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## Executive Summary

**The shock-absorbing capacity of the Hungarian banking system continues to be robust. Banks' capital adequacy ratios indicate strong solvency, while the liquidity coverage ratio is also well above the regulatory requirements.** Based on the results of our methodologically developed solvency stress test, the institutions in the Hungarian banking sector would be able to meet the regulatory requirements even in the case of a severely adverse macroeconomic scenario.

In 2018, Hungarian banks **continued to expand their balance sheet, especially their outstanding loans vis-à-vis the private sector.** Corporate loans outstanding of credit institutions rose by 14 per cent during the year, while their household loans increased by over 7 per cent. The **favourable economic environment** and the **wide range of regulatory instruments** ensure that credit growth is occurring in a **balanced and sustainable way.**

**In order to foster the mitigation of households' interest rate risk, the MNB issued a recommendation to financial institutions. Furthermore, it launched the Bond Funding for Growth Scheme to support deepening of the bond market.** Due to the relatively high share of variable-rate loans, debtors in both the household and the corporate segment are sensitive to interest rate fluctuations. In the case of household loans, there is only a limited room for manoeuvre in reducing interest rate risk on a market basis on account of the high costs of refinancing, the inappropriate financial awareness of borrowers and the large share of those debtors who are not creditworthy. Therefore, the MNB issued a recommendation to financial institutions, pursuant to which they specifically target the most affected customers who have variable-rate mortgage loans, by making an offer to transition to a fixed-rate scheme with an amendment to the contract. In the corporate loan segment, the share of fixed-rate loans increased again for longer maturities, thanks to the Funding for Growth Scheme Fix. The further improvement in the corporate sector's resilience to crises as well as the opportunities for diversifying funds may be fostered by the Bond Funding for Growth Scheme, the central bank's programme aimed at deepening the bond market, in the coming years.

The Report gives a detailed account of the following major risks and developments influencing the Hungarian banking system.

**The uncertainty of the international macroeconomic environment has not decreased.** In early 2019, a slowdown in global economic growth was observed, affecting growth forecasts as well as the expected development of inflation and interest rate changes. Major central banks typically postponed interest rate hikes in the face of the changing economic environment, and therefore the low interest rate environment is now expected to be more persistent than previously forecasted. The downward shift in market expectations regarding developed country interest rates has also reduced the risk of capital flight from developing countries, yet the risks entailed by the low interest rate environment (over-indebtedness, asset price bubbles, less room for central bank stimulus) have become more pronounced. The greatest external risk faced by the Hungarian economy is the substantial slowdown of the economic growth in the euro area, specifically Germany, but the Hungarian economy is more resilient to shocks than before due to its strengthening fundamentals.

**The risk of overheating on the Budapest housing market has increased.** Property prices in the capital continued to increase during the year, achieving a 22.9 per cent annual growth rate by the end of 2018. Compared to the trough in the current housing market cycle at the end of 2013, housing prices have soared by 153 per cent in five years. The effect exerted by the potential overvaluation of the housing market on the banking system is mitigated by the fact that the price increases were not coupled with a considerable rise in the share of risky loans with a high loan-to-value ratio (LTV). The proportion of mortgage loans with an LTV of over 70 per cent relative to banks' own funds is at a fraction of the pre-crisis levels, both in terms of outstanding loans and new contracts. This suggests that a potential housing market shock would be less likely to create a negative, self-reinforcing spiral between the banking system and the housing market.

**The geographically heterogeneous pick-up in the property market helps only some of the delinquent debtors.** While house prices in the capital have skyrocketed in recent years, the property market has hardly recovered in certain parts of the country. Delinquent mortgage debtors in these areas are in an especially difficult situation, since selling their property does not typically offer them a way out of the default status. This problem may be alleviated by the "rural HPS" (Home Purchase Subsidy Scheme for Families) programme announced by the Government to support the property market in areas suffering from population loss. Although the issue of overdue loans is nowadays concentrated on the balance

*sheets of workout companies, which poses a limited risk to banks, the Report continues to focus on this in view of the social aspects of the phenomenon.*

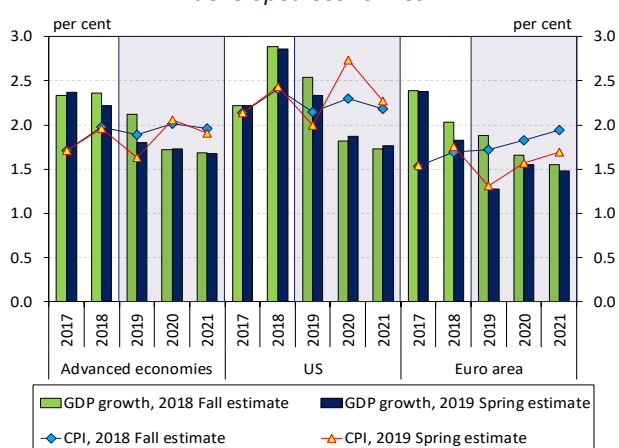
***The banking system's profits have dwindled compared to the extreme levels seen last year on account of the reversal of impairment losses.*** *Releasing write-downs has significantly boosted profits in recent years, but this process seems to have lost momentum by the end of 2018. The write-back of earlier reserves concealed the fact that banks' structural profits (which can be maintained in the long run) are considerably lower than in the past two years. Improving cost effectiveness is still considered to be crucial to boost sustainable profitability, and it may be greatly facilitated by cost-cutting measures (e.g. digitalisation, consolidation), as well as the expansion of credit.*

# 1 International macroeconomic environment. Decelerating growth, wait-and-see monetary policy

*Financial stability risks have not diminished since the publication of the previous report. At the same time, fears of a slowdown in global economic growth have strengthened. Due to the deteriorating growth outlook, central banks are typically postponing tightening. Geopolitical risks have not eased, while political risks continue to hinder structural reforms that have long been due in EU Member States. Capital flows to the emerging markets resumed in early 2019, but developed countries' monetary policy normalisation may have a major impact on capital movements affecting emerging economies – especially ones struggling with financial imbalances – and may strongly influence the sustainability of the current high level of sovereign and private debts.*

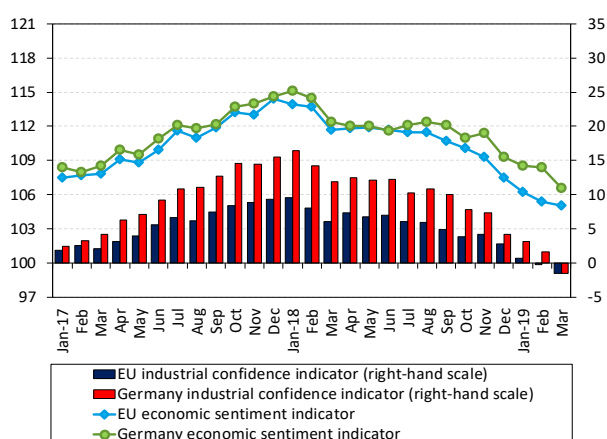
*European banks continue to face structural challenges, and a convincing turnaround in lending and the reduction of non-performing loan portfolios would be needed in several Member States. Due to the postponed monetary policy normalisation, structural problems and technological challenges, the pressure on banks' profitability will be high in the future as well, which may be further exacerbated by the expected fall in growth prospects. The most important external risk for the Hungarian economy is the considerable slowdown in economic growth in the euro area, and especially in Germany, although the robust fundamentals of the Hungarian economy increase the country's resilience to external shocks.*

Chart 1: Changes in the macroeconomic environment of developed economies



Source: IMF

Chart 2: Market expectations in the EU and Germany

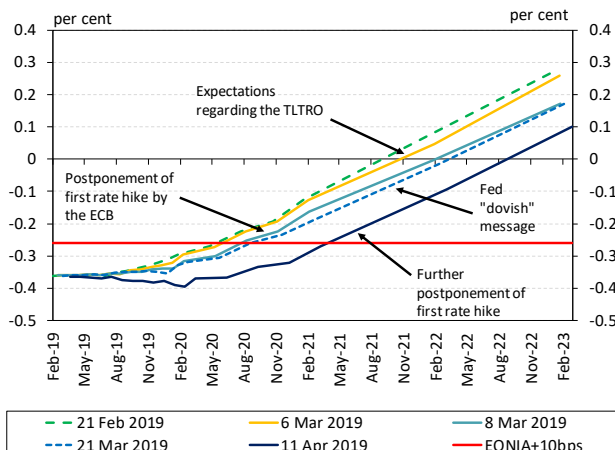


Note: Seasonally adjusted data, unadjusted for calendar effects. Source: Eurostat

## 1.1 Protracted monetary policy normalisation and decelerating growth prospects

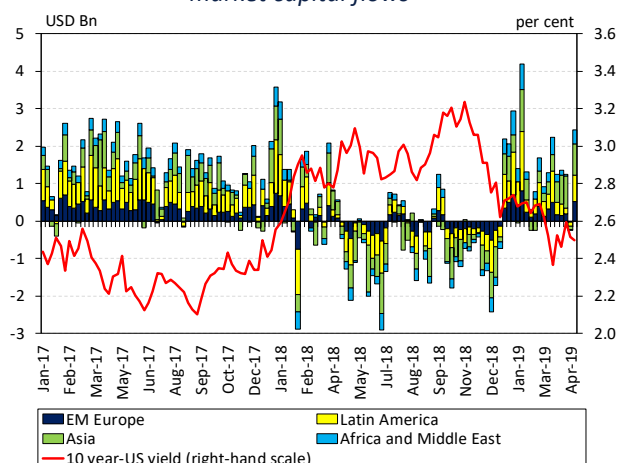
**Global growth prospects are surrounded by strong downside risks.** Although the beginning of 2019 had a favourable impact on investor sentiment in various respects (e.g. the closing of the debate on the Italian budget, the Fed's statements in a dovish tone, the cease-fire in the trade conflict between the US and China), in their latest forecasts, the European Commission, the OECD and the IMF revised their respective global growth estimates downwards (Chart 1). The deterioration in growth prospects is attributable, *inter alia*, to the stronger-than-expected setback in the German automotive industry, the Italian and Turkish economies' slipping into recession, the continuous uncertainty related to the Brexit, the current trade tensions between the US and China, the sustainability risks of sovereign and private debts, as well as the stronger-than-expected deceleration in the Chinese economy and the ensuing risks (weakening demand, expansion of the shadow banking system). In addition, concerns about flagging economic growth in the US are also strengthening: recently, the US yield curve has inverted on several occasions, which previously was typically observed one or two years prior to the US slipping into recession. The impact of accelerating technological innovations on market structure and growth is also uncertain: adaptation of the business models of established, possibly less flexible market participants may be too slow or may not even take place, while new entrants' longer-term prospects may be impaired by their excessive risk-taking, and

Chart 3: Evolution of the EONIA forward curve



Note: The EONIA is the overnight interbank interest rate of the euro zone. The EONIA + 10 bps line indicates the point in time by which the market prices a 10 basis point higher level from its current level (i.e. when the forward curve intersects this level). This is consistent with the assumption that the first interest rate hike will be 10 bps. Source: ECB

Chart 4: Evolution of 10-year US yields and emerging market capital flows



Note: EM Europe indicates a wider region than the CEE countries. Source: EFPR

their market valuation is also more difficult. The uncertainty of growth prospects is well reflected by the decline in economic sentiment indices (Chart 2).

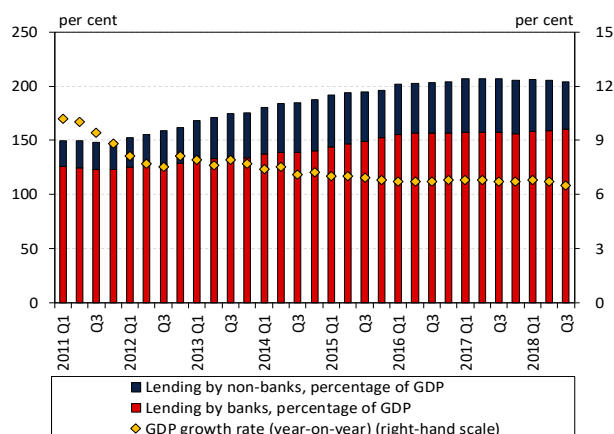
### Due to the increasing uncertainty and worsening growth prospects, several central banks are taking a “wait-and-see” attitude on monetary policy normalisation.

The uncertainty surrounding economic prospects is coupled with lower-than-expected inflation both in the euro area and the US. The ECB left its policy rate unchanged both in March and April. According to the ECB’s expectations, the rate of inflation will remain below 2 per cent over the forecast horizon; therefore, it intends to keep the base rate unchanged until end-2019. In parallel with the central bank steps, market expectations concerning yields also have changed: at present, market participants expect the first hike in the spring of 2021 (Chart 3). Considering the global economic and financial developments as well as the lower-than-expected inflation data, at its March and May interest rate-setting meetings the Fed also decided to leave the level of base rate unchanged and to continue its patient monetary policy attitude. In the opinion of most market participants, the probability of interest rate hikes continuing is falling in the US: the market does not expect any rate hike this year, and the number of participants pricing in interest rate cuts for next year has increased. In the spirit of cautious monetary policy stance, the Polish, Romanian, Japanese, English, Canadian, Swiss and Swedish central banks, among others, decided to keep their respective rates unchanged.

### Monetary policy normalisation in developed countries may have a strong impact on developing countries’ capital flows.

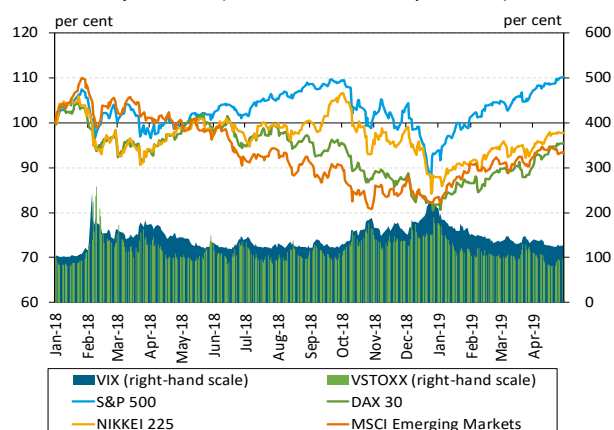
Monetary policy tightening in the US had a significant effect on global money and capital market trends in 2018 (Chart 4). As a result of the rise in USD interest rates, monetary conditions in emerging countries became relatively looser: developed countries’ market yield increases and the appreciation of the US dollar had an unfavourable effect, especially on the countries with less stable macroeconomic fundamentals. Capital withdrawals affected mainly Asia, while the CEE region was less shaken by market turbulences, due to its sound fundamentals. Hungary maintained its ability to attract capital during the whole year. In early 2019, partly as a result of a change in monetary policy expectations, the balance of emerging market capital flows became positive. Nevertheless, capital movements affecting developing markets continue to be sensitive to developed countries’ interest rate policies, and these risks may again be realised if the normalisation of monetary policy starts again, with particular regard to

Chart 5: Bank and non-bank lending to the private non-financial sector and the economic growth in China



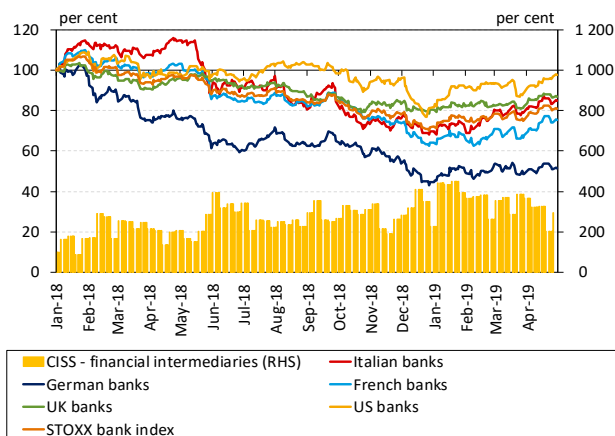
Source: BIS, OECD

Chart 6: Evolution of main composite indices and volatility indices (1 Jan 2018 = 100 per cent)



Note: The value of the VIX (VSTOXX) index is calculated at the Chicago Board of Options Exchange (European Options Exchange) and shows the market's expectation of the development of volatility for the next thirty days. Source: Thomson Reuters Datastream

Chart 7: Evolution of composite banking indices and the financial intermediaries stress indicator (1 Jan 2018 = 100 per cent)



Source: Thomson Reuters Datastream

countries that struggle with financial imbalances and have weaker macroeconomic fundamentals. Cautious investor behaviour is indicated by the fact that capital typically flows into USD- or EUR-denominated emerging funds, while the ability of local currency funds to attract capital is weak. Although the low interest rate environment had a favourable impact on emerging market capital flows, it entails serious global risks, as it increases the probability of the formation of asset price bubbles, may encourage excessive borrowing, and narrows central banks' scope for action in case of a downturn.

**The lower-than-expected growth in China also contributes to the downside risks.** The growth of the Chinese economy is slowing down (Chart 5). The factors jeopardising the country's economic prospects include, *inter alia*, the trade war with the US, the efficiency problems of large state-owned corporations and corporate indebtedness (the latter is high in international comparison as well). The government intends to stimulate economic growth by significant tax cuts, infrastructure investment and by supporting lending to small enterprises, but it may pose a risk that – although the regulators took strict actions against the expansion of the Chinese shadow banking system in the past – according to analysts they may have to ease rules in order to stimulate the economy. The lower-than-expected growth in China may have a negative impact on commodity-exporting emerging countries and the euro area as well (in particular the export-oriented German economy due to the decline in car imports).

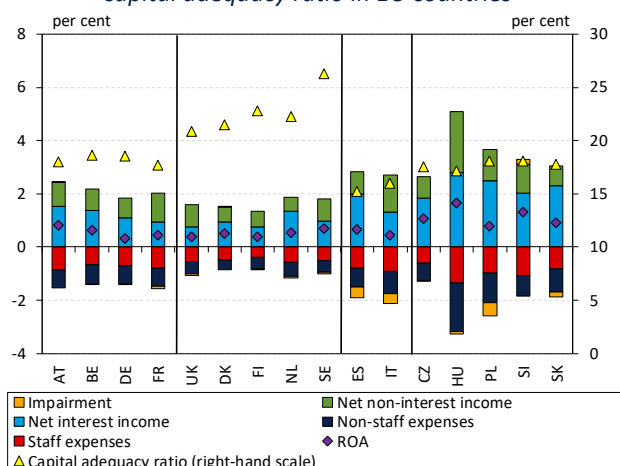
**Global uncertainty is reflected in the changes in stock market indices.** The major fall in stock indices and the rise in volatility indices were good indicators of investors' waning risk appetite at end-2018 (Chart 6). Although indices partly adjusted in view of the more favourable news at the beginning of the year, the persistence of the risks is well reflected by the fact that the indices of both Germany and the emerging countries are still below their levels observed in early 2018.

## 1.2 Despite gradual improvement, stability risks in EU banks are significant

**For European banks, 2018 was one of the weakest years since the crisis, based on their stock market performance.** Banks faced various challenges last year, which significantly restrained their stock market performance, and this was also reflected in the slight rise in the stress index affecting financial intermediaries (Chart 7). Investors' concerns regarding the sustainability of the Italian government

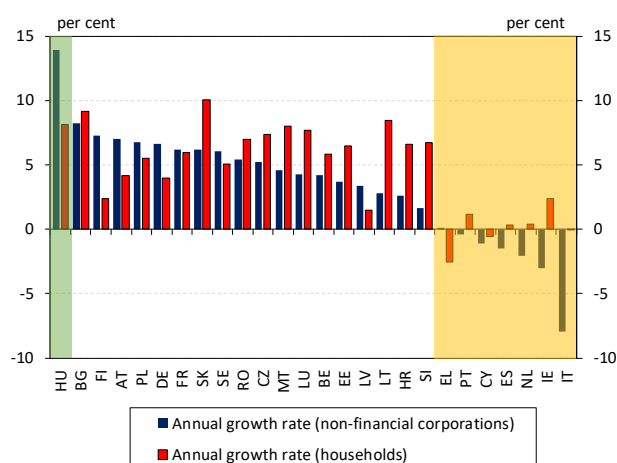


Chart 8: Components of the return on asset and the capital adequacy ratio in EU countries



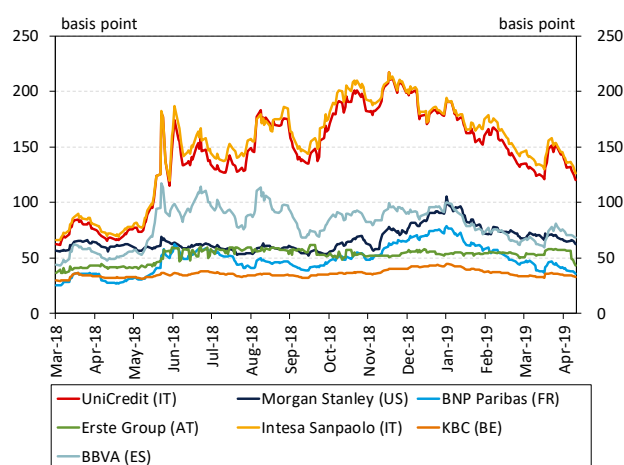
Note: 2018 Q3 data. Source: ECB

Chart 9: Transaction-based annual credit growth in EU Member States in 2019 March



Source: ECB

Chart 10: CDS spread on selected banks' five-year senior debt



Source: S&P

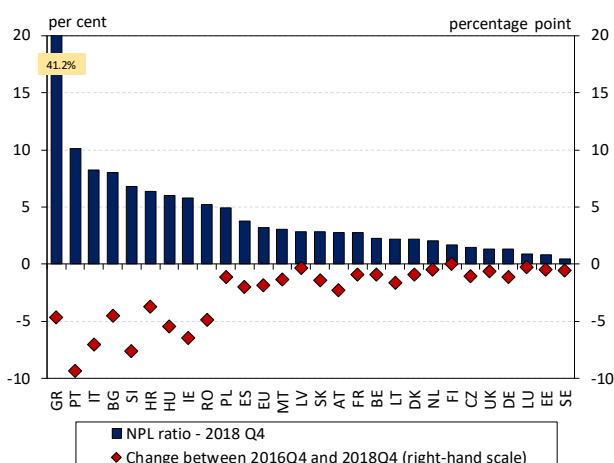
debt affected the banks with high exposures to Italy, while the Turkish currency crisis primarily had an impact on banks with large Turkish exposure. Meanwhile, the deteriorating growth prospects, the high sovereign exposure, banks' low cost-effectiveness, money laundering scandals and balance sheet challenges (increase in profitability, reduction of non-performing loans) affected a wider scope of the European banking sector.

**Banks' shock absorbing capacity is adequate, but profitability still faces challenges.** The capital position of EU banks is still stable, but their profitability is not improving: according to the EBA's data, European banks' return-on-assets (ROA) reached 0.5 per cent in 2018 Q3, which essentially represents stagnation compared to the same period of the previous year. In addition, EU banks' cost-to-income ratio also increased, reaching 63.2 per cent in 2018 Q3, compared to 61.7 per cent in the same period of the previous year. Strong heterogeneity is observed across country groups: while banks in the northern countries have low operating cost levels, in the case of the banks in CEE countries higher (interest) incomes covering higher expenses are seen (Chart 8). At the same time, on average, stagnation in interest incomes is experienced in the EU, due to the low interest rate environment and the strong competition. Moreover, interest incomes will presumably remain under pressure due to the expected postponement of the ECB's base rate hike. At the same time, from the cost side, adjustment in the short run is made difficult by technological challenges (compliance with digitalisation, the necessity of IT investments).

**Apart from the Mediterranean countries, lending is expanding in the EU.** In parallel with economic growth, the gradual cleaning of banks' balance sheets and more favourable labour market situation, there is an upswing in lending in most of the EU Member States. At the same time, loans outstanding continue to decline in the Mediterranean countries, the Netherlands and Ireland (Chart 9), partly in view of the still significant non-performing portfolio and its cleaning.

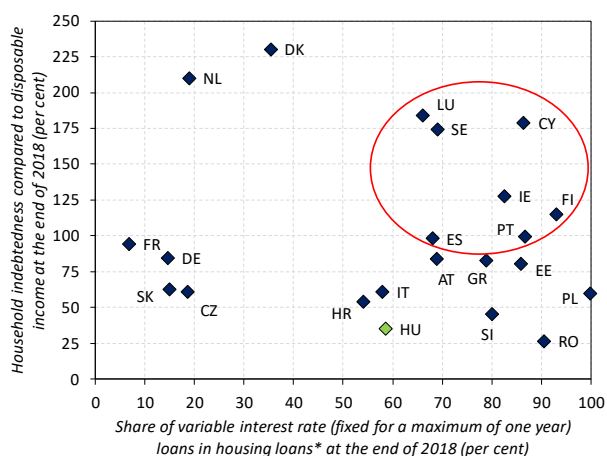
**The ECB's newly announced longer-term refinancing operation may ease the problems of the banking sectors that are struggling with liability-side tensions.** In order to support lending, on 7 March 2019 the ECB announced a new Targeted Longer-term Refinancing Operation (TLTRO-3). Within its framework, between September 2019 and March 2021, the banks participating in the programme may receive longer-term loans at a favourable interest rate up to 30 per cent of their total loans outstanding as at 28

Chart 11: Ratio of non-performing loans in European countries



Source: EBA

Chart 12: Share of variable-rate housing loans and household indebtedness in the EU



Note: Household indebtedness refers to 2018 Q3 data; 2016 data for CY, EE, HR, SK, and 2017 data for HU. \* In the case of CZ, DK, FI, IE and SE the share of variable-rate housing loans refers to loans outstanding in 2018 Q3, while in the case of HU it shows the December 2018 portfolio; the average of the monthly new variable-rate housing loan issues in the years between 2008 and 2018 for the other countries. Source: ECB, EMF, MNB, OECD

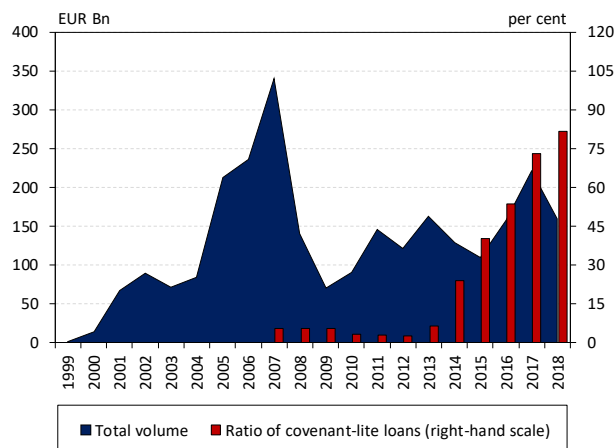
February 2019. The first maturities of the TLTRO-2 only fall on June 2020, but the residual maturities of these refinancing loans will soon be less than one year, and thus these amounts may no longer serve as collateral in banks' liquidity management. Accordingly, some institutions may be compelled to involve longer-term – and probably more expensive – funds. Moreover, the repayment of expiring loans may reduce banks' lending capacities. 35 per cent and 24 per cent of the EUR 740 billion financing drawn within the framework of the TLTRO-2 is related to Italian and Spanish banks, respectively. Therefore, the introduction of the TLTRO-3 may mainly help the banking sectors of these two countries, at present especially the Italian banks which can obtain funds from the market only at relatively higher prices (Chart 10).

**Banks' asset quality shows an improving trend.** The ratio of non-performing loans is decreasing in practically every EU Member State, as a result of which the EU average fell to 3.2 per cent in December 2018, from 5.1 per cent two years earlier. Nevertheless, in certain Member States (mainly in the Mediterranean countries), in spite of the strong balance sheet cleaning by banks, non-performing portfolios are still high, and their reduction may be difficult for banks in view of the uncertain growth prospects (Chart 11). Both the European Commission and the ECB emphasised the need for more effective cleaning several times.

**In a rising yield environment, a high share of variable-rate loans may pose a risk.** Although monetary policy normalisation is slower than expected, with a sudden rise in yields, interest rate risks may materialise in variable-rate household loans, which may result in repayment difficulties and an increase in the default rate. The share of variable-rate housing loans is still relatively significant in some of the member countries (Chart 12). It may be a problem primarily in those countries where household indebtedness is high (e.g. Finland, Cyprus, Portugal and Ireland).

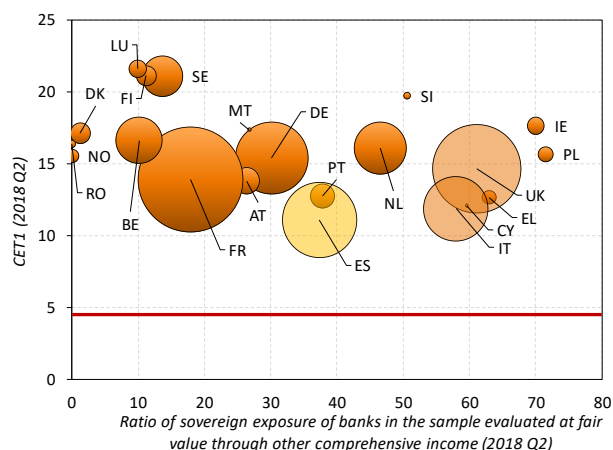
**The composition of corporate loans outstanding is worsening in terms of customer quality in Europe.** In parallel with improving asset quality, in recent years the share of risky, so-called leveraged loans<sup>1</sup> has increased, which may have been the result of both the low interest rate environment and the increasing competition as well (Chart 13). Moreover, according to EBA data, the ratio of so-called covenant-lite<sup>2</sup> loans is increasing. While in 2007 the share of these loans was only 5 per cent, in 2018 it already exceeded 80 per cent.<sup>3</sup> Moreover, the ratio of covenant-lite loans primarily increased among debtors with a low (B–) credit rating. The IMF also points out the deterioration in

Chart 13: Leveraged corporate loans in the EU



Source: Bloomberg, EBA

Chart 14: CET 1 capital and the share of banks' sovereign exposure valued at fair value against equity



Note: Based on 2018 Q2 data. The size of the bubble is proportional to the size of banks' sovereign exposure (EUR million). The red line indicates the regulatory minimum. Source: EBA Transparency Exercise, December 2018

Table 1: Distribution of government securities issued by selected EU Member States

	Government bonds (by issuing country)						
	BE	FR	DE	IT	PT	ES	UK
Total %	100	100	100	100	100	100	100
Belgium	35.4	2.1	3.2	6.2	6.9	2.1	3.3
France	24.9	81.6	7.8	13.7	5.5	4.6	5.5
Germany	4.3	2.1	56.8	6.5	4.2	2.7	6.4
Italy	1.0	1.7	5.7	53.5	1.3	9.7	0.1
Portugal	0.0	0.1	0.1	0.9	54.4	1.6	0.0
Spain	0.4	0.7	0.4	9.9	21.7	72.7	4.8
UK	6.6	4.0	9.2	3.3	2.2	1.8	57.7
Other countries	27.3	7.8	16.8	6.0	3.8	4.8	22.2

Note: Based on 2018 Q2 data. Source: EBA Transparency Exercise, December 2018

corporate creditworthiness: the institution emphasises that in the US and the euro area the ratio of risky corporate bond issuers (with a BBB– or lower credit rating) was 51 per cent in 2007, increasing to as high as 63 per cent by 2018.<sup>4</sup>

**The strong sovereign–bank nexus may pose risks mainly for banks with a weak capital position.** A possible increase in yields (price decline) would reduce the value of the government securities in banks' books. This may cause difficulties especially for the banks in countries with a lower CET1 rate: according to the EBA's 2018 Transparency Exercise<sup>5</sup> carried out with the participation of 130 banks, in case of Spain, Italy and the United Kingdom a relatively larger part of the relatively high government securities portfolio is valued at fair value against equity, with a lower average CET1 rate (with high deviation, an average 34 per cent of the sovereign exposures of the banks in the sample is valued this way). While in the case of the United Kingdom it reduces the risks that one third of the portfolio valued at fair value has a maturity of up to one year, and only 28 per cent of it has residual maturities exceeding 5 years, while in the case of Spanish banks it is the other way around. Their vulnerability is increased by the fact that more than half (56 per cent) of the securities mature after 5 years and only one fifth mature within one year (Chart 14).

**Banks are also sensitive to changes in the yields of foreign government securities.** The EBA Transparency Exercise also revealed that banks typically own domestic government securities (home bias), but significant cross-ownership is also seen: for example, Italian securities may be found in French and Spanish banks' books, while Spanish securities are in the books of Italian banks (Table 1). Moreover, experience shows that the CDS spread of banks with high exposure to countries with high government debt comoves with these countries' CDS spread as well, which may make borrowing more expensive for these institutions.

<sup>1</sup> According to the ECB's guideline, loans of this kind include all exposures where the borrower's total debt stock together with the loan is more than four times the EBITDA and/or where the borrower is in the hands of one or more private capital investors.

<sup>2</sup> In the case of these loans, creditors require less security (e.g. lower income level, less coverage) from the borrower.

<sup>3</sup> EBA Risk assessment of the European banking system, December 2018.

<sup>4</sup> IMF Global Financial Stability Report, April 2019.

<sup>5</sup> EBA 2018 EU-wide transparency exercise results (<https://eba.europa.eu/risk-analysis-and-data/eu-wide-transparency-exercise/2018/results>).

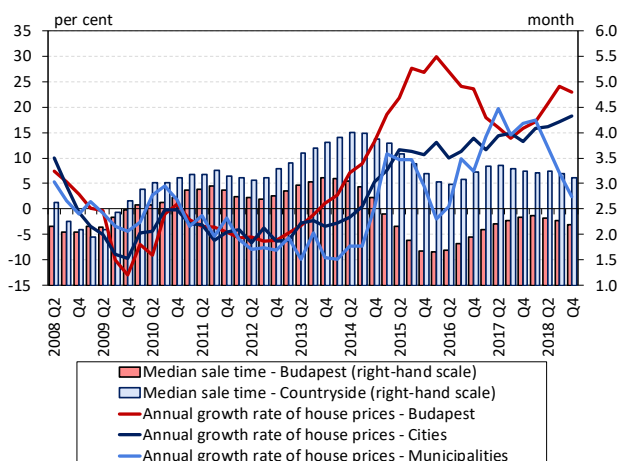


## 2 Real estate markets. The pick-up in the housing market does not pose a substantial risk for banks

Prices and the number of sale and purchase transactions continued to increase in the Hungarian housing market in 2018. As a result of the buoyant demand, in the capital the annual growth rate of housing prices accelerated to 22.9 per cent by the end of the year, leading to a further opening of the price gap between Budapest and the countryside. According to our estimate, housing prices already exceed the level justified by the fundamentals not in the country as a whole yet, but in the capital; the risk of overvaluation increased further. The risks stemming from the excessive upswing in the housing market may spill over into the banking sector through outstanding loans if banks extensively finance properties located in overvalued areas at high loan-to-value ratios (LTV). Current developments suggest that signs indicating excessive risk-taking have not yet developed in lending for housing.

In 2018, the domestic commercial real estate market was characterised by strong demand for leases, resulting in a decline in vacancy rates and a rise in rents in all segments. The remarkable demand activity is best illustrated by the developments in the office market, where the vacancy rate declined despite high volumes of new completions. Investment turnover in 2018 slightly exceeded the volume for 2017, in parallel with a 25-basis point drop in prime yields. Looking ahead, the shortage of real properties suitable for investment may be a determining factor in the market.

Chart 15: Annual growth rate of housing prices by type of settlement and the median sale time



Source: MNB, housing agent database

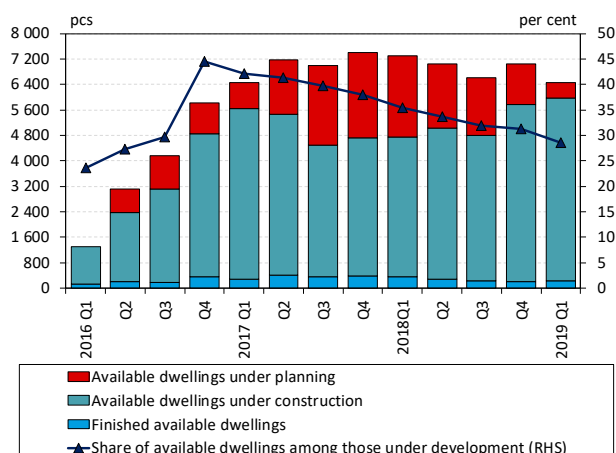
### 2.1 Supply cannot keep up with the strong demand in the Hungarian housing market<sup>6</sup>

**While demand was buoyant, the price dynamics of housing prices in Budapest accelerated in 2018.** A further upswing was observed in the domestic housing market in 2018: the number of housing market transactions was 6.4 per cent higher than one year earlier, while housing prices in the country as a whole rose by 15.2 per cent on average. The price gap between the capital and the countryside opened even wider during the year. Annual housing price appreciation in Budapest accelerated from 15.8 per cent in 2017 to 22.9 per cent in 2018, and the annual increase measured preliminarily for 2019 Q1 amounts to 20.5 per cent. In parallel with that, annual price appreciation in villages decelerated to 2.3 per cent by end-2018. Demand in the housing market is increased by the stable, 5.5 per cent growth in real incomes and the low, 3.4 per cent unemployment as well as by favourable financing costs and investors' interest due to the low yield environment. The buoyant demand conditions are also well reflected in the typical sale time as well, which were declining during the year (Chart 15).

**The supply of new homes cannot keep up with the high demand. Moreover, a decline is expected in construction starting from 2020.** At end-2018, the VAT issue of new

<sup>6</sup> The MNB's [Housing Market Report](#) contains a detailed analysis of housing market developments.

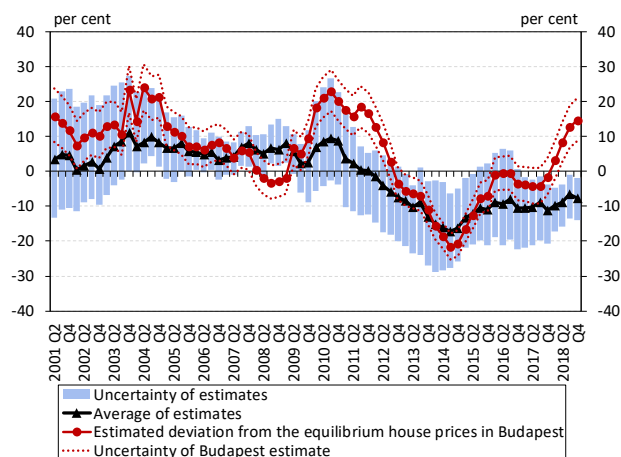
Chart 16: Number and ratio of vacant homes among new homes under development in Budapest



Source: ELTINGA – Housing Report

housing was clarified. Accordingly, developers which had final building permits on 1 November 2018 may sell the properties at the preferential 5 per cent VAT rate. Uncertainty prior to the decision and the higher VAT rate following the decision are factors that reduce the willingness to start new housing development projects. Compared to the previous year, the number of building permits issued already fell by 3.4 per cent in 2018. Looking ahead, an indication of the narrowing supply is that housing developers plan to deliver 14.6 thousand new homes in 2019, but only 5.9 thousand homes in 2020, corresponding to a drop of 59 per cent in the planned supply in one year. The tightening of energy conservation requirements from 2021 may also reduce the number of new housing projects to be launched in 2019 and 2020. In addition, the tightness of the supply side compared to demand is well reflected by the fact that among the new flats that are currently being developed in the capital both the number of available homes and their share are declining steadily. In 2019 Q1, buyers of new homes in Budapest could choose from 6,463 flats compared to 7,039 at end-2018 (Chart 16).

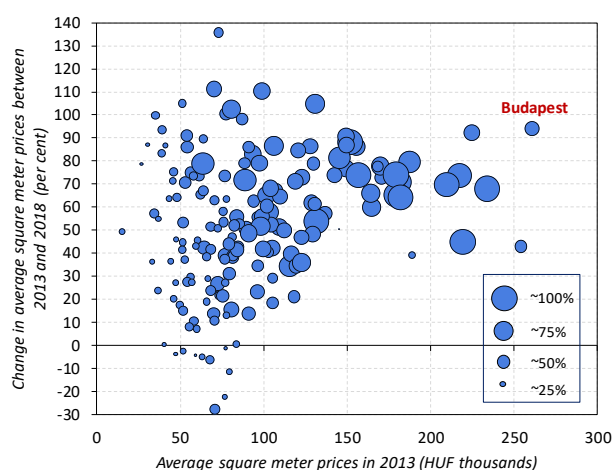
Chart 17: Deviation of house prices from the level justified by fundamentals, nationally and in Budapest



Note: For the detailed methodology see: Magyar Nemzeti Bank, Housing Market Report, November 2018. Source: MNB

**The risk of overvaluation of residential properties in the capital continued to rise.** In 2018, on a national average the housing price gap, i.e. the deviation of housing prices from the level justified by economic fundamentals, closed to some extent, in parallel with the continued increase in housing prices. Looking at the country as a whole, domestic housing prices are still below that level. In Budapest, however, housing prices moved even further away from the level justified by fundamentals (a deviation of some 15 per cent can be measured, Chart 17). All of this means that according to the estimated model, housing prices rose to a greater degree in the capital than what would have been justified from the demand side by the improvement in households' income and the change in labour market situation jointly. On the whole, the risk of overvaluation of residential properties continued to increase in Budapest, although it is worth adding that the indicator had already been at a higher level previously. The fundamental level of housing prices in Budapest may be affected by other variables as well, which were not used in the model. The number of guest nights in the capital rose from a monthly 1.7 million in 2008 to 2.7 million by 2018. Accordingly, for example the major expansion in tourism results in a steady rise in demand in Budapest mainly through short-term renting of flats.

*Chart 18: Level of average square meter prices in 2013 and its relative change between 2013 and 2018, and the ratio of mortgage loans to housing transactions in rural and urban districts*



Note: The width of the bubbles is proportional to the quotient of the new 2018 mortgage loan contracts (including loans for renovation purposes) and housing market transactions.  
Source: MNB

*Table 2: Distribution of mortgage loans contracted in 2018 according to the upturn in the housing market of the given rural or urban district and the LTV ratio*

%		LTV ratio					Total
		below 50%	50-60%	60-70%	70-80%	above 80%	
Change in average prices of square metres between 2013 and 2018	increased by more than 100%	3.6	1.5	1.9	3.1	0.5	10.6
	increased by 75-100%	19.3	7.3	9.1	14.5	2.9	53.2
	increased by 50-75%	6.8	3.0	4.1	6.1	1.1	21.2
	increased by less than 50%	4.6	2.1	3.1	4.4	0.8	15.1
	Total	34.3	13.9	18.2	28.1	5.4	100.0

Note: Distribution based on contract amount, values above 80 per cent are possible due to refinancing activity. Based on rural and urban districts according to the location of collateral.  
Source: MNB

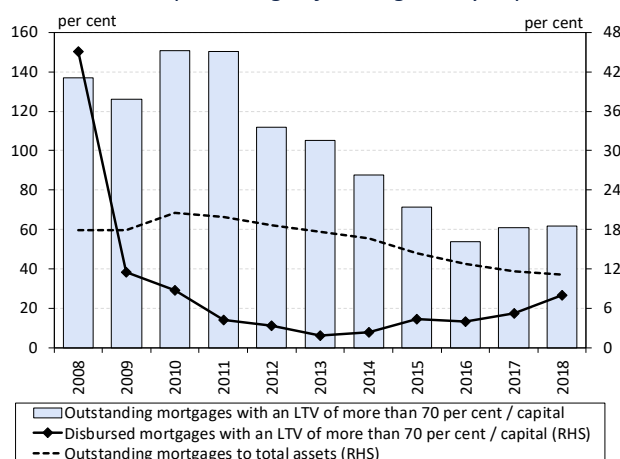
Certain elements of the demographic package<sup>7</sup> announced by the government may contribute to rising demand in the housing market. The so-called 'prenatal baby support' provides financing of a maximum of HUF 10 million for young families; it can be spent upon the discretion of the beneficiaries. Based on the magnitude of the subsidy, it cannot be excluded that it will be widely used for housing purposes. In addition, the significant increase of the amount of subsidy of the Home Purchase Subsidy Scheme for Families (HPS) in small settlements may result in a shift in demand towards these areas. In village HPS settlements, the typically low value of transactions (in 2017 and 2018, 43 per cent of the transactions of residential properties above 90 square metres were below HUF 10 million) and the 21 per cent share in the transactions suggest that the new amounts of subsidy may significantly stimulate demand, thus boosting housing prices, which are much lower than the national average. Presumably, there is a correlation between the population decline in the small settlements concerned as well as the less favourable location and supply with infrastructure, which, however, may be an obstacle to a considerable rise in demand for housing.

Mortgage lending typically plays a larger role in the financing of transactions in areas where housing prices are higher. One of the characteristics of the housing market cycle starting from 2014 is that housing prices typically increased to a larger degree in the more expensive areas, for which Budapest is the best example. In addition, it is also observed that the ratio of the number of mortgage loans to housing market transactions is typically higher in the more expensive rural and urban districts (Chart 18). Firstly, this may be because in the case of higher housing prices households' need for financing from banks is higher. Secondly, banks are also presumed to be more willing to finance better located properties, which are therefore more expensive (and of higher quality), and thus are easier to sell. Budapest is an exception from the above correlation, presumably because of the wide range of those who purchase from their own sources with an investment objective.

Higher riskiness is typical in around one quarter of the mortgage loan contracts concluded in 2018, in view of the LTV that is close to the regulatory limit and the considerable upswing in the housing market. Within new mortgage

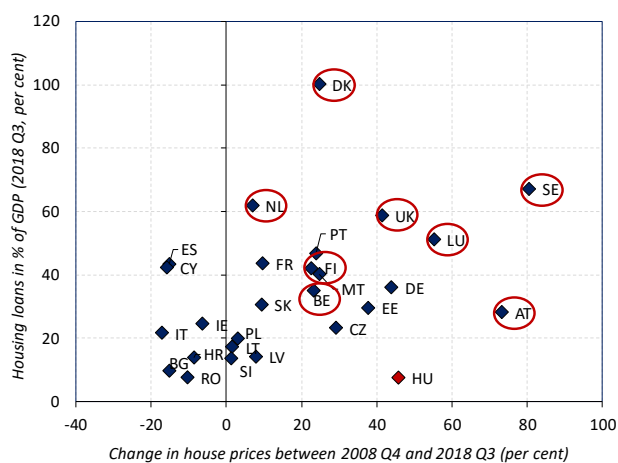
<sup>7</sup> Government Decree 44/2019 (III. 12.), Government Resolution 1110/2019 (III. 12.) and Government Decree 46/2019 (III. 12.). Link: <https://magyar-kozlony.hu/dokumentumok/8df1cd00eb92a1a572206a7d837511ec6bc27ed4/megtekintes>

Chart 19: Mortgage loans with LTV exceeding 70 per cent, as a percentage of the regulatory capital



Source: MNB

Chart 20: Changes in housing prices after the crisis and housing loans outstanding as a percentage of GDP in a European comparison



Note: The countries warned by the ESRB in 2016 because of housing market risks are circled in red. Source: MNB, Eurostat and ECB

loan contracts, a layer can be identified where the LTV ratio of the contract is close to the regulatory limit, and the location of the collateral was characterised by significant housing price increase in the current cycle. 24 per cent of the 2018 contract volume may be classified into this category, which involves higher risks in terms of the conditions of the loans as well as the local conditions of the housing market (Table 2). Looking ahead, it will be especially important to monitor the segment of loan agreements that is characterised by risky credit conditions, and the agreements are concluded under particularly buoyant housing market conditions.

**The low proportion of mortgage loans with high loan-to-value ratio limits the impact of a housing market shock on the banking sector.** If coupled with risky lending, overvaluation of the housing market may make credit institutions more vulnerable. In the case of a negative price shock, banks would suffer losses on loans with high loan-to-value ratios due to an increase in the expected loss given default. A decline in profits would impair their capital position and thus their lending capacity as well, creating a negative, self-strengthening relationship between the housing market and the banking sector. However, at present the level of these risks is low in the Hungarian banking sector. Firstly, the share of mortgage loans within the balance sheet has declined steadily in the past ten years. Secondly, the ratio of mortgage loans with a relatively high – above 70 per cent – LTV ratio to the regulatory capital is 62 per cent, whereas the same ratio was 137 per cent prior to the outbreak of the crisis. In the case of new disbursements this ratio is barely 8 per cent, which is a fraction of the 45 per cent observed in 2008 (Chart 19).

**In some European countries, major risks are identified from the direction of the housing market.** In 2018, housing prices rose further in the vast majority of European countries. Housing prices in Sweden and Austria exceed the levels measured in 2008 by 80 per cent and 73 per cent, respectively, and compared to their pre-crisis levels, housing prices are 40–60 per cent higher in Luxembourg, Hungary, Germany and the United Kingdom as well. The major rise in housing prices, which adds to stability risks, is coupled with high housing loan portfolios as a proportion of GDP in several countries (Chart 20). In 2016, the European Systemic Risk Board (ESRB) issued warnings to several countries because of the potential feed-through of medium-term risks from the housing market. As a result of the overheated housing market, regulators in several countries

(from both the fiscal and the macroprudential policy side) have taken measures to cool the market (Box 1).

#### BOX 1: INTERNATIONAL COMPARISON OF EXAMPLES OF MEASURES THAT COOL HOUSING PRICE INCREASES

**Due to its cyclical character and close relationship with the banking sector, the housing market may be a source of financial stability problems.** Housing market developments have major impact on households' savings and investment decisions as well, since residential properties account for a significant portion of the sector's assets. In addition to economic considerations, there are also important social aspects of this market due to housing issues. Accordingly, any possible overvaluation of the real estate market is of interest to various policies, and numerous institutions may have mandate in regulating the market.

**Regulation of the real estate market is a central element of fiscal and macroprudential measures in many countries.** If lending activity is the main driver of housing market developments, it is expedient to address overheating of the real estate market with macroprudential instruments. However, if the upswing in the housing market is driven by demand and supply conditions, which are independent of lending, fiscal measures are the most efficient means to influence it.

**One of the determinants of the price increase observed in real estate markets is the demand pressure from home purchasers, in which foreign investors and speculative motivations often play an important role.**<sup>8</sup> In order to mitigate demand pressure, limitations on home ownership by foreigners were introduced in several – typically non-EU – countries in the past years. In Australia, for example, foreign owners are burdened by additional tax obligation and vacancy fee, while tightening measures banning foreigners' real estate purchases were introduced in New Zealand. At the same time, the number of examples of regulations concerning domestic citizens as well is also increasing. In China, for example, there is a trend to limiting the number of properties owned or requiring higher downpayment upon purchasing real estate, while in South Korea sales restrictions targeting property purchases for speculative purposes contribute to a healthier composition of real estate market demand.

**In addition to properties purchased in order to own them, real estate market overheating is a phenomenon observed in the home rental market as well. Therefore, the regulation of lease contracts and limiting the rate of rent increases are typical in an increasing number of countries.** In some countries (e.g. Austria and the United Kingdom), rents are controlled only in certain segments of the rental market (cheaper or older rented properties). In German cities where the rental market is overheated, the maximum amounts of rents specified in new tenancy contracts are tied to reference rents. As the short-term renting of flats (e.g. Airbnb), which causes further price increases in rental markets through the narrowing of long-term rent supply, has become widespread in a rising number of cities in recent years, limitations have been introduced in connection with the short-term renting of flats as well. In Berlin, not more than 50 per cent of the floor area can be rented this way; in Paris, London and Amsterdam, owners may lease their flats for at most 120, 90 and 30 days, respectively; while in Mallorca it has been forbidden to let flats on lease for vacation purposes since 2018. In downtown Budapest as well, several districts have tightened the conditions of short-term leasing of flats in recent years.

**Another determinant of the developments observed in the real estate market is the tight supply of housing experienced in several countries; in the past years, there were initiatives to mitigate this problem as well.** One of the fundamental reasons for the tight supply may be the shortage of area for construction, which the countries under review solve with greater coverage of the given plot of land, by reducing the floor area of new homes and by increasing the permitted housing density. In addition, there have also been initiatives to build on areas owned but not used by public institutions, for example in the United Kingdom. The Irish government launched its action plan 'Rebuilding Ireland', the objective of which is also to expand the supply of residential properties in the country. Furthermore, imposing a vacancy tax, which has already been introduced in a number of countries, the easing of requirements

<sup>8</sup> Nevertheless, investor motivation has positive implications as well. For details, see the MNB's [Housing Market Report, May 2019](#).



related to construction and tax allowances that encourage real estate development, such as the 5 per cent housing VAT rate valid in Hungary until 2023 for properties with a final building permit obtained by November 2018, have an indirect effect on the supply side of the real estate market.

**If house price increases are driven by exaggerated activity on the credit market, property market overheating can be managed by macroprudential instruments.** The two possible directions of using macroprudential measures are debt cap rules and capital requirements. Debt cap rules can reduce the volume and systemic risks of overlending by discouraging risky loans, whereas capital requirements can achieve this by increasing banks' resilience and through the increased cost of capital for riskier loans. The advantage of debt cap rules is that they exert their effect at the contract level, so they can be calibrated in a targeted manner, but they have no effect on already disbursed loans. On the other hand, capital requirements may mitigate risks for the overall outstanding credit portfolio, but their calibration is less flexible, and their effect also depends on the aggregate impact of other factors influencing capital adequacy.

**Several European authorities have taken some type of macroprudential policy action to mitigate the potential risks of the property market and lending developments seen in recent years.** EEA countries have mostly introduced or modified loan-to-value requirements since 2015, and instruments constraining lending based on borrowers' income are increasingly popular. By modifying the variables of banks' capital requirement calculation, certain European countries – taking into account the nature of national market trends and the concentration of exposures – have introduced or modified requirements targeting exposures managed with either the standard methodology (LU, PL, SI) or with the internal ratings-based (IRB) approach (BE, FI, LU, SE). A countercyclical capital buffer to cushion cyclical fluctuations has been activated by 12 EEA Member States so far. In most countries, introducing the instrument aimed at curbing the effects of the surging credit cycle was mainly motivated by the upswing in housing loans to households, coupled with a massive housing price hike. However, certain macroprudential authorities (UK, LT) activated the instrument as a safeguard against a more complex risk scenario.

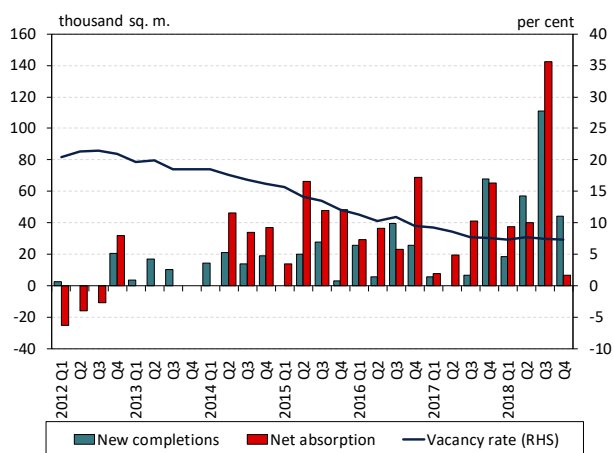
*Macroprudential instruments managing property market risks in EEA Member States after 2015*

Instruments	Countries applying them
<b>Debt cap rules</b>	
Loan-to-value limit	CZ, FI, HU, IS, IE, NO, PT, SK, SI
Payment-to-income ratio limit	CY, CZ, HU, LT, PT, RO, SK, SI
Income or wealth related debt limits	CZ, IE, LT, NO, SK
Maximum maturity period limit	LT, PT, SK
Amortisation requirements	LI, NO, SE
<b>Capital requirement rules</b>	
Risk weight or modified loss given default parameter	BE, FI, LU, PL, SE, SI
Countercyclical capital buffer*	CZ, BG, DK, FR, IS, IE, LT, LU, NO, SK, SE, UK
Systemic risk buffer	IS

*Note: \*Effective CCyB rate or the reported level where other than 0; capital buffer requirements introduced at 0 per cent are not shown. Source: ESRB*

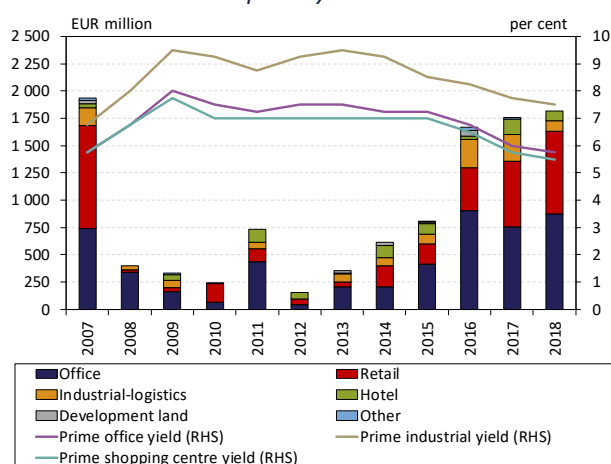
Even though most of the above tools form an integral part of the macroprudential instruments used by the **Magyar Nemzeti Bank**, the current housing market environment has not warranted their tightening to target housing market risks, as the recent Hungarian property market boom was not primarily driven by lending developments. Nevertheless, the MNB has several instruments to mitigate the emergence of these risks or their potential effects, should risky lending appear. But as long as housing market developments are driven by other factors, they can be principally mitigated by other tools, which fall outside the purview of the central bank.

Chart 21: New completions and vacancy rate of the Budapest office market and net absorption of the rental market



Source: Budapest Research Forum, CBRE, Cushman & Wakefield

Chart 22: Investment volume of the Hungarian CRE market, its composition based on market segments, and prime yields



Source: CBRE, Cushman & Wakefield, MNB

## 2.2 Active presence of tenants and investors in the commercial real estate market<sup>9</sup>

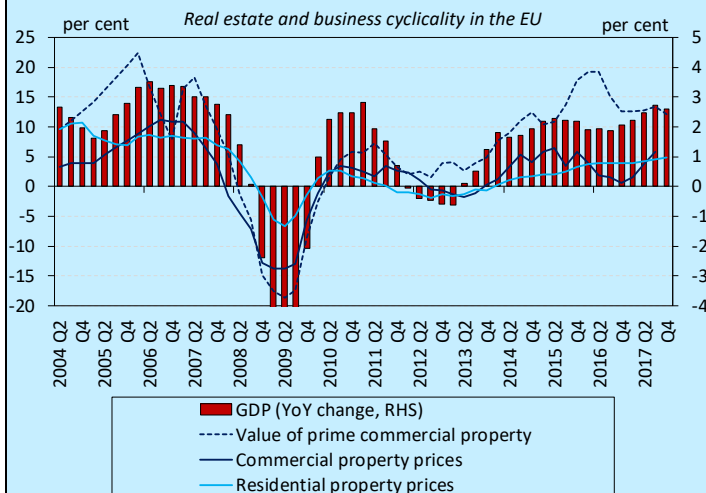
As a result of strong demand for leases, the vacancy rate of Budapest offices declined despite the significant volume of new completions. By end-2018, the vacancy rate of modern offices in Budapest fell to a historical low of 7.3 per cent. Although compared to 2017 the vacancy rate was only 20 basis points lower, this took place against the background of remarkably strong demand and supply activities in leasing (Chart 21). The vacancy rate of industrial and logistics facilities also dropped to a historical low, i.e. to 2.4 per cent by the end of the year under review. In 2018, total gross demand for leases in the office market was 536 thousand square metres, which was close to the volume of the peak year (2015), but the share of new leases was higher. In terms of new completions, 2018 was a strong year both in the case of offices as well as industrial and logistics facilities, but due to the high proportion of pre-leases, current demands for leases could only be satisfied to a limited degree.

In parallel with high investment turnover, a decline in yields was observed. Looking ahead, turnover may be restrained by the lack of properties for investment. In 2018, investment turnover on the domestic commercial real estate market reached EUR 1.8 billion, reflecting a slight increase of 4 per cent compared to turnover in 2017 (Chart 22). Based on the investment volume, the office and retail segments accounted for 48 per cent and 42 per cent of the transactions, respectively. In parallel with the high investment turnover, a 25-basis point decline was observed in all segments in the area of prime yields. Nevertheless, the yield premium of commercial real estate investments is still outstanding compared to long-term government bond yields, which continues to keep investors' attention on the real estate market. Investment turnover expectedly will be strongly determined by the availability of investment products. According to market participants, the investment volume of EUR 1.5–1.8 billion measured in the past years still shows a healthy level, and there is no need for the market to hit new highs. Looking ahead, the MNB is paying particular attention to ensuring that the financing of the commercial real estate market does not pose a threat to financial stability (Box 2).

<sup>9</sup> For details on developments in the commercial real estate market, see the [MNB's Commercial Real Estate Market Report](#).

**BOX 2: POTENTIAL ROLE OF THE SYSTEMIC RISK BUFFER IN PREVENTING THE BUILD-UP OF THE COMMERCIAL REAL ESTATE MARKET RISKS**

Due to the considerable potential for price fluctuations, the unique and complex product features and the risky, complex funding structures, the commercial real estate market carries **a significant financial stability risk and in this way a significant impact on the real economy**. Commercial real estate markets are characterised by stronger procyclicality as compared with other property market segments, on account of the high cyclical sensitivity of the projects' earnings capacity. In this context, the banking system providing the funding may suffer heavy losses in the event of a shock, and even the solvency of banks could be undermined.

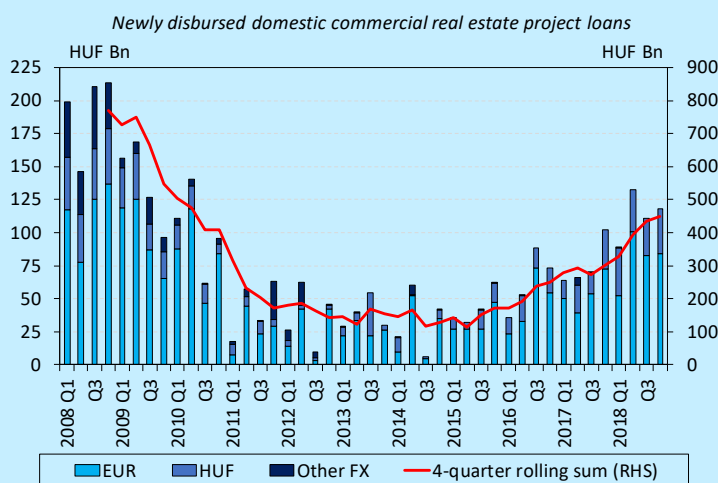


Source: ECB

The project financing seen prior to the crisis characterised by large-scale loans, typically disbursed in foreign currency, **proved to be unsustainable, and the transactions that defaulted after the eruption of the crisis** considerably reduced the quality of the loan portfolio, **causing significant losses to banks**. The subsequent drop in the willingness to lend in turn led to a large fall in the financing of the real economy. To manage the systemic risk related to the domestic problematic project financing loans linked to commercial real estate, the MNB decided in 2014 to use the Systemic Risk Buffer (SyRB), which, along with the favourable market conditions, played a significant role in considerably reducing the targeted

structural systemic risk.

**Project financing for commercial real estate, mainly denominated in foreign currency, especially euros, has been expanding dynamically again since 2016**, this time concentrated among a smaller group of institutions, partly different from earlier times. Although in most cases the companies that take out project loans in foreign currency generate revenues determined in euros from letting properties, this does not always represent effective foreign currency coverage. This is true because in many cases the companies renting commercial properties generate their revenues in Hungarian forints, especially in the retail sector.<sup>10</sup> On the one hand, this warrants enhanced monitoring of the market, and on the other hand, preventive measures should be considered. Owing to its effectiveness and flexible calibration, further use of the SyRB or its revision to prevent the build-up of new risks may be one of the most appropriate ways to manage the risks related to commercial real estate projects financed in foreign currency.



Note: Commercial real estate project loans – real estate development and real estate purchase project loans together.  
 Source: MNB

At the institutional and systemic level, **the systemic risk buffer may be able to prevent** the excessive spread of foreign currency exposures related to commercial real estate projects with a significant systemic risk dimension on the one

<sup>10</sup> For a detailed discussion on this topic see Box 1 of the [November 2018 MNB Financial Stability Report](#).



hand, and to **ensure the build-up of the shock-absorbing capacity necessary in relation to the potential materialisation of risks** on the other hand, without impeding healthy market development and lending. Following the elaboration of the details of the regulatory concept and market consultations, the amended conditions for the SyRB may be finalised in the second half of 2019.

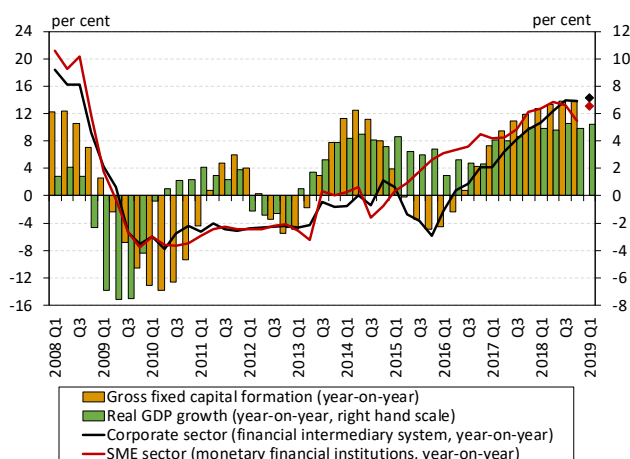
### 3 Trends in lending. The significant credit expansion has not led to excessive indebtedness

Corporate lending continued to grow in 2018. As a result of disbursements and repayments, loans outstanding vis-à-vis credit institutions and financial enterprises expanded by 14 per cent compared to the previous year. This credit expansion was the strongest seen since the crisis and was broad-based across sectors, although one-off items (financing of certain large investment projects as well as corporate acquisitions and purchases of commercial real estates) also played a key role. As for commercial real estate lending, which is picking up, the still high ratio of funding in foreign currency may pose a risk in the case of projects where the final source of income does not hedge the exchange rate risk. As a result of loan transactions, the loans outstanding of small and medium-sized enterprises increased by 11 per cent compared to the previous year, with the more than 260 per cent fulfilment of banks' commitments under the Market-based Lending Scheme contributing strongly to this. In spite of the expansion in the total loan portfolio, fixed-rate SME loans outstanding stagnated last year. With a view to shifting lending towards a healthier structure, the MNB launched the Funding for Growth Scheme Fix at the beginning of 2019. According to the responses of the banks participating in the Lending Survey, credit conditions continued to ease somewhat in 2018, mainly concerning price conditions. The favourable developments in the real economy, the low level of corporate indebtedness and the low interest rate environment are expected to support the expansion in lending in the coming years as well.

In 2018, household loans outstanding vis-à-vis the financial system as a whole and vis-à-vis credit institutions increased by 5 per cent and 7 per cent, respectively, supported by the dynamic rise in new lending. Although the nominal value of newly contracted housing loans reached the pre-crisis level, total household lending remains below the volume from 10 years ago, both in nominal and real terms. As a proportion of households' disposable income, borrowing in 2018 was only half of the level registered in 2008. As for quantity, taking the regional comparison as a basis, there is still significant room available in the sector for an increase in indebtedness both in cyclical and structural terms.

Within new housing lending, loans with interest rate fixation up to 1 year practically ceased to exist by 2018 Q4, while the share of loans with an interest period longer than five years rose to above 60 per cent. With this development, the interest rate risk became much lower in the portfolio that is being built up now, although in the existing credit stock it is still a problem that nearly 60 per cent of the mortgage loans are variable-rate loans. The average interest rate spread on newly contracted fixed-rate housing loans declined in 2018, and after the middle of the year it was already lower than the average spread on variable-rate loans. The average contract size and maturity increased further in the case of both housing and personal loans.

Chart 23: Growth rate of loans outstanding of the total corporate sector and the SME sector along with indicators of the real economy

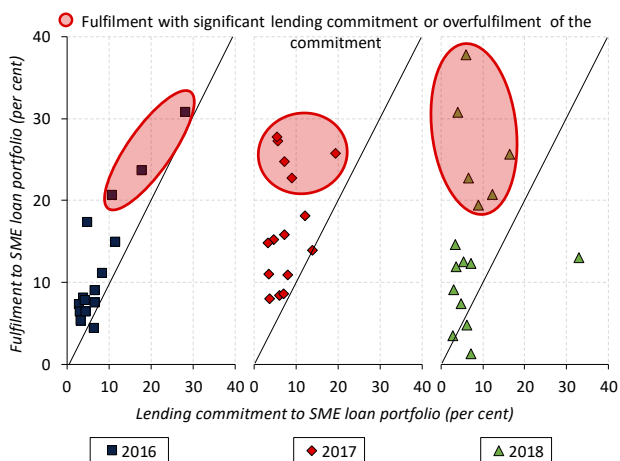


#### 3.1 Growth in corporate lending is the highest since the crisis

The growth rate of corporate lending was close to its pre-crisis level. As a result of disbursements and repayments, the outstanding loans of non-financial corporations vis-à-vis credit institutions and financial enterprises increased by HUF 1,037 billion in 2018. The annual corporate loan growth of 14 per cent (Chart 23) is outstanding in an international comparison as well. In addition to the SME sector's borrowing, many high-amount disbursements to large corporations also played a role in the dynamic expansion in corporate loans. In line with an upturn in corporate investment, the expansion was primarily reflected in loans with maturities over one year, which accounted for some two

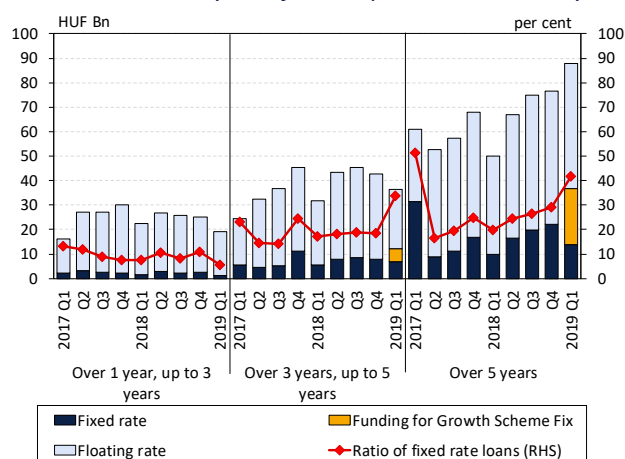
Note: The growth rate of loans is transaction based; prior to 2015 Q4 data for SMEs are estimated using banking system data. 2019 Q1 is based on data from the credit institutions sector. Source: MNB, HCSO

**Chart 24: Fulfilment of lending commitments under the Market-based Lending Scheme**



Note: Two small banks with extremely high commitments and fulfilments are not shown in the chart. Source: MNB

**Chart 25: Breakdown of corporate loans not exceeding EUR 1 million by rate fixation period and maturity**



Note: Loans to the self-employed are not included. Source: MNB

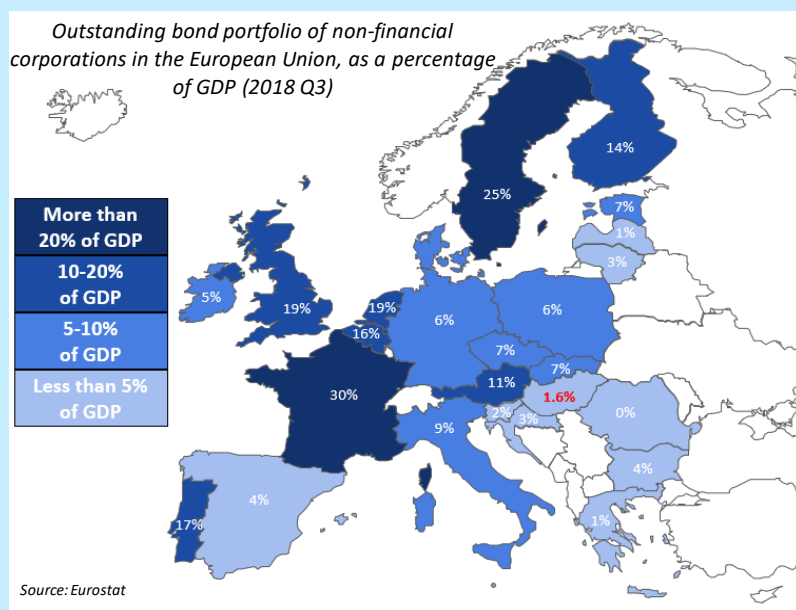
thirds of the rise in the loan volume. The bigger part – around two thirds – of the expansion in loans outstanding is attributable to forint loans. In case of the HUF-denominated lending, long- and short-term loans grew by approximately the same extent, while the expansion of FX lending was almost exclusively due to the increase in long-term loans, which are related to large corporate and project investment. The annual expansion in loans outstanding is mainly attributable to variable-rate loans; more than 80 per cent of the growth results from the expansion in loans with an interest rate period up to one year, while fixed-rate SME loans outstanding were stagnant. According to data from the credit institutions sector, the growth rate of corporate loans outstanding in 2019 Q1 was identical to 2018.

**The MNB programmes supported corporate lending trends in both quantitative and qualitative terms.** By concluding interest rate swap (LIRS) transactions amounting to more than HUF 900 billion, credit institutions that participated in the Market-based Lending Scheme (MLS) maintained their SME lending commitments made for 2017, which amounted to nearly HUF 230 billion in total, for 2018 as well and fulfilled these with an increase in lending at the sectoral level of nearly HUF 600 billion by the end of the year. Of the 16 banks participating in the central bank's programme to stimulate market-based lending, several credit institutions significantly overfulfilled their commitments in 2018. At the same time, the growth in three banks' loans outstanding did not reach one quarter of their LIRS transactions concluded within the MLS, and thus they failed to fulfil their commitments (Chart 24). By closing the earlier LIRS transactions, the Market-based Lending Scheme was terminated at the end of February 2019. While the MLS significantly supported lending growth last year as well, the ratio of long-term, fixed interest rate loans dropped among new loans disbursed after the phasing out of the Funding for Growth Scheme, and this posed a risk in terms of the volume structure. Therefore, the MNB launched the Funding for Growth Scheme Fix (FGS Fix) programme at the beginning of 2019 with an allocation of HUF 1,000 billion. This new scheme supported the renewed rise in the ratio of fixed interest rate SME loans as well, as its utilisation almost reached HUF 100 billion by the end of April 2019 (Chart 25). In addition to the expansion of the fixed interest rate SME loans, the central bank also intends to foster the diversification of corporate financing via a new bond purchasing programme to be launched in July (Box 3).

### BOX 3: REASONS FOR LAUNCHING THE BOND FUNDING FOR GROWTH SCHEME AND ITS MAIN FEATURES

**In addition to borrowing from banks, fund raising via the bond market may be a financing option for companies.**

Traditionally, in corporate financing, bonds dominate in the Anglo-Saxon countries, while bank loans prevail in continental Europe. In the USA, the share of bonds within non-financial corporations' debt-type financing amounts to nearly 70 per cent, while this ratio is reversed in the EU. In 2018 Q3, in the European Union, non-financial corporations' bond portfolio exceeded 13 per cent (EUR 2,000 billion) of GDP, with significant differences in the size of the bond markets among EU countries: while in more developed economies the portfolio of bonds issued by companies exceeds 20 per cent of GDP, in the Central and Eastern European countries the ratio is below 10 per cent.



At 1.6 per cent of GDP at the end of the period under review, **the size of Hungary's corporate bond market is much smaller than the European average or the average of the CEE region.** Within the European Union, in the case of the less developed countries, not only is the outstanding bond portfolio lower, total corporate indebtedness is also lower. In the case of these countries, including Hungary, one of the essential conditions for successful real economic convergence is financial convergence, within which the role of the capital market is also increasing in addition to bank intermediation. At present, the structure of financing in Hungary is not

sufficiently diversified, as companies rely upon bank loans excessively: the aggregate volume of their bank loans is more than ten times larger than their bond portfolio.

In order to improve the efficiency of monetary policy transmission and expand the liquidity in the domestic corporate bond market, from 1 July 2019 the Magyar Nemzeti Bank is launching the Bond Funding for Growth Scheme (BGS). Within that, up to a total amount of HUF 300 billion, the central bank will purchase domestic bonds with a rating of at least B+ as well as credit claims on corporations in securitised form.

### Main parameters of the Bond Funding for Growth Scheme

<b>Total amount</b>	HUF 300 bn (0.7 per cent of GDP)
<b>Start of the purchases</b>	1 July 2019
<b>Issuers of the bonds to be purchased</b>	domestic non-financial corporations
<b>Denomination of the bonds to be purchased</b>	HUF
<b>Original maturity of the bonds to be purchased</b>	minimum 3 years, maximum 10 years
<b>Credit rating of the bonds to be purchased</b>	at least B+
<b>Proportion of MNB's purchase per bond series</b>	max. 70 per cent
<b>Maximum exposure of the MNB per corporate group</b>	HUF 20 bn
<b>Sterilisation of the excess liquidity arising from the purchases</b>	by the preferential deposit facility

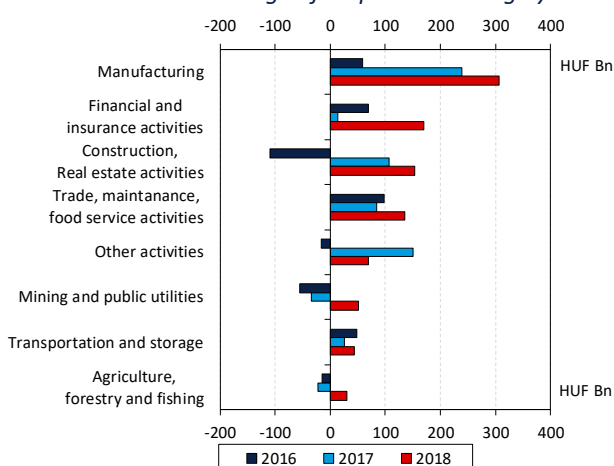
*Note: Final terms of the programme can be found on the webpage of MNB. Source: MNB*

**The new monetary policy instrument may contribute to the diversification of the financing structure of the corporate sector.** Diversified fund raising by companies may generate healthy competition between bank loans and funds from bond markets. In addition, in the case of a potential crisis, a liquid, developed corporate bond market may contribute not only to corporate fund raising, but also create an opportunity for the central bank to directly and efficiently support companies' obtaining of funds, thus reducing the period of recovery from the crisis. With this, the MNB will follow the practice of leading European central banks, the European Central Bank and the Bank of England,

which also purchased corporate bonds as part of their set of unconventional monetary policy instruments. The objective and terms and conditions of the BGS rely strongly upon the ECB's Corporate Sector Purchase Programme (CSPP).

**The scheme has no effect on the monetary policy conditions and is neutral in terms of the present stance of the interest rate policy.** The additional amount of money in the banking sector resulting from the central bank purchases carried out within the framework of the BGS is sterilised by the MNB using the preferential deposit facility, the interest rate of which equals the base rate. With the bonds purchased by the MNB as well, the central bank will extend the scope of securities eligible as central bank collateral, thus providing regulatory support and increasing investors' demand for bonds. In addition, in order to encourage market making that contributes to market liquidity, the MNB will also provide an opportunity of securities lending for credit institutions performing the market making.

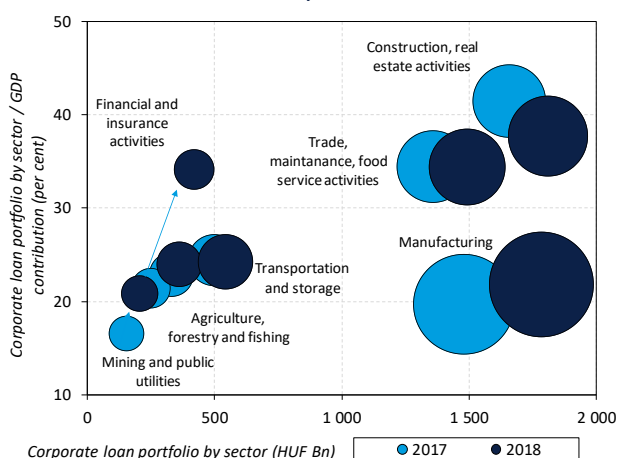
Chart 26: Annual change of corporate lending by sector



Source: MNB

Similarly to the expansion in the real economy, growth in corporate loans was also broad-based. The loans outstanding of non-financial corporations vis-à-vis the financial intermediary system as a whole rose to HUF 8,684 billion by end-2018. The loans outstanding of the manufacturing industry increased to the greatest extent, by HUF 307 billion (21 per cent) (Chart 26), which was also attributable to several international large corporations' domestic borrowing related to their investments in Hungary. The loans outstanding of the sector including companies that carry out financial and insurance activities rose by some HUF 170 billion, or nearly 70 per cent. Borrowing by state-owned holding companies in the energy sector also played a major role in the considerable credit expansion of the financial sector. In the construction and real estate sector, loans outstanding rose by HUF 154 billion, or nearly 10 per cent, while the credit exposure of trade and food service activities grew at a similar rate and amount, i.e. nearly HUF 136 billion.

Chart 27: Corporate loan portfolio and its GDP contribution by sector

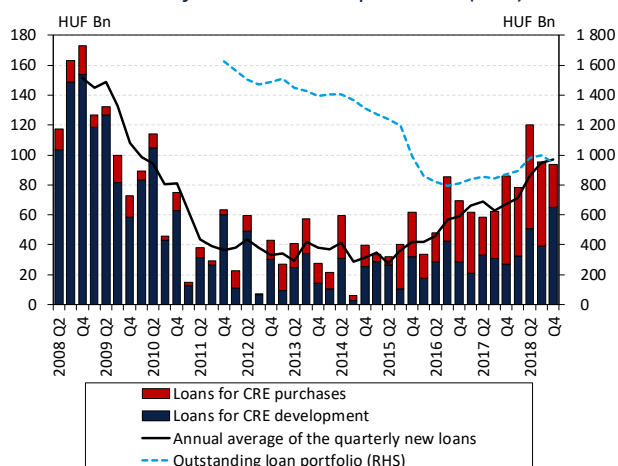


Note: Bubble sizes on the basis of the value added of sectors.  
Source: HCSO, MNB

In spite of the dynamic credit expansion, indebtedness as a proportion of value added did not increase significantly in the largest sectors. Even though the financing of acquisitions contributed significantly to the expansion in lending in several sectors, in 2018 the growth in loans outstanding occurred in parallel with an expansion in the value added created by the individual sectors. Partly as a result of large corporations' investment activity, the indebtedness of the manufacturing industry increased to some extent last year (Chart 27) compared to the size of the sector, but it is still low from a historical perspective. Loans outstanding of the trade, the logistics and the agriculture sectors expanded in parallel with their output, while as a result of the strong upturn experienced in construction and the real estate sector, sectoral value added grew to an even greater degree than loans.

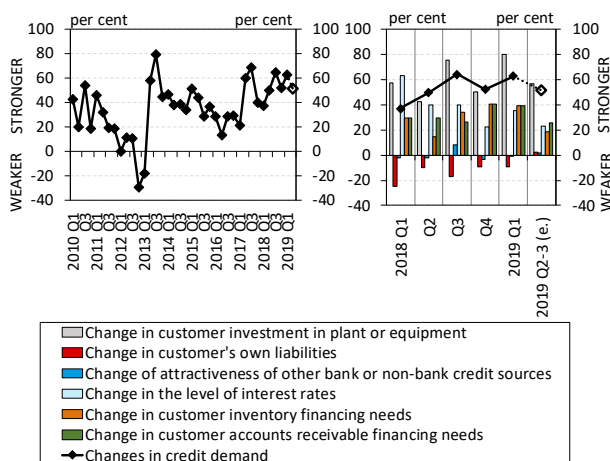
**There was a considerable pick-up in the disbursement of commercial real estate loans in 2018.** Disbursement of

Chart 28: Project financing covered by commercial real estate for domestic corporations (MFI)



Source: MNB

Chart 29: Changes in credit demand and factors contributing to the changes in the corporate segment



Note: Net percentage balance of respondent banks indicating weaker/stronger demands, weighted by market share. Source: MNB, based on banks' responses

loans for financing commercial real estate has increased steadily in the past years. In 2018, credit institutions disbursed project loans of some HUF 387 billion covered by commercial real estate, i.e. 44 per cent more than the volume of loans granted in 2017 (Chart 28). The pick-up was mainly attributable to the financing of real estate purchases. As opposed to disbursements, loans outstanding rose by a lesser degree during the year, i.e. by some HUF 128 billion. Property funds' buoyant investment activity also contributed to this, as the bank loans on the properties purchased by them were repaid upon purchase in most of the cases.<sup>11</sup> Looking at the individual segments, loans financing the construction of housing estates and industrial properties increased, but at the same time the loans spent on financing the construction of office buildings, trade centres and hotels declined in 2018. As opposed to construction, loans borrowed for real estate purchases increased in all the five segments. In spite of the fact that financing in foreign currency – usually euro – is typical of commercial real estate lending, the crisis highlighted the vulnerability of economic agents that do not have natural hedge. The still high ratio of funding in foreign currency may pose a risk in the case of projects where the final source of income – e.g. in the case of tenants with income in forint – does not hedge the exchange rate risk.

**Demand for corporate loans strengthened further in 2018.** On annual average, half of the banks in net terms perceived growth in demand, and a similar trend is also expected for 2019 H1 by the banks responding to the Lending Survey (Chart 29). The increased demand was driven mainly by investment in tangible assets and by the low corporate lending rates. The upswing in demand was primarily seen for longer-term loans, but a temporary decline occurred by end-2018, presumably due to the postponement related to the FGS *Fix* scheme. According to the responses of the banks participating in the survey, demand for long-term loans is expected to grow significantly in 2019.<sup>12</sup>

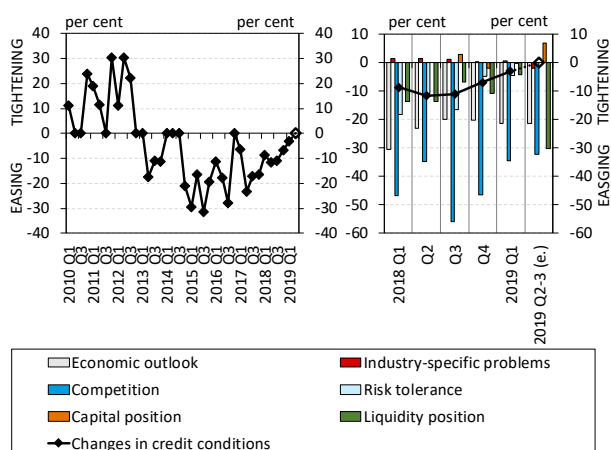
**Conditions of access to loans eased further for companies in 2018.** According to the responses of the banks participating in the Lending Survey, the easing of credit conditions – which was primarily reflected in a decline in interest rate spreads – was mainly attributable to the increase in competition between banks and the positive

<sup>11</sup> For details on developments in the commercial real estate market, see the [MNB's Commercial Real Estate Market Report](#).

<sup>12</sup> For more detailed findings of the Lending Survey, see the MNB's publication entitled [Trends in Lending](#).



Chart 30: Changes in credit conditions and factors contributing to the changes in the corporate segment



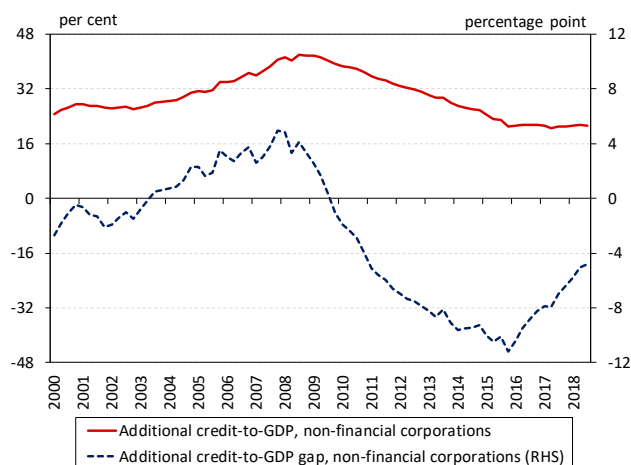
Note: Net ratio is the difference between tightening and easing banks weighted by market share. Source: MNB, based on banks' responses

Table 3: Credit penetration and the ratio of high-amount loans in the non-financial corporations sector

	Corporations with loan	New loan portfolio	Share of the loan portfolio of corporations with a loan exceeding HUF 10 Bn in the total corporate loan portfolio
2016	118 000	8%	20%
2017	123 000	10%	21%
2018	134 000	9%	23%

Note: The ratio of new loans outstanding means outstanding loans at companies that did not have loan debts in the previous year. Source: CCIS, MNB

Chart 31: Additional corporate credit-to-GDP and the additional credit-to-GDP gap of non-financial corporations



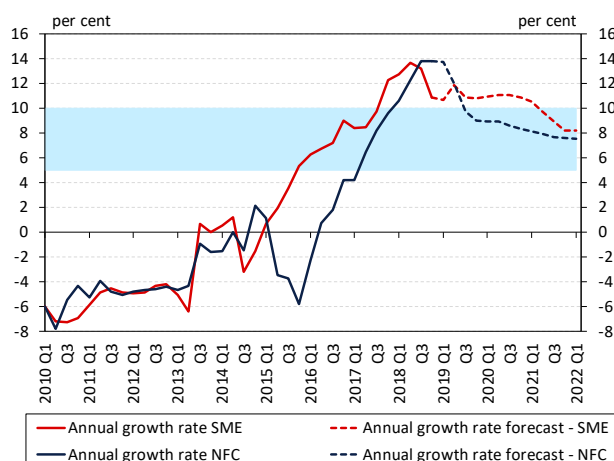
Note: The additional loan portfolio includes loans granted to domestic and foreign non-financial corporations by the domestic financial intermediary system, expressed in forints, using the exchange rates of Q1 2015. Methodological description: <https://www.mnb.hu/letoltes/ccyb-methodology-new-en-1.pdf>. Source: MNB

economic prospects (Chart 30). The easing of credit conditions occurred in all company size categories, but in the case of the conditions on commercial real estate loans, 21 per cent of banks in net terms indicated tightening during 2018 Q3. In addition, compared to the previous two years, some banks already envisaged a decline in the amount of loans to be granted in this segment. According to the respondents, mainly housing projects and logistics centres were affected by the decline in the willingness to lend. Despite the tightening in credit conditions due to mounting risks, further expansion in demand is expected in the financing of office buildings.

**The expansion in loans outstanding was not coupled with an extraordinary widening in the scope of companies that received loans.** In 2018, the increase in the number of companies with loans contributed to the expansion in the volume of corporate loans (Table 3), but at the same time the amount of loans borrowed by new borrowers as a proportion of total loans outstanding is similar to what was seen in the previous two years. The average loan debt of companies also increased in the period under review, which was primarily attributable to the expansion in loans outstanding of companies which have extremely high debt in excess of HUF 10 billion. This group contained only 80 companies in 2018, but their borrowing accounted for nearly 23 per cent of domestic corporate loans. At the same time, the retirement of the management and the issue of succession may pose a risk in the case of some smaller enterprises, but its effect on financial stability may be limited (Box 4).

**Further expansion in corporate lending is expected over the forecast horizon.** Corporate loans outstanding have already been growing steadily for three years. However, according to the MNB's estimate, their level as a proportion of GDP is still below its long-term trend (Chart 31). Loans outstanding may continue to rise in the future as a result of the cyclical convergence to the domestic equilibrium level in the short run and also as a result of financial deepening in the longer run. Credit expansion in the last year was dominated by several large international companies' domestic borrowing related to their investment in Hungary as well as by a pick-up in lending for financing acquisitions and commercial real estate purchases, in which one-off items also played a high role. Within corporate lending, the annual growth rate of SME lending – which better captures the underlying trends – already decelerated in H2. Considering the temporary nature of one-off items and the base effect, the growth rate of corporate lending may slacken over the forecast horizon. At the same time, we increased

Chart 32: Forecast for lending to NFCs and SMEs (annual growth rate)



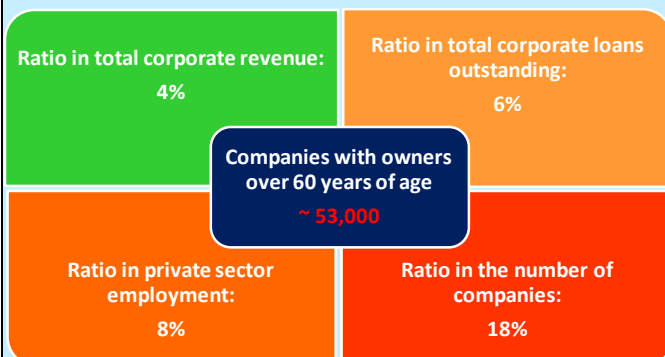
Source: MNB

our forecast, taking into account the stronger-than-expected economic expansion, the dynamic growth in corporate investment as well as the already ongoing large investment projects and ones announced for the near future (Chart 32). In the coming years, a further increase in lending will be supported by the cyclical developments in the real economy typical of all economic sectors and the low interest rate environment.

#### BOX 4: THE IMPACT OF BUSINESS SUCCESSION ON FINANCIAL STABILITY

**In the case of aging societies, an increasingly significant risk arises from the issue of the succession of the leaders of enterprises (generational change).** According to the European Commission,<sup>13</sup> around 6 million European small enterprises will have to face the problem of generational change. The problem is particularly relevant in the Central and Eastern European region, as the first generation of entrepreneurs will reach retirement age in the coming period in these countries, and thus the enterprises that were established more or less at the same time will face the problem of generational change in large numbers.

*The weight of businesses potentially affected by generational change*



Source: CCIS, MNB, NTCA, OPTEN

**Without adequate succession planning, the challenge of generational change entails serious risks.** In the case of firms financed by banks and affected by generational change, if difficulties arising from succession materialise, the number of debtors who are unable to fulfil their debt servicing obligations may increase. Accordingly, we examined the effects of the problem on financial stability.

As there is a lack of adequate corporate sector data (the data available regarding the key person are incomplete), **we identified those companies as generational changers, where even the youngest owner is older than 60 years.** The advantage of this approach is that large companies that have more than one owner, and where the management and the ownership function have already been typically separated, are not included in the group of companies affected by the problem of generational change in most cases. Based on the databases of the National Tax and Customs Administration (NTCA), the MNB, the OPTEN Ltd. and the Central Credit Information System (CCIS), in the case of 18 per cent of domestic undertakings even the youngest owner is already older than 60. According to our estimates, this means that some 53,000 undertakings may be affected by generational change in the next five years. Moreover, according to the database, these firms employ more than eight per cent of those employed in the private sector.

**Micro and small enterprises are overrepresented among these firms,** whereas in terms of sectors, agriculture carries a considerable weight. On the basis of a breakdown by county, the economy of the Eastern regions of the Great

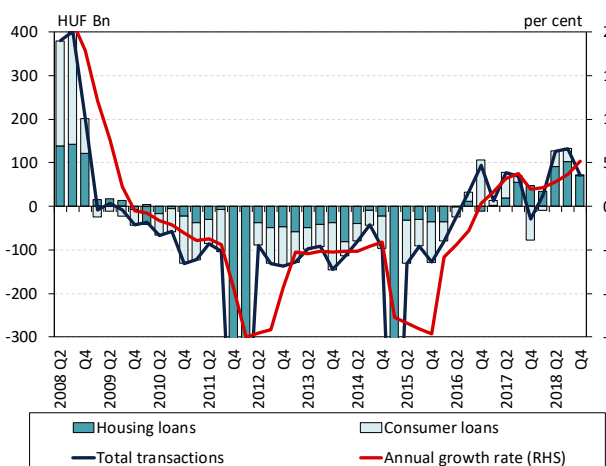
<sup>13</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52008DC0394&from=EN>



Plain may be significantly affected by generational change, since these are the counties where the ratio of the affected companies' sales revenue to total corporate sales revenue is the highest. Generational changer enterprises are characterised by smaller business sizes, reliance on own funds and more conservative financing policy. Their leverage is lower, and FX-based indebtedness is less typical among them, partly due to domestic sales.

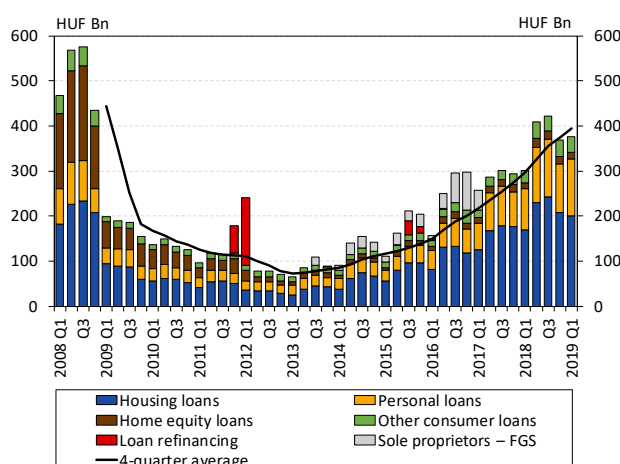
According to our estimates, the loans outstanding of the generational changer enterprises totalled HUF 420 billion at end-2017, accounting for 6 per cent of total corporate loans outstanding. Bank concentration of the loans outstanding concerned roughly equals the concentration of total corporate loans outstanding, with the market share of the three largest banks amounting to 33 per cent. On the whole, generational change will pose a major challenge to micro, small and medium-sized enterprises in the coming years, and the materialisation of these risks may have unfavourable macroeconomic effects as well. Nevertheless, the degree of direct risks stemming from the loans outstanding is limited, and thus it does not entail any significant danger for financial stability.

Chart 33: Household loan transactions of the financial intermediary system



Source: MNB

Chart 34: New household loans in the credit institution sector



Note: Loan refinancing indicates only refinancing related to the early repayment scheme and FX conversion. Other consumer loans include car purchase, consumer loans for purchase of goods and other loans. Source: MNB

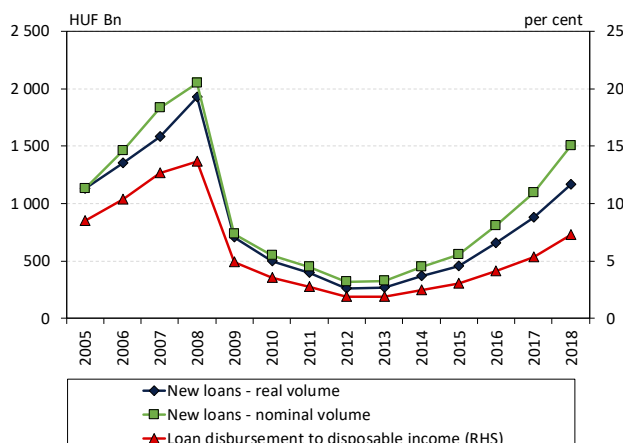
### 3.2 Declining interest rate risk in new household lending

**Despite an increase in repayments, household loans outstanding rose by more than 5 per cent.** In 2018, as a result of transactions (disbursements and repayments), household loans outstanding vis-à-vis the financial intermediary system as a whole expanded by HUF 358 billion, compared to just about HUF 131 billion in 2017 (Chart 33). This corresponded to an annual increase of 5.2 per cent in the outstanding portfolio. The value of housing loan transactions amounted to HUF 300 billion, while that of consumer and other loans was HUF 58 billion. The expansion observed in the consumer segment took place despite the continuous amortisation of the home equity loans disbursed prior to the crisis, still representing a significant volume. Looking at the breakdown by lender type, credit institutions' loans outstanding expanded by more than HUF 400 billion, while those of financial enterprises declined.

**Credit institutions' household loans outstanding grew by more than 7 per cent in 2018.** In 2018, housing loans and unsecured loans outstanding at credit institutions increased by nearly 10 per cent and 27 per cent, respectively, while home equity loans outstanding fell by 10 per cent in the same period. Accordingly, the annual growth rate of loans outstanding at credit institutions increased to 7.3 per cent at end-2018, and by the end of 2019 Q1, it reached 8.5 per cent.

**Housing loans and personal loans continue to dominate the new disbursements.** In 2018, the value of new contracts amounted to HUF 1,500 billion, corresponding to an increase of 37 per cent compared to the previous year (Chart 34). Housing loans and personal loans accounted for 87 per cent of new loans, with an expansion of 31 per cent and 48 per cent, respectively, compared to the volume in 2017. In 2019 Q1, new contracts of the credit institution

Chart 35: Lending in nominal and real terms, and as a proportion of disposable income

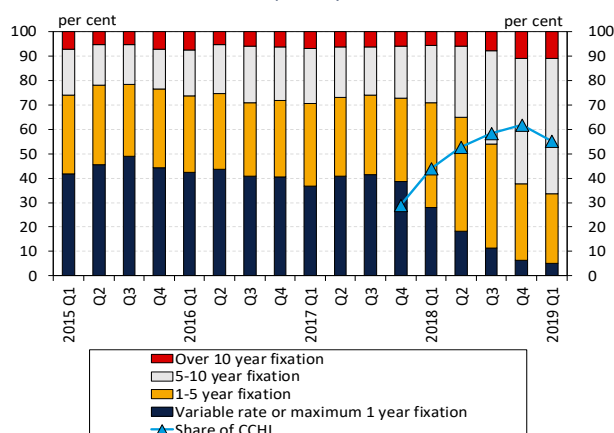


Note: Real value calculated for 2005 prices using the consumer price index. Disposable income estimated for 2018 using the 2017 value. Source: HCSO, MNB

sector amounted HUF 377 billion, and as a result, the volume of annual average disbursements increased by one-third by the end of March.

**Compared to the income level, the volume of new lending is well below the pre-crisis level, which reduces the risk of excessive indebtedness.** By end-2018, the annual volume of housing loan contracts in nominal terms reached the 2008 level again. However, examining the contracted volume of household loans on the whole, last year's value amounts to 75 per cent of the volume in 2008 in nominal terms and 57 per cent of it in real terms, as prior to the crisis the extension of home equity loans was also significant (Chart 35). The ratio of new loans to households' disposable income also confirms this picture: while this ratio stood at 14 per cent in 2008, it was a mere 7 per cent in 2018. Accordingly, compared to the pre-crisis period, the current increase in borrowing is taking place against the background of a much higher income level, significantly reducing the risks related to household indebtedness.

Chart 36: New housing loans by interest rate fixation and the share of Certified Consumer-Friendly Housing Loans (CCHL)



Note: Share of CCHL products compared to new issues with at least 3 years of interest rate fixation (at least 5 years since 2018 Q4) excluding disbursements by building societies. Source: MNB

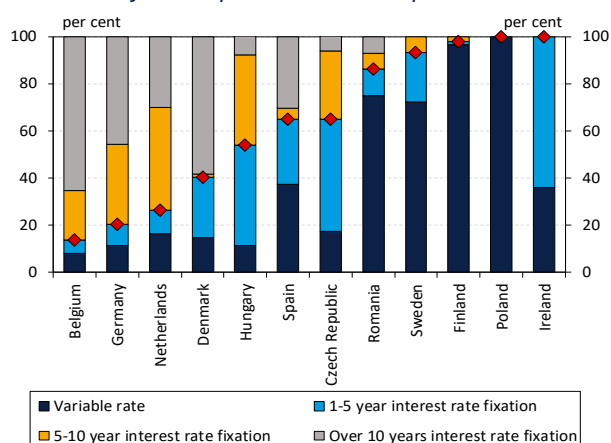
**Looking ahead, with the sharp fall in the number of newly granted mortgage loans with variable interest rate, households' interest rate risk will decline considerably.**

The expansion of loans with interest rate fixation of over 1 year continued in 2018, as their share within quarterly disbursements reached 94 per cent. In 2019 Q1, two thirds of new issuance had an interest rate period of over 5 years (Chart 36). At present, the share of variable rate housing loans can be considered low in international comparison, although the share of interest rate periods of 1–5 years is high (Chart 37). Nevertheless, this picture is refined by the fact that – in the 1–5-year fixation category – the share of loans with an interest rate period around 5 years was some 90 per cent during the whole year. Furthermore, 45 per cent of the annual disbursement was concluded by building societies, whose loans typically have shorter maturities and fixed interest rate over the whole term.<sup>14</sup> As a result of the changes in distribution by interest rate periods observed in 2018, newly extended loans, which are especially sensitive to interest rate changes, no longer significantly increase the degree of households' interest rate risk.

**The favourable structure of new loans contributes to the shift in outstanding loans towards longer interest rate periods.** In early 2018, 67 per cent of mortgage loans were variable-rate ones, and this figure declined to 57 per cent by the beginning of 2019 (Chart 38). This was mainly

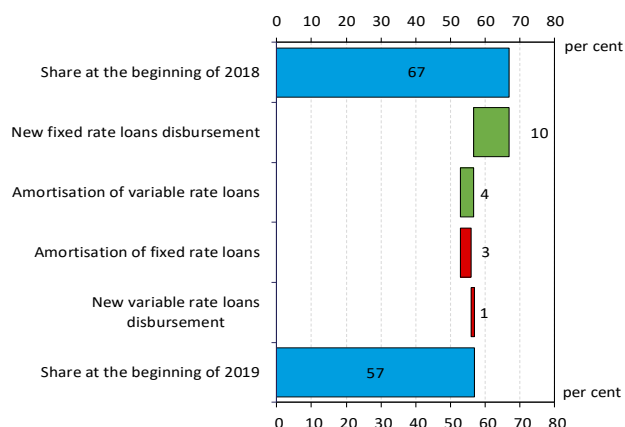
<sup>14</sup> Statistically, these loans are classified into interest rate period categories corresponding to their maturities.

Chart 37: Distribution of new housing loans by interest rate fixation period in the European Union



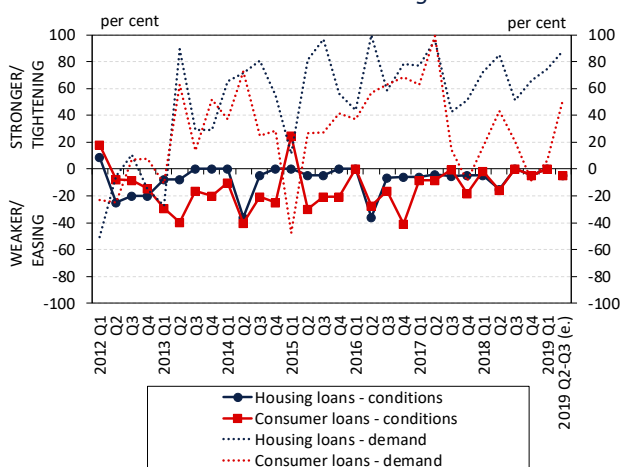
Note: 2018 Q3 data. Red dots indicate the share of variable-rate loans and loans with an up to 5 years interest rate fixation. Source: European Mortgage Federation

Chart 38: Factors affecting the share of variable-rate loans in credit stock



Source: MNB

Chart 39: Changes in credit conditions and credit demand in the household segment



Note: Net ratio is the difference between tightening and easing banks, weighted by the market share. Source: MNB, based on banks' responses

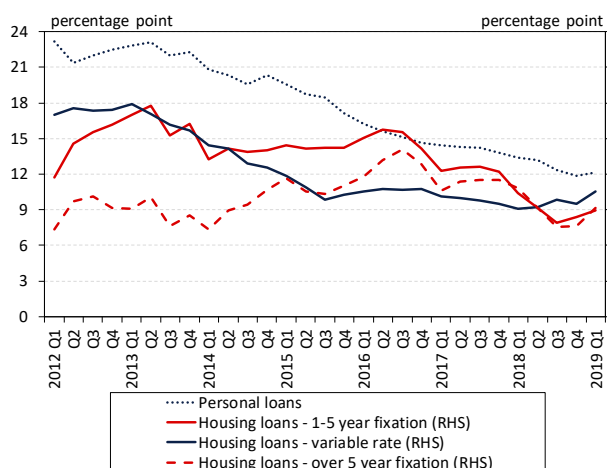
attributable to the high share of fixed-rate loans within new loans, while the amortisation of outstanding variable-rate loans is taking place slowly. Reduction in interest rate risk may be facilitated by the expansion of the prepayment of variable-rate loans, their renegotiation for longer interest rate fixation or refinancing with a loan with longer interest rate fixation granted by another bank. Prepayments amount to 1.5–1.7 per cent of the current loans outstanding quarterly; refinancing loans reached 5–6 per cent of new loans last year. The interest rate risk of loans outstanding is dealt with as a special topic in Chapter 9.

**Regulatory steps also contributed to the decline in the interest rate risk.** The gaining ground of Certified Consumer-friendly Housing Loans (CCHL) was observed during the whole year. In 2018 Q4, more than 60 per cent of fixed-rate housing loans were certified as consumer-friendly, and in 2019 Q1, 55 per cent were certified (Chart 36). It contributes to the prevention of excessive household indebtedness on one hand that as of 1 October 2018 the debt cap rule concerning the payment-to-income ratio was tightened in the case of mortgage loans with interest rate periods up to 10 years, and instead of the current HUF 400,000, from 1 July 2019 the debt cap rules will make it possible to accept higher repayment instalments only above HUF 500,000 per month. On the other hand, it also contributes that simultaneously with the phase-out of CCHL products with an interest rate period of 3 years the certification of products with interest rate fixation for 15 years also became possible.

**Even with unchanged credit conditions, buoyant demand was observed for both mortgages and unsecured loans.** In 2018 and in 2019 Q1, the banks participating in the Lending Survey did not implement any significant easing of standards for housing or consumer loans. However, regarding in-depth conditions, banks reported reductions of interest rate spreads in the case of both segments (Chart 39). In line with housing market and income developments, most of the banks experienced buoyant demand, although at the end of the year they observed a pause considered to be temporary in the expansion of demand for consumer loans. Respondent banks expect a pick-up in demand for both product groups again in 2019.

**The spread on fixed-rate housing loans declined.** Compared to end-2017, the average annual percentage rate of charge declined only in the case of loans with interest rate periods between 5–10 years, while increases of 0.1–0.2 percentage point were observed in the case of all other rate fixations. However, this was a result of an increase in

Chart 40: Interest rate spreads on new household loans



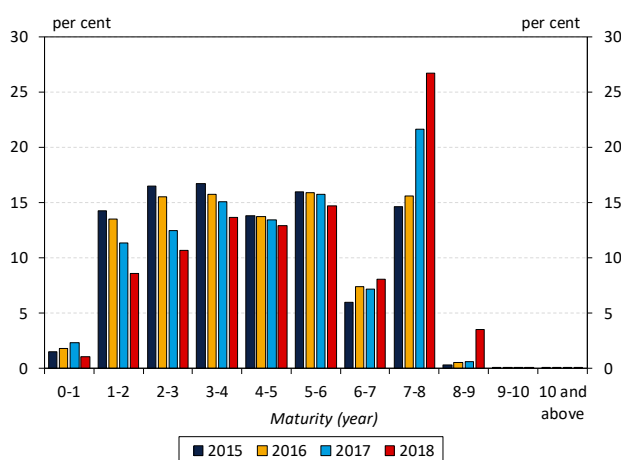
Note: In the case of variable-rate housing loans or ones with up to 1-year rate fixation, APR-based smoothed spread over the 3-month BUBOR, while in the case of housing loans fixed for a period longer than one year, the APR-based smoothed spread over the corresponding IRS. For personal loans, APR-based smoothed spread over the 3-month BUBOR. Source: MNB

funding costs, and thus the average interest rate spread on variable loans and loans with an interest rate fixation for up to 1 year remained unchanged, while it declined by 1.3–1.4 percentage points in the case of loans with rates fixed for at least 1 year (Chart 40). Thus, by mid-2018, partly as a result of the MNB's regulatory measures – especially the introduction of the monetary policy interest rate swap instrument, the amendment of the mortgage funding adequacy ratio and the gaining ground of the Certified Consumer-friendly Housing Loans – the average spread on loans with interest rates fixed for more than one year reached the average spread on variable-rate loans and was even below that in H2. On the one hand, this can be attributed to the maximum interest rate spread on CCHL loans, and on the other hand, that the long-term funding costs increased during the year, but this was not followed by interest rates. In 2019 Q1, an increase in spreads was observed, which was caused by a decrease in the funding costs exceeding the reduction in the APRC.

**Personal loans may be alternatives to housing loans in the case of certain loan purposes.** Prior to the crisis, home equity loans served as funds necessary for higher-amount consumption purposes. The relevant portfolio is steadily declining, and within new loans this product only accounted for 4 per cent in 2018. The historically low price conditions – the average interest rate spread fell to 12 per cent – were advantageous for the expansion of personal loans, which also offer fast credit scoring owing to their unsecured nature. In 2018, the credit institution sector concluded personal loan contracts with a value of HUF 451 billion with households, representing a nearly 70 per cent share of consumer loans. During the interviews conducted with the largest participants in the banking sector it was expressed that three quarters of the personal loan contracts are basically spent by households on three loan purposes: housing, purchasing of vehicles and loan refinancing.

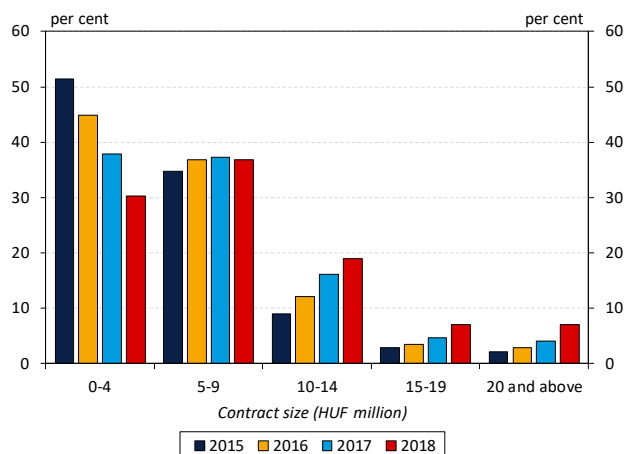
**The contract size of personal loans disbursed by credit institutions increased in parallel with extending the maturity.** In the case of newly concluded personal loan contracts, the average contract size grew from HUF 1.2 million to HUF 1.7 million in 3 years, and the distribution has steadily been shifting towards higher amounts since 2015. The category of personal loans with a value of over HUF 5 million (with a 5 per cent share within the issuance) appeared in 2018, which may have partly been the result of changes in the loan purposes. It is interesting that although most market participants already offer a loan of HUF 10 million, this barely accounts for 0.25 per cent of the new contracts.

Chart 41: New personal loan contracts by maturity



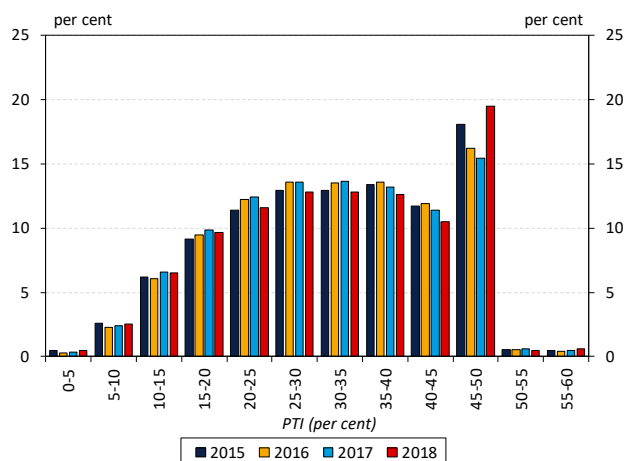
Note: Distribution based on the number of contracts. Only credit institutions' loans. Source: MNB

Chart 42: New housing loan contracts by contract size



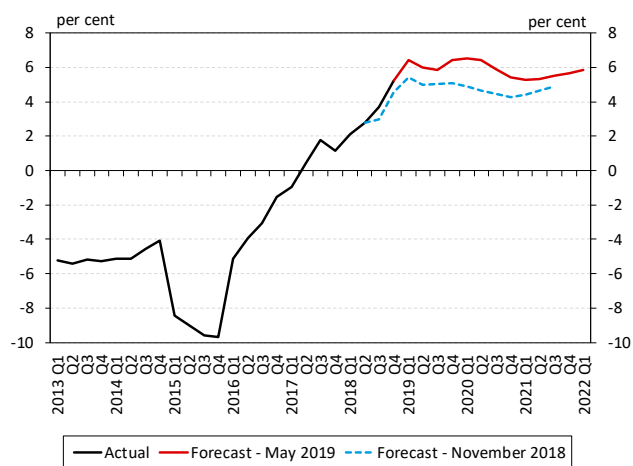
Note: Distribution based on the number of contracts. Only credit institutions' loans. Source: MNB

Chart 43: New personal loan contracts by PTI ratio



Note: Distribution based on the number of contracts. Only credit institutions' loans. Source: MNB

Chart 44: Household lending forecast



Note: Transaction-based annual growth rate. Source: MNB

Average maturity has increased from 5 years to 6 years since 2016. Looking at the distribution as a whole, it is seen that the maturity started to shift towards the longer terms in 2017: the share of loans with maturities of at least 5 years rose from below 40 per cent in 2015–2016 to 53 per cent by 2018 (Chart 41). In the past two years, the most typical contractual maturity was between 7 and 8 years, accounting for more than one quarter of the contracts.

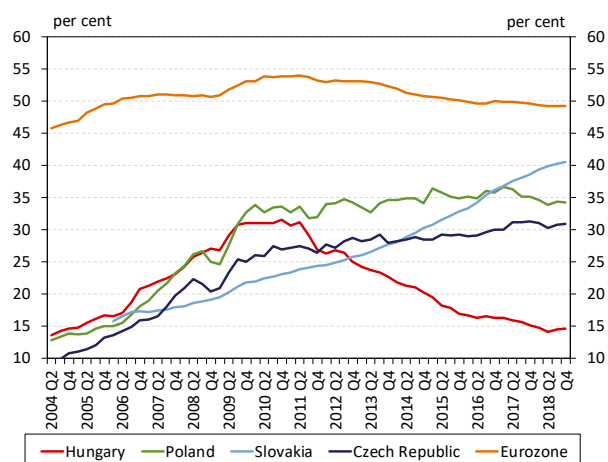
**Increasing average contract size is observed in the case of new housing loan contracts as well.** Within housing loans, the share of loans below HUF 5 million has declined considerably since 2015, while that of the categories above HUF 10 million has increased. Contract sizes exceeding HUF 15 million started to spread significantly in 2018, with this category accounting for 14 per cent of contracts, whereas this was the case for just 9 per cent in the previous year (Chart 42). In the case of housing loans, the share of loans with at least 20-year maturity has increased from 20 per cent to 31 per cent since 2015, while the average maturity was up from 14 years to 16.5 years. These developments, however, were partly caused by a rise in house prices, and composition effect may also have played a role in this due to the decline in the share of loans for the renovation vis-à-vis loans for the purchase of new and used houses.

**In the case of personal loans, nearly one third of customers become indebted close to the regulatory limit.** 30 per cent of the personal loan contracts concluded in 2018 were related to customers whose PTI ratio thus became 40–50 per cent (Chart 43). The mode of the PTI values was the payment-to-income ratio between 45–50 per cent, close to the debt cap limit. No such trends were observed in lending for housing purposes: 12 per cent of the contracts were characterized by payment-to-income ratios between 40 and 50 per cent, which has been unchanged since 2015.

**Household lending may grow by an annual 6 per cent over the forecast horizon.** According to the MNB's forecast, the outstanding household loans of the financial intermediary system as a whole may expand at a rate of 6.4 per cent in 2019, 5.4 per cent in 2020 and 5.7 per cent in 2021 as a result of loan transactions (Chart 44). We also took into account the impact of the prenatal baby support and the debt redemption of mortgage loans announced within the framework of the family protection action plan announced by the government: according to our estimate, the former increases the growth rate by 1 percentage point in the period under review. In the estimation, we assumed that, due to the prenatal baby support loans – which will be classified as consumer loans – disbursements in the case of housing



Chart 45: Household credit-to-GDP ratio in the CEE region and the Eurozone

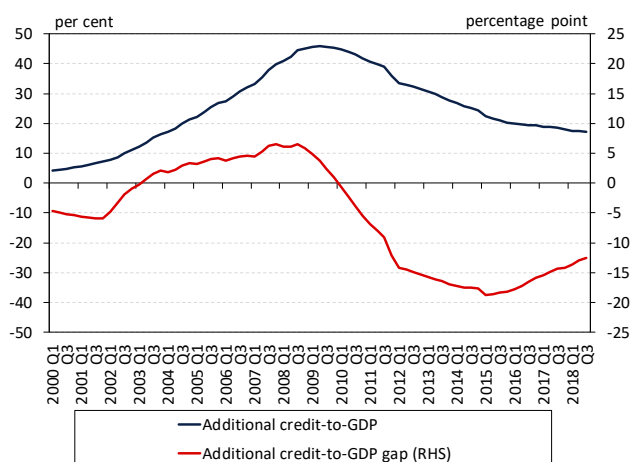


Note: Loans of the credit institution sector. Source: ECB, MNB

loans will exceed repayments to a lesser degree after 2019 than before. Furthermore, steadily expanding consumer lending will increase growth again by the end of the forecast period.

**Despite the expansion in lending, there is ample room for financial deepening.** Although annual growth in lending does not fall short of what is observed in the other countries of the CEE region, the level of household loans outstanding compared to the size of the economy is very low in an international comparison (Chart 45). The 15 per cent household credit-to-GDP ratio in Hungary is well below the levels of 31–41 per cent of the other Visegrád countries, as well as the nearly 50 per cent of the euro area. Romania is the only EU Member State where even lower credit penetration is observed. Prudent expansion of the debt stock, which exceeds GDP growth, increases financial deepening and is an important factor of sustainable economic development.

Chart 46: Household sector credit-to-GDP ratio and changes in the additional credit gap



Note: Univariate credit gap based on exchange rate adjusted loans outstanding received from the total financial intermediary system. Methodological description: <https://www.mnb.hu/letoltes/ccyb-methodology-new-en-1.pdf> Source: MNB

**The household credit-to-GDP ratio is low in cyclical terms as well.** The credit gap, i.e. the difference between the current level of loans outstanding as a proportion of GDP and their long-term average, has been narrowing since 2015, but at the end of 2018 Q3 it still stood at -13 per cent (Chart 46). This means that at present the household credit-to-GDP ratio falls significantly short of its long-term trend, and with the expansion observed in lending it does not yet show any signs of overheating. Based on household indebtedness, which is low both structurally and cyclically, it can be established that excessive indebtedness at the sector level cannot be expected even in the case of a high utilisation of the borrowing related to the prenatal baby support, which is also ensured by the debt cap rules. Nevertheless, attention must be paid to prevent the concentration of loan disbursements among high-risk debtors, as these concentrated risks may also lead to financial stability and growth crises, or in extreme cases even to social crises.

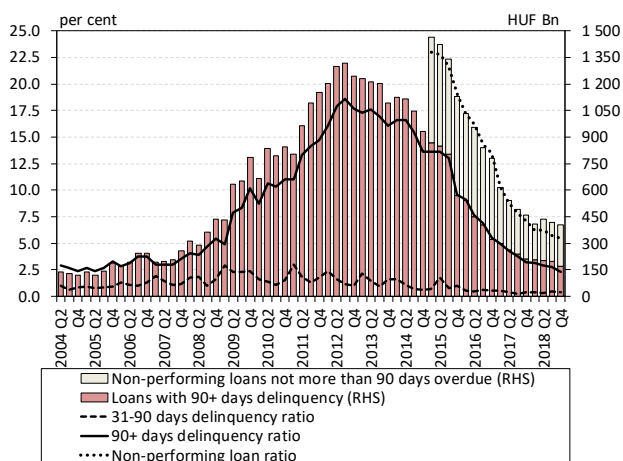
## 4 Portfolio quality. The heterogeneous pick-up in the real estate market only helps some debtors

The ratio of non-performing corporate loans declined to 5.5 per cent by end-2018. During the year, the improvement in portfolio quality was mostly attributable to the continued cleaning of the portfolio and the expansion in total corporate loans outstanding. With the decrease in non-performing corporate loans, the volume of selling of claims also declined, but the cleaning activity is continuous. Loan loss coverage decreased slightly, but it remains high. The non-payment risk of highly indebted sectors that are exposed to dynamic wage growth may increase to the greatest degree in the case of normalisation of the interest rate environment.

Non-performing household loans shrank further; the ratio of non-performing loans was 7 per cent at end-2018. Sales of claims also played the main role in the decline in the overdue portfolio in this segment. The number of loans became over 90 days past due – which are mainly related to the repeated default of loans at financial enterprises disbursed prior to the crisis – remained low during the year. A significant difference is seen between the loan-to-value ratios of performing mortgage loans and the ones over 90 days past due: one half of the overdue loans have a loan-to-value ratio of more than 100 per cent, while the corresponding ratio is barely 5 per cent in the case of performing loans. Due to their territorial heterogeneity, real estate market developments were not able to help mortgage loan debtors in a difficult situation everywhere, but on the whole, the favourable impact of the upswing in the housing market can be detected in the enforcements of collateral.

### 4.1 Cleaning activity further reduced the ratio of non-performing corporate loans

Chart 47: Ratio of non-performing corporate loans in the credit institutions sector

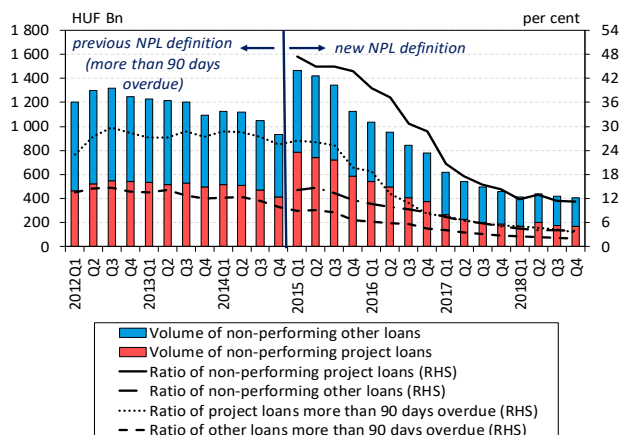


Note: Calculated by clients until 2010 and by contracts from 2010. Source: MNB

The downtrend in the non-performing corporate loan portfolio continued in 2018 as well. The ratio of non-performing corporate loans sank to nearly 5 per cent. At the end of the year, the non-performing corporate loan portfolio of the credit institutions sector amounted to HUF 406 billion in total, within which the level of the portfolio over 90 days past due was HUF 172 billion (42 per cent) (Chart 47). As a result of the cleaning, by end-December 2018 the ratio of loans over 90 days past due declined to 2.3 per cent. Such a low level was last observed in the Hungarian banking sector in 2003. On the whole, by the end of last year the ratio of non-performing corporate loans declined to 5.5 per cent, which represents a fall of 1.6 percentage points in annual terms, while the non-performing corporate loan portfolio decreased by HUF 53 billion.

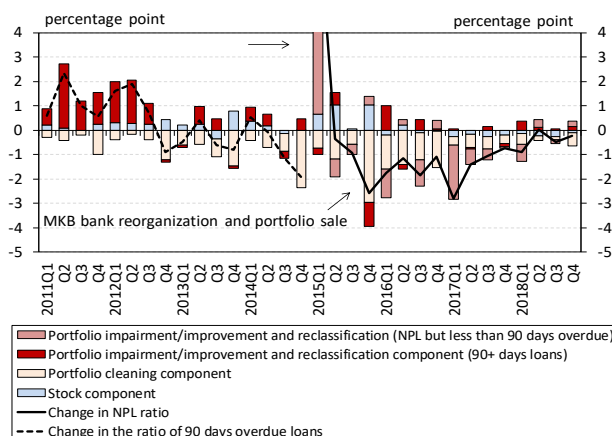
**The ratio of non-performing project loans is declining, but still there are institutions holding significant portfolios over 90 days past due.** Within the corporate loan portfolio, in 2018 the non-performing ratio of project loans declined by 2.9 percentage points to 11.3 per cent, but this level still significantly exceeds the 3.9 per cent non-performing ratio of other corporate loans (Chart 48). Non-performing project loans declined by 11 per cent to HUF 169 billion in 2018. One positive development in recent years is that at end-2018 non-delinquent project loans or non-

**Chart 48: Distribution of the non-performing corporate loan portfolio by project and other loans, and by days past due**



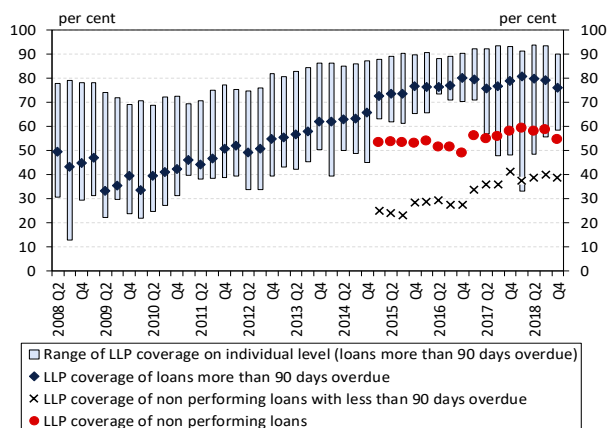
Note: The definition of non-performing loans changed as of 2015. From then on, in addition to the loans over 90 days past due, loans less than 90 days past due where non-payment is likely are also classified as non-performing. Source: MNB

**Chart 49: Factors affecting changes in the ratio of non-performing corporate loans**



Source: MNB

**Chart 50: Loan loss coverage ratio for non-performing corporate loans in the credit institutions sector**



Note: The individual loan loss coverage range covers the banks with at least 2 per cent share in corporate lending. Source: MNB

performing ones up to 90 days past due accounted for more than two thirds of the above amount, while the share of loans over 90 days past due fell to 31 per cent. At the same time, several institutions' balance sheets contain significant non-performing project loan portfolios over 90 days past due, allowing for further portfolio cleaning.

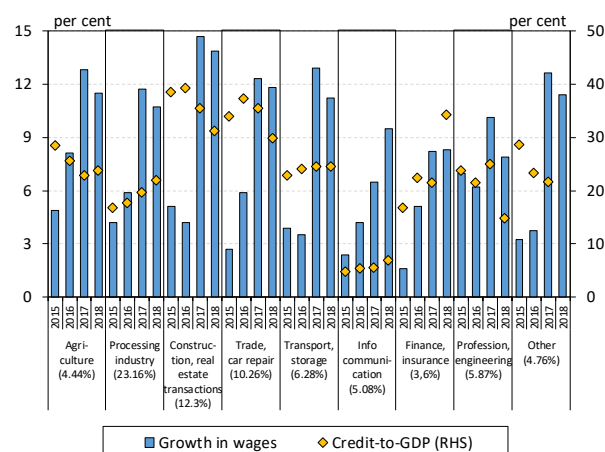
**The improvement in portfolio quality in 2018 was mainly attributable to cleaning and growth in total loans outstanding.** The improvement in the corporate non-performing loan ratio was contributed to both by portfolio cleaning and the increase in loans outstanding (Chart 49). In the past two years, sales of non-performing claims declined to around HUF 60 billion per annum, but the activity remained continuous. In 2018, the non-performing portfolio less than 90 days past due improved on the whole,<sup>15</sup> contributing to the decline in the non-performance ratio, but an overall deterioration<sup>16</sup> was observed in the case of the portfolio over 90 days past due, slowing the decline in the ratio. The first defaults exceeding 90 days of the contracts concluded in the past few years also significantly contributed to the deterioration in the portfolio over 90 days past due.

**Loan loss coverage of the non-performing corporate loan portfolio was down slightly but remains high.** Loan loss coverage of the non-performing corporate loan portfolio amounted to 54 per cent at end-2018, corresponding to a decline of 4 percentage points in annual terms (Chart 50). During last year, the coverage of loans over 90 days past due and less than 90 days past due decreased by nearly 3 percentage points (to 76 per cent and 38 per cent, respectively). At the end of the year, the loan loss coverage of major banks' loans over 90 days past due was within a narrower range (between 58.6–90.1 per cent) than before. The underlying reason is that in 2018 the loan loss coverage of non-performing loans over 90 days past due increased by 10 percentage points in the case of the bank with the lowest coverage and declined by 3 percentage points in the case of the bank with the highest coverage.

**The non-payment risk of highly indebted sectors that are exposed to dynamic wage growth may increase to the greatest degree in the case of normalisation of the interest rate environment.** A significant wage increase has taken place at whole economy level in recent years, especially in 2017 and 2018, when the annual increase in the gross average wage reached 13 per cent and 11 per cent, respectively. If the growth in companies' incomes and/or productivity cannot offset recent years' wage increases, which were observed in all sectors of the national



Chart 51: Gross average wage increase and loans outstanding as a percentage of sectoral GDP



Note: In brackets, the respective shares of sectors in GDP are indicated; together they cover 75 per cent of GDP according to the available loan data. The other sector contains the sectors of mining, quarrying, electric energy, water supply as well as accommodation services and catering. Source: HCSO, MNB

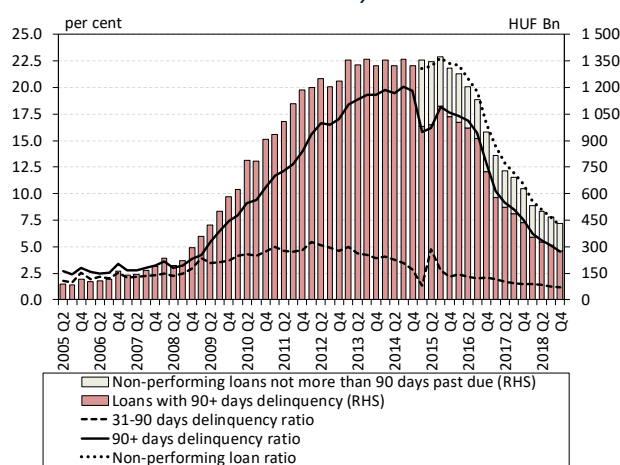
economy, certain actors' debt servicing ability may be endangered, particularly in an interest rate environment that is returning to normal. Looking at the stability aspects of the problem, sectors where wage growth is coupled with significant volume of debt require special attention. Of the sectors where wage growth was especially remarkable, the construction industry, the real estate business as well as the trade and vehicle repair sectors were the ones where – compared to the other sectors – the credit-to-GDP ratio was high, i.e. around 30 per cent, at end-2018. In the aforementioned sectors, wage growth was also above the average, reaching 12–15 per cent in the last two years (Chart 51). Wage growth of more than 10 per cent was observed in agriculture, manufacturing and the transportation and warehousing sectors, but this was coupled with a lower loan-to-GDP ratio of 20–25 per cent.

## 4.2 A considerable portion of delinquent household loans is handled by financial enterprises

**The non-performing household loan portfolio continued to shrink.** In 2018, the ratio of non-performing household loans fell into the single-digit range, sinking to 7 per cent by the end of the year following a steady decline (Chart 52). During the year, non-performing household loans amounting to HUF 197 billion were eliminated from banks' balance sheets, and thus the portfolio declined to HUF 430 billion by the end of the period under review. The decline mostly affected the loan portfolio over 90 days past due, which accounted for 64 per cent of non-performing claims in Q4. Following an annual decrease of 3 percentage points, the ratio of loans over 90 days past due was 4.5 per cent in December.

**Sales of receivables played the main role in the decline in the non-performing portfolio.** In 2018, the decrease in non-performing household loans in banks' balance sheets was mainly attributable to sales of receivables, as a result of which the NPL ratio fell 2.5 percentage points. During the year, sales and write-offs of non-performing claims considered as portfolio cleaning amounted to some HUF 149 billion at sector level. A reason for the decline in the

Chart 52: Ratio of non-performing household loans of credit institutions by contracts

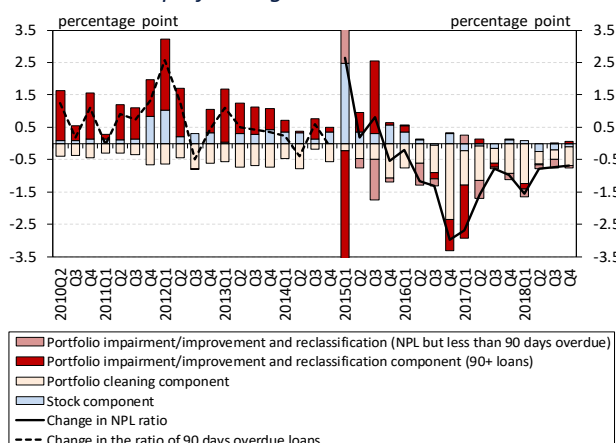


Note: Before 2015 Q1 the non-performing loan ratio shows the ratio of loans overdue for more than 90 days. Source: MNB

<sup>15</sup> The reasons for reclassification to a more favourable rating category most often include the permanent improvement in debt servicing capacity or a decrease in the debt service burden resulting from the restructuring; reclassifications of technical nature may also occur, justified by reviews of the credit rating and also permitted by the effective regulation.

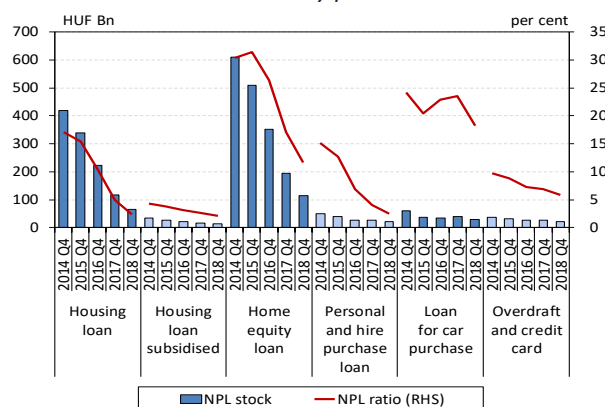
<sup>16</sup> We talk about a portfolio impairment component if the factor calculated on the basis of the residual principle causes an increase in the ratio of non-performing loans, whereas in the case of the opposite effect we can talk about the improvement of the portfolio.

Chart 53: Factors affecting changes in the ratio of non-performing household loans



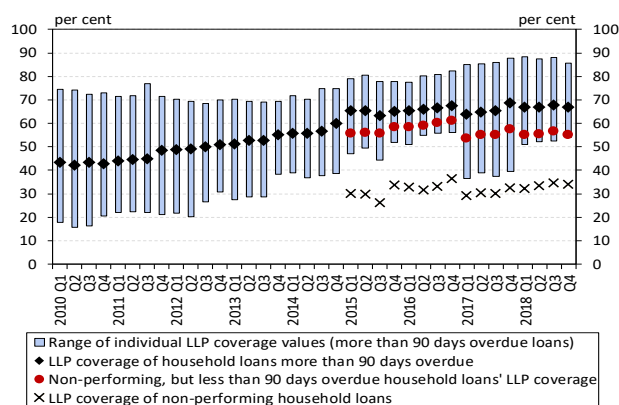
Note: In 2015 Q1, three one-off items significantly affected the changes in the ratio of non-performing loans: the impact of the settlement, which reduced the arrears and the loans outstanding, as well as the increase in the ratio of non-performing loans in view of the new NPL definition. In 2015 Q3, the formerly overdue contracts affected by the settlement once again became overdue by more than 90 days. Source: MNB

Chart 54: Ratio and stock of 90+ days past due household loans by product



Note: Data of banking sector and branches. Source: MNB

Chart 55: Loan loss coverage ratio of non-performing household loans



Note: The range of LLP coverage on the individual level refers to the larger banks. Source: MNB

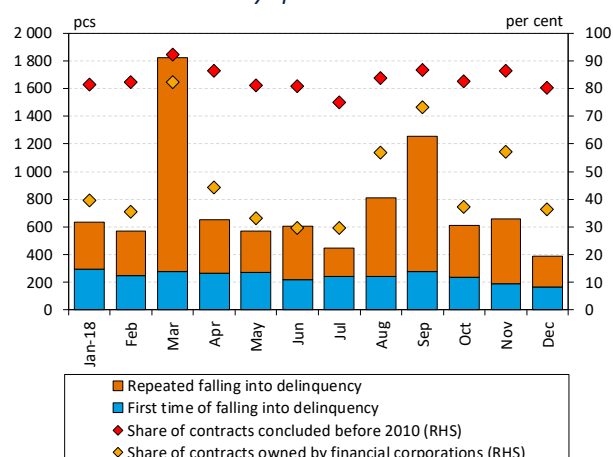
NPL ratio was that some of the debtors whose default was less than 90 days became performing again, while the dynamic expansion in loans outstanding also reduced the ratio of non-performing loans. The former and the latter contributed to the decrease in the ratio by 0.5 percentage point and 0.8 percentage point, respectively (Chart 53).

**Loan portfolios over 90 days past due declined in the case of all household loan products.** By end-2018, in annual terms both the amount and ratio of loans over 90 days past due fell in the case of all products (Chart 54). In the case of mortgage loans, the portfolio more than 90 days overdue dropped by HUF 135 billion, but these loans continue to account for nearly two thirds of the total household loan portfolio over 90 days past due. Within that, the amount of non-performing home equity loans continues to be the highest, i.e. HUF 116 billion at end-2018. In the case of loans for car purchase, where the over 90 days past due NPL ratio is the highest, the non-performing ratio was down to 18 per cent, following a decline of 5 percentage points. One of the lowest ratios (2.4 per cent) is typical of housing loans with market interest rates, but at the same time this is a segment that represents one of the highest volumes (HUF 65 billion).

**Loan loss coverage of non-performing household loans remained stable in 2018.** Loan loss coverage of the household loan portfolio over 90 days past due stood at 67 per cent at end-2018, while this ratio was a stable 55 per cent in the case of all non-performing loans (Chart 55). The dispersion of the indicator across institutions narrowed slightly but gradually, and thus the banks with the lowest and highest coverages implemented provisioning of 54 per cent and 86 per cent, respectively, for the portfolio over 90 days past due at end-2018.

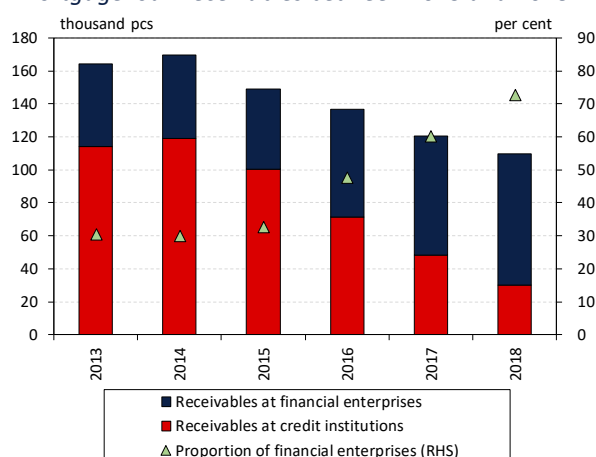
**A large share of the "new" delinquencies are related to mortgage loans at financial enterprises disbursed before 2010.** According to the data of the Central Credit Information System, in 2018 there were some 9,000 household mortgage loan contracts (or claims stemming from such contracts) at least 90 days past due, exceeding the amount of the minimum wage. With the exception of March and September, the number of delinquencies was between 400–800 every month (Chart 56). On average, 600 mortgage loan contracts became delinquent per month, 40 per cent of which were first defaults. These defaults are typically not related to the loan agreements concluded in the new credit cycle: 85 per cent of the defaulting loans were disbursed before 2010, and 54 per cent of them are claims handled by financial enterprises. In March and September,

**Chart 56: Number of mortgage loan claims becoming over 90 days past due in 2018**



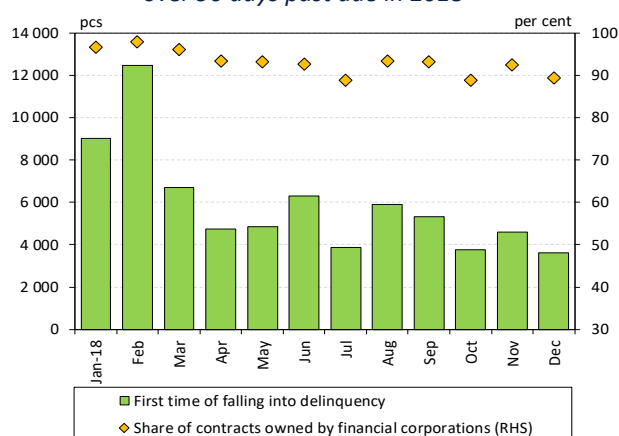
Note: The distribution according to institutions managing the contracts shows the status as of December 2018. The chart shows defaults of at least the amount of the minimum wage. Source: CCIS

**Chart 57: Change in the number of overdue household mortgage loan receivables between 2013 and 2018**



Source: CCIS, MNB

**Chart 58: Number of personal loan claims became over 90 days past due in 2018**



Note: The distribution according to institutions managing the contracts shows the status as of December 2018. The chart shows defaults of at least the amount of the minimum wage. Source: CCIS

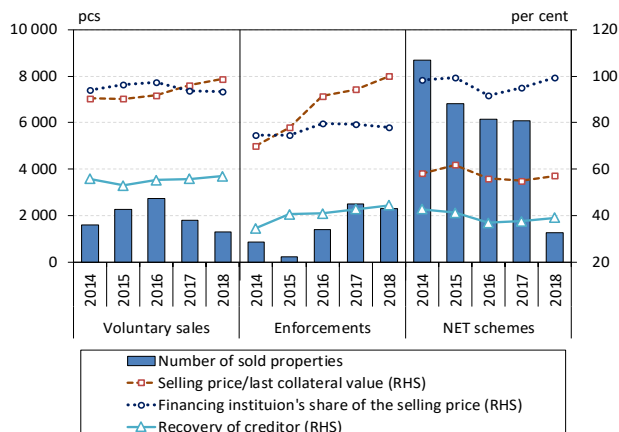
the number of delinquencies rose to 1,800 and 1,250, respectively, 85 per cent and 78 per cent of which represented recurring delinquencies, mostly related to contracts handled by financial enterprises. Accordingly, the outliers of the two months presumably reflect workout managers' restructuring efforts, which proved to be unsuccessful in the case of these transactions.

**Most of the defaulting mortgage loans no longer burden the banking sector's capital and resources.** The number of mortgage loan contracts over 90 days past due exceeding the amount of the minimum wage declined from 164,000 at end-2013 to 109,000 by end-2018 (Chart 57). Of the latter, the balance sheets of credit institutions and financial enterprises contained 30,000 and 79,000, respectively. While at end-2013, 69 per cent of the defaulting mortgage loan contracts under review were in the balance sheets of credit institutions, this ratio fell to 27 per cent by end-2018.

**More than 90 per cent of the personal loans that became delinquent in 2018 were at financial enterprises at the end of the year.** In 2018, 3 per cent (71,000 contracts) of the personal loans outstanding in excess of the amount of the minimum wage, became over 90 days past due, and 94 per cent of them were debts vis-à-vis financial enterprises (Chart 58). One third of financial enterprises' defaulting contracts belonged to debt management companies. In January and February, 9,000 and 12,500 personal loans, respectively, became delinquent, while thereafter the average monthly number was 5,000. Last year, 20 per cent of the payment failures were not first delinquencies. The vast majority (76 per cent) of defaulting personal loans are contracts concluded after 2016, which is due to the shorter maturities of personal loans.

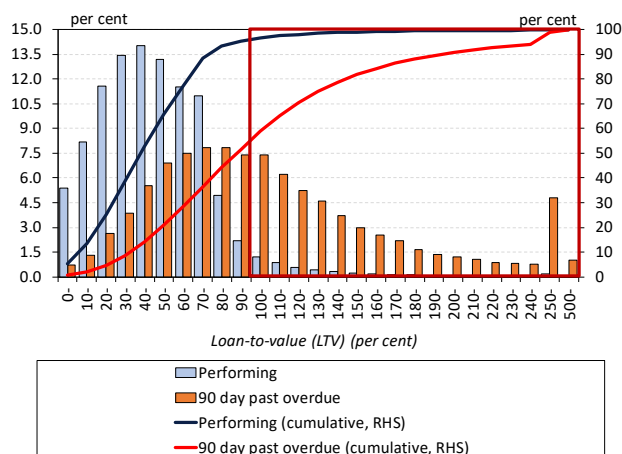
**The favourable impact of housing market developments is reflected in the sales of collateral.** During 2018, recovery from sales of real estate collateral took place in 4,837 cases in the banking sector. Nearly half of these were sales of real estate within the framework of judicial enforcement, the share of which within real estate sales increased in the past three years (Chart 59). One of the underlying reasons may be that voluntary sales can only solve the problem in less complicated cases. Firstly, in the case of debtors who owe several creditors, those of the latter without collateral strive to achieve recovery through legal procedures, which may also affect the recovery of the creditor that has collateral. Secondly, voluntary sales are feasible if the debtors cooperate, and following previous years' voluntary sales the share of debtors who are not

*Chart 59: Number of collateral realisations and average recovery of mortgage loans in the banking sector and financial enterprises*



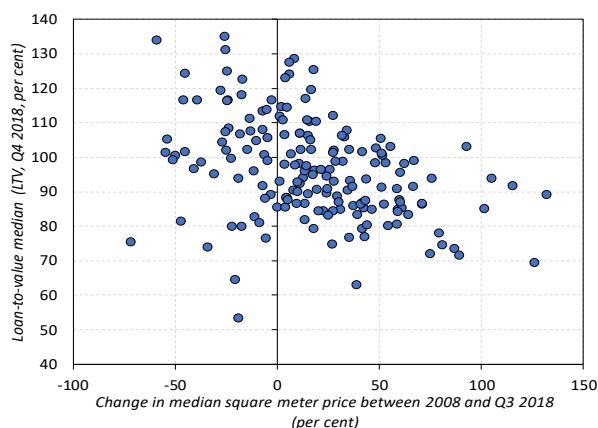
Source: MNB

*Chart 60: Distribution of the loan-to-value ratio of households' mortgage loans outstanding according to performance*



Note: Delinquent loans cover the loans over 90 days past due where the delay exceeds the amount of the minimum wage.  
Source: CCIS, MNB

*Chart 61: Correlation between the change in square metre price and the loan-to-value ratio in the case of defaulting mortgage loans*



Source: CCIS, MNB

willing to cooperate may rise. Housing market trends contributed to the transactions at market prices of the properties sold during enforcement, similarly to voluntary sales, but due to the higher costs, the creditor's recovery is lower on the whole. With the end of the programme of the Hungarian National Asset Management Inc. and the aforementioned narrowing of possibilities of the voluntary sales of marketable property, recovery through judicial enforcement may play a greater role in the future as well.

**A significant difference is observed between the loan-to-value ratios of performing and delinquent mortgage loans.** In the case of 88 per cent of the performing mortgage loans the loan-to-value ratio (LTV) does not reach the upper limit of the current debt cap rule (80 per cent), while the same is true for a mere 36 per cent of loans over 90 days past due, exceeding the amount of the minimum wage (Chart 60). In the case of nearly half of the delinquent loans outstanding, the LTV ratio exceeds 100 per cent (this ratio is 4 per cent for the performing portfolio), while in the case of 11 per cent of them it even exceeds 200 per cent. As a result of the upswing on the real estate market in recent years, the LTV ratio improved in the case of some of mortgage loans, which may have provided help to debtors in debt settlement procedures, through the selling of real estates.

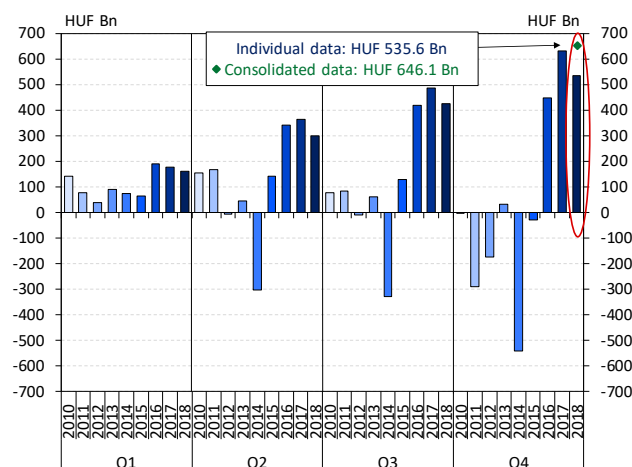
**The upturn in the real estate market, which was heterogeneous across regions, was not able to help mortgage loan debtors in a difficult situation everywhere.** Between 2008 and 2018 Q3, the median square metre price of realised transactions declined in 26 per cent of the districts of Hungary, and the fall was even more than 50 per cent in six districts (Chart 61). In terms of number and volume, the real estate collateral of 19 per cent and 12 per cent, respectively, of mortgage loans over 90 days past due are located in these districts, where real estate market conditions are worsening. In districts where the upswing in the real estate market fell short of the national average, the loan-to-value ratio of non-performing loans also remained typically higher. In 60 per cent of these districts, the median loan-to-value ratio exceeded 100 per cent. In the small settlements specified in the programme, the rural HPS to be launched in 2019 H2 may entail an increase in house prices, which may also have a reducing impact on the loan-to-value ratios.

## 5 Income and capital position. Profit-improving effect of impairment reversals declined substantially

According to non-consolidated data, in 2018 the credit institution sector realised an after-tax profit of HUF 536 billion, which corresponds to a return on equity (ROE) of 13.7 per cent. The sector's 2018 profit falls HUF 95.2 billion short of the record-high profit realised at the end of 2017. The decrease in profitability is mostly attributable to the smaller profit-improving effect (HUF 119 billion less than last year) of the reversals of impairments and to the rise of HUF 84 billion in operating expenses, while dividends received also declined. Primarily due to the increase in the outstanding stock, there was a positive shift in the profit impact of interest income, net commission and fee income, and other profit including the net profit on the sales of own and purchased receivables also rose. The profit/loss on financial transactions did not change materially compared to the figures registered in 2017.

The capital adequacy of the credit institution sector is still high; the consolidated capital adequacy ratio, not yet including the effect of reinvested profit, was 16.1 per cent at the end of 2018. All credit institutions met the regulatory minimum requirement of 9.875 per cent valid for 2018 together with the capital conservation buffer. Examining capital adequacy on a longer horizon, it has remained stable even despite the growth in total assets, i.e. Hungarian banks reinvested sufficient profit in their operation to be able to increase their balance sheet in a sustainable manner.

Chart 62: Cumulative after-tax profit of the credit institution sector by quarter



Source: MNB

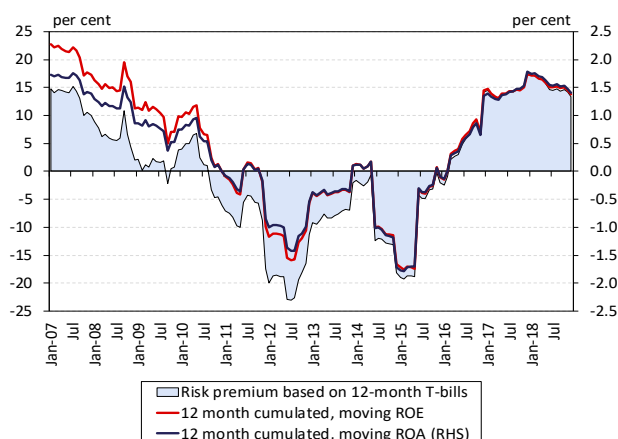
### 5.1 In parallel with the decrease in reversals of impairments, banks' profit may converge to its sustainable level

The profit recorded by the credit institutions sector in 2018 falls short of that realised in the previous year. Based on the data reporting on a stand-alone and consolidated basis, the credit institution sector realised an after-tax profit of HUF 536 billion and HUF 646 billion, respectively, in 2018 (Chart 62). Similarly, to the previous half-year, the cumulated profit fell short of the year-on-year value both in the third and fourth quarters of 2018, and at the end of 2018, the profit of the banking sector was HUF 94.7 billion lower than at the end of 2017. In 2018, financial enterprises outside the credit institution sector closed the year with a profit of HUF 83.1 billion, exceeding the earnings of the previous year by HUF 78.3 billion – primarily due to the change in impairments and risk provisioning. The profit impact of the sales of receivables linked to the Resolution Asset Manager (Szanálási Vagyongkezelő) made a major contribution to the profit of the financial enterprises.

In the second half of 2018, the profitability indicators of the credit institution sector were still at a historic high, even despite the decline. At the end of 2018, the 12-month rolling return on equity (ROE) of the credit institution sector was 13.7 per cent, which falls 3.8 percentage points short of the outstanding return on equity registered at the end of 2017 (Chart 63). Despite the decline, this level can be still regarded as outstanding both in historic terms

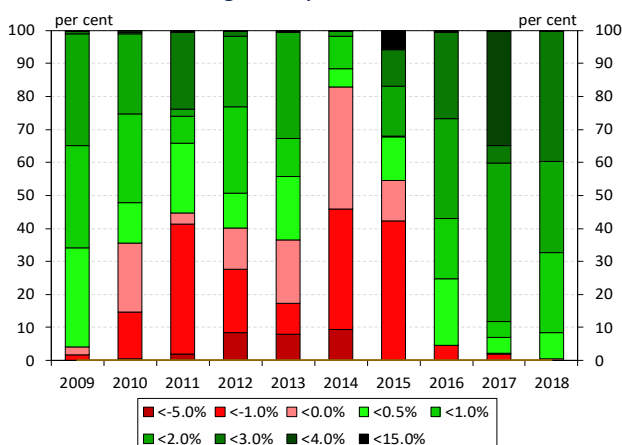


Chart 63: 12-month rolling after-tax income ratios of credit institutions and the risk premium



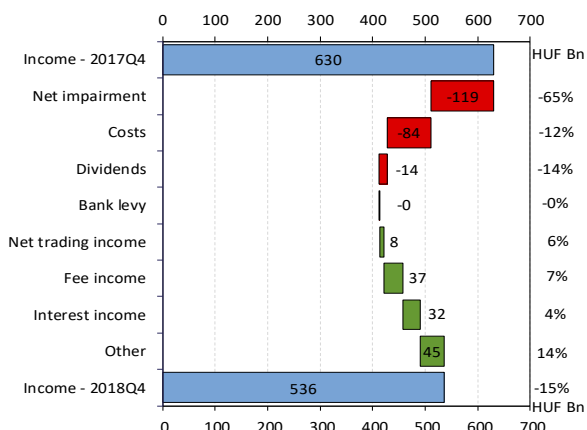
Source: MNB, Government Debt Management Agency

Chart 64: Distribution of credit institutions based on ROA, weighted by total assets



Source: MNB

Chart 65: Change in the main income components between December 2017 and 2018



Source: MNB

and in an international comparison. The ROE premium measured relative to the risk-free return was almost the same, i.e. 13.4 per cent, at the end of 2018, owing to the persistently close to zero yield level of the 12-month discounted Treasury bill. A similar trend as in ROE can also be observed in the return on assets (ROA), which declined by 0.4 percentage point compared to the record high registered in 2017, and thus was 1.4 per cent at the end of 2018. The profitability indicator of the financial enterprises outside the credit institution sector rose significantly, in line with their record high profit: at the end of 2018 the ROE and ROA figures were 27.3 per cent and 4.4 per cent, respectively.

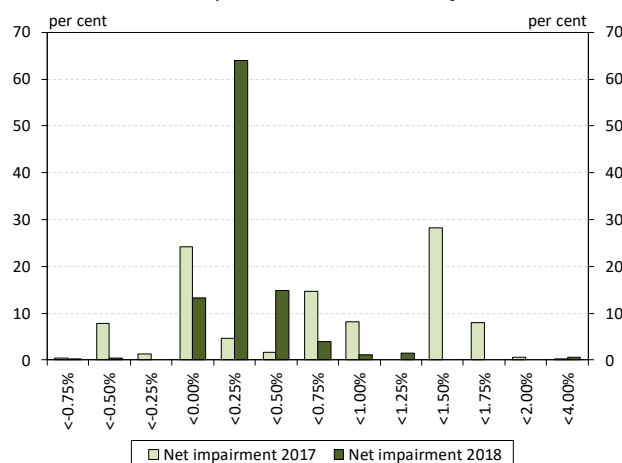
**In 2018, substantially fewer banks achieved outstanding return on assets compared to the previous year.** Examining the distribution of institutions of the banking sector based on the return on assets, we found that in 2017 the ratio of banks with ROA between 3 per cent and 4 per cent based on total assets was outstanding, primarily due to the extraordinarily large reversals of impairments. In 2018, the net impairment component still made a positive contribution to profitability at the sector level, albeit to a smaller degree than in 2017. As a result of this, in 2018 there were already hardly any institutions with outstanding profitability, i.e. over 3 per cent, and the ratio of the banks with ROA between 2 and 3 per cent and 0.5 per cent and 1 per cent increased substantially (Chart 64). In parallel with this, the number of loss-making institutions dropped to two, while their asset-based market share declined below 0.6 per cent in 2018.

**The decrease in banks' profit was primarily attributable to the deterioration in operating expenses and the lower value of reversals of impairment.** Of the main profit components, the decline of HUF 119 billion in impairment reversals and the rise of HUF 84 billion in operating expenses had the most significant negative impact on banking sector profit. In addition, dividends received also declined, partly due to the profit reinvested in foreign subsidiary banks. The concentrated rise in operating expenses observed at the institutional level was attributable to personnel expenditures.<sup>17</sup> The impact of interest income, net commission and fee income, as well as of the other profit including the net profit/loss on the sales of own and purchased receivables shifted in a positive direction, while no

<sup>17</sup> As a result of the changeover to IFRS in 2018, one of the credit institutions, in contrast to the former practice, states the costs of its shared service centre as personnel costs rather than other expenditures, which thus also increased the level of other profit/loss. Another institution paid a one-off, extraordinary bonus to all employees in December 2018.

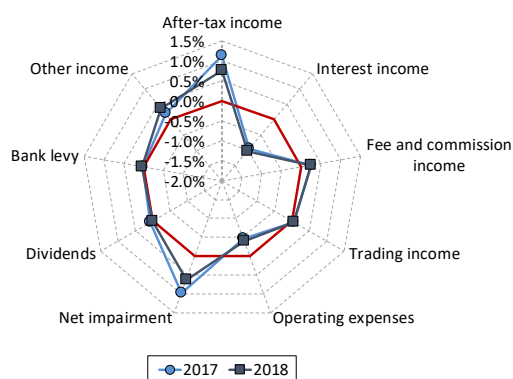


Chart 66: Distribution of credit institutions' total assets based on net impairments as a ratio of total assets



Note: Positive figures represent net reversal of impairment, while negative figures represent net recognition of impairment. Source: MNB

Chart 67: Difference between income components as a ratio of total assets in 2017 and 2018 and their long-term average



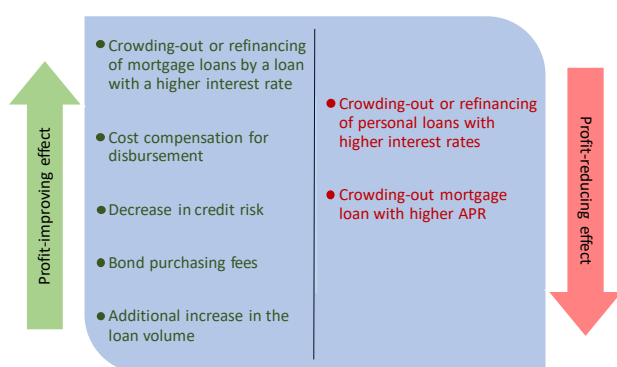
Note: The long-term average of income components was calculated from June 2002. The red line represents no difference. Source: MNB

substantial change was recorded in the bank levy and profit/loss of financial transactions on an annual basis (Chart 65). The rise in interest income at the sector level was achieved in conjunction with simultaneous growth in interest income and expenses. However, this did not affect all institutions, since based on total assets, interest income declined at roughly 18 per cent of the banks. The improved net interest position is primarily attributable to the rise in the outstanding stock. Strong lending growth also played an important role in the increase of net fee and commission income, outweighing the drop in commissions received for the distribution of retail government securities.

**The variance of net impairment recognition as a percentage of assets declined compared to 2017.** While at an aggregate level there was a substantial decline in the positive profit/loss impact of net impairment recognition, still no clear trend can be established regarding the impairment strategy of the individual institutions. Nevertheless, the variance of the degree of impairment as a percentage of assets among the institutions declined substantially compared to the previous year: in the case of 64 per cent of the banks, based on total assets, the rate of reversal was between 0 per cent and 0.25 per cent (Chart 66). Compared to the previous year, almost 59 per cent of the entire banking sector was transferred to this category. Looking ahead, further realignment can be expected in the distribution of impairment recognition among the institutions: after the exhaustion of impairment reversals banks can once again expect loss on this P&L item, in parallel with the anticipated gradual rise in credit risks.

**As a percentage of total assets, interest income and expenses are substantially lower than the long-term average.** Comparing the profit/loss items as a ratio of total assets to their long-term average calculated from June 2002, the largest negative deviation is seen in interest income and expenses. Following a further moderate decrease around the middle of the year, net interest income obtained as the result of these two items fell short of the long-term average by more than 1 percentage point at the end of 2018 (Chart 67). As the gradual contraction in interest margins observed in recent years can be linked to the low interest environment, an increasing interest environment could potentially entail a rise in the interest margin. However, a return to the pre-crisis level may be significantly curbed by other market changes which have occurred in the meantime (e.g. increasing competition and the impact of prenatal baby support). As the profit-improving effect of net impairments wears off, a further decline can be expected in the profitability of the sector, which

Chart 68: Anticipated effects of the prenatal baby support on the credit institutions sector's profit



Source: MNB

should approximate the sustainable, long-term structural level. Credit institutions may also utilise other resources with a view to maintaining or increasing their profitability. Based on a comparison with the banking sectors of the region and considering the most efficient domestic credit institutions, the reduction of operating expenses at the sector level could be a solution, which requires efficiency-improving measures. However, since in the short run investments increase costs, growth in lending is also an important means to foster the increase in the sustainable level of profit.

**The prenatal baby support may influence the profitability of credit institutions via several channels.** On the whole, the prenatal baby support loans would have a negative impact on credit institutions' net interest income, if the interest income realised on these loans and the compensation provided to the banks for the performance of the tasks<sup>18</sup> will not reach the interest, commission and fee income of the banking products which is crowded out, refinanced or prepaid. In the case of having a child, this negative impact may primarily occur upon the crowding-out of personal loans and the more expensive mortgage loans. However, the 3 percentage point interest rate increase applicable to borrowers who fail to have children may mitigate the loss on some of the outstanding lending. The additional growth in outstanding lending may have a positive profit impact, together with the state surety, via the decrease in the costs of risk. Nevertheless, cases may occur when clients committing to have children in the next five years, capitalising on the interest subsidy, apply for the prenatal baby support for investment purposes (e.g. purchase of government securities), which may as well result in a moderate surplus fee income for the banks (Chart 68). However, according to the market survey conducted by the MNB, banks continue to anticipate satisfactory profitability for 2019 (Box 5).

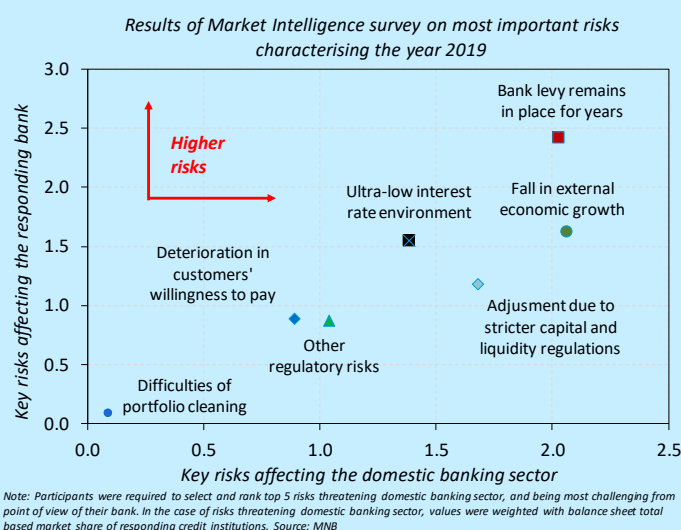
#### BOX 5: BUSINESS EXPECTATIONS OF HUNGARIAN BANKS FOR 2019 AND THE KEY RISKS THEY PERCEIVE

**This year, within the framework of its twelfth 'Market Intelligence' survey, the MNB contacted nine large domestic commercial banks** – using a questionnaire survey and personal meetings – with a view to learning about these credit institutions' business plans for 2019, their views on the growth prospects of the sector and surveying the risks they consider the most important.

<sup>18</sup> For the performance of the tasks specified in the Decree the credit institutions are entitled to compensation in respect of the loan amounts which they legitimately disburse at the rate of 0.8 per cent, and in respect of the loans outstanding on 31 December until 28 February at the rate of 0.3 per cent.

**The banks' common opinion was that the growth prospects of the Hungarian economy and the banking sector are favourable.** All the contacted market participants had already successfully overcome the difficulties caused by the global financial crisis. They expect the economic growth to be accompanied by dynamically increasing lending this year as well, due to which the banking sector's balance sheet total may increase by 5-10 per cent and credit penetration may also rise further. However, in the banks' opinion, the Hungarian economy is already close to its cyclical peak, and thus – although they expect strong GDP growth this year as well – cyclical effects may curb the growth rate in the future.

**The favourable macroeconomic situation and the persisting low interest rate environment fosters credit expansion in both the corporate and the household sectors.** The respondent credit institutions reported increasing credit demand and strengthening propensity to borrow in the household segment. Banks anticipate further growth in the residential real estate lending market and a continued rise in property prices, which may entail an increase in the loan amounts applied for. However, the family protection action plan may substantially influence the volume of household lending, which makes it difficult for the banks to make forecasts. The project financing segment is also experiencing an increasing recovery, which may lead to lower margins due to the fierce competition. According to the banks' expectations, the outstanding borrowing of corporations may increase by more than 10 per cent at the sector level in 2019 as well. In the SME segment, outstanding loans may rise by HUF 650-850 billion, while the volume of the outstanding borrowing of households is expected to increase by HUF 350-500 billion.

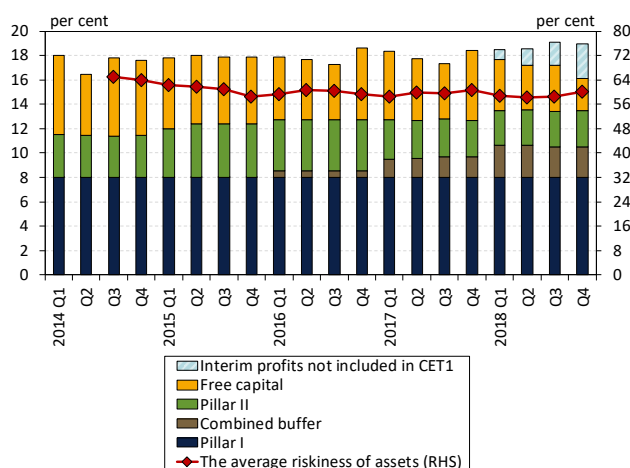


**In the field of portfolio cleaning, banks achieved a breakthrough** as the quality of the loans granted after the crisis is very good, and the dynamic growth in outstanding lending further improves their portfolio quality indicators. Most of the banks had an outstanding year in 2018 and achieved substantially higher profits than the preliminary expectations. However, the respondent credit institutions anticipate somewhat more moderate profits in 2019, primarily due to the depletion of impairment reversals. Based on the responses received in the 'Market Intelligence' survey, the 2019 pre-tax profit of the banking sector is expected to amount to HUF 450-500 billion, representing a return on equity (ROE) exceeding 10-

12 per cent. Digitalisation is becoming increasingly important in the banks' strategy, which is not only an essential means of increasing productivity and efficiency, but is also vital for overcoming the labour shortage.

**Based on the responses of the surveyed credit institutions,** we summarised the risks that represent the greatest threat to the functioning of the banking sector, based on which **the resultant risk map differed from last year's in several respects.** At the sector level, a striking aspect is that one of the most significant risks of the previous years, i.e. the 'difficulties of portfolio cleaning', is no longer a significant risk at all this year. According to the banks, in 2019 the sequence of risks that jeopardise the sector the most is as follows: the 'fall in external economic growth', the 'bank levy remains in place for years', 'adjustment due to stricter capital and liquidity regulations', the 'ultra-low interest rate environment', 'other regulatory risks' and the 'deterioration in customers' willingness to pay'. At the same time, at the level of institutions, credit institutions deem the 'bank levy remains in place for years' to be a higher risk than the 'fall in external economic growth'. The sequence also changed in the case of the 'adjustment due to stricter capital and liquidity regulations' and the 'ultra-low interest rate environment', as well as in the case of the 'other regulatory risks' and the 'customers' willingness to pay', when the banks assessed the risks in terms of their own operation. However, there is no difference in the perception of difficulties related to portfolio cleaning; the respondents regarded this as a less significant risk both at the level of the entire sector and of the individual institutions.

Chart 69: Consolidated CAR of the banking system

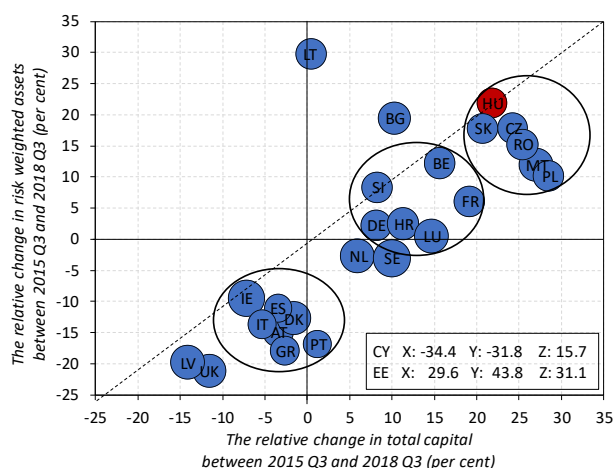


Note: The combined capital buffer contains the capital conservation buffer (CCB), the countercyclical capital buffer (CCyB), the systemic risk buffer (SRB) and the buffer of other systemically important institutions (OSII). Source: MNB

## 5.2 Due to the rise in total assets, the capital adequacy ratio declined moderately

The consolidated capital adequacy of the Hungarian banking sector remains solid. In 2018, the consolidated capital adequacy ratio (CAR) declined to 16.1 per cent, compared to the level of 18.4 per cent at the end of 2017. Also considering the mid-year profit, the CAR would have been 18.9 per cent at the end of December 2018 (Chart 69), which still implies a stable capital position. The decline in the CAR took place as a result of the roughly 12.4 per cent growth in the total exposure value. Following a moderate decline in the first half of the year, the volume of risk weighted assets as a percentage of the balance sheet total returned to the level of roughly 60 per cent recorded at the end of 2017, i.e. the average risk of assets stagnated in an annual comparison.

Chart 70: Change in the numerator and denominator of the CAR in an international comparison



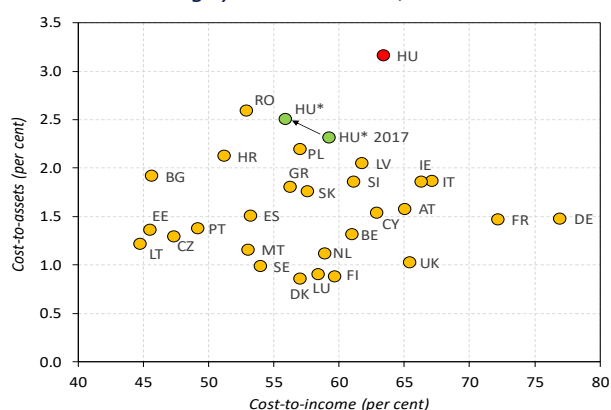
Note: The size of the bubbles is proportional to the level of the capital adequacy ratio. Cyprus and Estonia were excluded due to their outstanding values, while Finland was excluded due to a lack of available data. The box contains the values of the former two countries as of their axes (X and Y) and their banking sector's CAR (Z). Source: ECB CBD

Similarly to the Hungarian banking sector, the banking sectors in other countries in the region were also characterised by a simultaneous expansion in risk weighted assets and regulatory capital. Between 2015 Q3 and 2018 Q3 the banking sector's capital adequacy ratio changed by about 3 percentage points at most in all countries of the European Union, but there were major shifts in the numerator and denominator of the indicators. In most of the banking sectors, the expansion in the total risk exposure value was typically accompanied by larger-scale capital growth, while contraction in the total risk exposure value was paired with a smaller capital decrease (Chart 70). Thus, for the former countries the growth in the banking sector's balance sheet was not accompanied by a rise in leverage. At the same time, the total exposure value followed the change in the balance sheet total in the same direction, i.e. it was not typical that the banking sectors under review substantially increased their average risk. At the end of 2018 Q3, following some moderate positive and negative deviations, the capital adequacy of the Hungarian banking sector returned to the level from the end of September 2015, while considering the rise in the indicator's numerator and denominator, it behaved similarly to the neighbouring countries according to the international consolidated data. By contrast, the decline in exposure primarily characterised the Mediterranean countries.

## 6 Efficiency. Profitability may increase through digitalisation, financial deepening and market consolidation

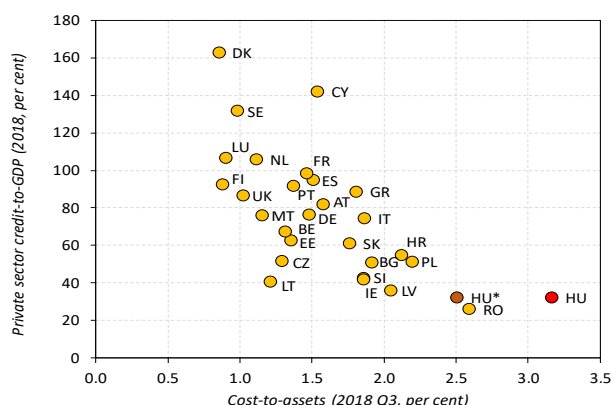
The increase in operating expenses was concentrated within the sector compared to the previous year. The rise was mostly attributable to personnel expenditures, which partly rose due to one-off effects, and partly due to the changeover to International Financial Reporting Standards (IFRS). Thus, the banking sector's efficiency ratios deteriorated slightly in 2018, and in an international comparison the Hungarian banking sector still lags behind in terms of cost-efficiency. In the coming years, improvement in the banking sector's operational efficiency may be key to the sustainable growth of banks' profitability. With a view to reducing the relative level of operating expenses, we deem the following necessary: (1) increasing depth of the financial intermediation, (2) further spread of digitalisation, and (3) acceleration of consolidation among the banks.

Chart 71: Cost-to-assets and cost-to-income ratios of banking systems in the EU, 2018 Q3



Note: In the case of the cost-to-income ratio, HU\* is adjusted for the effect of subsidiaries and the bank levy on operating expenses, while in the case of the cost-to-assets ratio the transaction levy is also filtered out. Source: ECB CBD

Chart 72: Relationship between financial penetration and the level of cost-to-assets



Note: The operating expenses for HU\* are adjusted for one-off effects (foreign subsidiaries, state levies). Source: MNB, ECB

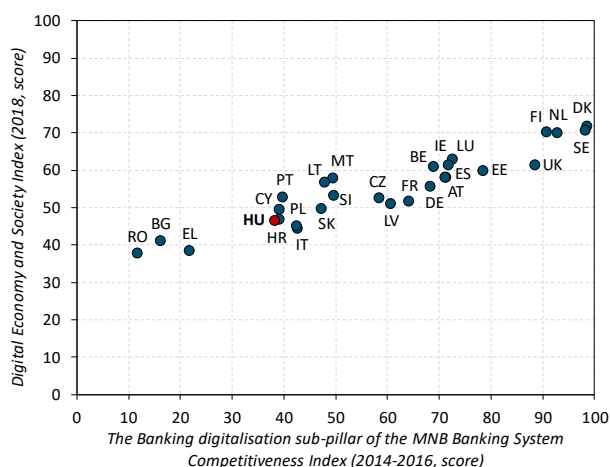
### 6.1 Hungarian banks continue to operate with low efficiency

The magnitude of cost-to-assets is extremely high in a European comparison. According to consolidated data, the Hungarian 12-month cumulative cost-to-assets ratio reached 3.2 per cent in the third quarter of 2018. In the case of certain Hungarian banks, operating expenses also include the costs related to foreign subsidiaries, the bank levy and the financial transaction tax: net of these items, the value of the indicator is 2.5 per cent. Due to the increase in personnel expenditures the rate of operating expenses as a percentage of assets rose compared to 2017, but one-off effects (payment of an outstanding bonus by a major bank and transition to IFRS) also contributed to this. Comparing European banking sectors, the operating expenses of the Hungarian banking sector are the second highest. The 12-month rolling cost-to-income ratio amounted to 55.9 per cent, which – due to the outstanding operating profit as a ratio of total assets – was in the mid-range of the EU ranking (Chart 71). Based on these indicators, an improvement in efficiency could happen in three not mutually exclusive ways: via decrease in expenses, growth in total assets (loans), and increase in profit.

The growth in credit penetration may be key to increasing efficiency. Cost-efficiency may improve significantly if concurrent with the use of an unchanging amount of resources the banking sector maintained a higher volume of assets. The example of the European banking sectors show that cost-efficiency is typically higher in countries with greater financial depth, due to the higher economies of scale (Chart 72). There is ample room in Hungary for the expansion of assets, since – in terms of the credit-to-GDP ratio – the Hungarian banking sector lags within the EU. Thus, the



Chart 73: Relationship between DESI and the digitalisation sub-pillar of the MNB Banking Sector Competitiveness Index



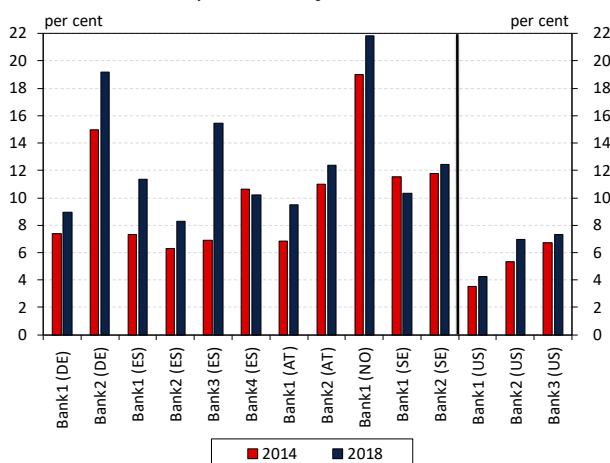
Note: The MNB's BSCI digitalisation sub-pillar includes the following indicators: the share of individuals using internet for banking and the share of individuals using digital payment, mobile payment and online payment. The DESI composite index integrates the following indicators: level of Connectivity, Human Capital, Use of Internet Services, Integration of Digital Technology and Digital Public Services. Source: MNB, ECB CBD, Eurostat, WB, DESI

further growth in credit penetration expected in the coming years may provide proper foundation for increasing efficiency. In addition to widening the customer base, the growth in the average loan amounts also has a favourable impact on the relative size of operating costs.

**There is a strong connection between the popularity of digital services and the general skills related to them.**<sup>19</sup>

The European Commission's Digital Economy and Society Index (DESI), which examines the digital maturity of the countries in the EU, shows strong correlation with the Banking digitalisation sub-pillar of the MNB's Banking Sector Competitiveness Index. The highest correlation – almost 94 per cent – can be observed between the DESI Human resources component, which integrates, among other things, the general usage of the internet, basic digital skills and the number of IT experts, into a single indicator (Chart 73). The results demonstrate a strong, complex relationship between the prevalence of digital banking services and general digital development. Although Hungary has a relative lag in the aforementioned areas, by building on the existing competences, credit institutions may enhance their digital infrastructure, thereby improving cost-efficiency, which can contribute to a future rise in profitability. However, the connection with general digital skills also highlights the fact that – in parallel with developments in digital banking – digitalisation in other sectors is also essential for a significant improvement in competitiveness.

Chart 74: Expenditures related to technology as a ratio of total expenditures for certain banks



Note: Expenses related to data processing, computers, software, IT systems and telecommunication. The American banks included are among the top 10 in the US, while the European ones are among the top 40 in Europe based on their total assets. Source: S&P

**Temporarily, the costs of the IT investment necessary for digitalisation also contribute to the high level of operating expenses.** In recent years, FinTech companies have gained increasing presence in certain banking segments (e.g. in 2016, in Sweden the market share of challengers in the consumer credit already outstripped that of traditional banks).<sup>20</sup> In respect of the business models and strategies, banks are applying a wide variety of adjustments (creating FinTech incubators, conducting product development in cooperation with FinTech companies, but the independent development of proprietary products is also quite common). According to EBA data,<sup>21</sup> 60 per cent of the European banks plan to increase their FinTech investments, as well as the IT expenditure spent on internal FinTech developments; however, all of this entails additional growth in expenses. The innovation efforts are well reflected by the fact that the expenditures in technology are very high and even

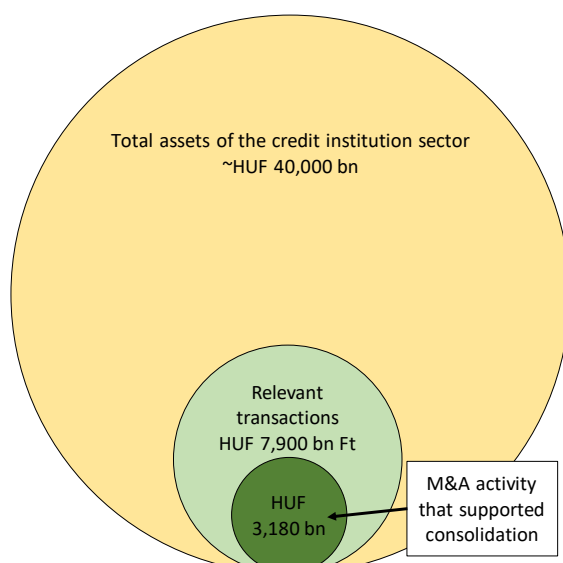
<sup>19</sup> We also dealt with the topic in our previous report, see [Financial Stability Report, November 2018](#).

<sup>20</sup> McKinsey & Company (2016) <https://www.mnb.hu/letoltes/mnb-fintech-conference-presentation-mckinsey-czimer-balazs.pdf>

<sup>21</sup> EBA Risk assessment of the European banking system, December 2018.



Chart 75: Mergers and acquisitions after the crisis



Note: Transactions which supported consolidation include acquisitions that resulted in the merger of institutions or portfolios. Source: MNB

rose further in recent years at European banks (Chart 74). Based on the available data, in the case of certain Hungarian banking groups, the ratio of IT costs within administrative costs was at the level of 9–15 per cent in 2017, i.e. the same level as observed in the case of European banks. The expansion of FinTech companies is supported by the EU-level PSD2 directive as well, which was implemented in Hungary on schedule (Box 6).

**There is still room for consolidation with the aim of improving the efficiency of Hungarian banks.** By means of M&A transactions, the cost-to-assets ratio can be substantially reduced by merging management structures, streamlining certain costs (e.g. marketing) and rationalising the physical and human capital maintained for the purpose of providing services. Examining the M&A activity of the banking sector in recent years and the number of existing institutions, we found that no significant progress has been made in the ratio of the sector's total assets, which amounted to roughly HUF 40,000 billion (Chart 75). Accordingly, there is still substantial potential to improve the banking sector's efficiency by rationalising the present market structure.

#### BOX 6: IMPLEMENTATION OF PSD2 IN HUNGARY

Transposition of Directive 2015/2366/EU on payment services in the internal market (**PSD2**) into the Hungarian legislation was completed by the deadline of 13 January 2018, and accordingly from that date onwards the provisions of the PSD2 must be applied in Hungary as well. The greatest innovation of the directive is that it added already existing services to the scope of regulated services, the general spread of which may fundamentally change everyday banking. These include the payment initiation and account information services. The service providers rendering such services are referred to as TPP (*third party provider*), since they enter between the traditional account servicing payment service provider and its client as a third party.

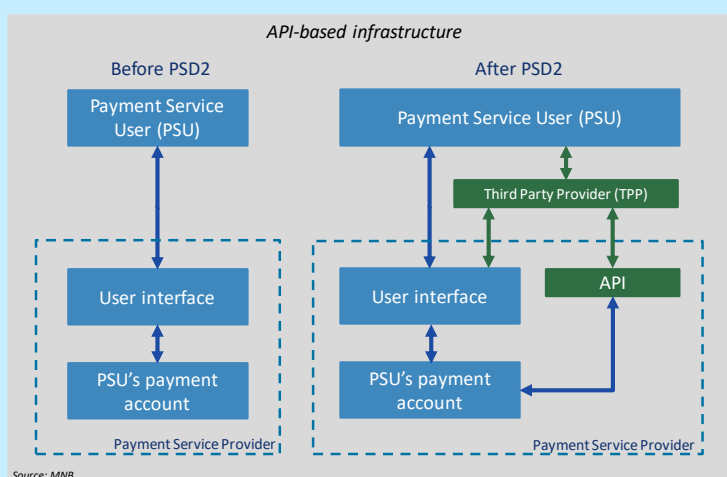
**Within the scope of the account information service, the TPP can access the data stored on the client's payment account** (e.g. debit and credit entries, comment field) and can render its services by aggregating this data; for example, it may provide its clients with a personal finance management (PFM) application. These applications help clients manage their daily finances or make the credit assessment related to a loan application more convenient by sending the data necessary for the credit scoring, retrievable on the basis of the turnover on the payment account, directly to the financial institution providing the loan.

Through the payment initiation provider, the client may submit payment orders, which then will be fulfilled by the account servicing institution as if they were submitted directly to it. Within the scope of this service, the client may submit a payment order to the debit of any of his payment accounts, e.g. through an application. Several prospective TPPs have already made enquiries to the MNB with regard to the details of the licensing and notification procedures related to the payment initiation and account information services; however, at present the MNB only conducts notification procedures in relation to account information services. To date, two account information service providers have been registered, which at the same time also means a European passport for these service providers.

**In accordance with the provisions of the directive, the TPP, the client and the account servicing institution must communicate with each other** through secure data transmission connections; the detailed requirements with regard to the data transmission connection are determined by Commission Delegated Regulation 2018/389/EU (SCAR),

applicable from 14 September 2019. Pursuant to the provisions of SCAR, the account servicing institution must make available an application programming interface (API), through which the TPP and the account servicing institution can communicate. The account servicing institutions had to develop the APIs for testing purposes by 14 March 2019. Based on the information available to the MNB, all major credit institution payment service providers in the retail and corporate business lines complied with their API publication duty prescribed by SCAR; however, a few smaller market participants have not yet completed the necessary developments.

**The appearance and anticipated spread of TPPs may substantially change the present operation of the financial service providers, not only in the retail, but also in the corporate business.** Open banking (i.e. the possibility of using the data available at the traditional credit institutions outside of them) which appeared with the support of PSD2, offers a number of opportunities and may substantially change the daily business of consumers and companies.



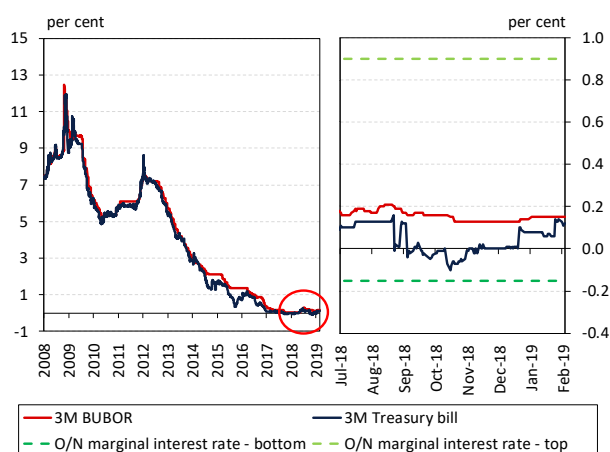
Another major innovation of PSD2 is the **prescription of the mandatory use of strong customer authentication** as of 14 September 2019, as the response of the European jurisdiction to the rising number of online frauds resulting from the spread of internet payments. During this authentication procedure, the payment service provider must perform the authentication of its customers using authentication elements belonging to at least two different categories, and these elements must be independent of each other. An authentication element can be classified as knowledge (something only the user knows), possession (something only the user possesses) or a biometric attribute (the user's attribute).

The SCAR provides detailed rules for the authentication procedures and for the implementation of the strong customer authentication procedure. In addition, it defines the cases when the payment service provider may be exempted from the mandatory application of the strong customer authentication. These may include low-amount contactless payments or the submission of payment orders through secure corporate payment channels.

## 7 Market and bank liquidity. The liquidity position of the credit institution sector remains stable

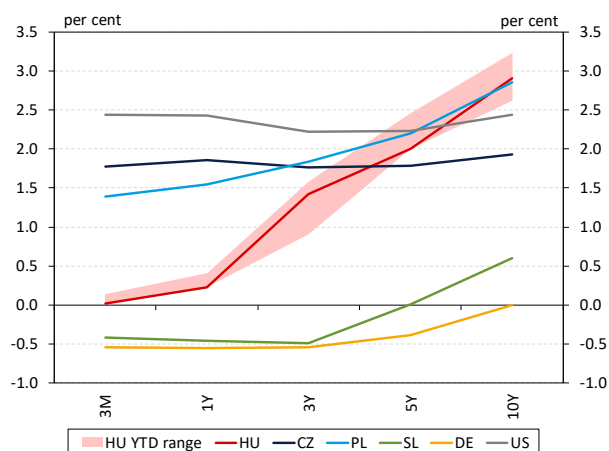
Short-term yields, which are important in terms of the credit institutions' fund raising, remain low. In the past period, long-term yields decreased, and thus Hungarian 10-year government securities market yields caught up with the Polish yields. The Hungarian credit institution sector is still characterised by ample liquidity; the liquidity coverage ratio (LCR) is well above the regulatory requirement, despite the fact that the LCR-based high quality liquid assets declined moderately, due to contraction of the liquidity held with the central bank. The sector's government securities holdings slightly increased, coming close to 28 per cent of assets. The volume of household and corporate demand deposits continued to rise and reached 40 per cent of the balance sheet total, which, however, is not outstandingly high in a regional comparison. The credit institutions' outstanding average net foreign exchange swaps against forint declined by almost one third, in parallel with the private sector's foreign currency deposits; nevertheless, the sector is still a net foreign currency purchaser.

Chart 76: Developments in short-term yields



Source: Government Debt Management Agency, MNB

Chart 77: Developments in the yield curve in international comparison



Note: 26 March 2019. Source: Bloomberg

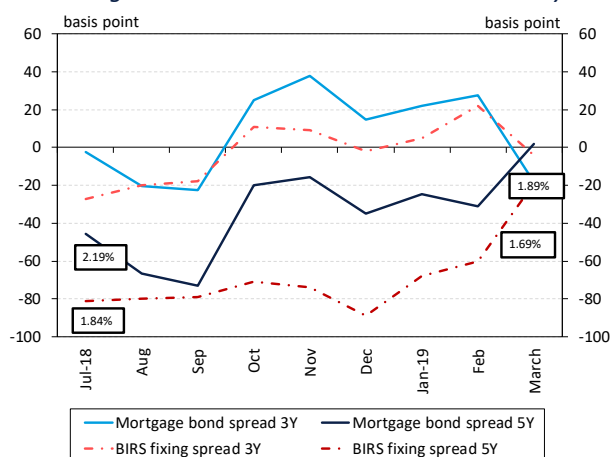
### 7.1 Short-term yields remain persistently low, while long-term yields fell moderately

**Short-term yields remained at a low level in the period under review.** The 3-month BUBOR, applied as a reference rate for credit pricing, fell by 1 basis point compared to the end of July 2018 and was thus 15 basis points at the end of February 2019 (Chart 76). The benchmark rate for the 3-month discount Treasury bill changed to positive from the negative range recorded at the end of last year. At the end of February, the benchmark quote was 0.12 per cent, but at one of the auctions in February the Hungarian State was able to raise funds on average for 0.02 per cent.

**The Hungarian government yield curve is the steepest in the region.** With the persistence of loose monetary conditions, Hungarian short-term yields are substantially lower than the Czech and Polish levels, while the long-term yields are in line with the regional levels (Chart 77). Since the end of July 2018, the 10-year Hungarian government securities market yield declined by roughly 32 basis points and thus amounted to 2.9 per cent at the end of March, similarly to the Polish 10-year government securities yield. As regards the region, long-term yields declined in all countries in the period under review, primarily due to the mounting fears related to risks of global economic growth and to the more cautious guidance with regard to balance sheet deleveraging by Fed.

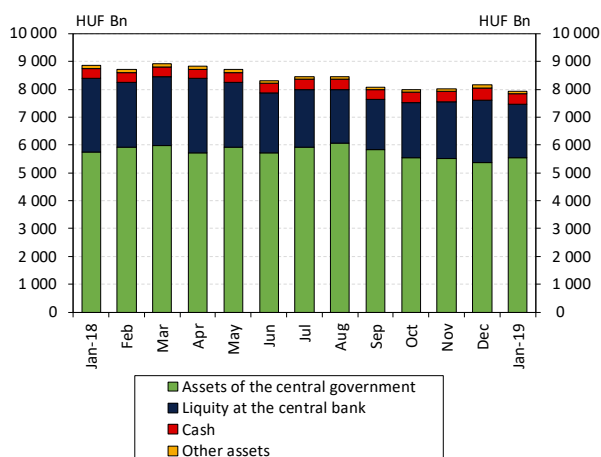
**The cost of banks' long-term fund raising approximated the financing cost of the general government.** In accordance with the decision of the Monetary Council of September 2018, the monetary policy interest rate swap (MIRS) and the mortgage bond purchase scheme (MBPS) were

Chart 78: Spread of mortgage bonds and BIRS fixings over government securities with same maturity



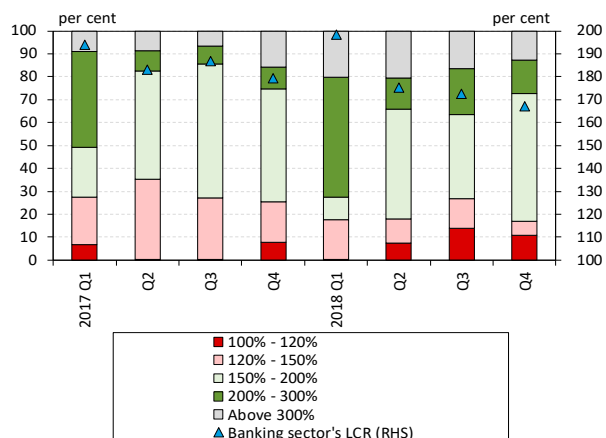
Note: In the case of mortgage bonds we used the 3-year and 5-year versions of the BMBX index. Framed numbers represent nominal yield levels for 5-year reference interest rates. Source: MNB, BSE

Chart 79: Developments in LCR-based liquid assets of credit institutions



Source: MNB

Chart 80: Weighted distribution of each institution's LCR level by total assets and the evolution of the banking system LCR



Source: MNB

phased out at the end of 2018. As a result of ending the central bank schemes affecting long-term yields, IRS and mortgage bond yields – which are of outstanding importance in terms of hedging long-term and fixed-rate assets – also approximated the yield levels of government securities of the same maturity (Chart 78). The mortgage bond and interest rate swap transactions, which are important for banks' fund raising, conceded some of their yield advantage compared to government securities yields, with this being most strongly felt for the 5-year maturity. The yield advantage of 5-year interest rate swaps was 19 basis points at the end of March 2019, while the average mortgage bond yields exceeded the government securities market benchmark rate by 2 basis points. Compared to the level recorded at the end of July 2018, the 5-year mortgage bond yield and the BIRS interest rate quotes declined by 29 and 15 basis points, respectively, by the end of March 2019, primarily as a result of international trends.

## 7.2 Credit institutions' liquidity position is adequate even after a moderate contraction

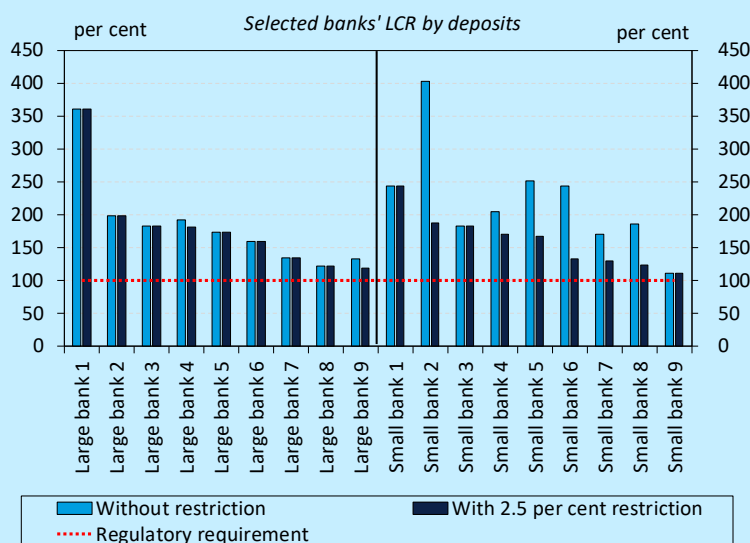
**Credit institutions' holdings of high-quality liquid assets declined.** The stock of high quality liquid assets – serving as coverage for the net outflow in the event of a liquidity shock – declined by HUF 520 billion compared to the end of July 2018, and amounted to HUF 7,924 billion at the end of January 2019 (Chart 79). This decline occurred in parallel with a decrease in the liquidity held with the central bank and the available central government instruments. The net forint liquidity placed with the central bank fell to HUF 940 billion by the first month of 2019 from the average level of HUF 1,219 billion recorded in July. With the phase-out of the preferential deposits under the Market-based Lending Scheme, by the beginning of March 2019 the mandatory reserve was the only central bank facility bearing interest at the base rate placed with the central bank. In parallel with the rise in FGS fix, the gradual build-up of new preferential deposits bearing interest at the base rate may be expected.

**Despite the decline observed in the past period, the level of the LCR is still high.** At the end of December 2018, the systemic LCR stood at 167 per cent, i.e. well above the regulatory requirement of 100 per cent (Chart 80). The banking sector still has extremely high liquidity reserves, which, however, declined somewhat in the past three quarters. Examining the liquidity coverage on an individual bank basis, it can be stated that in the second half of 2018 there

was an increase in the share of institutions that had relatively low LCR and thus they came closer to the regulatory limit. Looking ahead, the developments in the level of the LCR will be also influenced by the tightening regulatory requirements coming into effect from March 2019 (Box 7).

#### BOX 7: CONSIDERING THE RISKS OF LARGE DEPOSITS IN LCR

In the course of the internal liquidity adequacy assessment process (ILAAP), in its capacity as supervisory authority, the MNB requires the institutions, as necessary, to operate with higher liquidity buffers than the regulatory requirement. The business model based on maturity transformation is typically built on many, individually smaller, independent demand deposits or short-term deposits. These deposits form a stable stock at the portfolio level, which the institutions can use to fund long-term investments. However, in the case of a high concentration of deposits, the presumptions are not fulfilled, and even the decision of a few customers may significantly impact the deposit stock, which is thus also not stable at portfolio level. This risk is not reflected by the statutory outflow factors prescribed in the LCR regulation. Although the respective institutions were typically aware of the risk and held a larger volume of liquid assets than required, the experience of the past period highlighted the fact that this voluntary buffer is not always sufficient, and thus it became necessary to officially determine the surplus requirement.

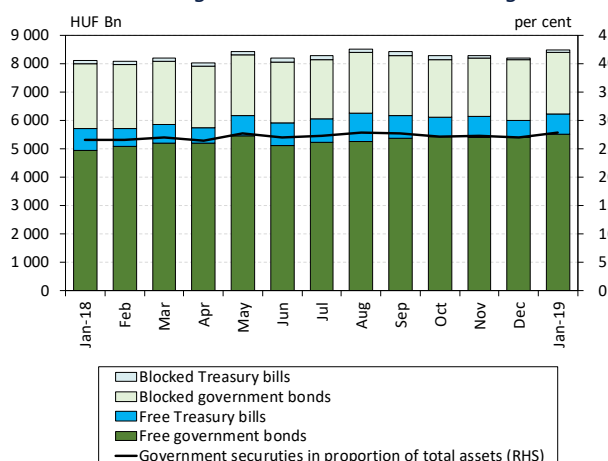


In the light of the above, during the review of the ILAAP manual in February 2019, **a surplus liquidity requirement was prescribed in order to reduce the concentration risk posed by large deposits reaching 2.5 per cent of the outstanding deposits**. The surplus requirement increases the outflow recognised in respect of the large deposit holders' stock over the limit to 100 per cent in the LCR. The purpose of the higher outflow factor is that banks hold the required amount of liquid assets in the case of a total or partial withdrawal of large deposits.

Since deposit concentration only appears at the large banks to a limited degree, **the problem is less relevant in terms of systemic risk**; however, in the case of certain smaller banks it may substantially influence the liquidity situation. The occurrence of large deposit concentrations at small institutions highlights the fact that the nature and degree of liquidity risks depends also, among other things, on the size of the respective institution. Consequently, the amendment of the regulation – just like the risk – primarily affects smaller institutions.

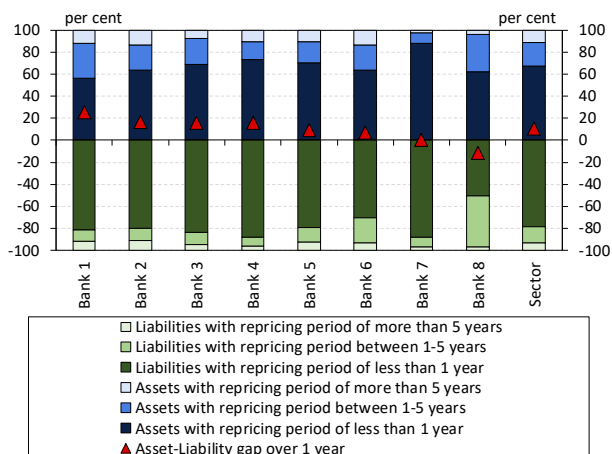
**Following a moderate rise, credit institutions' government securities holdings as a percentage of assets came close to 28 per cent.** In January 2019, credit institutions' government securities holdings amounted to HUF 8,469 billion, representing an annual growth of 1 per cent as a percentage of assets and HUF 372 billion in nominal value (Chart 81). One tenth of the holdings (HUF 817 billion) consists short-term Discount Treasury Bills. In terms of liquidity, it should be noted that 27 per cent of the government securities holdings is blocked securities, and since almost

Chart 81: Developments in credit institutions' free and blocked government securities holdings



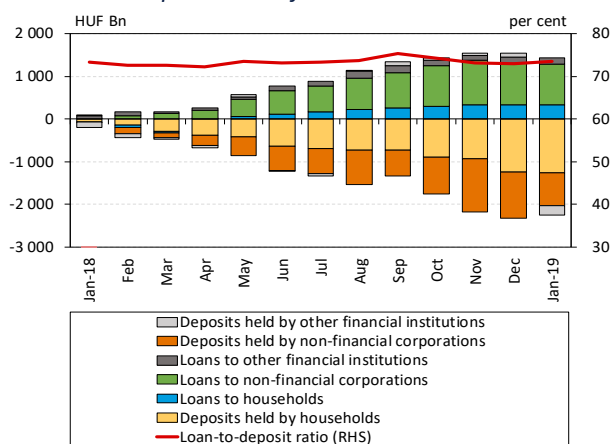
Source: MNB

Chart 82: Breakdown of interest-bearing assets and liabilities of the banking sector by period of repricing and asset-to-liability gap over 1 year at end-2018



Note: Off-balance sheet receivables are reported as assets, while off-balance sheet payables are shown among liabilities. Banks were consolidated on a credit institution group basis.  
Source: MNB

Chart 83: Decomposition of the changes in the loan-to-deposit ratio of credit institutions



Source: MNB

the entirety of the holdings relates to credit facilities; consequently, those are ignored for the purpose of calculating LCR.

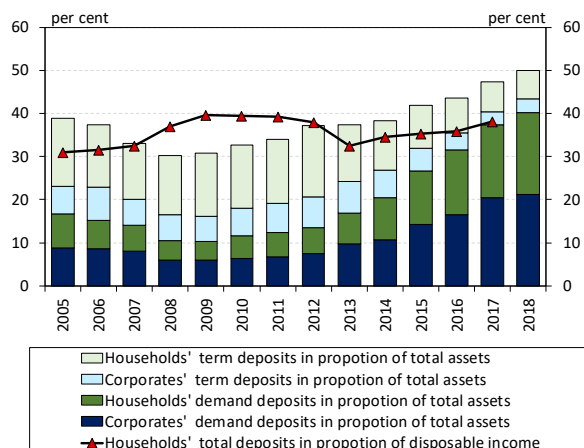
**Banks hedge the interest rate risk arising from repricing risk to different degrees.** The assets and liabilities of banks may differ not only in their pricing, but also in the repricing period, the degree of which varies by institutions. At the level of the banking sector, the long-term interest-bearing assets exceed the liabilities with similar interest period by 10.9 percentage points; this percentage-based indicator includes both on-balance sheet and off-balance sheet items. Banks typically mitigate the on-balance sheet repricing risk by raising long-term funds, and by fixed-rate interest rate swaps (IRS) in the case of off-balance sheet risks. Analysis of the year-end data of the 8 largest banks shows that banks pursue different strategies for hedging the repricing risk of assets with interest periods over one year. In the case of the banks under review, the ratio of assets with a repricing period of over one year as a percentage of interest-bearing assets varies between 12 per cent and 44 per cent; higher heterogeneity can be observed on the liability side, where this ratio stands between 12 per cent and 50 per cent (Chart 82).

**The growth in credit institutions' deposits is in harmony with the increasing lending volumes.** The dynamic growth in lending to corporations and households continued, and outstanding lending rose by HUF 110 billion and HUF 90 billion, respectively, compared to September. However, this vigorous lending growth was balanced by the continued accumulation of deposits, and thus the loan-to-deposit ratio remained steadily in the band of 70–76 per cent last year (Chart 83). As regards deposits, strong growth can be observed primarily in household deposits, with an increase of almost HUF 360 billion compared to September, which justifies the moderate, 2 percentage point decline in the ratio.

**Credit institutions' corporate and household demand deposits reached 40 per cent of the balance sheet total.** At the end of 2018, the stock of demand deposits in the corporate and household segments reached HUF 7,600 and HUF 6,780 billion, respectively, representing 3 per cent growth as a percentage of the balance sheet total in the past one year (Chart 84). The share of term deposits as a percentage of the balance sheet total is merely 10 per cent, the vast majority of which are short-term deposits. The large-scale accumulation of demand deposits partly implies the accumulation of savings; however, the high ratio of the demand deposits to term deposits is also linked

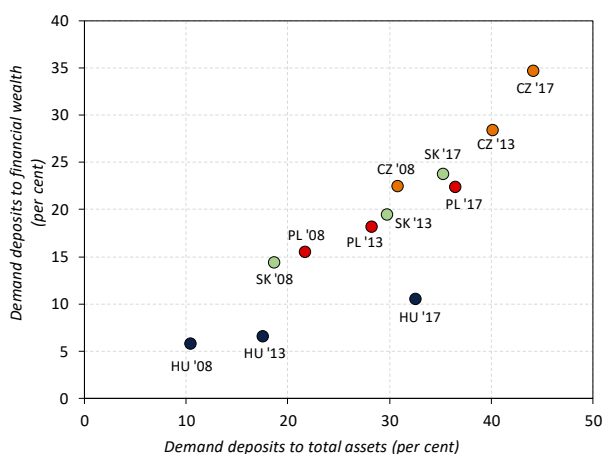


**Chart 84: Ratio of credit institutions' corporate and household demand and term deposits to total assets and to disposable income**



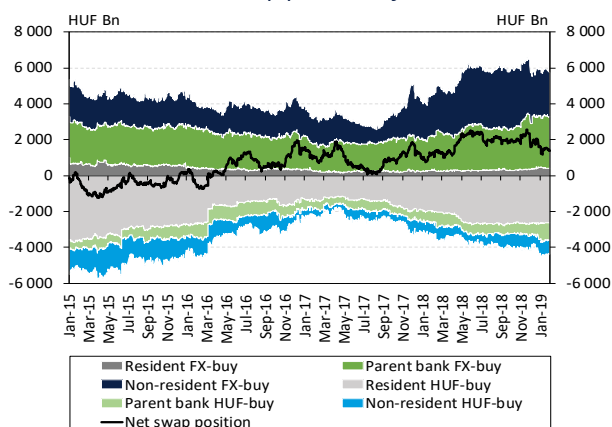
Source: MNB

**Chart 85: Developments in demand deposits to total assets and to financial wealth in the region**



Note: Consolidated data. Source: Eurostat, ECB

**Chart 86: HUF FX-swap position of credit institutions**



Note: The positive area shows short forint positions and the negative area shows long forint positions. Source: MNB

to the low interest rate environment. Looking ahead, the favourable yield on household government securities may represent an attractive alternative, which may cause changes in the dynamic growth in the deposits' weight as a percentage of the balance sheet total, which has been seen since 2008.

**In a regional comparison, the volume of demand deposits is not outstanding, either as a percentage of financial wealth or the balance sheet total.** Examining the consolidated credit institution data, in the past 10 years the ratio of demand deposits as a percentage of the balance sheet total rose continuously in the region, with the lead of the Czech Republic, which recorded a figure of 44 per cent in 2017 (Chart 85). During this period, the most dynamic growth was recorded by Hungary, where outstanding demand deposits as a percentage of the balance sheet total tripled in one decade. In Hungary, the growth in the ratio of demand deposits is equally attributable to the change in the interest rate environment, the initially high level of the base rate and the rise in disposable incomes. In a regional comparison, the ratio of demand deposits compared to financial wealth is low, at merely 10.6 per cent in Hungary. The distribution of financial wealth varies significantly in the individual countries: in Hungary, due to the fragmented ownership structure of the SME sector, equity stakes – in addition to cash – prevail.

**Credit institutions continue to be net foreign currency buyers, albeit to a decreasing degree.** In February, credit institutions' average net outstanding swap position against forint dropped to HUF 1,420 billion, following the average level of HUF 2,071 billion recorded in 2018 H2 (Chart 86). This is partly due to the fact that in 2018 H2, outstanding FX deposits rose substantially and therefore the need for off-balance sheet hedging decreased, which is a key determinant in terms of the net foreign exchange swap position. At the gross level, the foreign exchange buyer and forint buyer position amounted to HUF 5,839 billion and HUF 4,418 billion, respectively. 49 per cent of the foreign exchange buying takes place intra-group, and 43 per cent thereof from other non-resident counterparties. In addition to raising the euro funds necessary for the foreign currency lending to corporations, the purpose of concluding foreign exchange swaps is to generate income by the treasury departments.

## 8 Bank stress tests. Banks continue to have a high resilience to shocks

The liquidity stress test shows a moderate deterioration in the liquidity situation in the second half of 2018 at the level of the banking system, but most banks still fulfil the regulatory requirements even after severe stress events. Overall, the Liquidity Stress Index continues to be low.

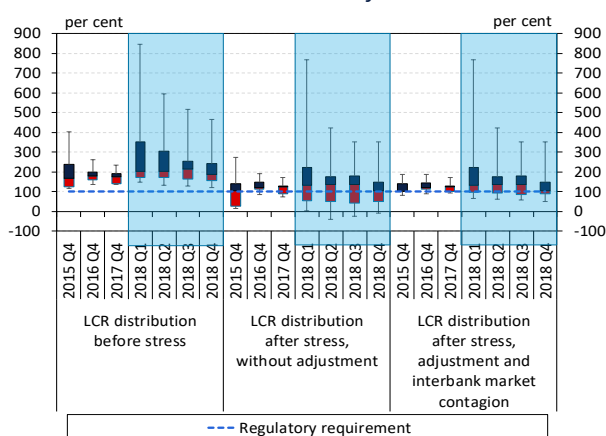
Based on the solvency stress test, all institutions could meet the regulatory requirements over a two-year time horizon even in case of a severe negative macroeconomic shock. This time, calculations were performed with a dynamic balance sheet assumption for both the corporate and the household portfolio, using credit risk models that meet IFRS 9 standards. In these models, separate projections were made for the transition of credit products between credit quality ratings. These estimations were made at the transaction level, where – in addition to macroeconomic variables – the specific characteristics of borrowers and contracts were also included.

Table 4: Main parameters of the liquidity stress test

Assets			Liabilities		
Item	Degree	Currencies affected	Item	Degree	Currencies affected
Exchange rate shock on derivatives	15 per cent	FX	Withdrawals in household deposits	10 per cent	HUF/FX
Interest rate shock on interest rate sensitive items	300 basis points	HUF	Withdrawals in corporate deposits	15 per cent	HUF/FX
Calls in household lines of credit	20 per cent	HUF/FX	Withdrawals in debt from owners	30 per cent	HUF/FX
Calls in corporate lines of credit	30 per cent	HUF/FX			

Source: MNB

Chart 87: Distribution of the LCR before and after stress, based on number of banks



Note: The edges of the box of the box plot mean the lower and upper quartile of the distribution; the horizontal line in it is the

### 8.1 Systemic liquidity stress-absorbing capacity is still sufficient

The liquidity stress test presumes the simultaneous occurrence of risks and also takes into account contagion among banks. The liquidity stress test examines the impact of an assumed low-probability, simultaneous occurrence of financial market turmoil, exchange rate shock, deposit withdrawals, credit line drawdowns and withdrawals of owners' funds on the LCR. In addition, in determining the outcome of the stress test, banks' short-term adjustment opportunities as well as the contagion effects of these adjustment channels and of the defaults on the interbank market are taken into account (Table 4).<sup>22</sup>

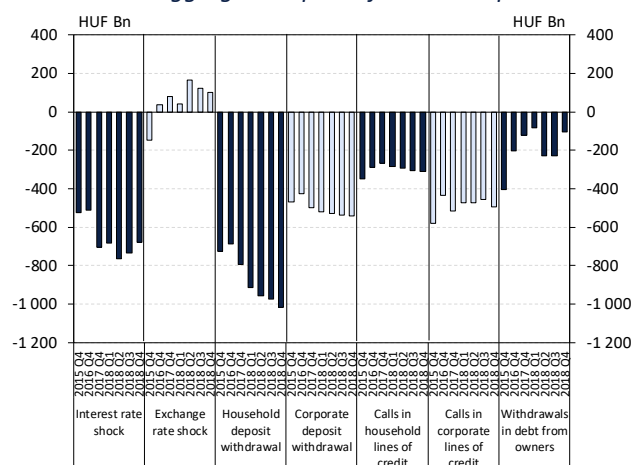
The stress test shows a moderate deterioration in the liquidity situation in 2018 H2, but most of the institutions still fulfil the regulatory minimum for the LCR even after the severe stress. Our stress test was conducted at a quarterly frequency, for the entire credit institution sector (without the specialised credit institutions with development purposes), taking into account banking groups subject to consolidated supervision in a consolidated manner.<sup>23</sup> Although the LCR indicator of all institutions is above the regulatory minimum before the stress, as discussed in Chapter 7.2, the distribution of the pre-stress LCR levels had shifted somewhat towards lower values by the end of 2018, inching closer to the 100 per cent

<sup>22</sup> For a detailed description of the methodology, see Box 9 of the May 2016 Financial Stability Report. In terms of its objective, logic and applied assumptions, our stress test is fundamentally different from the liquidity stress test used in the supervisory review of the Internal Liquidity Adequacy Assessment Process (ILAAP). Therefore, our findings cannot be directly compared to that.

<sup>23</sup> The calculation of the shock caused by the withdrawal of owners' funds was made more accurate compared to half a year earlier, and this was applied to the results of 2018 Q1 and Q2 as well, therefore the earlier results for these two periods were also modified.

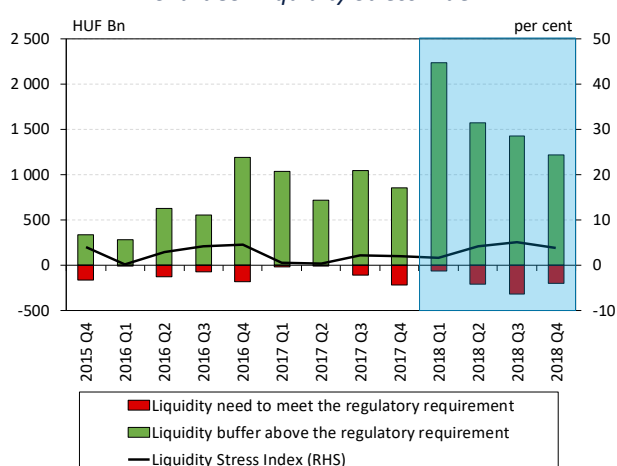
median. The lower whisker of the plot shows the tenth, while the upper the ninetieth percentile. The periods for which the test is performed on an enlarged institutional base are marked by a blue band. Source: MNB

Chart 88: Aggregate impact of stress components



Note: For calculating the impact of each shock we applied the assumption that the given shock occurs solely. Therefore, the sum of the impacts of the shocks does not necessarily reflect the impact of the shocks taken together. Source: MNB

Chart 89: Liquidity Stress Index



Note: The indicator is the sum of the liquidity shortfalls in percentage points (but maximum 100 percentage points) compared to the 100 per cent regulatory limit of the LCR, weighted by the balance sheet total in the stress scenario. The higher the value of the indicator, the greater the liquidity risk. The periods for which the test is performed on an enlarged institutional base are marked by a blue band. Source: MNB

minimum requirement in the case of its lowest values (Chart 87). In line with this, the outcome of the stress test also shows a slight deterioration in the liquidity situation. The median of the distribution in the final outcome decreased considerably, by approximately 30 percentage points by the end of 2018 Q4, coming close to the regulatory minimum at 106.5 per cent. Using the adjustment opportunities,<sup>24</sup> the institutions that fell below the minimum level due to the stress are considerably closer to meeting the regulatory requirement, but the group of institutions that remain below the minimum had poorer results at the end of 2018 than in 2018 Q2, based on both the bottom quartile and the tenth percentile. Overall, most players in the credit institution sector stay close to fulfilling the regulatory minimum, even after the severe liquidity shocks of the stress test.

**At the systemic level, the biggest LCR-reducing effect would be caused by the shock of households' deposit withdrawals and an interest rate shock.** Within the components of the stress, due to the dominance of positions against the forint, the exchange rate shock to banks' derivative holdings continues to have a liquidity-improving effect (Chart 88). Of the sources of risk that exert the greatest effect, the impact of the interest rate shock has become more moderate, but the effect of the shock caused by households' deposit withdrawals increased in 2018 H2. At the same time, the aggregate effect of the shock caused by the withdrawal of owners' funds is now considerably lower.

**The Liquidity Stress Index remains low at the end of 2018 and does not reflect substantial financial stability risks.**

The Liquidity Stress Index designed to capture the heterogeneity across institutions aggregates the post-stress percentage-point liquidity shortfalls compared to the regulatory limit calculated at the individual bank level by also considering the size of the given bank. By taking into account the size of the institutions, we can also draw conclusions with regard to the extent of a potential stress situation within the banking sector. The index was slightly lower at the end of 2018 than it was at the end of the second quarter, and at 3.7 per cent it is particularly low, which does not suggest substantial financial stability risks (Chart 89). Nonetheless, the liquidity surplus of the banks in excess of the regulatory limit has dropped significantly in the period under review. At the end of 2018 Q4, the

<sup>24</sup> Since the end of 2018, not renewing the 3-month MNB deposits that mature within thirty days is no longer an adjustment option for banks to improve their LCR indicator, on account of the transformation of the set of monetary policy instruments.

surplus amounted to HUF 1,216 billion, while the potential liquidity need necessary for fulfilling the regulatory requirement totalled HUF 204 billion.

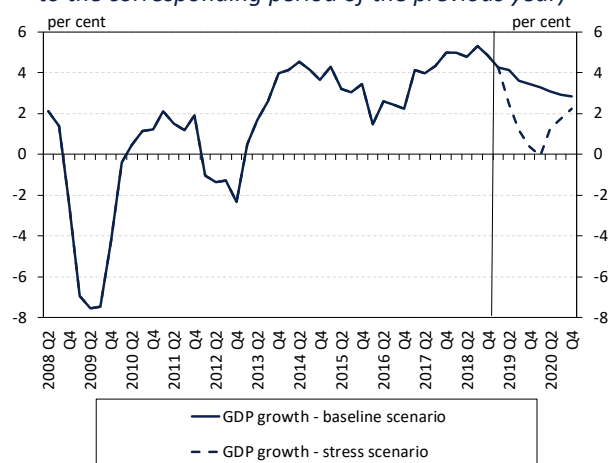
## 8.2 In terms of capital adequacy, the shock-absorbing capacity of the banking sector is strong, even in the new, credit transaction level stress test

In the stress scenario, we examined the impact of an economic slowdown evolving as a joint result of unfavourable shocks, a rising interest rate level and a weakening exchange rate on capital adequacy. The forecast in the March Inflation Report was used as the baseline scenario for the stress test. In the stress scenario, we considered the negative effects of decelerating European growth, turbulence in financial markets and the prolongation of tensions in global trade. As a result of the above, demand for domestic export will be more moderate, which restrains investments, and, in turn, decreases the rate of economic growth. Over the two-year horizon of the stress scenario, the economic growth rate fell altogether by more than 3.5 percentage points (Chart 90), the interest rate increased approximately by 200 basis points and the exchange rate weakened by 14.5 per cent.

In contrast to our previous stress tests, a dynamic balance sheet assumption was applied instead of a static one. Upon calculating the impairment of both the corporate and the household portfolio, instead of the static balance sheet assumption, in both years of the stress test's horizon we assumed the disbursement of a portfolio of identical volume and structure as the last observed annual loan disbursements, i.e. at present in 2018. This approach is more conservative in the case of an expanding loan stock than the static assumption, since a larger portfolio means a larger impairment volume and higher capital requirement expressed in forints, while a static balance sheet assumption would overestimate the capital adequacy of banks (owing to a reduced RWA and a lower current impairment settlement).

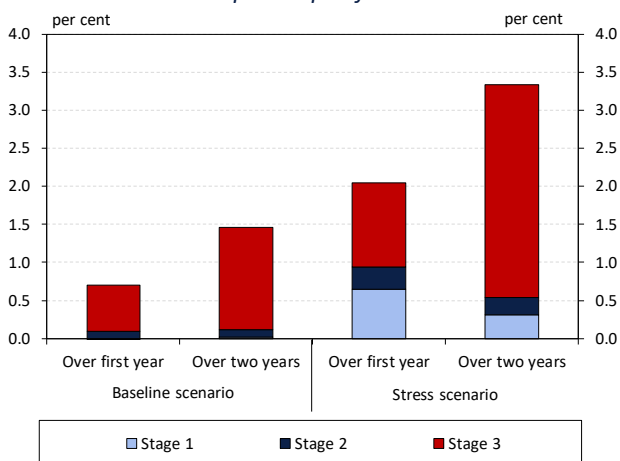
The shock examined within the stress scenario would initially lead to a sudden rise and then a relatively moderate continued increase in credit loss, in the case of the corporate portfolio. With the introduction of the IFRS 9 standard, impairments are computed using a forward-looking approach, based on expected losses. Accordingly, banks are compelled to immediately realise a substantial part of the losses arising as a consequence of a negative shock, regardless of whether actual late payment has

Chart 90: GDP growth rate in the scenarios (compared to the corresponding period of the previous year)



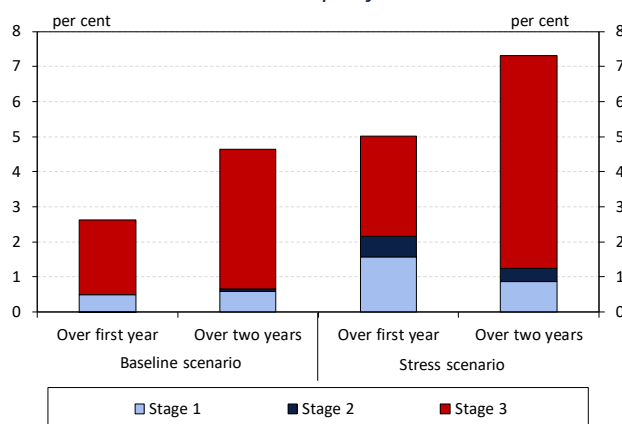
Source: MNB

Chart 91: Cumulated loan loss provision rate for the corporate portfolio



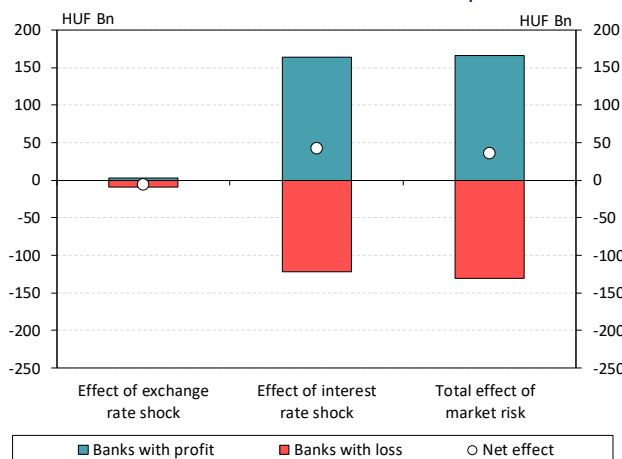
Note: Net generated loan loss provisions, cumulated from the start of the stress test, grouped by end-of-period stages.  
Source: MNB

Chart 92: Cumulated loan loss provision rate for the household portfolio



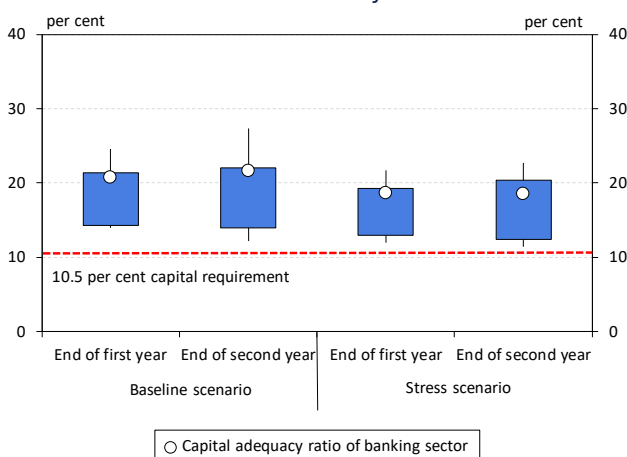
Note: Net generated loan loss provisions, cumulated from the start of the stress test, grouped by end-of-period stages. Source: MNB

Chart 93: Market risk stress test impacts



Source: MNB

Chart 94: Distribution of the capital adequacy ratio based on number of banks



Note: Vertical line: range of 10–90 per cent; rectangle: range of 25–75 per cent. Source: MNB

occurred. As a result of late payments, the ratings of credits (Stage) deteriorate, which requires the recognition of further impairments: instead of one year, banks must recognise an impairment for the entire lifetime of credits which enter higher categories (Stage 2 and Stage 3). This process can be seen in the cumulated impairment recognition we have calculated (Chart 91).

**In case of the household portfolio, credit loss was calculated using models complying with IFRS 9 standards for the first time.** In the new system, separate models were estimated for transitions between stages of mortgage loans and unsecured loans. Macroeconomic shocks are channelled into the models through the disposable income of households, the rate of employment and average loan interest rates. A more accurate estimation of credit risk can be obtained using the individual characteristics of loan transactions and debtors (e.g. age, residence, loan-to-value ratio, previously incurred delinquencies, date and currency of disbursement). Loan loss provision is recognised in the baseline scenario even for loans in Stage 1 due to the dynamic balance sheet assumption: since IFRS 9 requires the recognition of one year expected loss as an impairment even for the best quality loans, the expansion of the loan portfolio in itself results in the recognition of loan loss provisions (Chart 92). In case of the recognition of impairments for the household portfolio, the occurrence of a negative shock leads to a pattern similar to the one described for corporate loans. Box 8 explains the heterogeneity that can be captured using the new credit risk models.

**In the stress scenario, we estimated earnings before loan losses 30 per cent lower than in the baseline scenario.** Earnings before loan losses increase in the baseline scenario in nominal terms. By comparison, a significantly lower level is used in the stress scenario, which means that earnings before loan losses is slightly lower than the values observed in 2017 and 2018 at the level of the banking system.

**Of the market risks, the realisation of interest rate risk is the one that could have a substantial impact on earnings at the level of individual banks.** Owing to the hedged exchange rate position, its impact on earnings is not significant for any of the institutions in the event of the shock. The impact of interest rate risk on earnings at the sectoral level is slightly positive (Chart 93), which is a novelty compared to the negative value seen in previous periods. A considerable part of this change is caused by the closing



*Table 5: Stress test results at capital requirements of 8 per cent and 10.5 per cent*

		Baseline scenario		Stress scenario	
		End of first year	End of second year	End of first year	End of second year
8% capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	2 133	2 329	1 791	1 832
10.5% capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	1 715	1 899	1 366	1 396

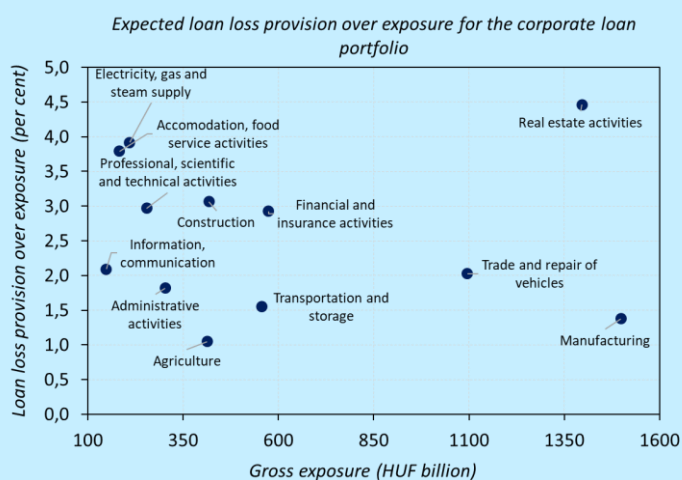
Source: MNB

of the interest rate position of a single large institution, which suffers a negative earnings impact.

**Banks fulfil the regulatory capital adequacy requirements both in the baseline and the stress scenario.** The banking system is profitable overall in the baseline scenario, and hence, without presuming dividend payments, the initial capital adequacy ratio which is already high for numerous institutions increases further (Chart 94). In the stress scenario, the majority of institutions start suffering losses, and thus the capital adequacy ratio decreases in their case. However, all of the institutions can meet the capital adequacy requirement despite the decrease (Table 5).

#### BOX 8: HETEROGENEITY IN THE CREDIT RISK MODELS OF THE SOLVENCY STRESS TEST

**The new requirements for impairment recognition under IFRS 9 were implemented in our top-down solvency stress test.** In the framework, transitions between credit risk categories were estimated on a transaction-level database using proportional hazard econometric models to forecast impairment in macroeconomic scenarios. The methodology detailed in Box 9 of the November 2018 Financial Stability Report was applied to the household portfolio as well, which was separately modelled for mortgage loans and personal loans. The predicted impact of the stress scenario on the loan loss provision of the household portfolio is shown in Chart 92.



*Note: Subportfolios which - based on the stress scenario, for 2019 Q4 - are expected to amount to a gross exposure of at least one hundred billion forints are depicted in the chart. Source: MNB*

**One major advantage of the new credit risk models is that they can capture the riskiness of the corporate and the household credit portfolios of the banking system at the level of transactions owing to the database of credit registries.<sup>25</sup> Consequently, it is possible to examine the relative riskiness of banks' subportfolios (based on specific client and contract characteristics known to us) at any chosen level of detail.** More specifically, it is possible to calculate the expected exposure-proportionate loan loss provision necessary for a specific scenario at a chosen time in the future, or the degree to which their average state and transition probabilities differ from each other in this case.

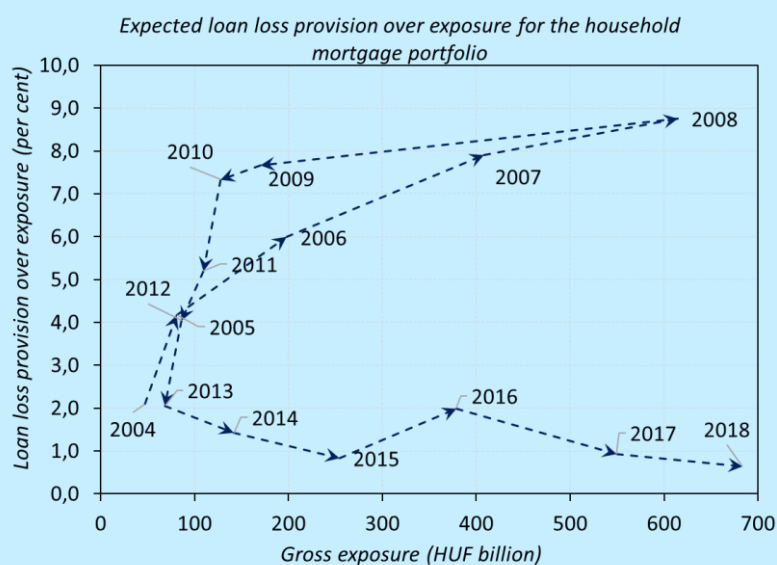
**In the following, some of the main aspects of heterogeneity found in the banking system's aggregate portfolios are presented.** In the first chart, the expected loan loss provision of the banking system's corporate portfolio is presented

<sup>25</sup> The Central Credit Register, and data supply no. L11 of the MNB.



based on the stress scenario, for 2019 Q4, **broken down according to the NACE sectors of the clients' main activity.**<sup>26,27</sup>

The chart shows that the loan loss provisions proportional to the gross book value of the subportfolios is not at all identical: in some subportfolios the portfolio quality requires larger loan loss provisions following the occurrence of the shock than for client groups in other sectors. For instance, the high level of exposure observed in the sector of real estate activities is paired with a relatively high impairment requirement following the shock, as opposed to, for example, manufacturing, where the impairment requirement is lower.



**The breakdown of the banking system's household portfolio is even more interesting in respect of some characteristics.**

For instance, **differentiation according to the year of origination** shows that a significant portion of the mortgage loan portfolio of banks expected for 2019 Q4 is still made up of mortgage loans contracted back in the period of 2007–2008. The other substantial part of the portfolio is represented by contracts originated in recent years, which are of considerably higher quality in terms of credit risk than the part of the portfolio disbursed earlier: in their case, even in the stress scenario, approximately 1 per cent exposure-proportionate loan loss provision is necessary.

The contracts initiated during 2011–2013 and expected to be outstanding still at the end of 2019, represent a much smaller volume compared to the former, which is primarily the result of lower lending activity during the period.

As shown in the two examples above, **the transaction-based approach applied in our new models enables the analysis of the risk structure of aggregate portfolios**, thus allowing for a more precise exploration of systemic risks. This could potentially contribute to taking more targeted regulatory measures.

<sup>26</sup> In the box, level differences in the expected loan loss provisions of subportfolios are examined, and not the effect of stress differentiated according to subportfolios. The reason for this is that only the former was modelled explicitly, in accordance with the objectives of the stress test, and hence the impact of the shock on subportfolios differ due to their difference in composition.

<sup>27</sup> Naturally, subportfolios can also be analysed on a bank-by-bank basis to examine the heterogeneity between banks and the potentially problematic (sub)portfolios of individual institutions, but from the financial stability perspective, we are interested in the analysis of heterogeneity at the level of the banking system and revealing systemic risks.

## 9 Special topic. Possible measures to decrease the interest rate risk of outstanding mortgages

*Following the outbreak of the financial crisis, one of the most severe stability risks in the Hungarian banking sector stemmed from the increased instalments of foreign currency-denominated household loans. Although the exchange rate risk ceased to exist as a result of the conversion of these loans into HUF at the beginning of 2015, the legislation tied the interest rate of these loans to the three-month interbank rate (BUBOR), and thus changes in this rate pass through to the loan interest rates within a short time. So far, this method of interest calculation has been favourable for consumers in the case of the contracts converted into forint, as during the period elapsed since the conversion into forint the BUBOR declined from 2.1 per cent close to zero. However, in the future this interest rate may increase, which may also lead to higher instalments. The share of the outstanding loans where the residual maturity is relatively long may be deemed particularly vulnerable, since in the case of these loans the instalment increases to a higher degree as result of one unit of interest rate increase, and the amount of the outstanding debt is typically higher, which may hinder potential final repayment. At the end of 2018, variable-rate, non-overdue mortgage loans with maturity over 10 years which were disbursed before 2015 amounted to HUF 895 billion (of this, the balance of the mortgage loans converted into forint is HUF 620 billion), while the outstanding borrowing with maturity over 15 years amounted to HUF 422 billion (of which HUF 292 billion are loans converted into forint).*

*One way of handling this interest rate risk is to borrow a new, fixed-rate loan for the final repayment of the previous, variable-rate debt. In the course of loan refinancing, by taking a new loan and paying the one-off charges related to the final repayment of the previous debt, customers ensure that their instalment will change less frequently or not at all in the future. However, the high level of costs connected to loan refinancing and the low financial awareness of the population may hinder the reduction of the risks represented by the variable-rate mortgage loans on a market basis, through loan refinancing. The MNB recommendation to reduce interest rate risk may help vulnerable debtors change their loans to fixed interest rates with low cost contract amendments.*

### 9.1 A large portion of variable-rate mortgage loans could not be refinanced in a profitable way on a market basis

Upon loan refinancing, the borrower should assess the one-off cost of the new borrowing and the final repayment, and how this compares to the benefits stemming from loan refinancing. These benefits may arise from the lower interest rate and interest rate spread compared to what was paid before, but also from the higher predictability of instalments. The benefits arising from the lower interest rate spreads are greater when the residual maturity is longer, since in this case there is more time for the loan refinancing to make up for its costs. Naturally, the realisable benefit is also influenced by the level of the one-off costs: the lower the loan refinancing costs are, at a given maturity, the lower decrease in the spread is sufficient for the loan refinancing to pay off for the debtor (Chart 95).

In order to approximate the volume of outstanding loans that could be refinanced at the currently prevailing loan refinancing costs, we estimated the interest rate spread that borrowers would be eligible for under their present

characteristics. We performed the estimation on the outstanding variable-rate mortgage loans disbursed since 2015,<sup>28</sup> using four different methodologies in total:<sup>29</sup>

- (1) we assumed that the borrowers obtain a new loan at the average spread of the banking sector,
- (2) we examined the distribution of new loans by spread, and assumed that the borrowers would obtain a new loan at the same position of the distribution that it occupied at the time of borrowing the original loan,
- (3) we broke down the new contracts based on the loan amount and the borrowers' income<sup>30</sup> into smaller groups, and used the median spread typical for the individual categories,
- (4) finally, using the ordinary least squares method, we estimated linear regression in order to examine the partial effect of the individual characteristics of the contract and the borrowers on the size of the spread. We estimated the regression both by banks and for the entirety of the banking sector.

Relying on the aforementioned methods, for the variable-rate mortgage loans we estimated the interest rate spread at which they could be refinanced at present. Thereafter, we examined whether the decrease in the instalment achievable with the new interest rate is sufficient to cover the costs of the loan refinancing over the remaining maturity, i.e. whether the borrower is below or above the "indifference curve" of Chart 95. Finally, from the range of potential borrowers of refinancing loans, we eliminated those with overdue debt or with overly low income, those may be prevented by their age from new borrowing and those who have a high loan-to-value ratio.<sup>31</sup> These filters eliminated roughly 15-17 per cent of the outstanding loans, i.e. in the case of almost one fifth of the loans there would be no chance for loan refinancing on a market basis, regardless of the potential financial gains.

Based on the results, only a lower ratio, i.e. 22-31 per cent of the outstanding variable-rate mortgage loans we examined, amounting to roughly HUF 1,722 billion, could be refinanced. This means that the high loan refinancing costs often prevent borrowers from refinancing their transaction in a financially sensible way. This result may serve as an indication that there are major obstacles to the spread of fixed-rate loans through loan refinancing on market basis, merely based on financial considerations.

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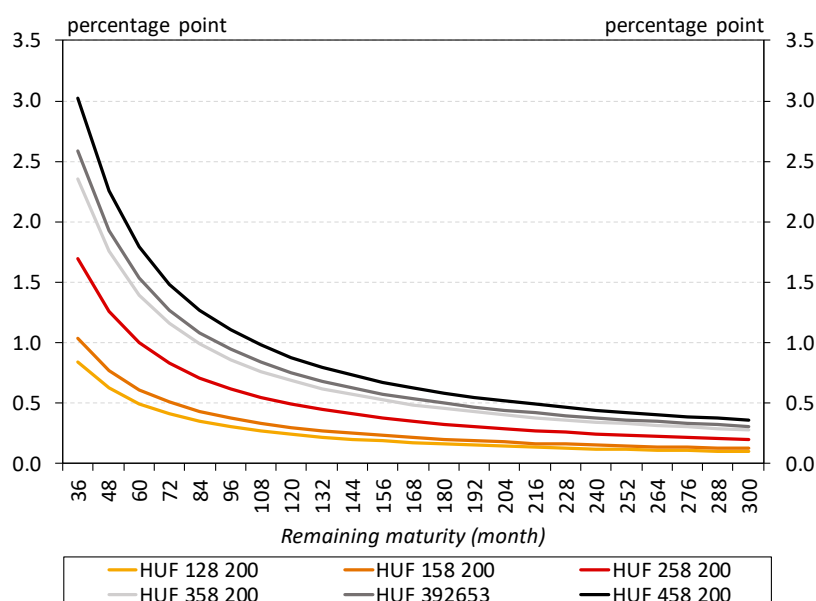
<sup>28</sup> In light of this, our estimation primarily assessed whether the financial benefit that can be achieved by the loan refinancing is sufficient to compensate borrowers for their one-off costs. The results of the estimation provide direct information on the possibility of refinancing variable-rate loans with variable-rate loans and may provide an indication, at most, as to for what ratio of the borrowers it may pay off to refinance the loan with a fixed-rate loan. The use of the sample of variable-rate mortgage loans was justified by the fact that in the case of fixed-rate loans it is much more uncertain that the funding costs of which period the spread should be compared to, and also that prior to 2018 these loans were characterised by spreads higher than the current ones, and thus we would have overestimated the price of the refinancing loans for the present period. The decision situation of loan refinancing by fixed-rate loan is further complicated by borrowers' interest rate expectations and the time horizon in respect of which they compare these two types of products.

<sup>29</sup> The details of the calculations will be presented in the study in the Financial and Economic Review to be published in June 2019.

<sup>30</sup> Based on the banks' list of conditions, the most important characteristics that determine the interest rate, and thus the spread, include the amount borrowed and the borrower's income.

<sup>31</sup> The filtering conditions were as follows: age above 60 years, current loan-to-value ratio exceeding 100 per cent, annual income below HUF 1.5 million, past delinquency of at least 90 days.

Chart 95: Indifferent decrease in spread upon refinancing a loan of HUF 10 million with a spread of 2.8 per cent, depending on the residual maturity with different one-off costs



Note: the vertical axis shows the decrease in spread, while the horizontal axis shows the residual maturity. The lines show, in addition to the various one-off costs of loan refinancing, the decrease in the spread necessary in the case of the various residual maturities to "make up" for the one-off cost. The cost of refinancing the loan included in the example, in the present legislative environment (in the case of notary public fees considering the rules valid from 1 July 2019) is roughly HUF 393,000. In determining the other cost levels we took into consideration for which items it is currently typical that banks provide customers with partial or full allowance. Source: MNB

## 9.2 Low financial awareness is an obstacle to managing interest rate risk

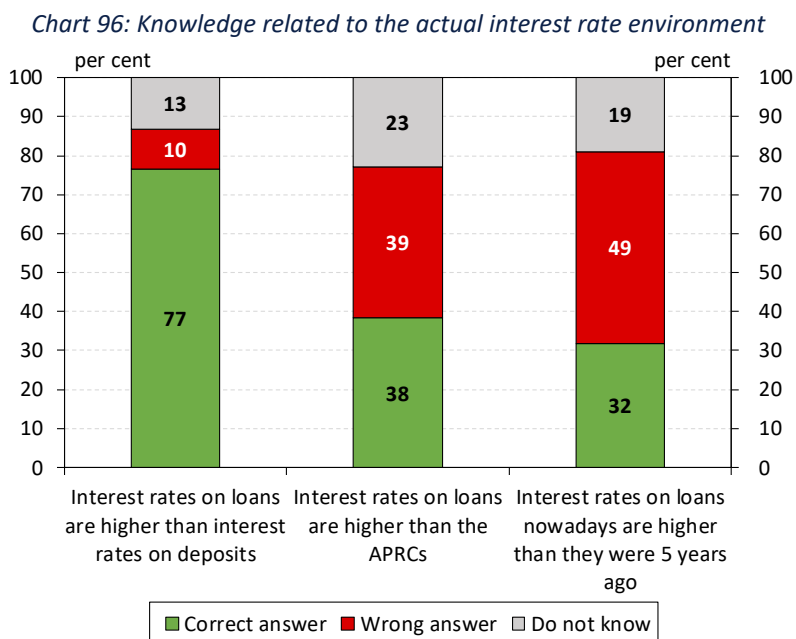
In addition to the financial considerations, the borrowers' financial awareness may also influence the willingness to apply for refinancing loans. After the settlement and forint conversion of the foreign currency loans, customers had several months to refinance their debt, at reduced costs; however, only a negligible part of the customers, roughly 1.5 per cent of them, took advantage of this possibility. This suggests that the intention to manage interest rate risk is extremely low even when the costs of loan refinancing are significantly reduced.

In order to learn about households' attitude on and knowledge of interest rate risk, the MNB performed a questionnaire-based survey among the adult Hungarian population. The survey was performed through computer-aided personal enquiries in January and February 2019, with the involvement of 1,000 randomly selected persons.

The survey confirmed the contradiction identified by OECD (2016),<sup>32</sup> according to which the Hungarian population's attitude is distinctly risk averse (even by international standards), but at the same time it shows a financially aware conduct (e.g. planning of family budget) to the smallest degree on average, which would reduce the exposure to risks.

The questions related to financial knowledge expressly concerned definitions related to interest rate on loans and the perception of interest rate risk. According to those, the connection between the interest rate and the annual percentage rate of charge (APRC) is still not clear for a large part of the population. The wide-scale initiation of loan refinancing is conditional upon recognising that the present interest rate environment can be deemed historically low. According to the results of the questionnaire, only one third of the households are aware of this, and the vast majority of them are either unable to compare the current interest levels with those prevailing several years ago, or believe that interest rates on loans are higher now than they used to be (Chart 96).

<sup>32</sup> OECD (2016): OECD/INFE International Survey of Adult Financial Literacy Competencies.

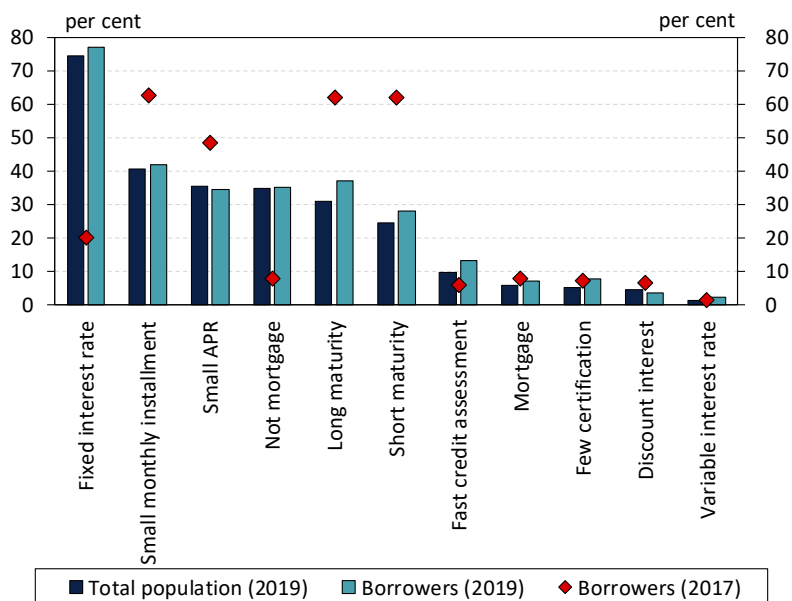


Note: Based on the responses of 1,000 persons. Source: MNB, Századvég survey

With a view to reducing households' interest rate risk, the central bank introduced the Certified Consumer-friendly Housing Loan (CCHL) product certification, and the maximum payment-to-income ratio differentiated by the type of interest calculation and the length of the interest period. The marketing related to the CCHL products places special emphasis on the fixed interest rate, also reflected by households' preference regarding loan products. Three quarters of the respondents indicated fixed interest as one of the three most important considerations when taking out a housing loan (Chart 97), which thus became the most frequently indicated characteristic. This becomes particularly interesting when we compare it with the result of a household survey performed in 2017,<sup>33</sup> where the most important considerations, in the case of the same question, included the amount of the monthly instalment, the maturity and the APR, and only 20 per cent of the respondents mentioned fixed interest rate. Thus, in addition to the fact that in the past 2 years the importance of interest rate fixation rose to the largest degree, it also became a criterion taken into consideration by most of the respondents. However, the discrepancy of the theoretical and practical knowledge can be observed here as well, since the majority of respondents did not recognise the fixed-interest products among the specific offers of banks.

<sup>33</sup> The method of the household survey performed in spring 2017 (computer-aided questionnaire-based survey) corresponded to that of 2019, but the respondents were Hungarian households that had an outstanding bank loan at the time of the survey. At the same time, according to the discussed relevant criteria there is no material difference between the loan debtors and the entire population, as is also reflected by Chart 97.

Chart 97: What aspects would you consider when taking a housing loan?



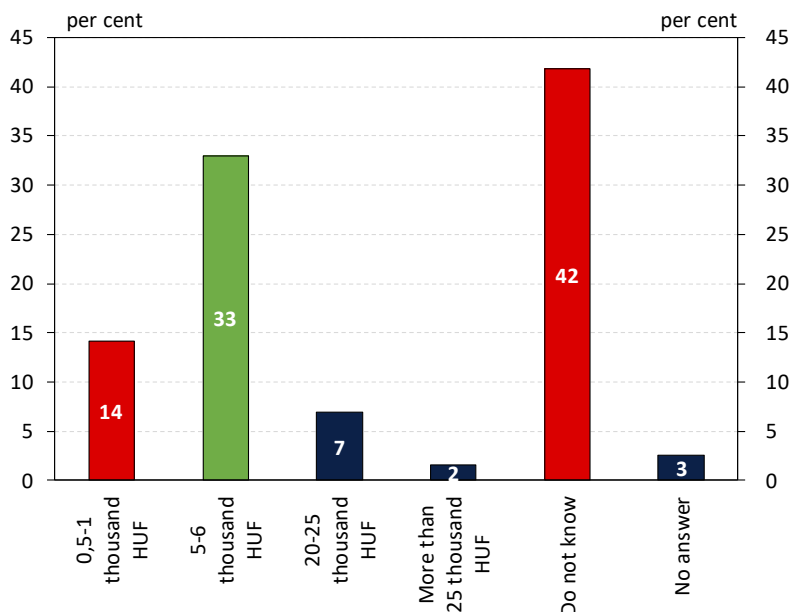
Note: The respondents could select the three most important criteria. \* In the survey in 2017 it was not asked whether the respondent preferred long to short maturity, or mortgage collateral to the absence thereof, only whether they would give consideration to the maturity and the mortgage collateral. Due to this, in the case of these criteria we indicated the same values. Source: MNB, Századvég survey

A large part of the population is also not aware of the size of the increase in the instalment for a loan debtor that the rise in interest rate can cause: 14 per cent of the respondents underestimated the order of magnitude of the impact of the materialisation of the interest rate risk on the monthly instalment, while 42 per cent of them was not able to estimate it at all (Chart 98). With an additional question we also surveyed the opinion of the respondents on the future developments in interest rates. On a horizon of three years, 60 per cent of the population anticipate a rise in interest rate on loans, 20 per cent expect steady rates and 5 per cent assume further decrease, while the remaining 16 per cent have no expectations at all with regard to future interest rate developments.

Our results reinforce the picture that a large part of the population does not perceive that the current period would be suitable for the elimination of interest rate risk by way of loan refinancing. At the same time, the example of interest rate fixation shows that even if financial awareness does not improve significantly, consumer-friendly, easy-to-understand messages from credible actors may reduce households' financial vulnerability.



Chart 98: Impact of a 1 percentage point rise in the interest rate on loan instalment



Note: Exact wording of the question: "The monthly instalment of a loan of HUF 10 million with a maturity of 20 years and an annual interest rate of 5 per cent is HUF 66,000. If in the first years of the repayment the loan interest rises from 5 per cent to 6 per cent, by what amount will the monthly instalment of this loan increase without changing the maturity?" Responses could be given by selecting one of the categories shown on the chart. We depicted the right answer in green colour, while the red colour shows respondents, who underestimated the risk or did not try to estimate it at all. Source: MNB, Századvég survey

### 9.3 MNB recommendation to reduce interest rate risk

Making the instalments of the existing variable-rate mortgage loan predictable would be desirable both in terms of financial stability and consumer protection. The interest rate risk of variable-rate mortgage loans can be mitigated by refinancing loans of longer interest fixation period or by the amendment of the existing contracts. However, based on the foregoing, it is clear that there is little room for this on a market basis, partly due to the high loan refinancing costs and partly due to the low level of financial awareness. Although in the longer run the reduction of the loan refinancing costs and simplification of the process may permanently increase the ratio of borrowing for refinancing purposes, in the short run the simpler re-contracting process may be a step forward in terms of the interest rate risk of households.

With a view to accelerating this process, the MNB issued a recommendation,<sup>34</sup> pursuant to which the financial institutions send an information notice to customers with mortgage loans with a residual maturity of at least 10 years on the interest rate risk and on the possibility of amending their contract to a more predictable scheme. In addition to the contract-specific quantification of the interest rate risk (the information notice presents the impact of interest rate shocks of different degrees on the instalment of the respective loan), the recommendation expects the financial institutions to make personalised offers for the amendment of the contract and within the scope of that to present the possibility of changing the contract to a longer, but at least 5-year interest fixation period. Thus, with an understanding of the effects of the potential interest rate change the consumers in question can decide whether they undertake the uncertainty accompanying the interest rate movements, or choose a safer loan, with its interest fixed for longer period.

The contract amendment procedure prescribed by the recommendation also has the advantage that it is not necessary to pay a prepayment fee and presumably the notary public fees will be also waived, at least partially, by several lenders. Thus, customers can change over to fixed interest at substantially lower cost, thereby removing one of the main problems arising in the case of loan refinancing, i.e. the high loan refinancing cost. Through the personalised information the

<sup>34</sup> Recommendation No. 9/2019 of the Magyar Nemzeti Bank on the interest rate risk of the variable-rate mortgage loans and on fostering the provision of information on the management thereof (<https://www.mnb.hu/letoltes/9-2019-kamatkockazat.pdf>)

consumers' financial awareness is also enhanced in a targeted manner, thereby addressing the second obstacle to the fixing of the interest rate. In terms of fixing the interest rate, it is also a motivation that the recommendation proposes to the financial institutions that upon amending the contract they should offer a spread that is identical to or lower than the present one. Thus, even those consumers may change over to fixed interest rate who otherwise would be able to get a loan only at higher spread under the current circumstances.

The recommendation expects financial institutions to provide the information in the case of loans disbursed prior to the effective date of the Act on Fair Banking in 2015, since at the time of taking these loans the detailed assessment of the interest rate risk was less common. According to the MNB's expectation, financial institutions will send the information and contract amendment offer pursuant to the recommendation to roughly 130,000 consumers with variable-rate mortgage loans with residual maturity of more than 10 years and past-due for maximum 90 days, in several tranches, but by the end of January 2020, at the latest. In the case of consumers not making use of the possibility to amend the contract, the information will be sent in the future as well once a year to make them reconsider their decision on the management of interest rate risk. After the commencement of the application of the recommendation, lenders will send the information note first to the most vulnerable consumers with variable-rate mortgage loans with residual maturity more than 15 years, and thus by 30 September 2019, at the latest, almost 50,000 consumers may receive the information. Within this portfolio, the information note and the contract amendment offer would be sent to 30 per cent of the consumers most exposed to interest rate risk from the start date of the application of the recommendation, i.e. from 16 April 2019, within 90 days, at the latest.

While the MNB's recommendation is able to foster the mitigation of the risks in the short run, structural changes may be also necessary in the longer run. With a view to fostering loan refinancing, also supporting the mitigation of interest rate risk and bank competition, in a comprehensive manner, it is justified to reduce the burdens related to refinancing. In this respect, it would be advisable to reduce the prepayment fees, which account for the largest part of the costs, to the regional level, and to decrease the other administrative costs such as notarisation fee, registration of the mortgage and the appraisal fee. We also deem the continuous enhancement of financial literacy and awareness particularly important to ensure that in the future consumers are able to recognise and use the opportunities that may improve their financial situation.

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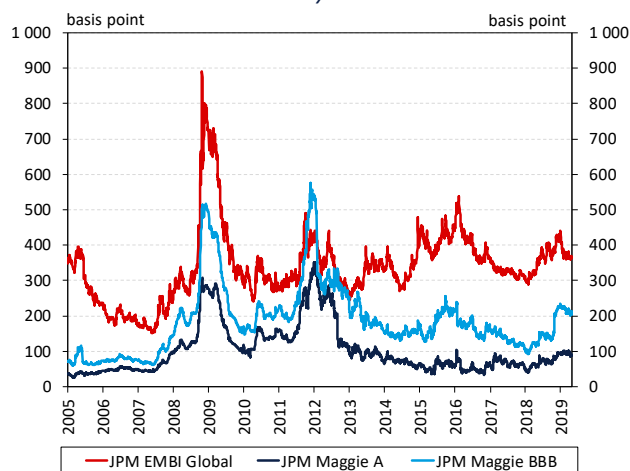
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## Appendix: Macroprudential indicators

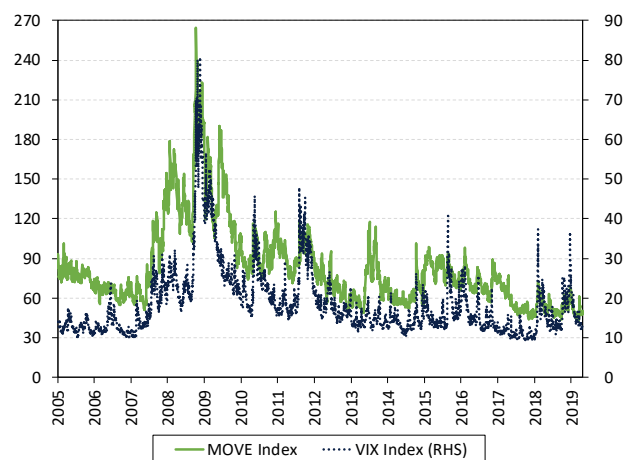
### 1. Risk appetite

Chart 1: Primary risk indicators



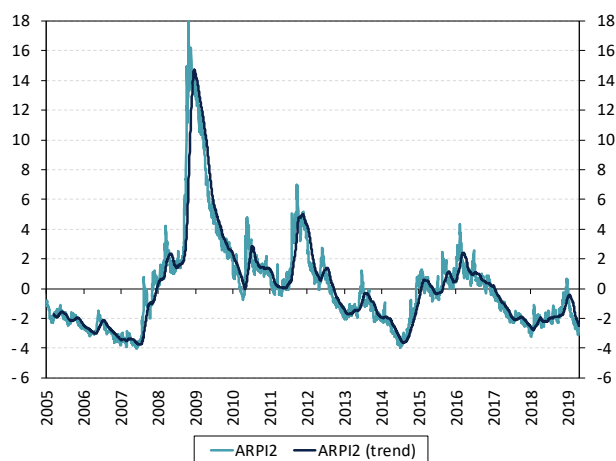
Source: Datastream, JP Morgan

Chart 2: Implied volatility of the primary markets



Source: Datastream, Bloomberg

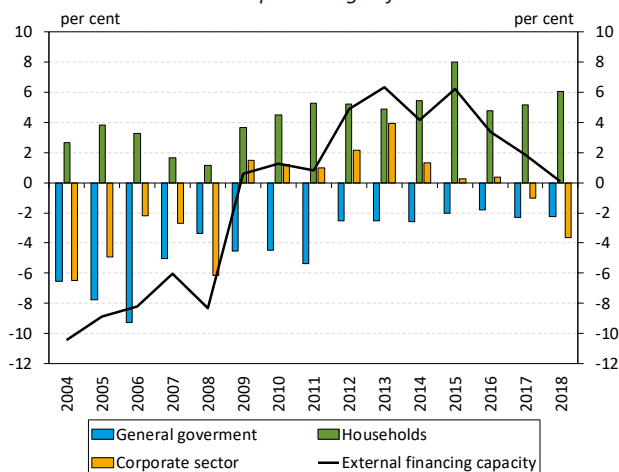
Chart 3: Dresdner Kleinwort indicator



Source: DrKW

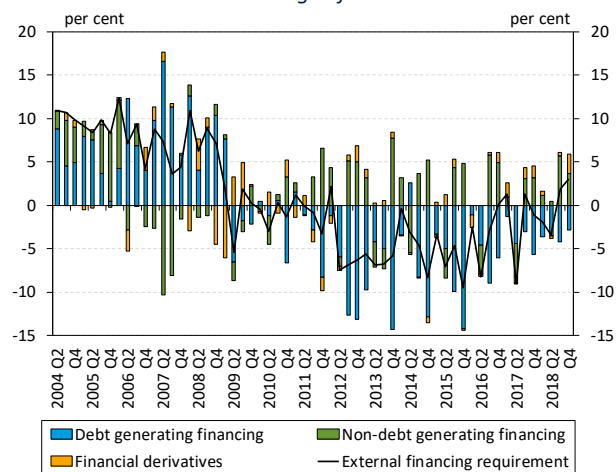
### 2. External balance and vulnerability

Chart 4: Net financing capacity of the main sectors and external balance as percentage of GDP



Source: MNB

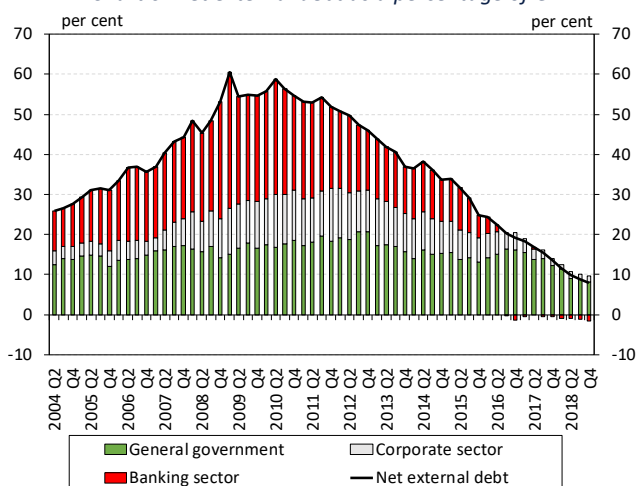
Chart 5: External financing requirement and its financing as a percentage of GDP



Source: MNB

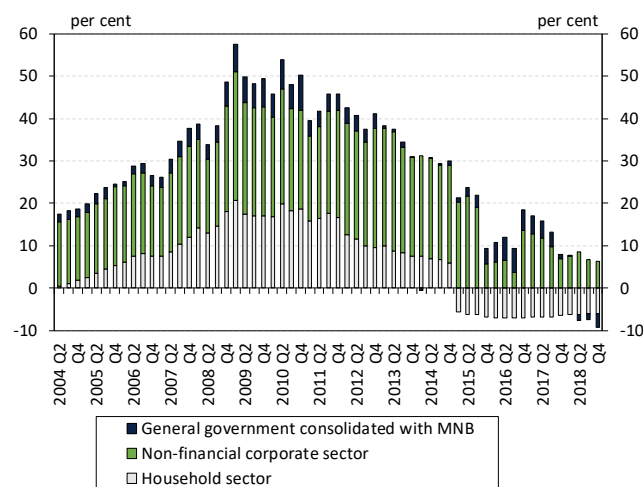


Chart 6: Net external debt as a percentage of GDP



Source: MNB

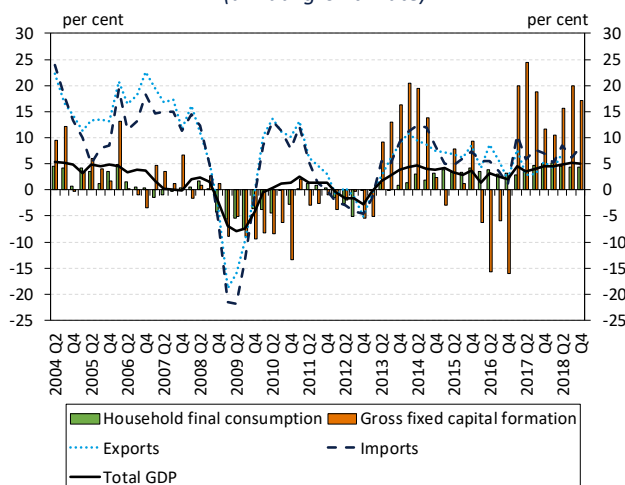
Chart 7: Open FX position of the main sectors in the balance sheet as percentage of GDP



Source: MNB

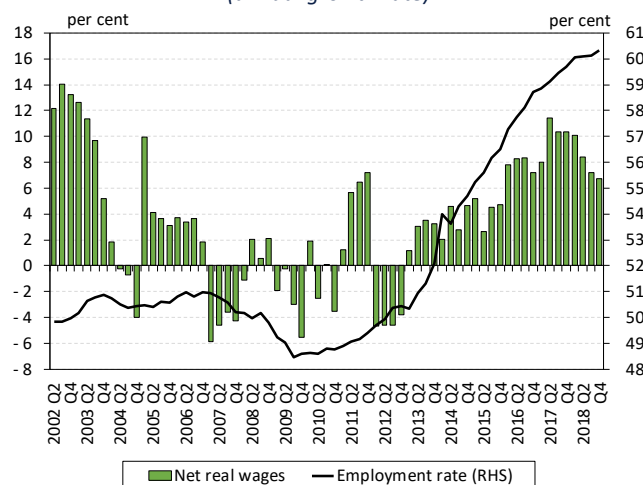
### 3. Macroeconomic performance

Chart 8: GDP growth and its main components (annual growth rate)



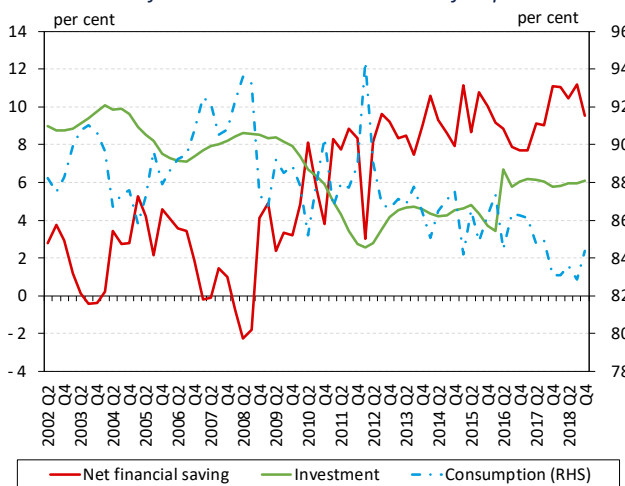
Source: HCSO

Chart 9: Employment rate and net real wage developments (annual growth rate)



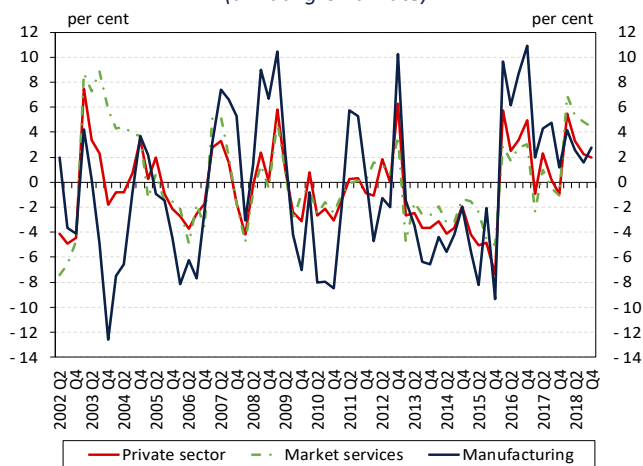
Source: HCSO

Chart 10: Use of household income as a ratio of disposable income



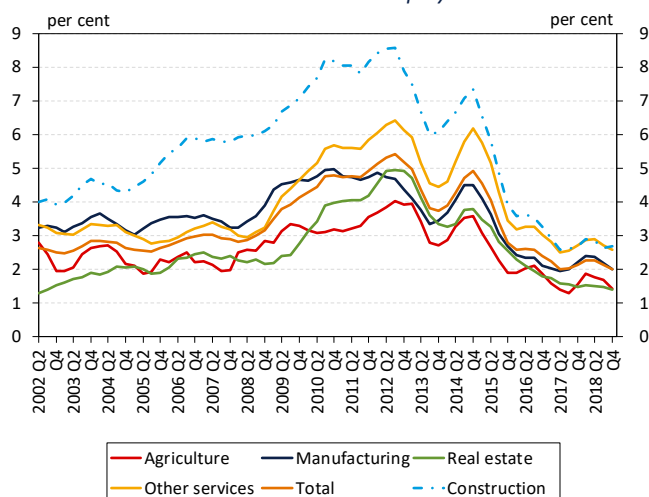
Source: HCSO, MNB

Chart 11: Corporate real unit labour cost in the private sector (annual growth rate)



Source: HCSO, MNB

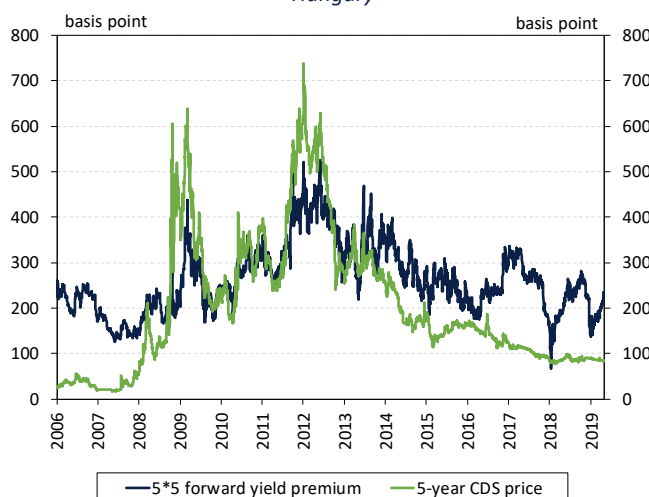
Chart 12: Sectoral bankruptcy rates



Source: Opten, MNB, HCSO

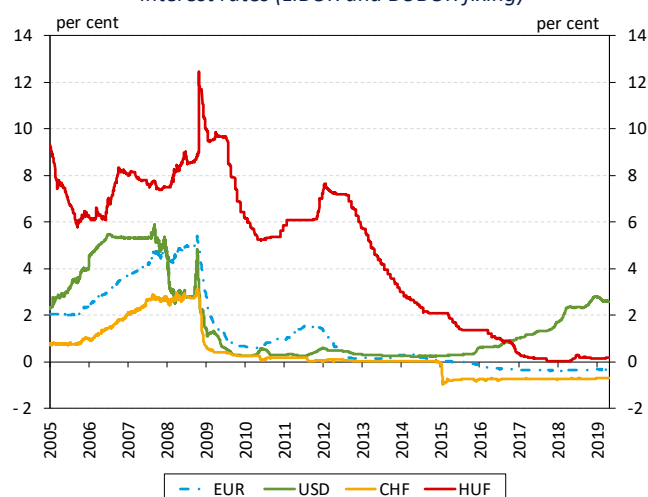
#### 4. Monetary and financial conditions

Chart 13: Long-term sovereign default risk and forward premium of Hungary



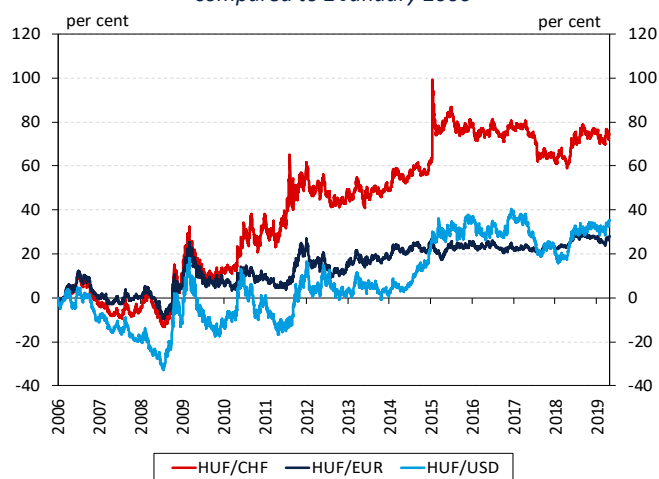
Source: Datastream, Reuters, Bloomberg

Chart 14: Three-month EUR, USD, CHF and HUF money market interest rates (LIBOR and BUBOR fixing)



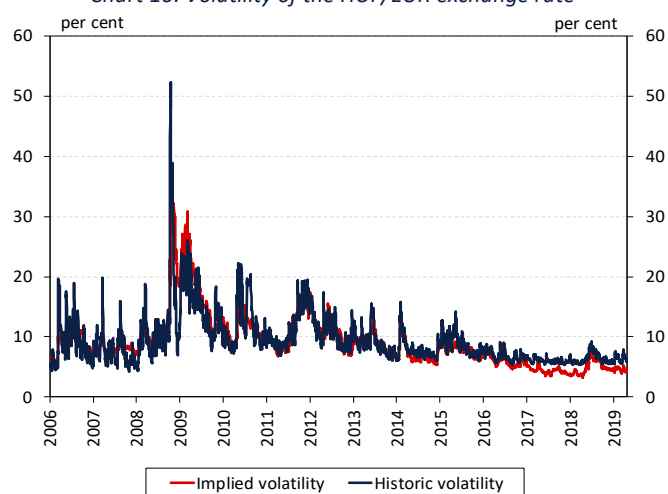
Source: Reuters

Chart 15: HUF/EUR, HUF/USD and HUF/CHF exchange rates compared to 2 For 1 January 2006



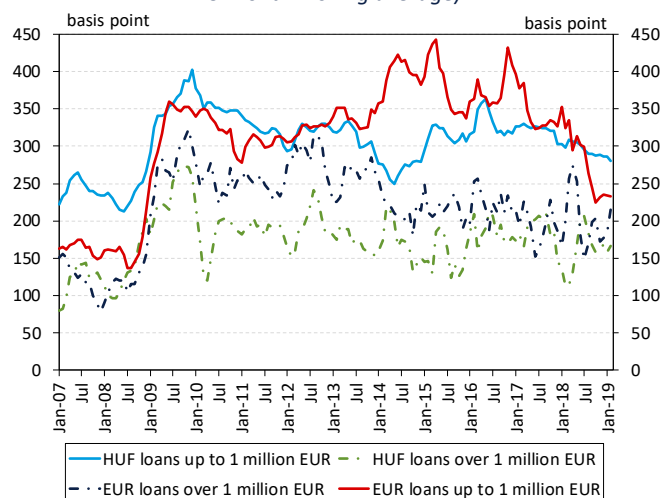
Source: Reuters

Chart 16: Volatility of the HUF/EUR exchange rate



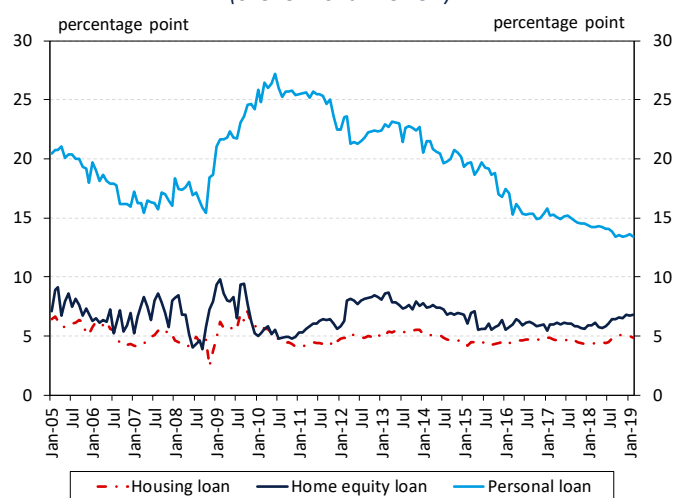
Source: MNB, Reuters

Chart 17: Interest rate premium of new loans to non-financial enterprises (over 3-month BUBOR and EURIBOR, respectively, 3-month moving average)



Source: MNB

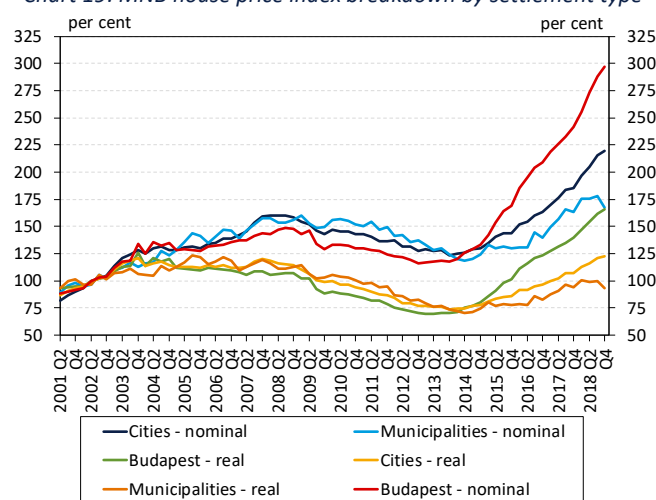
Chart 18: Interest rate premium of new HUF loans to households (over 3-month BUBOR)



Source: MNB

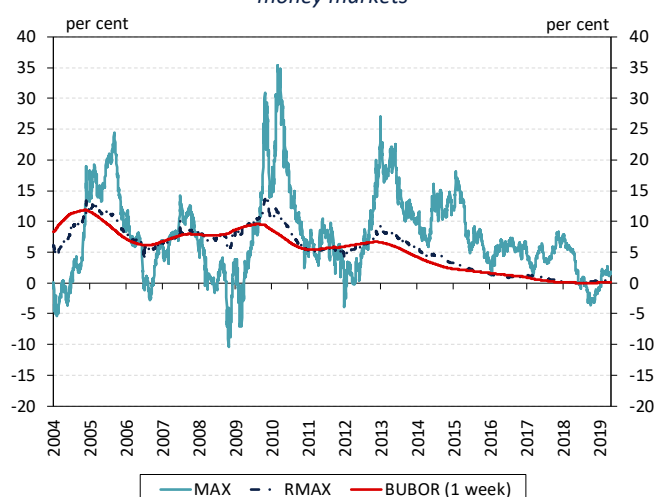
## 5. Asset prices

Chart 19: MNB house price index breakdown by settlement type



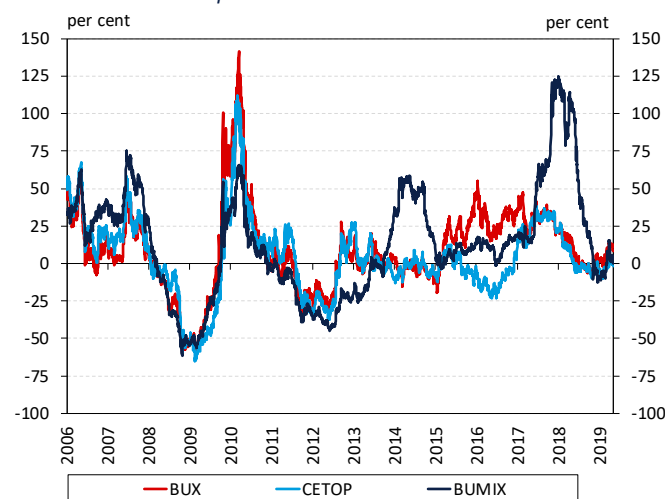
Source: MNB

Chart 20: Annualised yields on government security indices and money markets



Source: ÁKK, MNB, portfolio.hu

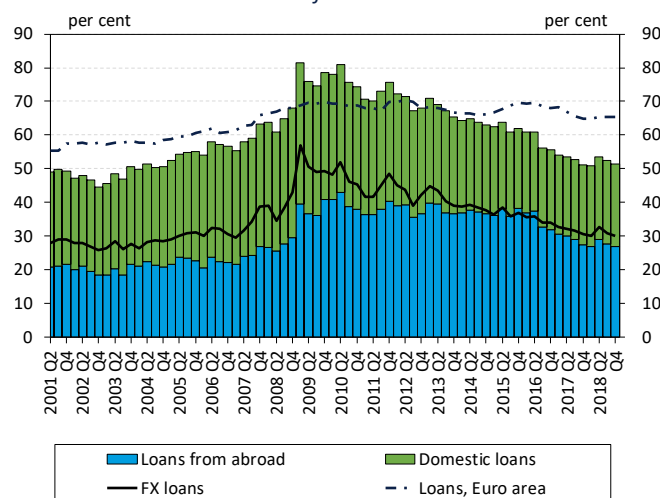
Chart 21: Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: BSE, portfolio.hu

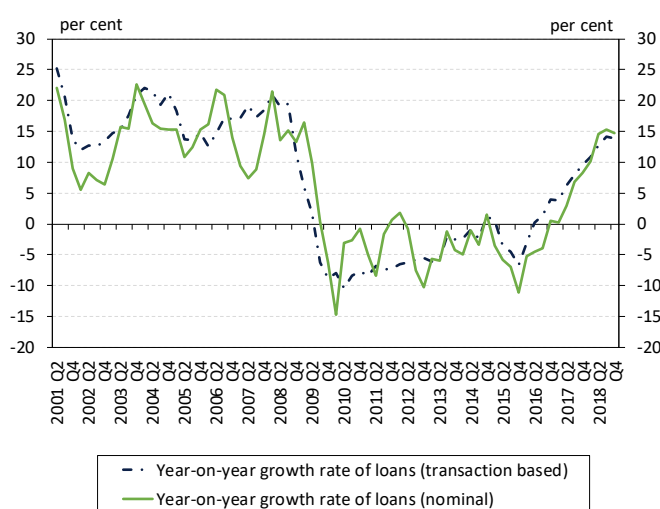
## 6. Risks of the financial intermediary system

Chart 22: Indebtedness of non-financial corporations as percentage of GDP



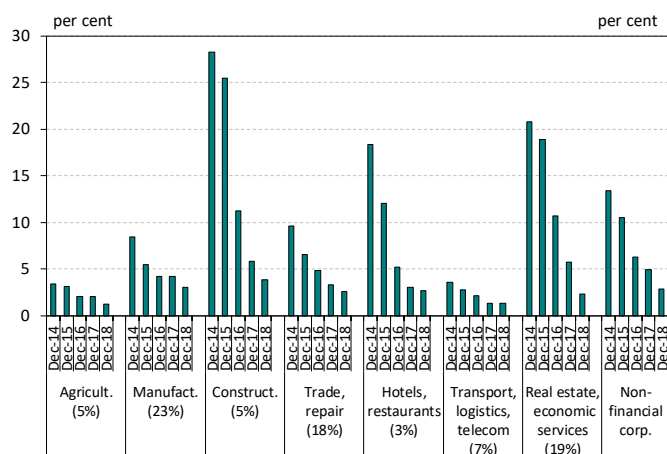
Source: MNB, ECB, Eurostat

Chart 24: Annual growth rate of loans provided to non-financial corporations by credit institutions



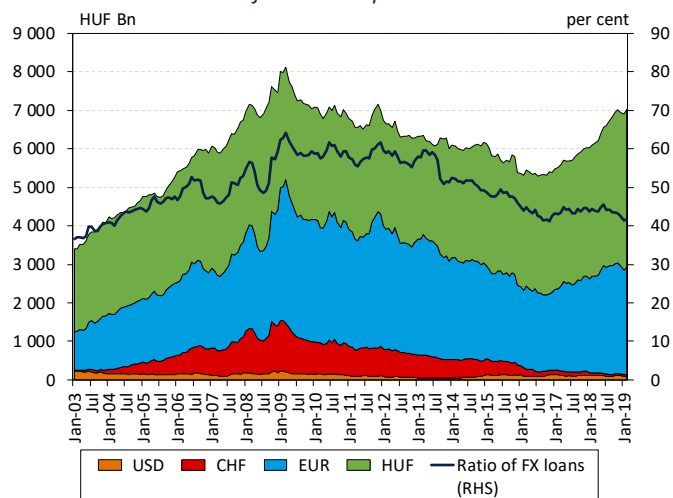
Source: MNB

Chart 26: Provisioning on loans of non-financial corporations by industry



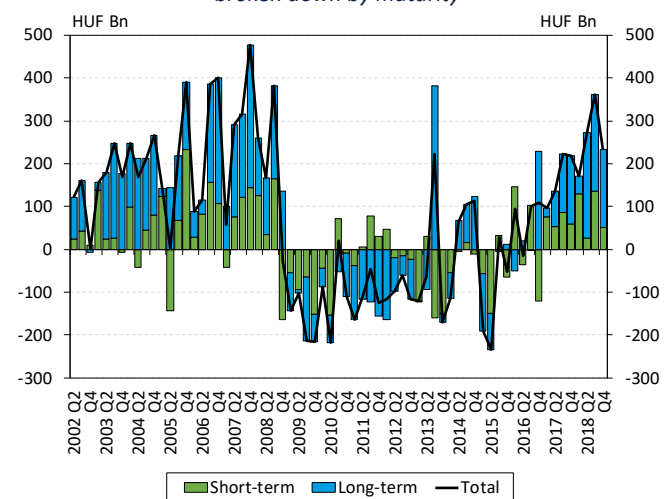
Source: MNB

Chart 23: Denomination structure of domestic bank loans of non-financial corporations



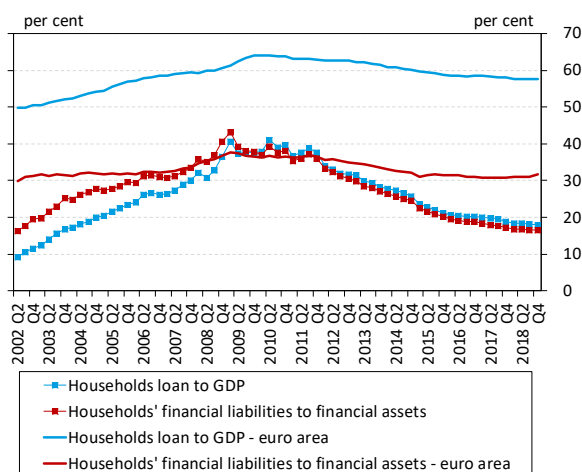
Source: MNB

Chart 25: Lending transactions to the non-financial corporate sector broken down by maturity



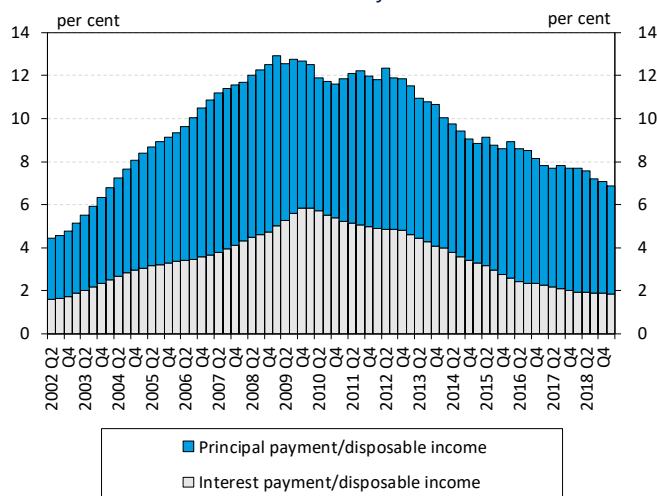
Source: MNB

Chart 27: Indebtedness of households in international comparison



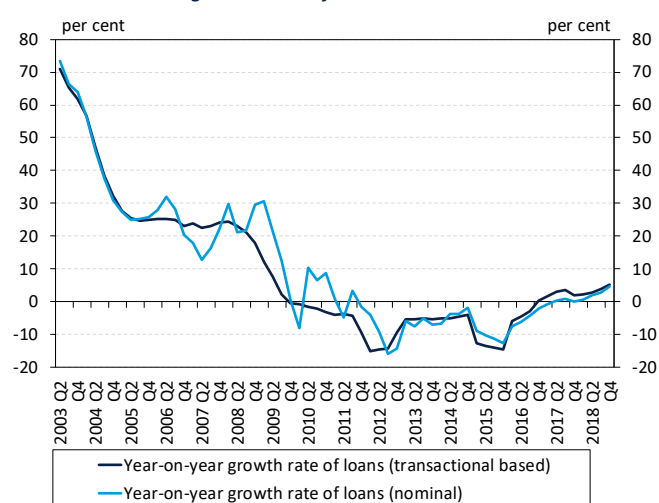
Source: MNB, ECB

Chart 28: Debt service burden of the household sector



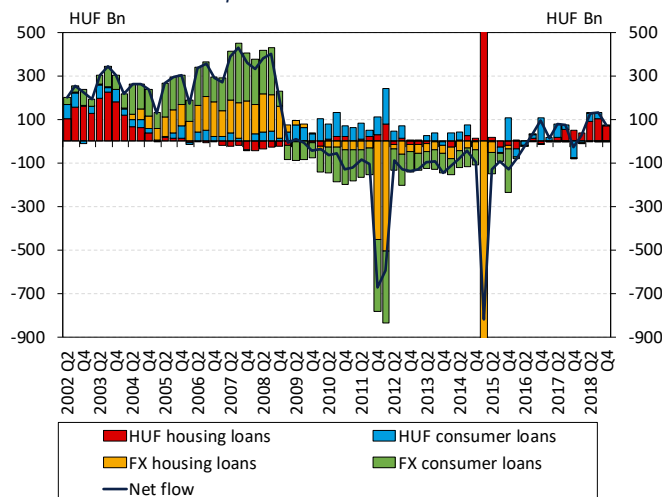
Source: MNB

Chart 29: Annual growth rate of total domestic household loans



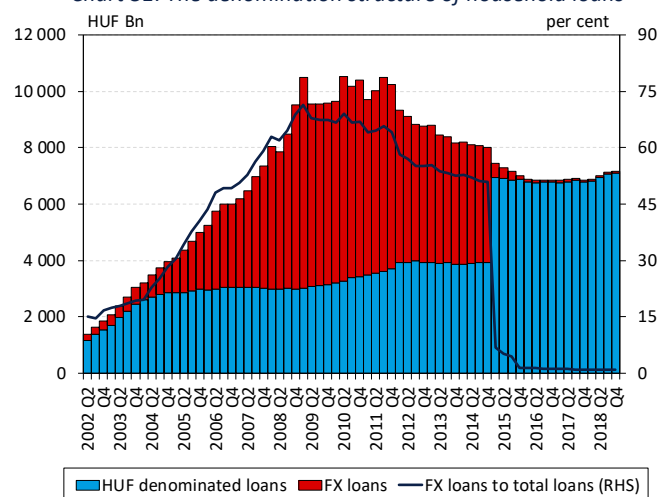
Source: MNB

Chart 30: Transactions of household loans broken down by credit purpose and denomination



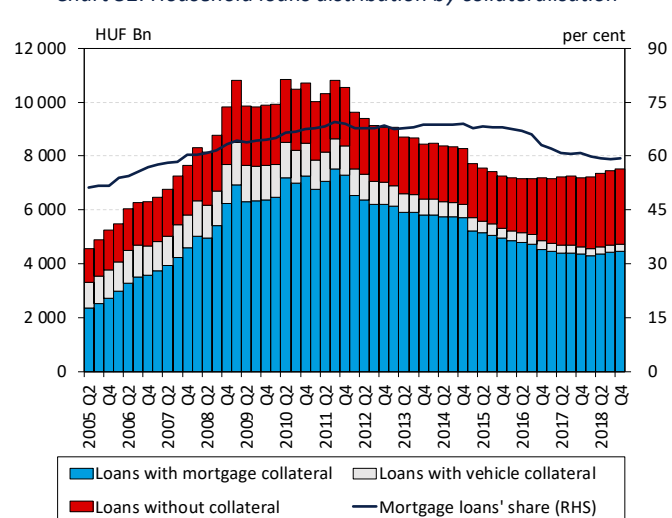
Source: MNB

Chart 31: The denomination structure of household loans



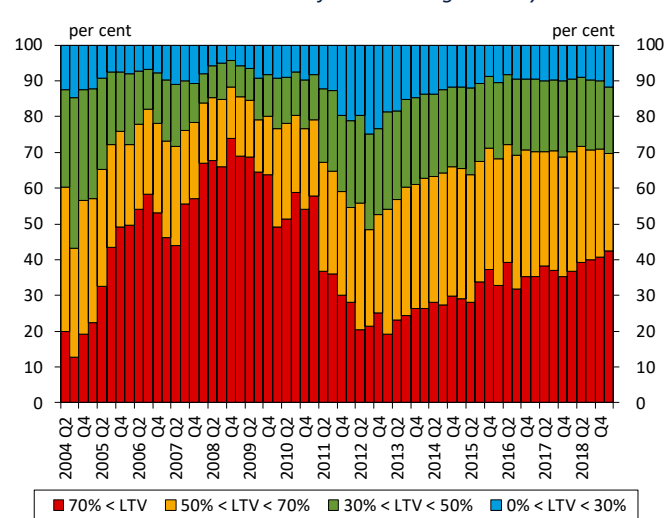
Source: MNB

Chart 32: Household loans distribution by collateralisation



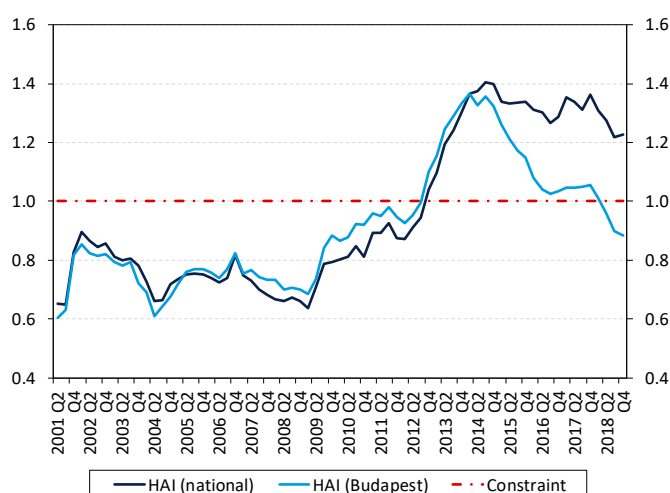
Source: MNB

Chart 33: Distribution of new housing loans by LTV



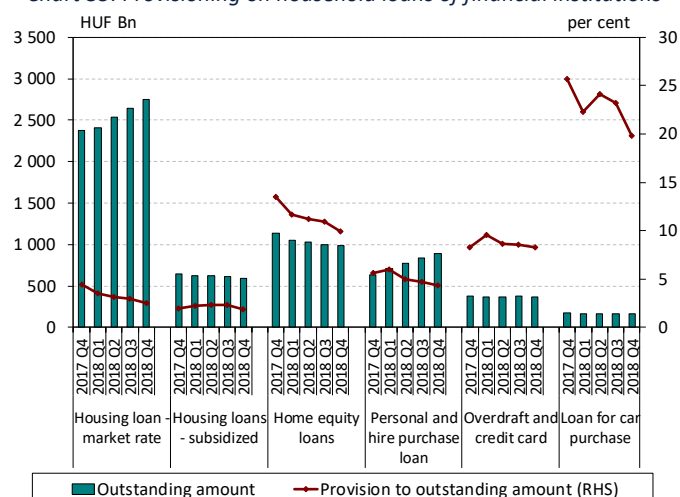
Source: MNB

Chart 34: Housing Affordability Index (HAI)



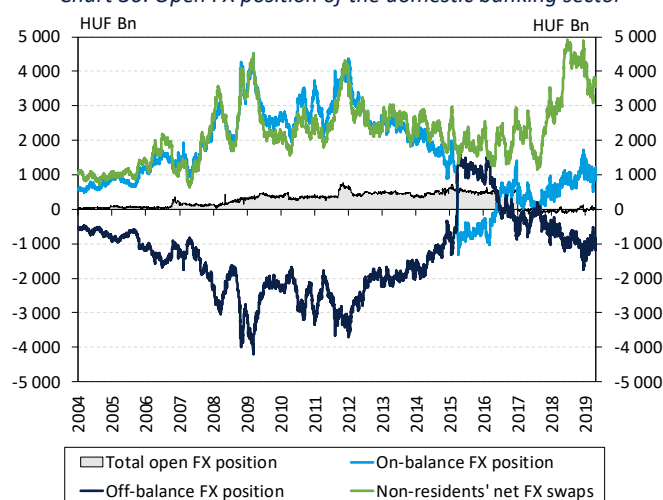
Source: MNB

Chart 35: Provisioning on household loans of financial institutions



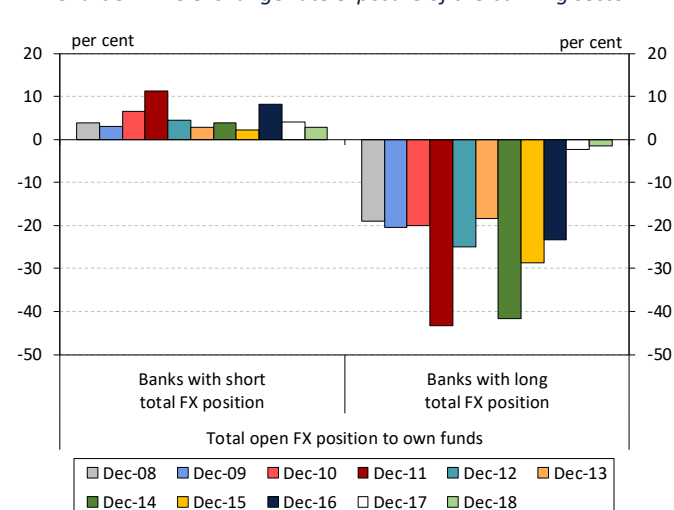
Source: MNB

Chart 36: Open FX position of the domestic banking sector



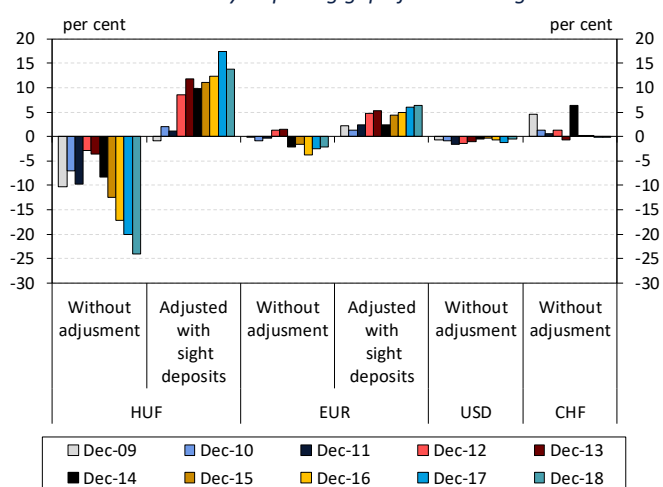
Source: MNB

Chart 37: The exchange rate exposure of the banking sector



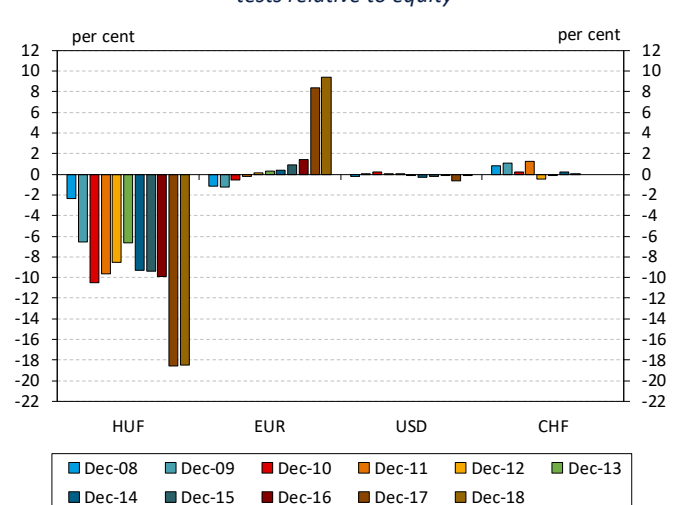
Source: MNB

Chart 38: 90-day re-pricing gap of the banking sector



Source: MNB

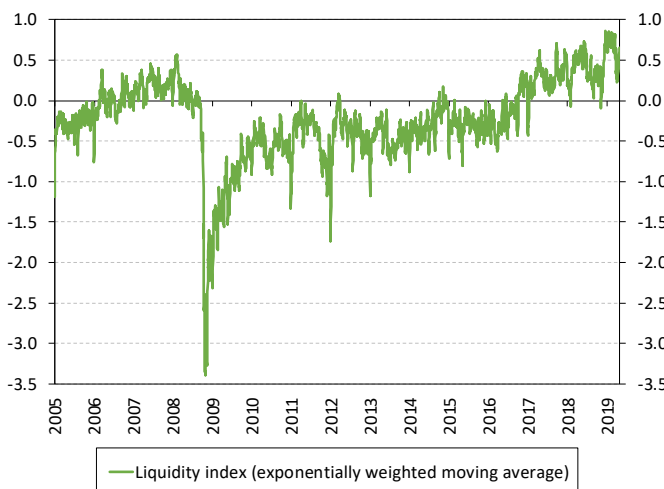
Chart 39: Estimated maximum loss based on interest rate risk stress tests relative to equity



Source: MNB

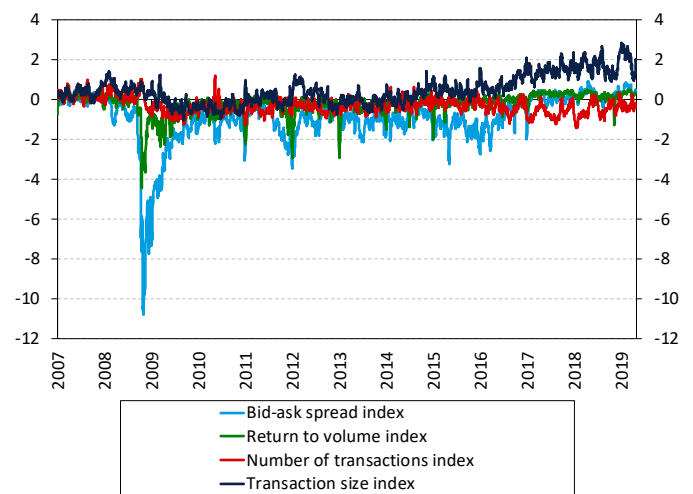


Chart 40: Liquidity index (exponentially weighted moving average)



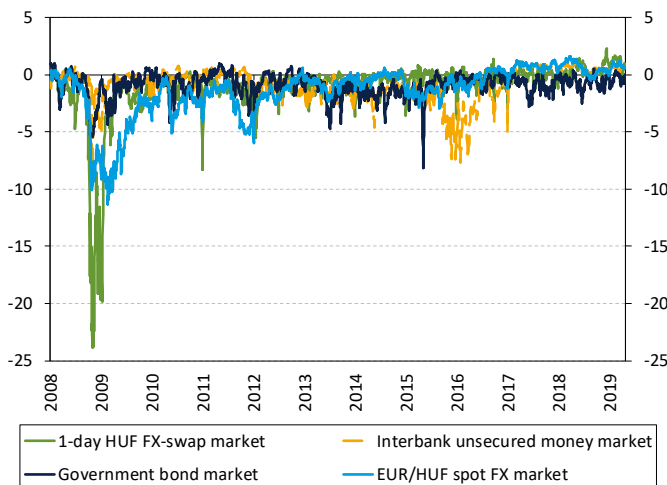
Source: MNB, KELER, Reuters, DrKW

Chart 41: Liquidity sub-indices (exponentially weighted moving average)



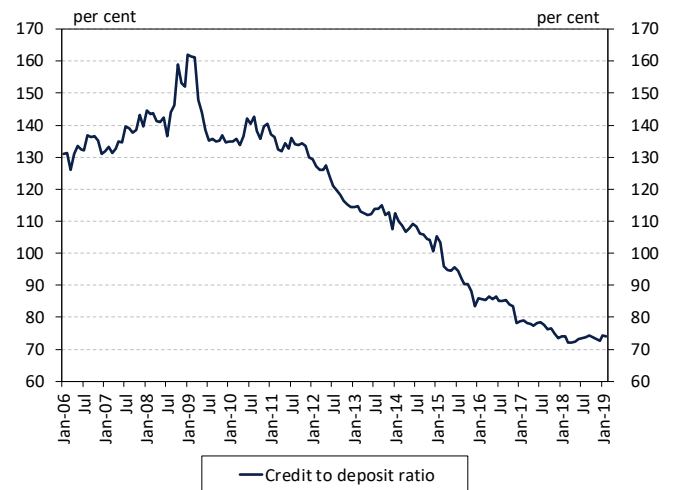
Source: MNB, KELER, Reuters, DrKW

Chart 42: Bid-ask spread indices of the major domestic financial markets (exponentially weighted moving average)



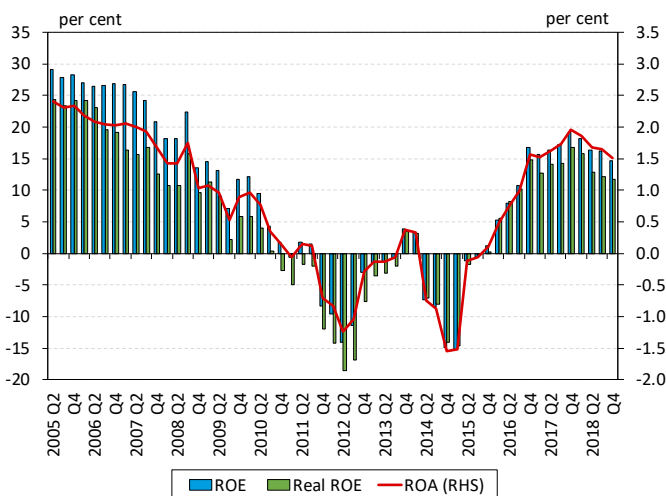
Source: MNB, KELER, Reuters, DrKW

Chart 43: Credit to deposit ratio of the banking sector



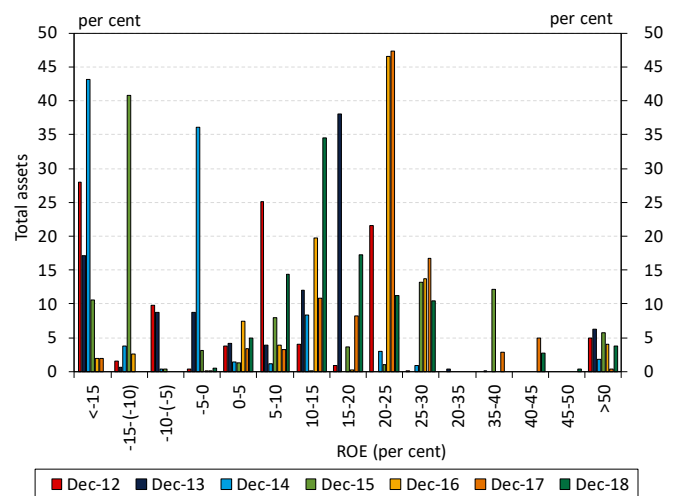
Source: MNB

Chart 44: ROA, ROE and real ROE of the credit institution sector



Source: MNB

Chart 45: Dispersion of banks' total assets by ROE



Source: MNB

Chart 46: Net interest income as a proportion of the gross and net interest bearing assets in the credit institution sector

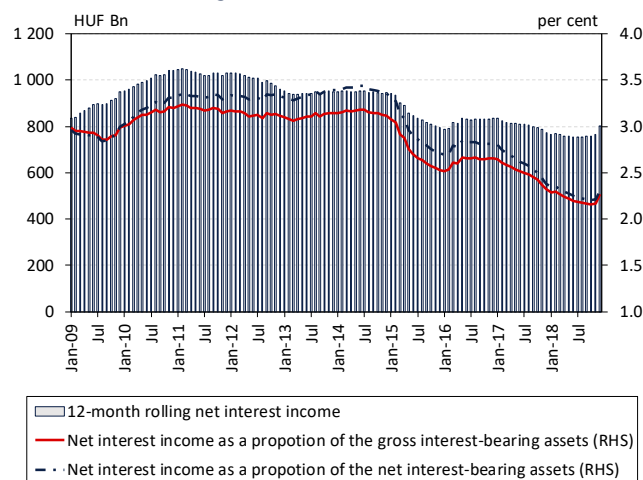


Chart 47: Operating efficiency indicators of the banking sector

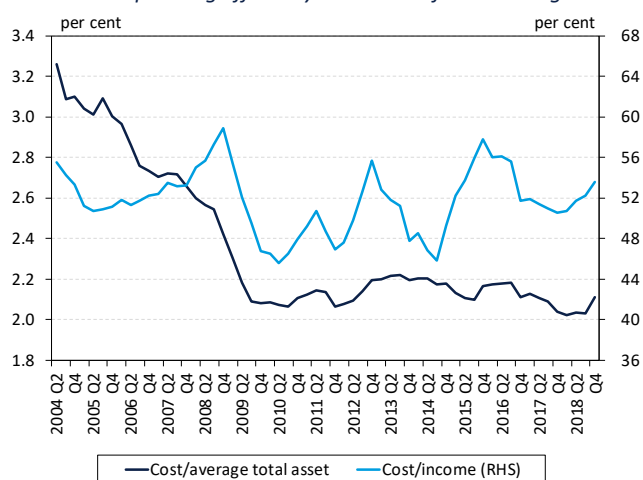


Chart 48: Banks' capital adequacy ratio (CAR) and Tier 1 capital adequacy ratio

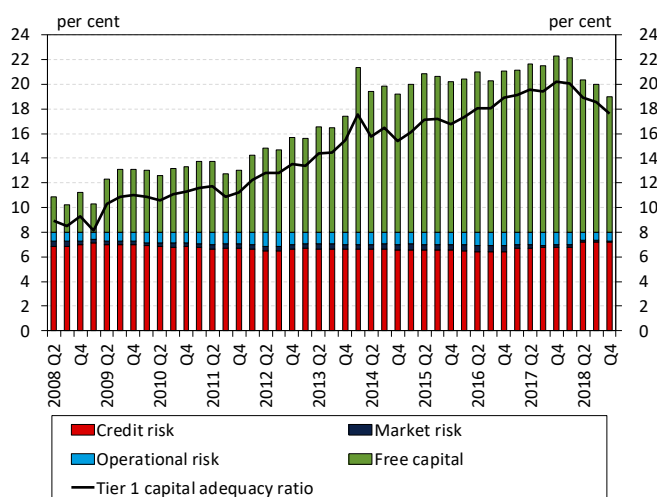
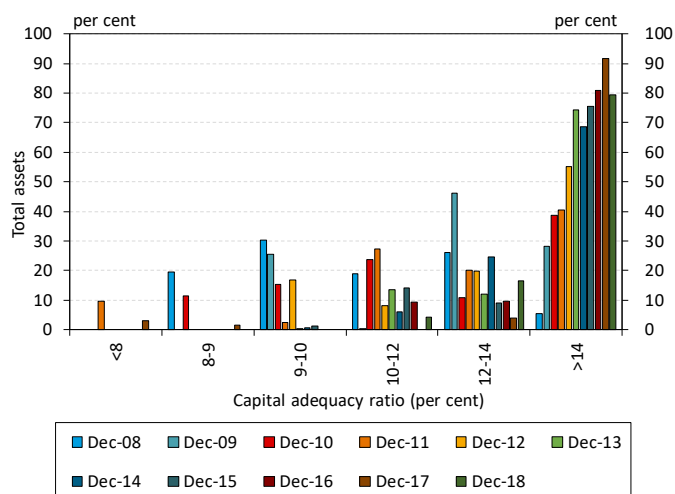


Chart 49: Dispersion of banking sector's total assets by capital adequacy ratio



## 7. Institutional investors

Chart 50: Underline data of insurance tax

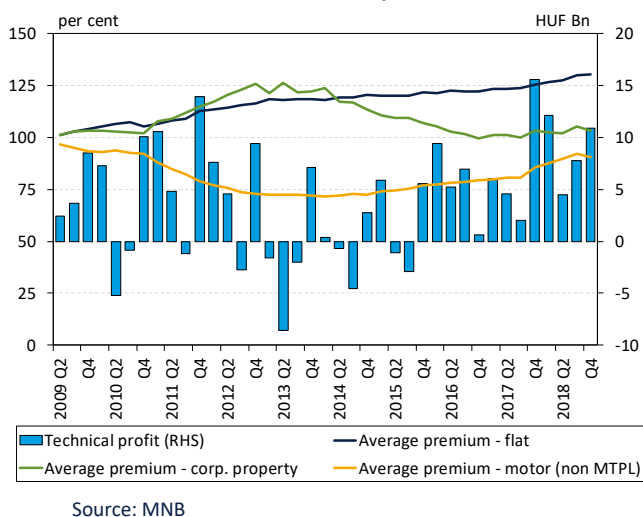


Chart 51: Development of the outstanding amount of non-life insurance

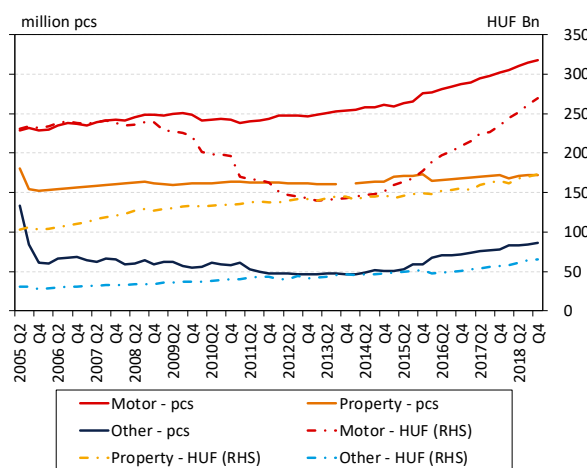


Chart 52: Development of the outstanding amount of life insurance

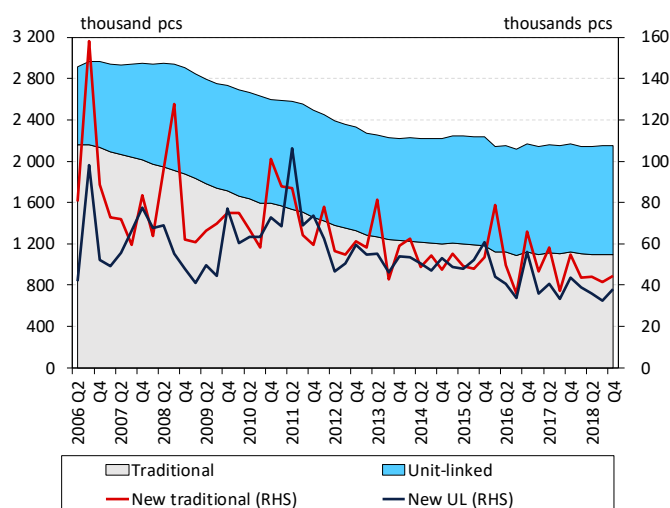


Chart 53: Development of the outstanding amount of life insurance benefits

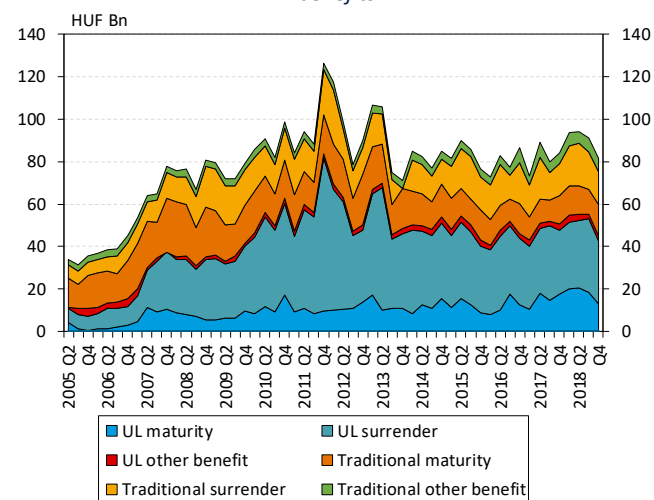


Chart 54: Costs in the insurance sector

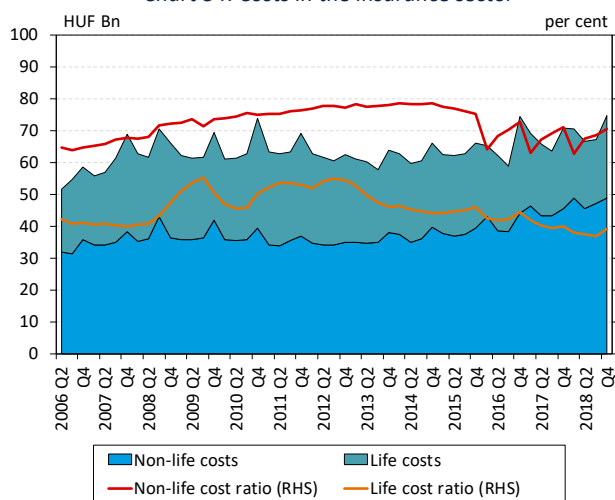


Chart 55: Development of mtpl insurance contracts

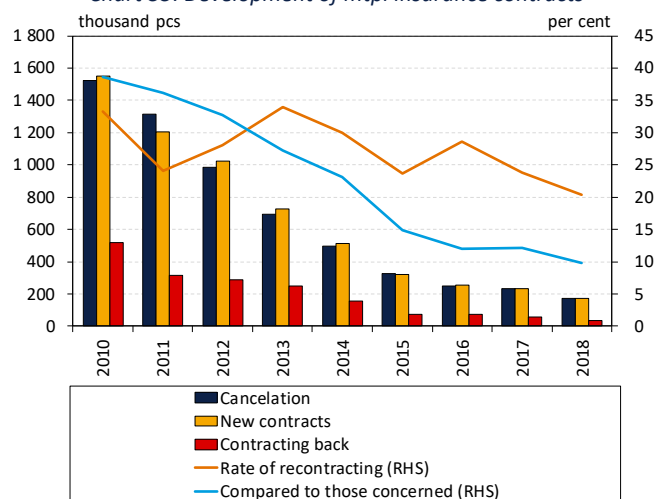


Chart 56: Development of gross mtpl reserves

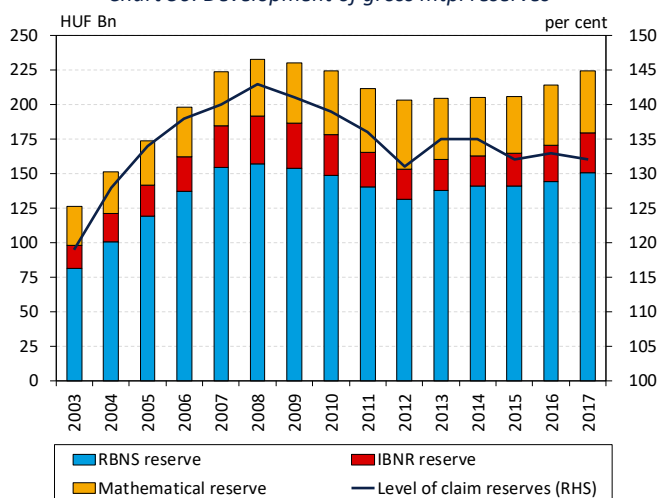


Chart 57: Number of investment fund managing companies and investment funds

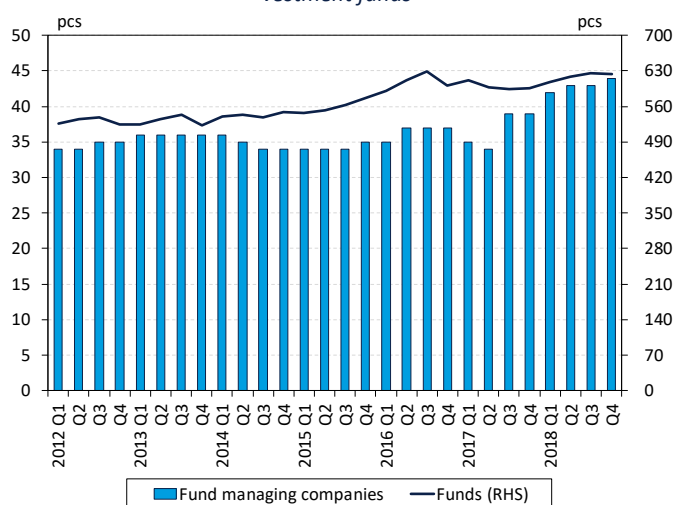
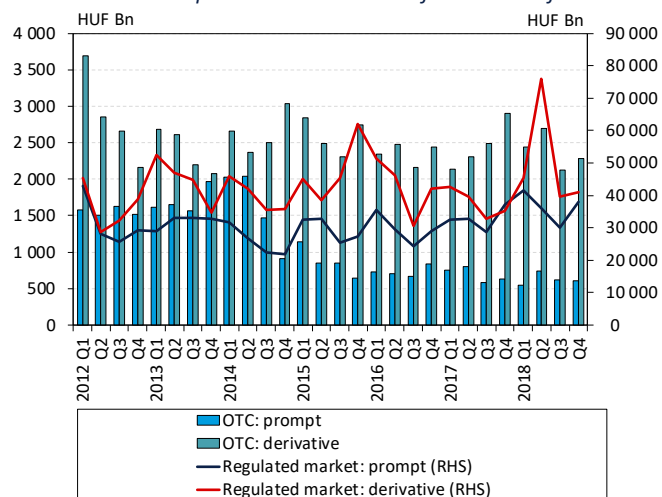
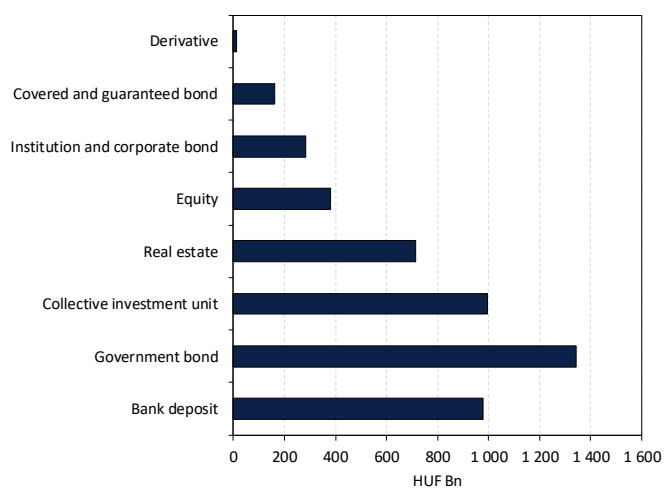


Chart 58: Capital market turnover of investment firms



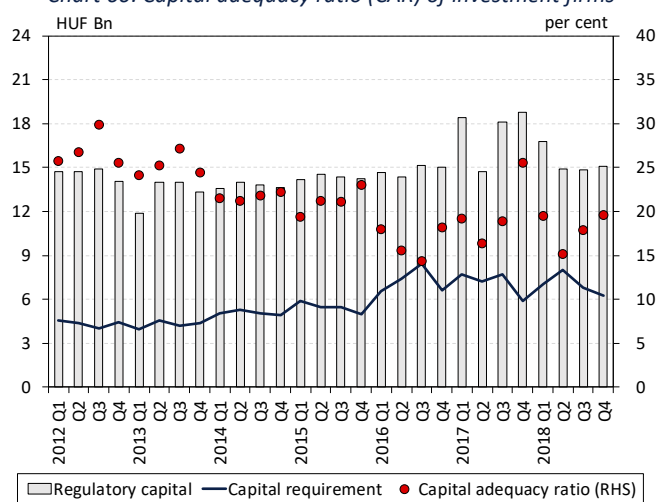
Source: MNB

Chart 59: Asset allocation in mutual funds



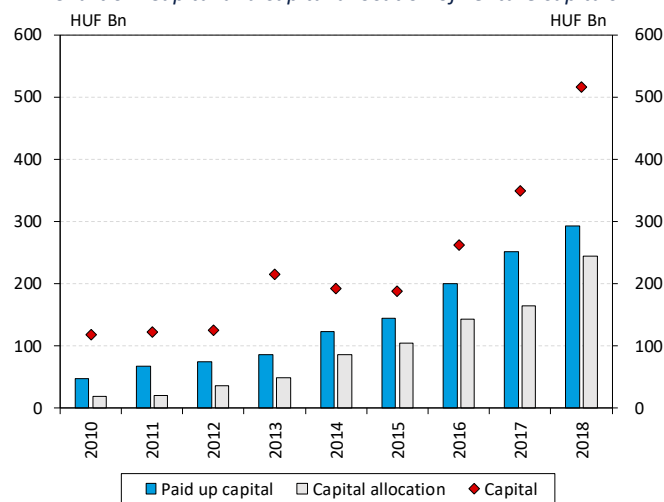
Source: MNB

Chart 60: Capital adequacy ratio (CAR) of investment firms



Source: MNB

Chart 61: Capital and capital allocation of venture capitals



Source: MNB

## Notes to the appendix

The chart date (e.g. 2016) means the end of the year (the 31<sup>st</sup> of December) unless indicated otherwise.

### Chart 1:

The increased value of the indicator shows declining risk appetite or increasing risk aversion.

### Chart 2:

VIX: implied volatility of S&P 500, MOVE: implied volatility of US Treasuries (Merrill Lynch).

### Chart 3:

The increased value of the indicator shows declining risk appetite or increasing risk aversion.

### Chart 4:

General government augmented SNA-deficit includes local governments, ÁPV Ltd., institutions discharging quasi-fiscal duties (MÁV, BKV), the MNB and authorities implementing capital projects initiated and controlled by the government but formally implemented under PPP schemes. The indicator includes private pension savings.

In case of the household sector, financing capacity is consistent with the SNA deficit of the general government and does not take savings in private pension funds into account. The official financing saving of households (in the financial account) is different from data on the chart.

### Chart 7:

The open FX position of households has turned because of the FX conversion. The compensation of this is shown at banks temporarily (see chart 36), by time it is expected to get to the consolidated state with the MNB.

### Chart 10:

Disposable income is estimated by the MNB using household consumption, investment and financial savings data.

### Chart 12:

Number of bankruptcy proceedings of legal entities, aggregated as of the date of publication and cumulated for 4 quarters, divided by the number of legal entities operating a year before.

### Chart 13:

The 5-year forward forint risk premium as of 5 years from now, compared to the euro forward yield (3-day moving average) and the 5-year Hungarian credit default swap spread.

### Chart 16:

Historic volatility: weighted historic volatility of the exchange rate (GARCH method). Implied volatility: implied volatility of quoted 30-day ATM FX options.

### Chart 17:

Spread on the 3-month BUBOR and EURIBOR. Loans with floating interest or with up to 1-year initial rate fixation. Adjusted for money market loans > 1M EUR since 2015.

### Chart 18:

Spreads based on the APR.

### Chart 19:

2002 average = 100%.

### Chart 22:

Nominal values, on current rates. Based on consolidated data (previously only unconsolidated data were available for the euro area).

### Chart 25:

Exchange rate adjusted values.

### Chart 26:

In brackets below the names of sectors the weights within corporate credit portfolio are indicated for end-of-observation period.

### Chart 33:

The category 0-30 percent contains also the loans disbursed without mortgage before 2008.

### Chart 34:

HAI shows how many times the income of a household with two average wages covers the income necessary for the purchase of an average (65 m<sup>2</sup>) dwelling from loan. Parameters of loan product except for the interest rate are throughout unchanged. LTV = 70%, PTI = 30%, maturity = 15 year.

### Chart 36:

An increase in the swap stock stands for swaps with a long forint spot leg. Based on the daily FX reports of credit institutions. Calculated from swap transactions between credit institutions and non-resident investors. Revisions due to reporting errors and non-standard transactions can lead to significant subsequent modifications of the data series. The data series does not include swap transactions between branches, specialised credit institutions, cooperative credit institutions and non-resident investors. The swap stock is the sum of termin legs calculated at actual foreign exchange rates.

**Chart 39:**

The interest rate risk stress test indicates the projected result of an extreme interest rate event; in this scenario this event is a parallel upward shift of the yield curve by 300 basis points for each foreign currency. For the calculations we applied re-pricing data and the Macaulay duration derived from them.

**Chart 40:**

A rise in the liquidity index indicates an improvement in the liquidity of the financial markets.

**Chart 41:**

Similarly to the liquidity index, an increase in liquidity sub-indices suggests an improvement in the given dimension of liquidity. The source of bid-ask spreads in case of HUF government bond market is calculated from the secondary market data transactions. The earlier version of the liquidity index included the CEBI bid-ask spread.

**Chart 42:**

A rise in the indices represents a narrowing bid-ask spread, thus an increase in the tightness and liquidity of the market. The liquidity-index of HUF FX swap market includes the data of USD/HUF and EUR/HUF segments, taking into account tom-next, overnight and spot-next transactions. The earlier version of the liquidity index included only the tom-next USD/HUF transactions.

**Chart 43:**

Client loans include loans and bonds of non-financial institutions, household loans, loans and bonds of financial and investment enterprises, government loans, municipal loans and municipal bonds. Client deposits include the deposits of non-financial institutions, household deposits, deposits of money market funds, deposits of financial and investment enterprises, government deposits and municipal deposits. The loan-to-deposit ratio is exchange-rate-adjusted with respect to the last period.

**Chart 44:**

ROE: pre-tax profit / average (equity - balance sheet profit).

ROA: pre-tax profit / average total assets.

Interim data are annualised.

Pre-tax profit: previous 12 months.

Average total assets: mean of previous 12 months.

Average (equity - balance sheet profit/ loss): 12 month moving average.

Deflator: previous year same month=100 CPI (per cent).

**Chart 45:**

Pre-tax profit.

**Chart 46:**

Based on aggregated individual, non-consolidated data.

Net interest income: 12-month rolling numbers, the difference of interest revenue and interest expenditure.

Gross interest bearing assets: 12-month average numbers, total exposure.

Net interest bearing assets: 12-month average numbers, exposure minus the provision.

**Chart 47:**

Cost: previous 12 months.

Income: previous 12 months.

Average total asset: mean of previous 12 months.

**Chart 48:**

Capital adequacy ratio (CAR) = (total own funds for solvency purposes/minimum capital requirement)\*8 per cent.

Tier 1 capital adequacy ratio = (tier 1 capital after deductions/minimum capital requirement)\*8 per cent.

**Chart 58:**

Sum turnover of investment firms and credit institution.

**Chart 59:**

28-Dec-2018





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# Ferenc Deák

(17 October 1803 – 28 January 1876)

Politician, lawyer, judge at a regional high court, member of parliament, minister for justice, often mentioned by his contemporaries as the 'wise man of the homeland' or the 'lawyer of the nation'. Eliminating the ever-recurring public law disputes and clarifying the relationship between the ruling dynasty and the hereditary provinces, he not only reinforced the constitution and the existence of the nation but also paved the way for the development as well as the material and intellectual enrichment of Hungary.

Deák was actively involved in preparing the laws for the parliamentary period between 1839 and 1840, and he became an honorary member of the Hungarian Academy of Sciences in 1839. After the death of his elder brother in 1842, Deák the landowner liberated his serfs and voluntarily undertook to pay taxes proving that he was an advocate of economic reforms not only in words but also in deeds. He refused to fill the position of delegate to the 1843/44 parliament because he disagreed with the idea of having to be bound by the instructions received as delegate, and as a moderate political thinker he had his concerns about the radical group led by Kossuth.

He remained level-headed also with regard to the evaluation of the events of 1848, he was afraid of violence and rejected it as a political tool. All the same, he accepted the post of minister for justice in the government of Lajos Batthyány. In December 1849 he was arrested for revolutionary activities, but later on, after being tortured for information, he was released. From then on he acted as the intellectual leader of the national passive resistance movement, and believed from the very beginning that Austrian centralisation was doomed to fail due to its inherent faults. He became the leader of the Address Party in the parliament of 1861, and even though they failed to bring the monarch to accept their ideas, he increasingly managed to take over the initiative over time.

Based on his earlier proposals, in 1865 Deák published his so-called Easter Article – which radically influenced Hungarian politics of the time – and until 1867 he virtually devoted all his time to reaching a compromise with the Hapsburg dynasty. After the compromise between Austria and Hungary ratified in 1867, Hungary was able to return to the path of social and economic development.

**FINANCIAL STABILITY REPORT**

**May 2019**

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