



FINANCIAL STABILITY REPORT



2018
NOVEMBER

*‘...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 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, the Macroprudential directorates, 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 20th November and 15th October 2018, and those of the Monetary Council following its meeting on 6th November 2018.

This Report is based on information in the period to 15th November 2018. Since data frequency is divergent through the analyses, the analysis horizons may also alter.

TABLE OF CONTENTS

Executive Summary	5
1 International macroeconomic environment. Mounting risks amidst rising yields.....	7
1.1 Global macroeconomic developments: growth peaks, risks on the rise	7
1.2 European banks continue to struggle with serious balance sheet challenges	9
2 Real estate markets. Buoyant market, with latent risks	12
2.1 In Budapest, the risk of overvaluation in house prices increased significantly	12
2.2 Robust development and leasing activity, falling investment turnover on the commercial real estate market	14
3 Trends in lending. Dynamic growth in parallel with the management of interest rate risk.....	18
3.1 The equilibrium level can be reached with dynamic growth in corporate loans outstanding	18
3.2 The vast majority of new loans is already characterised by longer interest rate fixation in the household credit market	23
4 Portfolio quality. Cleansing continued in 2018, but there are still non-performing portfolios to be reduced	31
4.1 Both cleansing and increasing lending activity support the decline in the corporate non-performing ratio.....	31
4.2 As a result of portfolio cleansing, the ratio of non-performing household loans fell below 10 per cent.....	33
5 Income and capital position. The profit effect of reversals of provisions seems to be wearing off	38
5.1 Reversal of loan loss provisions increases banks' profit to a smaller degree	38
5.2 Due to the rise in total assets, the capital adequacy ratio declined moderately	41
6 Market and bank liquidity. With changing yields, the liquidity of credit institutions remains adequate	44
6.1 Rise in short and long yields on the domestic markets.....	44
6.2 The Hungarian credit institution sector is still characterised by ample liquidity	47
7 Bank stress tests. Banks would remain liquid and have strong capital adequacy after a negative shock.....	51
7.1 The banking sector's general resilience to liquidity stress remains adequate	51
7.2 In terms of capital adequacy, the shock absorbing capacity of the banking sector is strong	53
List of Charts.....	58
List of Tables.....	59
Appendix: Macroprudential indicators.....	60

LIST OF BOXES

Box 1: Degree of exchange rate risk in commercial property lending.....	16
Box 2: Financial plans of micro and small enterprises	19
Box 3: Launch of the Funding for Growth Scheme fix.....	21
Box 4: Segmentation of consumer loan debtors among new borrowers	23
Box 5: Amendment of the payment-to-income ratio rules to support sound lending.....	27
Box 6: What happens to mortgage loan receivables acquired by debt management companies?	36
Box 7: Transforming the set of monetary policy instruments serves normalisation	45
Box 8: Financial stability considerations during the introduction of the instant payment system	48
Box 9: Modelling credit impairment under IFRS 9 in the solvency stress test	54

Executive Summary

The shock-absorbing capacity of the Hungarian banking sector is strong, both in terms of liquidity and capital adequacy. Profitability is outstanding by international standards as well, which strengthens the banks' capital position, but the unsustainable profit structure foreshadows a decline in banks' profit. The sector's balance sheet growth and the supportive economic environment facilitate an organic, sustainable improvement in banks' profitability, via further expansion in lending and progress in efficiency.

In the favourable economic environment, domestic banks have clearly embarked on a path of growth, which is reflected by the expansion of the balance sheet total and by growth in both corporate and household lending. The growth in assets keeps helping the banking sector to gradually outgrow the problems which may be regarded as the legacy of the period after the outbreak of the 2008 crisis. The rising balance sheet total, increasing lending and improving economic fundamentals have a benign effect on the non-performing loan ratio, loan loss provisioning, and the cost-to-assets ratio as well.

However, in addition to these favourable developments, the few problems inherited from the crisis are still not settled entirely, while new risks have also surfaced. In this report, we identify the following key risks.

Risks stemming from the external macroeconomic environment. Global economic trends are characterised by an anticipated deceleration in growth and a moderate rise in stability risks. The rise in inflation points to normalisation of monetary policy, which suggests a rise in the interest environment even in the case of the central banks that have not yet reached their inflation targets. Capital outflows due to the normalisation of monetary policy in developed countries and the change in investors' risk appetite, as well as the resurgence of political risks in the past half-year, have resulted in wide-ranging tensions in the emerging region, to varying degrees in different countries. The tensions of the past half-year affected the countries of the CEE region to a lesser extent due to the more favourable macroeconomic fundamentals. Developed countries have also been impacted by the rising yields: high indebtedness represents a risk via rising debt servicing, while structurally weak banks and bank-sovereign loops generate risks through depreciation of the government bond portfolio in the banks' balance sheet.

Risks observed on the Hungarian housing market. The rise in Hungarian house prices continued in the past period, moreover at an accelerating rate in Budapest. In view of this, the risk of overvaluation on the housing market has increased substantially. On the other hand, the risks arising from this factor are mitigated by the fact that the rise in price was not accompanied by a wide-ranging spread in risky lending, and thus the impact of a potential price correction would be moderate on banks' stability. In addition to overseeing prudent lending, the Magyar Nemzeti Bank (MNB) also regularly consults property market participants and closely monitors property market trends.

Structural risks in corporate and household lending. Since the end of phase three of the Funding for Growth Scheme, dynamic growth in corporate lending has not taken place in the desired structure, since only few companies in the SME credit market have access to predictable, long-term financing. With a view to reducing the interest rate risk, starting from January 2019 the MNB will launch the Funding for Growth Scheme Fix (FGS Fix) facility in the amount of HUF 1,000 billion. According to our expectations, the scheme will exert an effect primarily on the structure of the contracts, while the degree of additional credit expansion will remain limited. In case of the reviving commercial real estate financing, the high share of FX lending may pose a risk: it is important, when lending in foreign currency, that the financed projects shall have sufficient income in the given currency to ensure a proper natural hedge. In household lending, within new contracts, the ratio of loans with interest rates fixed for a longer term has increased substantially, with major contributions from Certified Consumer-friendly Housing Loans gaining more ground. Maintaining the favourable interest rate structure of new loans is supported by the amendment of the debt cap rules effective since 1 October 2018, which – in the case of variable-rate loans – prescribes higher income for borrowers. However, it represents a risk that the majority of outstanding lending is still characterised by interest rates with a short-term initial fixation.

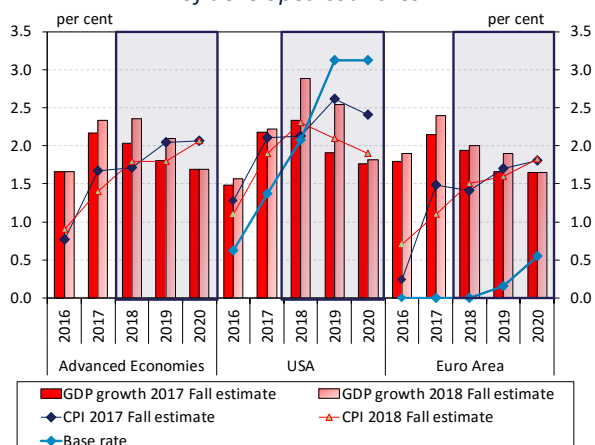
Profitability risks. The profit realised by banks in 2018 H1 remains outstanding by international standards, but falls moderately short of the year-on-year profit, primarily due to the decline in the reversal of provisions. With the exhaustion

of the release of the provisions recognised earlier, a further decline in the profitability of the banking sector can be expected. A reduction in operating expenses together with improving efficiency could permanently improve banks' profit. One way to achieve this – according to international experience – is the widescale application of digital solutions, which can be fostered by a supportive regulatory environment.

1 International macroeconomic environment. Mounting risks amidst rising yields

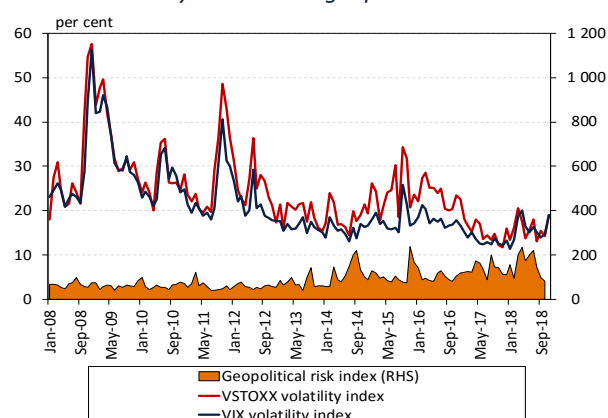
Since the publication of our last report, global financial stability risks increased moderately. The growth rate of the global economy, which provided substantial support for the post-crisis stabilisation of the banking sectors, is expected to peak in 2018. Looking ahead, however, growth prospects are threatened by several downside risks. Inflation is expected to rise further, which will lead to the tightening of monetary conditions. Intensifying political risks may hinder global growth, postpone necessary structural reforms and also dampen investors' risk appetite. Rising yields and weaker economic growth may render earlier debt paths unsustainable. The deterioration in the global economic outlook affects the vulnerable emerging economies the most, but EU Member States which have accumulated large amounts of debt may also face difficulties. This applies particularly to countries where the strong sovereign-bank nexus adds to the vulnerability of the banking sector. EU banks' shock-absorbing capacity improved, but the banking sectors continue to struggle with major structural challenges.

Chart 1: Changes in the macroeconomic environment of developed countries



Source: IMF, BIS, Bloomberg

Chart 2: Evolution of European and US stock market volatility indices and geopolitical risks



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 (month-end data). The geopolitical risk indicator is calculated based on the frequency of the words indicative of geopolitical tensions, mentioned in 11 leading US and international press publications.

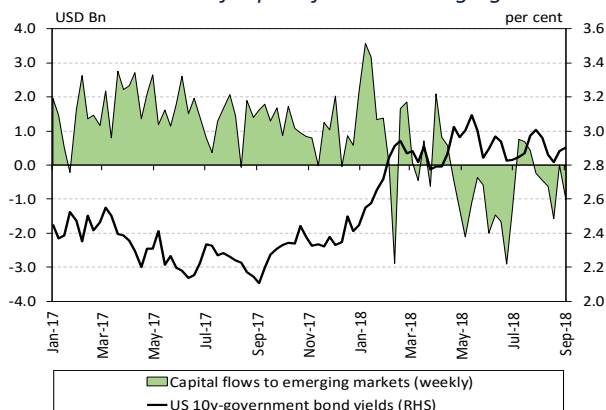
1.1 Global macroeconomic developments: growth peaks, risks on the rise

The growth rate of the global economy is expected to reach its high point in 2018, while market risks rose moderately. According to the latest economic forecasts, the growth-supporting factors – such as consumption and trade expansion – are weakening, while increasing protectionism decelerates growth. The IMF also projects a break in growth dynamics: according to its latest forecast from October, projected economic growth in the developed countries will move on a downward path in the coming years (Chart 1). Market participants are becoming increasingly sensitive, partly due to the upward shift in political and geopolitical risks, which was also reflected this year by the moderate rise in volatility indices (Chart 2).

Increasing risks and monetary policy normalisation in the advanced economies led to capital outflows from emerging countries. Rising US yields and investors' fading risk appetite resulted in significant capital outflows from emerging economies in recent months, causing currency depreciation and significant deterioration of macroeconomic and financial stability indicators (Chart 3). In September, the Fed once again tightened monetary conditions (raising the key interest rate band by 25 basis points to between 2 and 2.25 per cent) and, based on its forward-looking communication, another hike can be expected before the end of the year. From the start of 2018, the ECB scaled back net monthly purchases under its asset purchase programme from EUR 60 billion to EUR 30 billion. Monthly net purchases of securities were reduced to EUR 15 billion in the last quarter of 2018, and the scheme is expected to be phased out fully on the last day of the year, which may pave

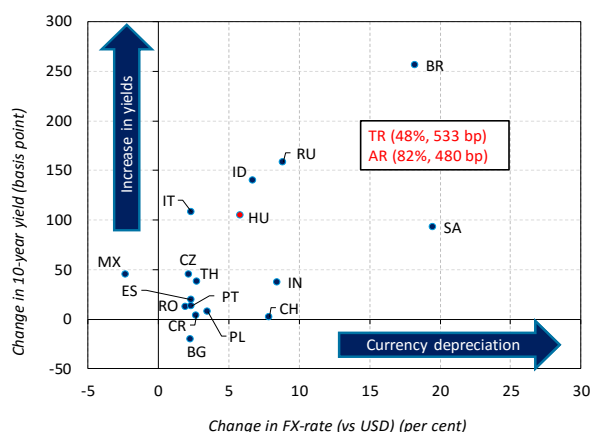
Source: Datastream, Caldara – Iacoviello, "Measuring Geopolitical Risk," working paper, Board of Governors of the Federal Reserve Board, January 2018

Chart 3: Evolution of capital flows in emerging markets



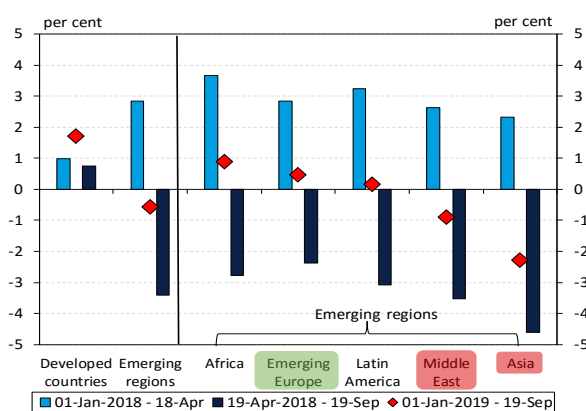
Source: EPFR, Bloomberg

Chart 4: Changes in foreign exchange rates and in the 10-year government bond yields in certain emerging countries



Note: The chart shows the changes between 4 May 2018 and 18 September 2018. Source: Bloomberg

Chart 5: Cumulated bondflows as a percentage of assets under management in 2018



Source: EPFR

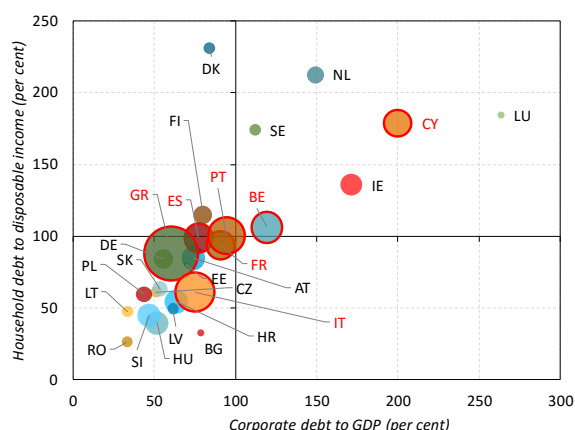
the way for the normalisation of conventional monetary instruments in the euro area as well. The uncertainty surrounding Brexit is causing a slowdown in the British economy and depreciation of the pound sterling. Due to the inflationary effects of the weakening exchange rate, the Bank of England raised interest rates in August. In the CEE region, the Czech and Romanian central banks were compelled by the rising inflation to raise the key interest rate several times.

The changing international environment is hitting the vulnerable emerging economies the hardest. In the emerging markets, the impact of weakening global economic growth is amplified by country-specific factors. The uncertain domestic political environment led to slower-than-expected growth in Brazil, and Argentina is struggling with severe financing difficulties, while the Republic of South Africa slipped into a recession. All three of the currencies have experienced substantial depreciation against the US dollar. In August and September, the external imbalances (balance of payments deficit, high external foreign currency debt), economic overheating, high inflation and mounting political and geopolitical risks caused sharp exchange rate depreciation and rising yields in Turkey as well (Chart 4). Challenges in several emerging market countries are further exacerbated by the fact that their banking and corporate sectors relied heavily on cheap, USD-denominated funds, which these sectors can only roll over under increasingly worse conditions in the tightening interest rate environment.

The CEE region was affected by the market turbulences to a lesser extent. The currencies of the CEE region (including the Hungarian forint) also felt the deterioration in the international investor sentiment, but compared to the volume of assets the outflow of capital hit Asia and the Middle East the hardest, while the CEE region registered cumulated capital inflows in the first nine months of the year, despite the capital outflows since April (Chart 5). Owing to the stable macroeconomic fundamentals (current account surplus, declining external debt, predominantly domestic debt financing, declining foreign currency debt, disciplined budget), Hungary's vulnerability may be deemed as low, and in the narrower region Hungary has one of the strongest capital-retaining capacity.

The further escalation of trade protectionism may have a negative impact on the Chinese economy as well. In the past period, mounting trade tensions contributed to depreciation of the renminbi and may continue to curb Chinese economic growth. Global risks stem from the rising

Chart 6: Household, corporate and sovereign debt in the EU Member States

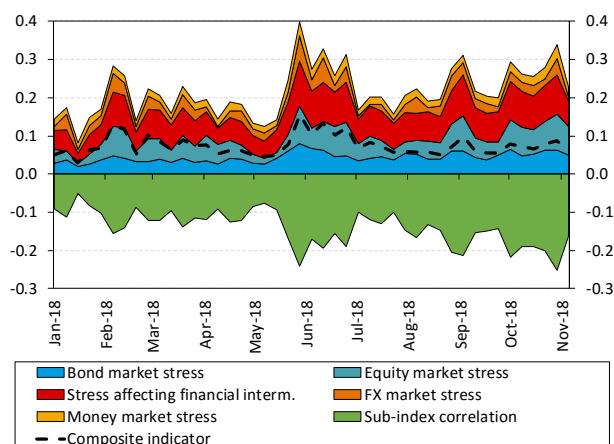


Note: The size of the bubble represents the sovereign debt-to-GDP ratio (2018 Q1), indicating the Member States with sovereign debt-to-GDP ratios exceeding 90 per cent in red, while the other colours only help separate the individual bubbles. In the case of households' debts compared to their disposable income, the data for Greece relate to 2017 Q4, for Belgium to 2017 Q3, for Bulgaria, Cyprus, Croatia, Lithuania, Luxembourg, Latvia and Slovakia to 2016 and for Hungary to 2015. Source: ECB, OECD

indebtedness of Chinese economic actors (accounting for almost 40 per cent of the world's outstanding debt) and the expansion of shadow bank financing, which may jeopardise the stability of the financial system, due to the sector's lack of transparency and regulation.

Normalisation of monetary policy may increase the sustainability risks of both sovereign and private sector debt in the EU as well. Many EU Member States and European companies took advantage of the low interest rate environment and substantially raised their outstanding debt (Chart 6). However, rising yields and declining economic growth may force these debtors to apply painful adjustment measures, as rising yields may render the earlier debt paths unsustainable. The strong growth in household indebtedness observed in many Member States may – in the absence of adequate macroprudential policies – lead to repayment difficulties and a surge in the non-performing loan ratio. The increase in interest rates is also a cause for concern because outstanding debt in Europe has been continuously increasing in recent years: the debt-to-GDP ratio of the euro area (private sector debt and government debt together) increased by 20 percentage points in the eight years after the crisis, rising to 228 per cent of the euro area's GDP.

Chart 7: Evolution of the European financial stress index



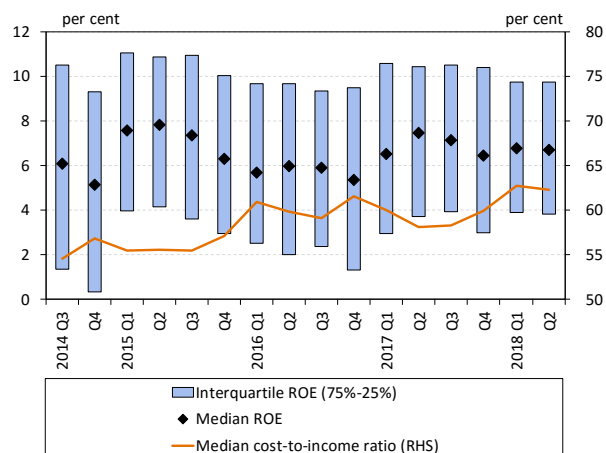
Source: ECB

1.2 European banks continue to struggle with serious balance sheet challenges

The European banking sector has been resilient to the market turbulences so far. Compared to the historical values, the financial stress index (composite indicator of systemic stress – CISS) is at a low level, but in the past period it rose somewhat, primarily owing to equity market turbulences (Chart 7). The improvement in macroeconomic fundamentals observed in recent years had a favourable effect on the profitability of the EU banking sector and led to a substantial strengthening of banks' shock-absorbing capacity. The spillover of market turbulences was also mitigated by the fact that the exposures of EU banks to the vulnerable emerging economies are low and are concentrated at only a few institutions. The continuing normalisation of monetary policy may have a favourable effect on banks' profitability, via an improvement in net interest income.

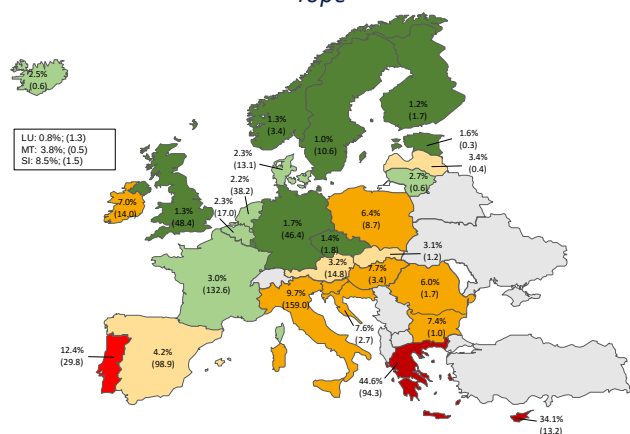
At the same time, the long-term profitability of the European banking sector still faces challenges. Although the median return on equity in the European Union rose from 6.4 per cent at end-2017 to 6.7 per cent in the second quarter of this year (Chart 8), this was mostly attributable to one-off items, and growth in long-term profitability is still

Chart 8: Profitability indicators of the EU banking sector



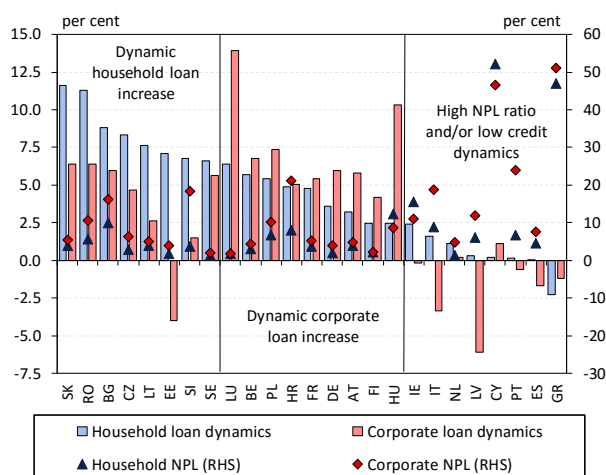
Source: ECB

Chart 9: Ratio and volume of non-performing loans in Europe



Note: Data for 2018 Q2; NPL ratio in per cent; in brackets the volume of the non-performing loan portfolio in EUR billions. Green, yellow and red denote Member States with low, medium and high NPL ratios, respectively. Source: EBA

Chart 10: Credit dynamics and non-performing loans in the EU Member States in 2018 Q1



Source: ECB

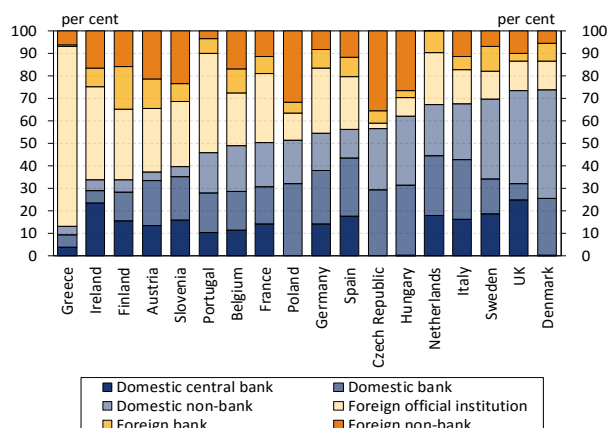
hindered by major impediments. Operational efficiency remains low, which is often the result of over-branchification and capacity underutilisation. Several banks have kept postponing digital developments due to their additional cost burdens. The absence of such developments, however, may present risks to banks' longer-term competitiveness and growth, while the resulting increased market penetration of non-bank actors can exacerbate stability risks.

The slow pace of cleaning the non-performing loan portfolio results in fragile credit dynamics. On an EU average, the non-performing loan ratio (NPL ratio) continues to decline (dropping to 3.9 per cent in the first quarter of this year); however, there is still significant heterogeneity among Member States (Chart 9). The high NPL ratio not only weakens profitability, it also effects lending activity, and in addition –by eroding banks' lending capacity– it has a negative impact on the efficiency of monetary policy transmission (Chart 10). Permanently high NPL rates and the low/decreasing credit dynamics in the Mediterranean countries and in Ireland raise the necessity to accelerate the cleaning of banks' balance sheet. At the same time, banks in several countries in the CEE region (among others, in Hungary, Romania and Slovenia) carried through with major portfolio cleaning in the past period, which had a favourable impact on their lending capacity.

The high degree of sovereign exposure may represent elevated risks in certain banking sectors of the euro area. In the EU, the sovereign-bank nexus remains very strong, i.e. in certain Member States a major portion of sovereign debt is still held by the domestic banks (Chart 11), which may also increase the vulnerability of the banking sector. An extreme fall in the price of government securities significantly reduces the market value of banks' assets, thereby eroding their capital buffers, while rising yields make funding more expensive. The challenges related to the sustainability of high sovereign debt generate acute risks and increase market volatility, particularly in those countries where the ratio of foreign funding is high. This is due to the fact that foreigners may respond to a potential financial stress more sensitively, thereby making it more difficult to roll over debt.

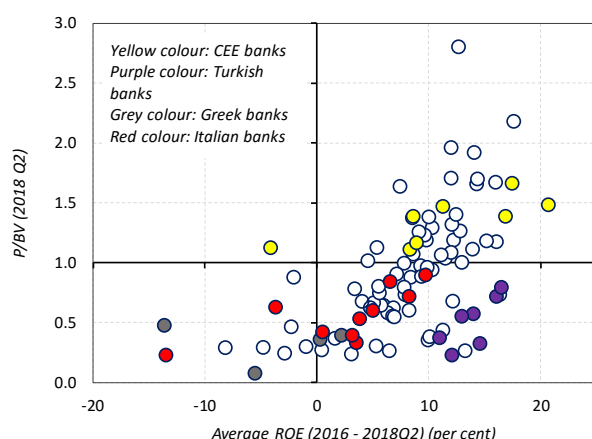
In addition to normalisation of the interest rate environment, political uncertainty intensified the risks related to Italian government debt, which also impacted the banking sectors of several other members of the euro area. In addition to the aforementioned, sovereign exposure may render banks vulnerable not only vis-à-vis domestic sovereign debt. For example, according to the results of the 2017

Chart 11: Ownership structure of sovereign debt in the EU Member States



Note: December 2017. Source: IMF, BIS

Chart 12: Long-term average of return on equity and market valuation



Source: SNL

EBA transparency exercise – which included 132 EU banks – 46 per cent of the Italian government securities held by the participating banks are on the books at Italian banks, 17 per cent at French banks and 11 per cent at Spanish banks. This means that – in addition to the Italian banking sector – the turbulence observed in the Italian bond market in recent months may also have an unfavourable impact on credit institutions in other Member States. The risks are amplified by the fact that several Italian banks hold domestic government securities in a volume exceeding their Common Equity Tier 1 capital (CET1), two thirds of which, on average, is valued at fair value against equity. Thus, a potential rise in yields immediately has a negative effect on their capital adequacy, which is already relatively low in a European comparison.

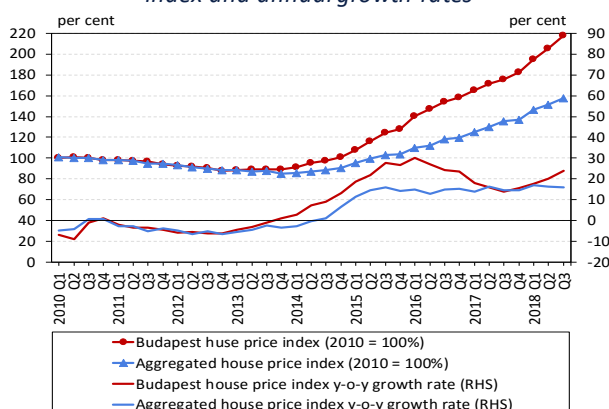
The market valuation of banks mirrors the structural challenges faced by the sector. Shares of European banks performed poorly this year, which is also reflected in their market valuation. While in the case of most CEE banks profitability is accompanied by a price-to-book value ratio (P/BV) higher than 1, markets value the relatively undercapitalised Italian banks – which can be characterised by high non-performing loan ratio and strong sovereign relations – lower (Chart 12). Turkish banks – which are rolling large foreign currency debt, have high foreign currency loan exposure and can also be regarded as undercapitalised – are also valued lower by investors, despite their relative higher return on equity. Simultaneously with the decrease in a bank's P/BV ratio, it becomes more difficult for the institution to raise capital, due to which some banks may be forced to downsize or sell their business lines, which may have negative impact on economic growth as well.

2 Real estate markets. Buoyant market, with latent risks

In 2018 H1, prices continued to rise on the domestic housing market. In Budapest, in 2018 Q2 the annual growth rate of house prices exceeded the rate observed in countryside settlements and amounted to roughly 20 per cent. As a result of the large increase of house prices in Budapest, the risk of overvaluation increased significantly, and thus – particularly due to the anticipated persistent strong demand and expected tightening of supply from 2020 – continuous monitoring of the Budapest market risks is even more important. The impact of the risks arising from the domestic housing market on the stability of the banking sector is mitigated by the fact that more than half of all housing market transactions are still concluded without borrowing, while healthy growth in housing loans is ensured by the MNB's debt cap rules.

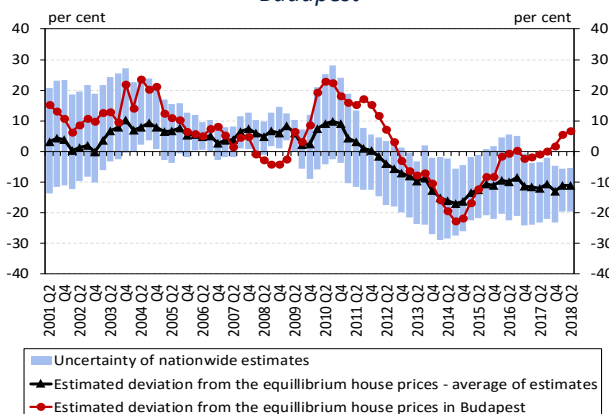
Activity on the domestic commercial real estate market remained brisk in 2018 H1 as well. Although investment volumes declined compared to last year, this is attributable to the temporary shortage of high-quality properties available for sale rather than to a decline in demand. In 2018 H2 and 2019, a substantial increase in the completion of new offices can be expected. The financing activity of credit institutions is increasing dynamically; the high ratio of foreign currency loans may represent risks in the case of lower quality properties occupied by tenants pursuing forint-based activity and sectors more sensitive to business cycles.

Chart 13: Aggregated and Budapest MNB housing price index and annual growth rates



Note: The final 2018 Q3 data points are based on a smaller sample and preliminary calculations. Source: MNB

Chart 14: Deviation of real house prices from the estimated level justified by fundamentals, nationally and in Budapest



Note: For methodological notes, see the 2018 November Housing Market Report of the Magyar Nemzeti Bank. Source: MNB

2.1 In Budapest, the risk of overvaluation in house prices increased significantly

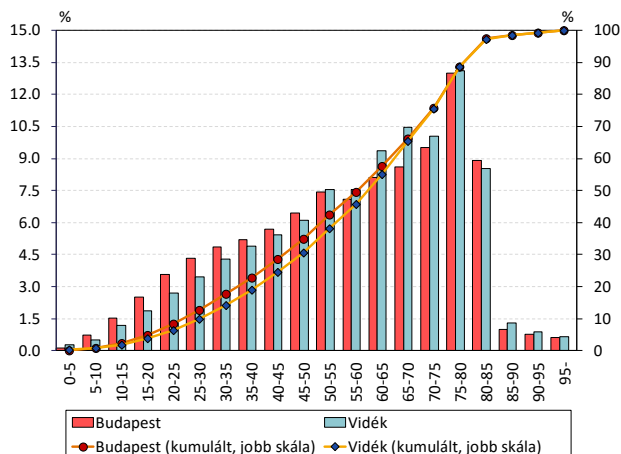
Domestic house prices continued to rise in the first three quarters of 2018.

In 2018 H1, house prices continued to rise both in Budapest and in smaller settlements. In Budapest, a gradual deceleration in the annual growth rate of house prices was observed from 2016 Q1, but this halted at the end of 2017 and the rate stabilised. However, in early 2018, the annual growth rate of house prices in Budapest accelerated once again, and at the end of the second quarter it amounted to 20.2 per cent, in nominal terms, compared to the rate of 15.5 per cent registered at the end of 2017 (Chart 13). The annual growth rate of prices, in real terms, amounted to 16.6 per cent in Budapest, 12.8 per cent in cities and 8.4 per cent in smaller settlements in 2018 Q2. According to the preliminary data, growth may have continued in the third quarter, while in the capital the dynamics accelerated further. By the end of 2018 H1, in real terms, house prices already slightly exceeded the level observed at the end of 2008 on a national average as well, while in Budapest they exceeded it to a larger degree, by 43 per cent.

In Budapest, the risk of overvaluation increased significantly.

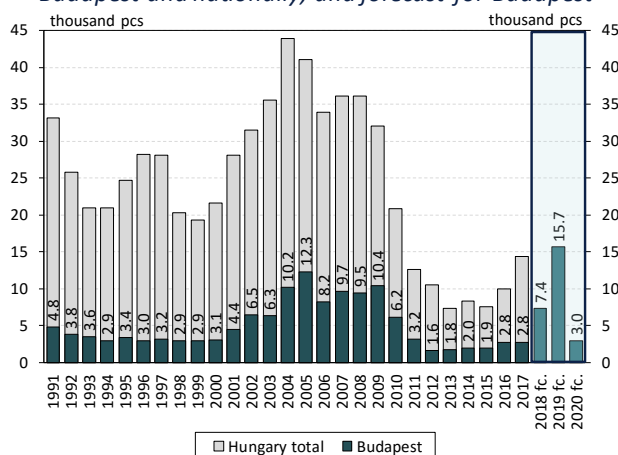
Due to the persistent, substantial rise, according to our calculations by 2018 Q2 house prices already slightly exceeded the level justified by economic fundamentals, and thus the risk of overvaluation increased significantly (Chart 14). This means that house prices in the capital rose

Chart 15: Distribution of housing loans disbursed in the period of 2017–2018 Q2 by loan-to-value ratio



Note: A loan-to-value ratio exceeding 80 per cent may exist in the case of loans exempted from the debt cap rules, taken out primarily for refinancing purposes. Volume-based distribution. Source: MNB

Chart 16: Number of completed newly built dwellings in Budapest and nationally, and forecast for Budapest



Note: The forecast for Budapest is based on the dwellings under construction in 2018 Q3 and the estimation prepared on the basis of anticipated completions of planned new dwellings. Source: HCSO, MNB, ELTINGA – Housing Report

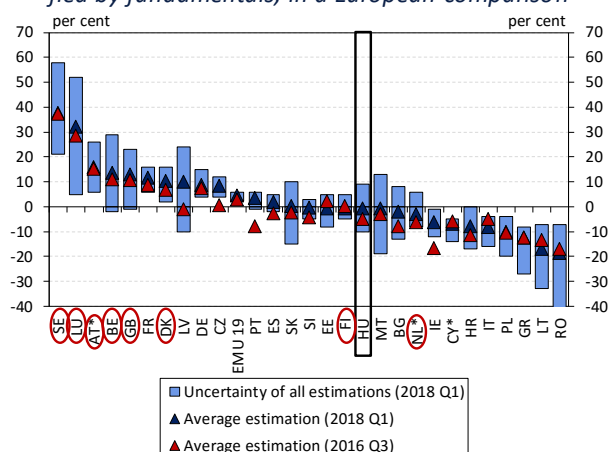
faster than the improvement in the fundamentals affecting the housing market, among other things households' disposable income and labour market position. House prices in Budapest above the justified level represent a risk particularly in light of the fact that looking ahead all factors point towards continued buoyant demand, a rise in purchases from loans and the anticipated contraction in supply. As the combined result of the latter factors a further increase in house prices can be expected, and thus in Budapest there is a risk that house prices may diverge from the fundamentals to an even larger degree. In view of this, the MNB is paying particular attention to monitoring developments in Budapest.

At present, the upturn in the Budapest housing market is not accompanied by excessive risk-taking in the field of mortgage lending. In 2018 H1, the ratio of household housing loans compared to housing market transactions increased further. However, the latter indicator is still only at 46 per cent, i.e. more than half of the housing market transactions do not involve bank financing. The median loan-to-value ratio of the mortgage loans disbursed since 2017 was 47.4 per cent in Budapest, which is lower than the 52.6 per cent registered in the countryside, while the ratio of borrowers close to the regulatory limit of 80 per cent was similar in Budapest and in the countryside (Chart 15). In Budapest, the typical payment-to-income ratio (PTI) is somewhat higher in the case of mortgage loans, and the average loan amount is also larger, but on the whole there is no pattern that would suggest that banks are taking on significantly higher risks in the capital.

From 2020, a major decline can be expected in new housing supply. The temporary, four-year period of the preferential VAT rate applicable to new housing expires at the end of 2019, and from 2020 once again the general VAT rate of 27 per cent will be in effect instead of 5 per cent.¹ Consequently, developers plan on completing a significant number of new dwellings in 2018–2019. In 2018, 7,400 new homes may be completed in Budapest, while 15,700 new homes may be completed in 2019, which substantially exceeds the 2,800 new homes completed in 2017. However, from 2020 housing developers once again only plan on completing 3,000 new homes, which reflects a major decline in supply (Chart 16). Although additional housing projects may be announced by 2020, this degree of decline in planned residential construction clearly foreshadows a

¹ In light of the November 13 decision of the National Assembly, until the end of 2023 the preferential VAT rate of 5 per cent is applicable to all new dwellings which already had a construction permit by 1 November 2018.

Chart 17: Deviation of house prices from the level justified by fundamentals, in a European comparison

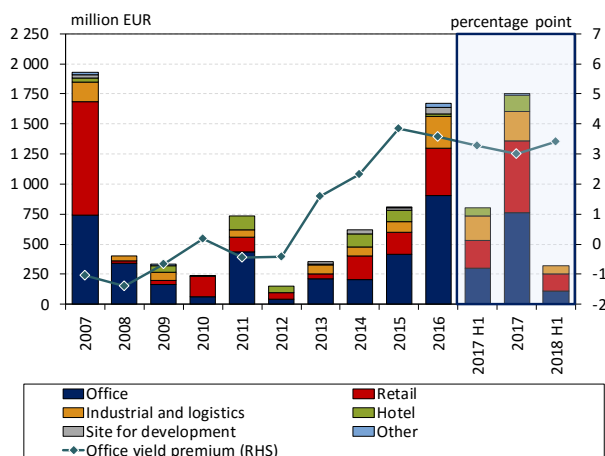


Note: Hungary is based on the ECB estimation; the circled countries were warned by ESRB due to their overheated property market. In the case of countries marked with *, based on 2017 Q4 figures. Source: ECB, ESRB

decrease in future supply. 60 per cent of planned completions are already delayed due to the scarce labour capacity. Thus, some of the large number of projects slated for completion in 2019 may be delayed until 2020. On the whole, from 2020, the decline in the supply of new homes – assuming continued strong demand – points to a continued rise in house prices.

The overvaluation of house prices has increased in several European countries in recent years. The dynamic rise in house prices and the related potential divergence of these prices from fundamental developments represents a risk in the markets in several European countries. According to European Central Bank (ECB), in 2018 Q1 overvaluation of house prices compared to the level justified by economic fundamentals was observed in 13 Member States. According to the ECB's estimate, this overvaluation exceeds 10 per cent in 8 Member States, while in Sweden and Luxembourg house prices are well above the justified level, by roughly 38 and 32 per cent, respectively (Chart 17). In the case of 6 of the aforementioned 8 Member States, the ESRB already issued a warning in 2016 that the risks developing in the housing market may potentially jeopardise financial stability. In light of the overvaluation of house prices, these risks still exist.

Chart 18: Composition of the Hungarian commercial real estate market's investment volume by market segments, and the prime yield premium



Note: The yield premium of the office market transactions is the difference between the prime office market yield and the annual (for 2018, semi-annual) average of the 10-year government securities auction yield.

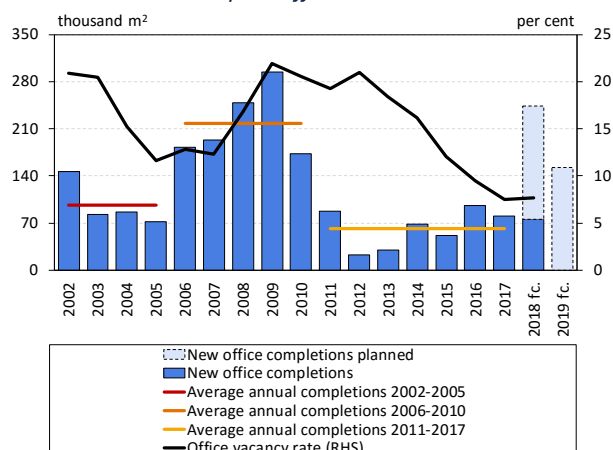
Source: CBRE, Cushman&Wakefield, ECB, MNB

2.2 Robust development and leasing activity, falling investment turnover on the commercial real estate market

The high yield premium realisable on the property market still attracts investors, but the volume of transactions declined temporarily, due to the low supply. Strong growth in investment turnover was observed on the domestic commercial real estate market in recent years, but the turnover of roughly EUR 322 million registered in 2018 H1 falls substantially short (by almost 40 per cent) of the year-on-year volume. However, the decline in investment turnover was attributable primarily to the temporary shortage of high-quality properties available for sale rather than to the fall in demand, which may be eased by the higher volume of office completions expected in 2018–2019. On the whole, due to the low interest rate environment, the high yield premium of property investments continues to generate strong demand on the property market (Chart 18).

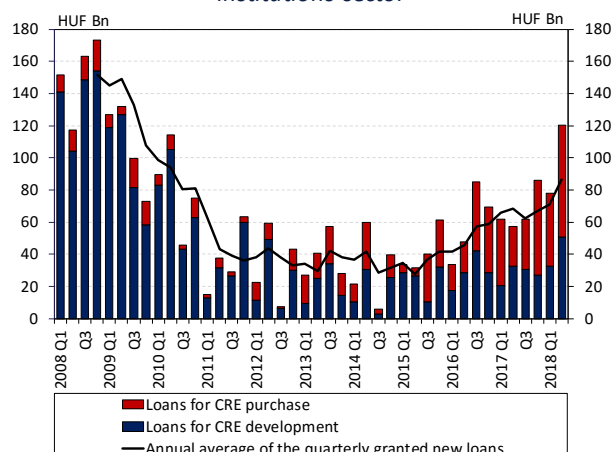
As a result of the large volume of office completions expected in 2018–2019, the shortage of office space for lease may ease, possibly entailing a rise in the vacancy

Chart 19: New completions and vacancy rate on the Budapest office market



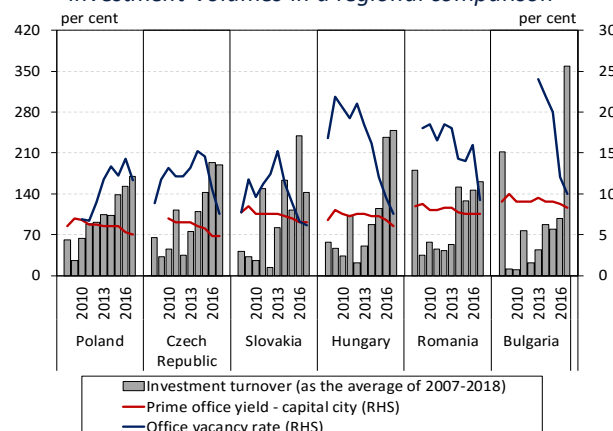
Note: The 2018 vacancy rate is Q2 data.
Source: Budapest Research Forum, MNB

Chart 20: New commercial real estate loans in the credit institutions sector



Source: MNB

Chart 21: Office market vacancy rate, prime yields and investment volumes in a regional comparison



Note: Investment volumes as a percentage of the 2008–2017 average. Source: MNB collection based on the data of CBRE, Colliers, Cushman & Wakefield, JLL

rate, which is at a historic low. The vacancy rate of offices in Budapest offered for lease was 7.6 per cent at the end of 2018 H1, which marks a moderate, 0.3 percentage point rise compared to the historic low registered in the previous quarter. However, based on construction in progress, the completion of almost 250,000 square metres of office area is expected for 2018 as a whole, and 150,000 square metres for 2019, and thus the volume of annual new completions comes close to the degree registered in the previous cycle (Chart 19). 2018 H1 was characterised by strong demand from tenants, but even if this demand persists, as a result of the expected rise in new completions, the upward pressure on the vacancy rate will strengthen. In 2018 H1, the vacancy rate of industrial and logistics properties in Budapest and the environs dropped to a historic low of 3.5 per cent.

The volume of new commercial property loans increased dynamically. In 2018 H1, the credit institution sector disbursed project financing loans secured by commercial real estate in the amount of HUF 198 billion to enterprises, which exceeds the year-on-year volume by 67 per cent. The volume of HUF 120 billion registered in the second quarter was unprecedented since the start of 2009. Slightly more than half of the loans disbursed in 2018 related to the purchase, rather than to the development, of commercial properties, while in 2008–2009 the ratio of loans for the purchase of properties was around just 10 per cent (Chart 20). The market of project loans can be deemed concentrated: the four most active banks financed 73 per cent of disbursements in 2018 H1. Within new loans, the high ratio of foreign currency loans is typical for all property types: on the whole, 77 per cent of the loans disbursed in 2018 H1 were denominated in foreign currency. If this involves more tenants which are active in the domestic market and earn their revenues in forint, this renders the transactions vulnerable to an unfavourable shift in the exchange rates (Box 1).

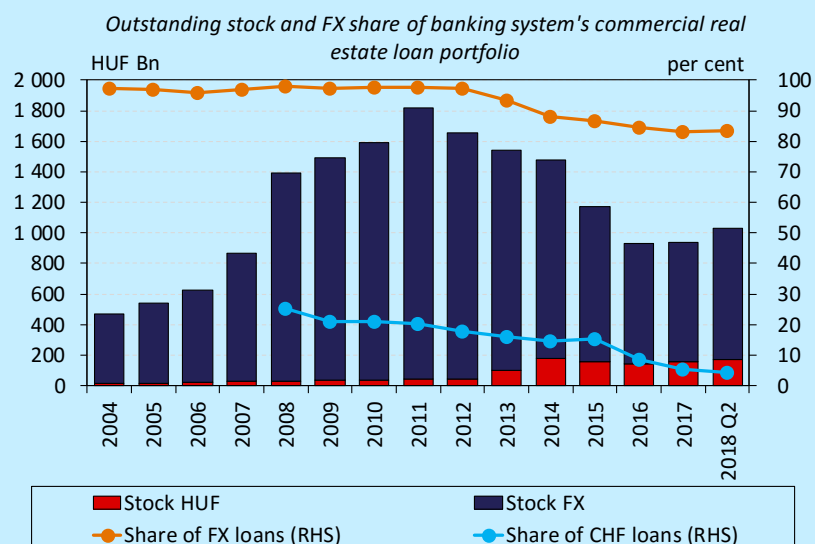
At the regional level, the commercial real estate markets are characterised by low office vacancy rates and high investment volumes. The trends observed in the Hungarian commercial property market, i.e. robust investment demand and low vacancy ratios, a high degree of development activity and declining yields, also apply to the countries of the CEE region. While in Hungary the investment volume in 2017 reached 200 per cent of the average of the last 10 years, this figure was over 300 per cent in Bulgaria. The vacancy rate of offices offered for lease was at a record low in all of the countries in the region, with the exception of Poland. At end-2017, the lowest vacancy in the

office market was registered in Slovakia (6.2 per cent), while – in addition to Hungary – in the Czech Republic only 7.5 per cent of the offices offered for lease were vacant (Chart 21).

BOX 1: DEGREE OF EXCHANGE RATE RISK IN COMMERCIAL PROPERTY LENDING

In parallel with the property market boom, commercial property financing also gained momentum in recent years.

At the end of June 2018, the project financing loan portfolio of the credit institutions sector secured by commercial property amounted to HUF 1,043 billion, of which 82 per cent was denominated in foreign currency. For the sake of

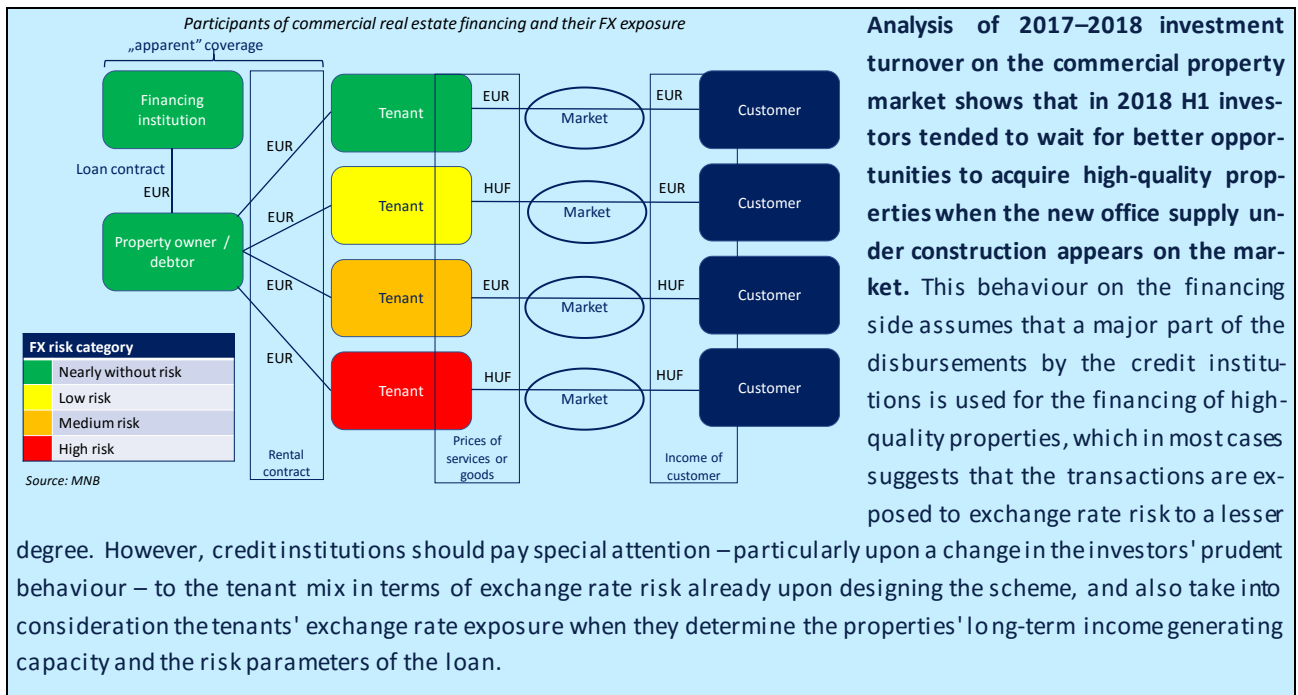


comparison: the credit institutions' present portfolio falls roughly 40 per cent short of the level of HUF 1,446 billion registered at the end of 2008, while the ratio of foreign currency loans decreased compared to the 98 per cent rate registered at that time, but it can still be deemed high. At the end of 2018 Q2, the ratio of foreign currency loans in the outstanding loan stock of the three banks with the highest commercial property-secured project financing loan portfolio was over 90 per cent. In 2017, the credit institutions sector disbursed project financing loans secured by commercial property in a total amount of HUF 267 bil-

lion to domestic companies, equivalent to 44 per cent of the volume of HUF 605 billion disbursed in 2008. Analysis of loan disbursements in the past two years shows that a major portion of the commercial property financing activity is concentrated at three or four actors. The most active actors disbursed more than 85 per cent of the loans in foreign currency.

After several years of resolving the **non-performing portfolio accumulated as a result of the crisis**, by the end of 2018 Q2, the outstanding project financing loans under review had a lower concentration in credit institutions' balance sheets, accounting for 2.7 per cent of the aggregated balancesheet total (5 per cent at its peak in 2010) and 25 per cent of the aggregated equity (61 per cent in 2010). Within the commercial property loan portfolio of the key actors disbursed in foreign currency, loans for the financing of offices and shopping malls prevail.

Although foreign currency financing – typically in euros – has always been a standard feature of commercial property financing, the crisis and – to a lesser degree – the exchange rate depreciation seen in recent months highlighted the vulnerability of economic agents with no natural hedging. With rents determined in euro, the commercial property loans disbursed in euro represent only "virtual" coverage, because although the credit institution and the borrower are hedged, the tenants run an exchange rate risk. This usually affects tenants which sell goods and services mostly in the Hungarian market at prices denominated in forint. With foreign currency loans, the foreign exchange rate risk exposure of certain property types and specific properties is lower if they are leased by tenants typically selling on the international market at prices denominated in foreign currency. Compared to the pre-crisis period, it is a positive development that lending in Swiss francs is no longer typical for commercial property projects. A good part of the project financing loans disbursed in Swiss francs included an additional exchange rate risk factor, since with the rents mostly contracted in euro, the "virtual" hedge did not exist even in the debtor-borrower relation.

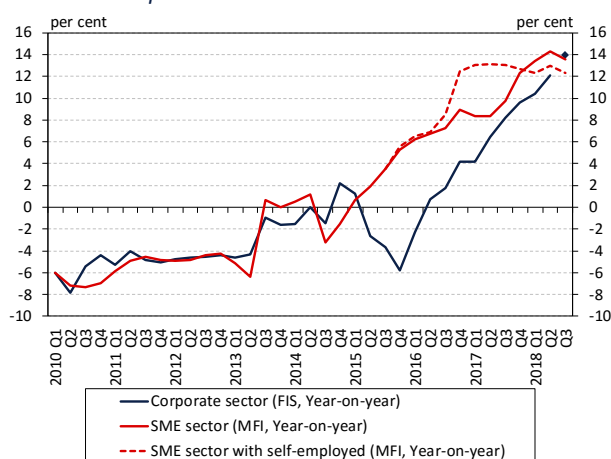


3 Trends in lending. Dynamic growth in parallel with the management of interest rate risk

Corporate lending continued to grow in 2018 H1. In an annual comparison, as a result of transactions, loans outstanding rose by 12 per cent. The corporate loans outstanding of small and medium-sized enterprises, which account for a large ratio of the corporate sector, rose by almost 15 per cent in annual terms as a result of transactions. The growth rate of lending is adequate, but it represents a risk that the share of loans with rapid repricing is high within the disbursements, since at present long-term, fixed-rate loans are not concluded by a wide range of borrowers in the SME credit market. With a view to shifting lending towards a healthier structure, the MNB will launch the Funding for Growth Scheme Fix (FGS fix) at the beginning of 2019, with a facility amount of HUF 1,000 billion. In launching the new scheme, the primary objective of the central bank is to influence the structure of lending to SMEs; the impact on lending growth is likely to be more moderate compared to the previous phases.

Trends in household lending were also characterised by a rise in loans outstanding in the first half of the year, as households' loans outstanding vis-à-vis the entire financial intermediary system rose by 3 per cent in annual terms. Banks perceive rising demand both for housing loans and consumer loans, accompanied by a substantial increase in average loan amounts and moderate growth in maturities in both segments. The interest rate spread on realised transactions decreased in the period under review, as a result of which the spread on fixed-interest rate housing loans fell below that of variable-rate loans. The amendment of the payment-to-income ratio, effective from 1 October 2018, is not expected to have a significant impact on the volume of new housing loans, but it does channel demand toward loans with longer interest rate fixation periods, thus reducing the interest rate risk borne by households. The ratio of Certified Consumer-Friendly Housing Loans within the monthly new disbursements of loans with interest-rate fixation of more than three years rose to 57 per cent by June, while the share of housing loans with interest rate fixed for more than one year increased to 84 per cent.

Chart 22: Growth rate of loans outstanding of the overall corporate sector and the SME sector

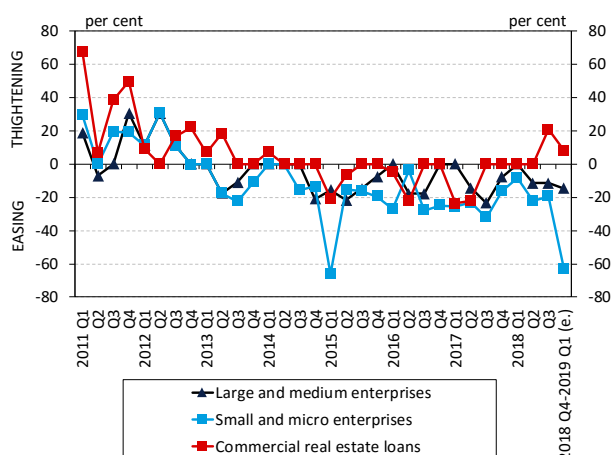


Note: Transaction-based data, prior to 2015 Q4, data for SMEs are estimated based on banking sector data. Time-series data for the overall corporate sector for 2018 Q3 refers to loans vis-à-vis the credit institutions sector. Figure for the SME sector for 2018 Q3 is based on preliminary data. Source: MNB

3.1 The equilibrium level can be reached with dynamic growth in corporate loans outstanding

Corporate lending continued to accelerate in 2018. The loans outstanding of non-financial corporations vis-à-vis the domestic financial intermediary sector rose by HUF 426 billion in 2018 H1 as a result of transactions, and thus corporate lending increased by 12 per cent in one year (Chart 22). The loans outstanding of the narrow SME sector (excluding the self-employed) vis-à-vis credit institutions rose 13.5 per cent in annual terms. The annual growth rate of the loans outstanding of the entire corporate and SME sector vis-à-vis credit institutions also rose to 14 per cent in the third quarter, as a result of transactions. The persistence of the favourable dynamics is also supported by the central bank's Market-based Lending Scheme (MLS) until the end of 2018. The dynamics exceeding the growth rate desirable in the long run is favourable for reaching the equilibrium loan-to-GDP ratio (closing of credit gap) and for the convergence to the more developed countries.

Chart 23: Changes in credit conditions in the corporate sub-segments



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

Easing credit conditions and buoyant demand are supporting growth in corporate lending. In the first three quarters of 2018, the respondent banks participating in the MNB's Lending Survey reported the easing of credit conditions. This affected all enterprises sizes, but micro and small enterprises were affected to a slightly larger degree (Chart 23). Most respondents noted that the easing is due to stronger bank competition and the favourable trends in economic prospects, and that easing was reflected primarily by the decrease in interest rate spreads. Corporate credit demand increased further in the first three quarters of 2018 both for short-term and long-term loans. In the case of micro and small enterprises, using a questionnaire-based survey, we also examined the factors influencing borrowing appetite and why certain enterprises are reluctant to borrow (Box 2). Looking ahead to the next half-year, banks anticipate further expansion of demand and easing of credit conditions. As regards the latter, almost two thirds of the banks, in net terms, reported easing in the micro and small enterprises segment.

BOX 2: FINANCIAL PLANS OF MICRO AND SMALL ENTERPRISES

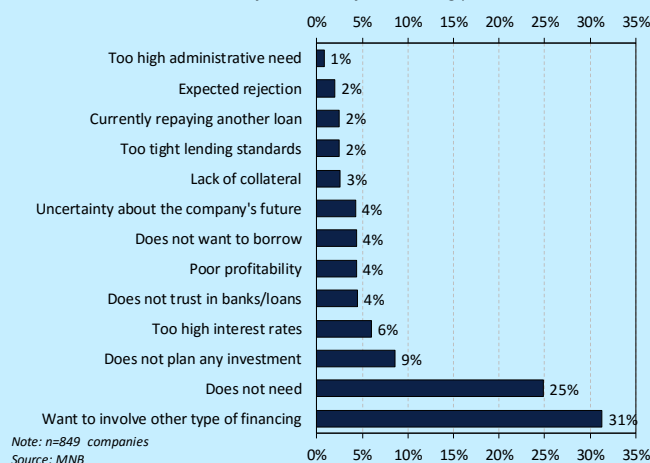
The role of SMEs' access to sources of financing and the developments implemented through such financing is substantial: 99.8 per cent of domestic enterprises are micro, small or medium-sized enterprises and 70 per cent of private-sector employees – roughly 1.7 million employees – work for these enterprises. With a view to analysing the willingness to borrow, as well as the motivations and experiences of enterprises with no credit demand, the MNB conducted a questionnaire-based survey over the phone among micro and small enterprises in April–May 2018.² The survey involved 1,001 enterprises, providing a representative sample of the domestic micro and small enterprises in terms of enterprise size and scope of activity.

12 per cent of the micro and small enterprises included in the sample planned to take out a bank loan or conclude a lease contract within one year of the survey. Based on the features of the questionnaire-based survey, it can be stated that the actual borrowing ratio will be presumably lower. The fact that only a narrow range of enterprises exhibit credit demand is attributable to several reasons: (1) enterprises have developed an aversion to and distrust of financial intermediaries and loans; (2) some enterprises do not come forward with their credit application, because they believe that the bank would reject it; (3) some smaller enterprises have no investments objectives; (4) the level of financial skills and management capabilities may also explain whether or not an enterprise resorts to borrowing. Of the aforementioned reasons, based on the results of the survey, fear of rejection is negligible (2 per cent of the enterprises with no credit demand mentioned this), while the presence of the other three factors was obvious among the micro and small enterprises.

Aversion to loans. 80 per cent of the micro and small enterprises agreed with the attitude statement that raising external funds is dangerous, and thus they prefer to make efforts to implement planned developments from internal funds. This attitude also appeared when the respondent enterprises had to specify the reason why they do not plan on taking out a loan: more than half of the enterprises with no credit demand justified this by the use of different – mostly internal – funds and the lack of need. Meanwhile, a further 9 per cent of the respondents voiced their aversion expressly towards banks and loans.

² The data survey was performed by Századvég School of Politics Foundation on behalf of the MNB.

The reason for the lack of a borrowing plan



Lack of investment objective. 42 per cent of the respondent enterprises stated that they would be able to carry out investment and development within one year of the survey. The ratio of those with borrowing demand is indeed higher among those planning an investment, but is still only 23 per cent. In the case of those who wish to complete their investments not via a loan, the main reason is once again the availability of other funding opportunities (two thirds of the enterprises cited this), while 10 per cent of them cited the strict credit conditions.

Expertise and management skills. We captured the existence of relevant skills using several indicators,

and those enterprises which planned to take out a loan in the next year performed better based on each of them. However, here the reverse causal relation cannot be ruled out, i.e. the development of such management frameworks may have been forced by earlier borrowing, and those who have already taken a bank loan before appear to be more willing to take another one later.

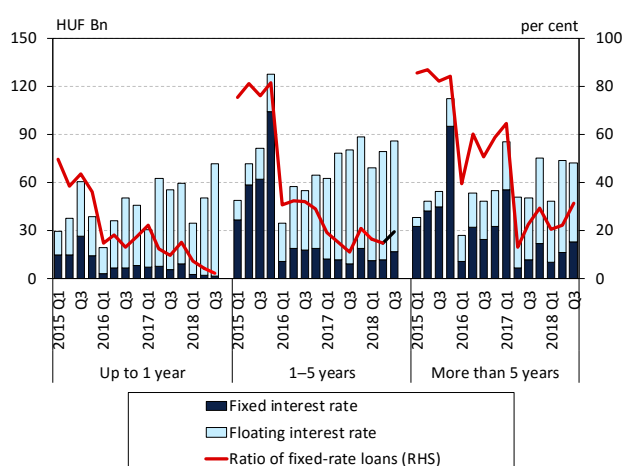
On the whole, based on the survey results, the absence of micro and small enterprises' willingness to borrow is explained **primarily by the lack of investment plans and the aversion to loans and external financing**, while fear of rejection does not appear to be an important consideration. Among micro and small enterprises with adequate expertise and management skills, investment and related borrowing appetite is higher, and thus the education of entrepreneurs may improve borrowing by SMEs, thereby assisting them in expansion.

Know-how and management skills by willingness to borrow

	Intends to borrow a bank loan	Does not intend to borrow a bank loan
There is an annual financial plan	54%	30%
There is a financial professional at the company	44%	36%
There is a marketing and sales strategy	27%	17%
The company asks external consultancy for strategic decisions	27%	16%
Awareness index average (minimum: 1; maximum: 4)	2.6	2.3

Source: MNB

Chart 24: New SME forint loans by interest rate fixation and maturity



Source: MNB

The share of variable rate loans is high in SME lending. The ratio of long-term loans and loans with long interest rate fixation periods both lag behind the level of such loans in the more developed countries. In the case of SME forint loans with maturity over one year, the ratio of fixed-rate loans decreased in the first half-year, while in the third quarter it rose back to the level registered at the end of last year. One fifth of the loans with maturity between 1–5 years, and less than one third of those with longer maturity are fixed-rate loans (Chart 24). In the Lending Survey, banks reported that the higher interest rate level on fixed-interest rate loans drives clients towards variable-rate schemes, which presently seem more advantageous in the short run. This represents a risk particularly in the case of clients who have no reserves to pay higher interest rates in a potentially changing interest rate environment. The average interest rate on fixed-rate longer-term loans is around 2.5–3 per cent, but this only affects a narrow range of transactions and SMEs, and in these cases, the more favourable interest rate than justified by the market yield

level is facilitated by the extremely favourable risk rating and/or a special refinancing scheme. With a view to increasing the share of more predictable, fixed-rate loans, the central bank is introducing the new FGS facility from the beginning of 2019 (Box 3). In addition, institutional guarantees may also play an important role in increasing the ratio of riskier, but viable enterprises' access to long-term loans as much as possible.

BOX 3: LAUNCH OF THE FUNDING FOR GROWTH SCHEME FIX

Starting from January 2019, the MNB will launch the Funding for Growth Scheme Fix (FGS fix) scheme with a facility amount of HUF 1,000 billion. The key parameters and the implementation of FGS fix are identical to those of the earlier phases of the Funding for Growth Scheme. The MNB provides credit institutions with refinancing funds at a 0 per cent interest rate, which they may lend on to micro, small and medium-sized enterprises at a maximum interest margin of 2.5 per cent per annum, in forint, with maturity of 10 years, at the most.

Compared to the forint pillar of phase three of FGS, an enterprise can still take out loans in the amount of HUF 1 billion, and the maximum loan size is also HUF 1 billion. Similarly to phase three, the range of loan purposes eligible for financing covers investments, including lease financing as well. Enterprises can satisfy their working capital financing and subsidy pre-financing needs on a market basis. From the perspective of the borrowing enterprises, the scheme differs from the previous ones in two main features. On the one hand, the minimum maturity of the loans is 3 years, in view of the fact that the purpose of FGS fix is to foster the spread of access to *long-term*, fixed-rate loans, and on the other hand, the scope of utilisation within the investment loans is narrower compared to the previous phases.

Conditions of FGS fix

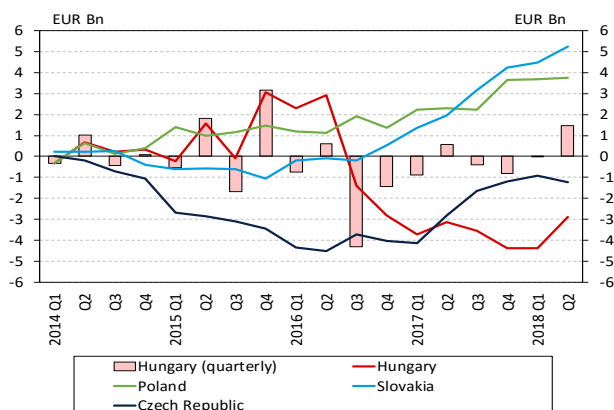
Total amount	HUF 1000 Bn
Contracting period	1 January 2019 -
Interest rate of refinancing loan	0 per cent
Interest rate of SME loans	max. 2.5 per cent annually
Currency	HUF
Total volume of loans per SME	max. HUF 1 Bn
Maturity	min. 3 years, max. 10 years
Loan purposes	new investment loans (including leasing)

Source: MNB

The third difference compared to the previous phases of FGS lies in the fact that – in terms of liquidity – FGS fix will be neutral, since the excess liquidity arising from the volume of loans disbursed under the scheme will be sterilised at the base rate. The MNB intends to achieve this by amending the conditions of the preferential deposit facility. From the end of February 2019, the deposit facility connected to MLS will be terminated, but the instrument will continue to be available to the banks participating in FGS fix. Within the scope of the instrument available from March 2019, the banks participating in the scheme may place deposits based on the volume of loans disbursed under FGS fix, on which the MNB will continue to pay base rate.

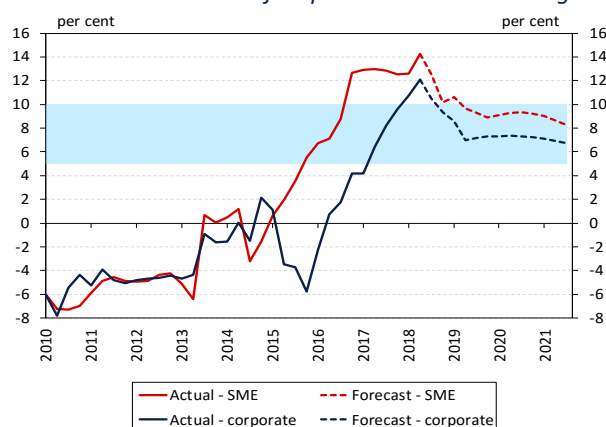
The new FGS scheme is expected to mainly affect the structure of lending and only influence the volume of outstanding SME loans to a smaller extent. According to the MNB's expectations, roughly one fifth of the loans disbursed may be additional, while about two thirds of the facility amount will refinance loans, which in the absence of the scheme would be concluded with variable rates. Based on the foregoing, FGS fix may raise the level of investments in 2019 and 2020 by 0.2 and 0.8 percentage point, respectively, and as a result of this it may contribute to the economic growth expected in 2020 by 0.2 percentage point.

Chart 25: Changes in foreign loans outstanding of non-financial corporations in an international comparison



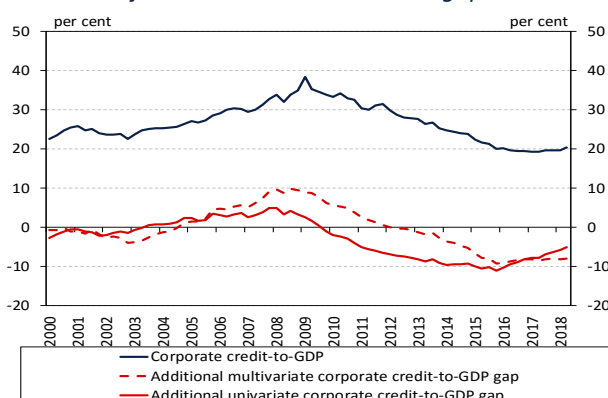
Note: Calculated at current exchange rate, based on cumulated transactions. In the case of Hungary, intercompany items were eliminated. Source: MNB, national central banks

Chart 26: Forecast of corporate and SME lending



Note: Transaction-based, annual change. The blue band indicates the range deemed desirable by the MNB for sustainable economic growth. Source: MNB

Chart 27: Corporate sector indebtedness as a proportion of GDP and the credit-to-GDP gap



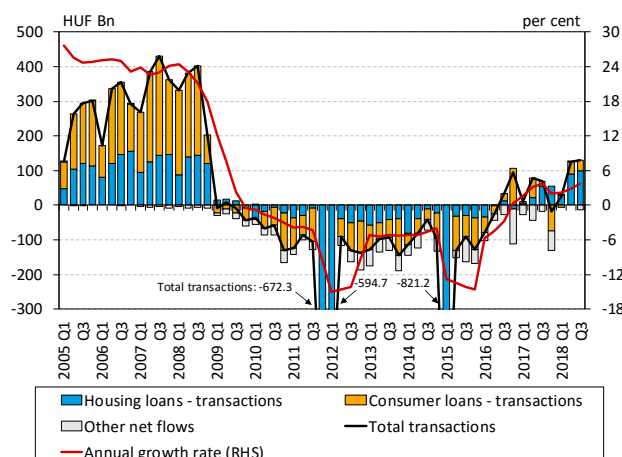
Note: Based on loans outstanding extended by the whole financial intermediary system. For the methodology see: Levente Kocsis – Miklós Sallay (2018): Credit-to-GDP gap calculation using multivariate HP filter. MNB Occasional Paper 136. Source: MNB

In contrast to the trend observed in the other Visegrád countries, there was a decline in external indebtedness, which is typically related to large companies. The foreign borrowing of domestic enterprises is mostly related to companies active in the manufacturing, transportation and warehousing and real estate sectors. In these sectors, a large part of the enterprises resorting to external funding are owned by non-residents, while the companies which also have non-resident owners typically borrow foreign currency loans of higher amount and longer maturity from domestic credit institutions. While reliance on external funding rose in all of the countries in the region in the past two years, in Hungary the external indebtedness of resident non-financial corporations moved on a downward trend (Chart 25). Thus, on the whole it cannot be stated that instead of relying on domestic funds the sector resorted to raising external fund; this means that the sector as a whole is increasingly governed by the stability risks attached to the structure of domestic funds.

Corporate loans outstanding may increase dynamically in the coming years. Due to the stronger economic growth in Hungary compared to previous years and the low interest rate environment, lending is expected to rise further (Chart 26). The annual growth rate of total corporate lending, which is significant by international standards as well, may gradually decrease as a result of the continuous rise in the base; at the same time, it may remain around the level which supports sustainable economic growth. Outstanding SME loans may rise at an even higher rate, also supported by the MNB's lending incentive schemes. According to our expectations, the new facility of the Funding for Growth Scheme (FGS fix), which will commence at the beginning of 2019, will primarily affect the structure of SME loans; nevertheless, to a smaller degree, it may also contribute to keeping the dynamics in the range deemed desirable for supporting economic growth in 2020–2021.

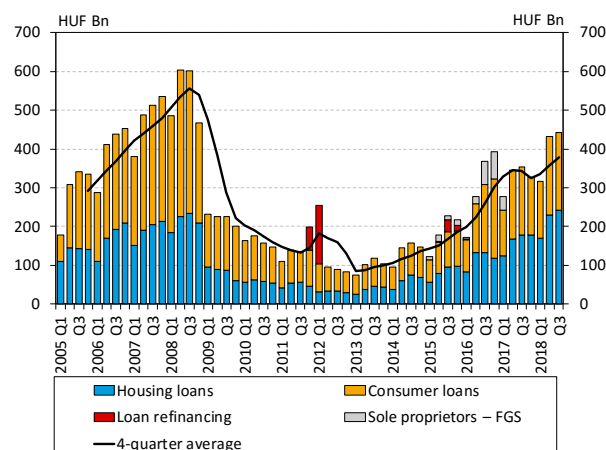
The credit gap may close in the medium run as a result of the steadily high growth rate. The Hungarian economy is in the ascending phase of the new lending cycle. Based on MNB estimates, in mid-2018, the ratio of credit to GDP was substantially lower than the long-term trend (Chart 27). The credit penetration indicator for the corporate sector may continue to rise in the future as well, owing to the cyclical convergence to the domestic trend level in the medium run and to financial deepening in the region in the longer run. Thus, the quantitative expansion in lending is supported both by cyclical and trend processes.

Chart 28: Quarterly change in the outstanding household loans of the financial intermediary system



Source: MNB

Chart 29: New household loans in the credit institutions sector



Note: Loan refinancing indicates only the refinancing related to the early repayment scheme and the FX conversion. Source: MNB

3.2 The vast majority of new loans is already characterised by longer interest rate fixation in the household credit market

Households' loans outstanding rose by almost 3 per cent year-on-year. In 2018 H1, the loans outstanding of the household sector from the entire financial intermediary sector rose by HUF 149 billion as the combined result of disbursements and repayments. Thus, in the past one year, outstanding borrowing rose by 3 per cent as a result of loan transactions (Chart 28). The larger part of the transaction-based expansion was attributable to the growth in outstanding housing loans in the amount of HUF 120 billion, while the remaining growth of HUF 29 billion was mainly related to personal loans within consumer loans. The annual growth in the credit institution sector's outstanding lending to households rose from 3 per cent at the end of 2017 to 5 per cent by the end of the third quarter. However, the present growth in outstanding lending lags behind the peak of the previous credit cycle, i.e. the pre-crisis period, in terms of its rate and volume as well.

The disbursement of housing loans and personal loans continued to rise. In 2018 H1, the disbursement of new loans by credit institutions amounted to HUF 750 billion, followed in the third quarter by additional lending in the amount of HUF 442 billion. Thus, on an annual average growth of 27 per cent was observed in new lending until the end of September (Chart 29). In the case of housing loans, on an annual average new lending rose by 39 per cent, and thus the level of new housing loans almost reached the level registered in 2008. At the same time, it must be taken into consideration in the comparison that according to the debt cap rules in effect, the loans are denominated in HUF, and there is no risk of excessive indebtedness. The largest expansion was observed in the market of personal loans, where the new contracts of the past 12 months – until the end of September 2018 – exceeded the volume of new loans disbursed in the past one year by 49 per cent. The upturn observed in consumer lending – even with the rising contract sizes – results in growth in credit penetration, due to which it is worth monitoring the characteristics of the new borrowers (Box 4)

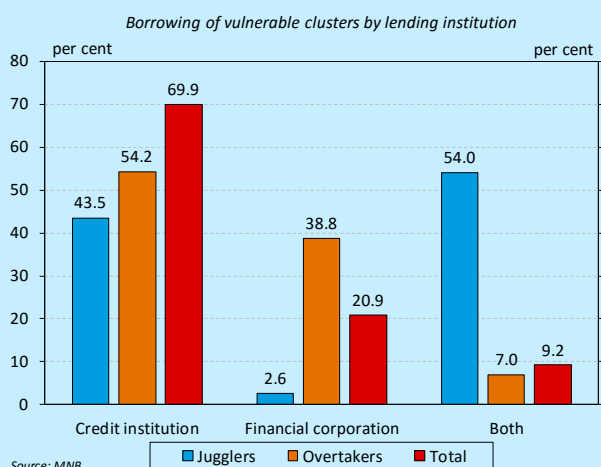
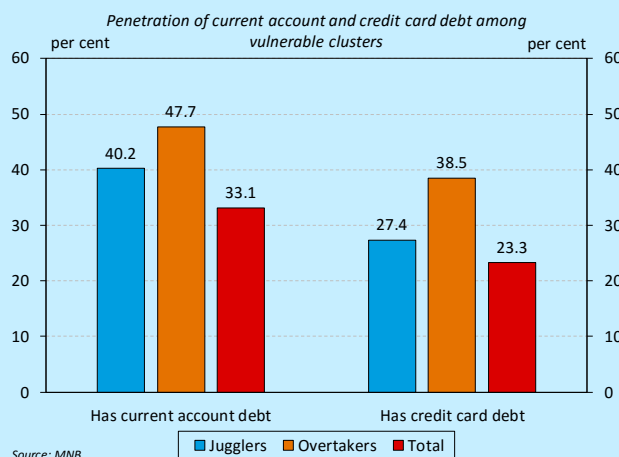
BOX 4: SEGMENTATION OF CONSUMER LOAN DEBTORS AMONG NEW BORROWERS

Due to the higher risks to stability, the focus of the analyses related to the household credit market is primarily on housing loans, while in the case of consumer loans, the social aspect may be more significant. Although in the case of debtors who have both consumer and housing loans, default on the consumer loan may generate tensions in the repayment of the housing loan as well, the macro level risk of consumer loans is lower on the whole. This is due to two main reasons: (1) consumer loans are typically of lower amount and disbursed for shorter maturities, and thus

the turnover rate of outstanding lending is faster, and the overall impact of shocks is smaller than in the case of mortgage loans; (2) in contrast to mortgage loans, a large part – roughly one third – of consumer loans are managed by financial corporations, and thus these contracts have no dramatic impact on banks' balance sheet even in the case of a negative scenario.

The purpose of our analysis was the segmentation of consumer loan debtors,³ which helped us to identify vulnerable groups. To this end, we use non-hierarchical (K-means) cluster analysis, where we considered the income position, the debt-to-income ratio, the number of new and previous loans, the number of lending institutions and defaults on repayment.

- **Slightly more than one third (36 per cent) of the analysed consumer loan debtors may be deemed less risky;** this group is characterised by much higher income than the average, and accordingly, lower debt-to-income ratio.
- **The low income level may increase vulnerability** in the case of the low-income new borrowers, who essentially became indebted prudently, but at the same time are newly involved in consumer lending (30 per cent), and also in the case of the debtors of previous loans, having a tendency for default⁴ (18 per cent).
- **The "jugglers" have several loan contracts** and they concluded these with different financial intermediary institutions; in their case, parallel management of loans with several institutions may generate problems (8 per cent). The group of jugglers – the cluster with the highest number, on average two, loans – took several credit products of different type recently: primarily personal loans (more than half of the group took more than one personal loan in two years), but typically they also conclude one more, unsecured consumer loan contract of other type. Jugglers usually do not commit themselves, they rather tend to be the clients of both banks and financial enterprises – but those who follow a different strategy have only credit institution relation. By contrast, in the total sample, only roughly 10 per cent of the debtors become indebted to both types of financial intermediaries.



average income level is coupled with excessive indebtedness, due to which the potential shortfall in income may lead to default (8 per cent). The penetration of overdrafts and credit cards is also the highest in the clusters of jugglers and over-committers. Over-committers resort to these resources extremely frequently:

- **In the group of the "over-committers", the**

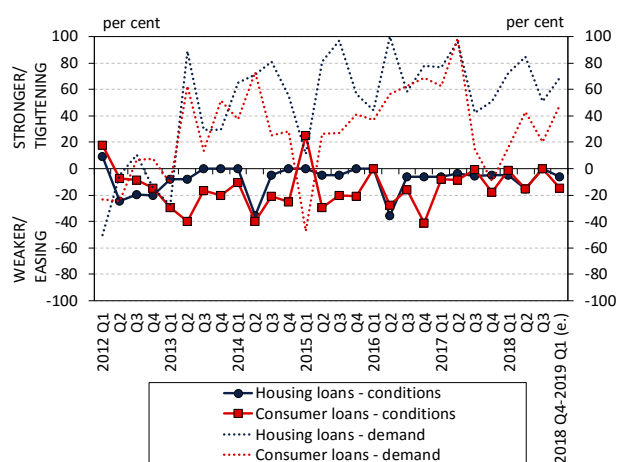
³ The range of the analysed debtors included those who (1) took out a consumer loan in 2015 or 2016 (not including credit card or overdraft contracts); (2) have no mortgage loan; (3) information on their income was available and this exceeded HUF 80,000 on a monthly average (our database included only the incomes subject to personal income tax, thus the social benefits and pensions were not included, which required more thorough filtering). Thus, the segmentation of a total of 343,400 loan debtors was carried out.

⁴ The default rate is relatively low in the case of the analysed contracts. The ratio of those who had a payment delay on at least one of their loans at least once within one year after taking the loan, is 2.1 per cent in the total sample. This ratio in the group with a tendency for default is more than twice as high, but still only 5.5 per cent.

half of the cluster members have such debt; moreover, almost 5 per cent of them have more than one overdraft. Although, similarly to the total sample, the over-committers are usually the clients of credit institutions, among them the ratio of those who access only financial corporations for loans, is exceptionally high, i.e. 40 per cent.

Thus, based on the results of the segmentation, in 2016 **there was already a class of debtors that has substantially lower income compared to the average**, and which accounts for almost half of the total number of consumer loan debtors. In this analysis, we examined the loan debtors in an essentially favourable economic environment, and thus the vulnerability indicators such as the debt-to-income ratio, may have higher relevance for the forecast of the expected future performance of the debtors' than the current default ratio. Thus – although the ratio of the payment delay is the highest for those who have a tendency for default – upon the occurrence of a potential shock, the most highly indebted group, i.e. the over-committers, may face the greatest financial difficulties.

Chart 30: Changes in credit conditions and credit demand in the household segment



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

Table 1: Monthly average maturity and loan amount of new housing loans and personal loans

		June 2017	June 2018
Average maturity (year)	Housing loan	16.4	17.2
	Personal loan	5.2	5.9
Average contract size (HUF M)	Housing loan	7.0	8.3
	Personal loan	1.3	1.6

Note: Weighted averages for loans disbursed by credit institutions. Source: MNB

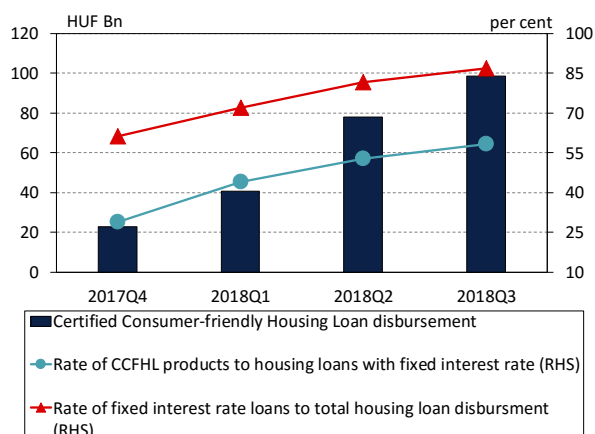
Demand for housing loans continues to strengthen amidst constant credit conditions.

Based on the responses of the banks in the Lending Survey, there was no substantial change in credit terms for housing loans and consumer loans on the whole (Chart 30). As regards the partial conditions, banks reported a decrease in the spread on housing loans and consumer loans, and the easing of the payment-to-income ratio and extension of the maximum maturity in the case of personal loans. The latter is also confirmed by the increase of 7 months and HUF 300,000 in the average maturity and contract size of personal loans, respectively, observed in the past one year (Table 1). Credit institutions anticipate the tightening of the payment-to-income ratio in the next half-year – in view of the amendment effective from 1 October 2018 – in the case of housing loans, while within consumer loans they primarily see room for a further reduction of the spread on personal loans. The vast majority of the respondent banks reported buoyant demand on the housing loan market, and this trend may continue at the end of the year and the beginning of 2019 as well. They also experienced strong demand for consumer loans, and almost half of the respondents expect a continued pick-up in demand in the next half-year as well.

New disbursements are characterised by decreasing interest rate risk as a result of the rise in the share of fixed-rate housing loans.

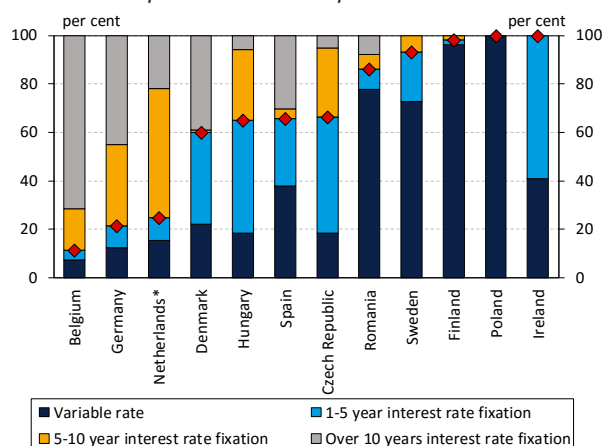
In the first three quarters of 2018, households concluded housing loan contracts in the total value of HUF 641 billion. Three quarters of this volume was concluded for the purchase of used homes, while 17 per cent was for the construction or purchase of new homes. 15 per cent of the new loans, i.e. HUF 96 billion, was disbursed utilising the Home Purchase Subsidy Scheme for Families (CSOK). In the first half-year, there was a major realignment in the distribution of new housing loans by interest rate fixation. While at the end of 2017 the share of loans with interest rate fixation for over one year was 63

Chart 31: Housing loans by interest rate fixation and the proportion of certified consumer-friendly housing loans



Note: The ratio of the certified consumer-friendly housing loans shows the share within the housing loans with an interest period longer than 3 years. Source: MNB

Chart 32: Distribution of new housing loans by interest period in the European Union



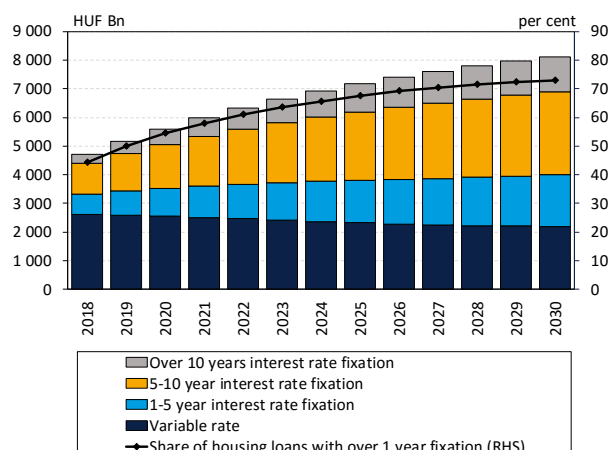
Note: 2018 Q1 data in case of the Netherlands, 2018 Q2 in case of the others. Red indicates the ratio of variable-rate loans fixed for 5 years at the most. Source: European Mortgage Federation

per cent within the monthly disbursement of new loans, in 2018 due to the continuous rise it reached 90 per cent in September. The spread of the Certified Consumer-friendly Housing Loans (CCFHL) also contributes to the increasing disbursement of loans with a longer fixation period. Since the launch of the CCFHL products in September 2017, households received a total amount of HUF 243 billion in consumer-friendly housing loans by September 2018. Within housing loans with a fixation period over 3 years, the ratio of Certified Consumer-friendly Housing Loans – net of building society loans – rose from 40 per cent registered at the beginning of the year to nearly 60 per cent (Chart 31). Due to the spread of the Certified Consumer-friendly Housing Loans products, and through that to the rise in the share of loans with longer fixation period, new loans are characterised by smaller interest rate risk.

The changing debt cap rules point to a further decrease in interest rate risk. In the present low interest environment, variable-rate housing loans appear to be a favourable, cheap financing scheme for clients. At the same time, households fail to take preventive measures against the risk of an interest rate increase, and thus with the rise in the global and domestic interest rate levels – and thereby upon the realisation of the interest rate risk – those who took out their loan for long maturity, but without long-term interest rate fixation, will have to cope with higher repayment burdens. Households do not necessarily take into consideration the degree of this risk when they assess their long-term repayment capacity. Although in Hungary the ratio of housing loans with variable interest rates is low within new loans in an international comparison, it is still reasonable to limit the increasing use of such loans in the future (Chart 32). The amendment of the payment-to-income ratio effective from 1 October 2018 also targets the spread of domestic fixed-rate housing loans, which – according to the MNB's expectations – will not reduce the volume of new loans substantially, but will guide borrowers toward longer interest rate fixation periods, thereby reducing the interest risk of the household sector (Box 5).

The mortgage loan portfolio will, *ceteris paribus*, already be characterised by loans with over one year initial interest rate fixation in the near future. Considering the structure of the existing mortgage loan portfolio by interest rate fixation and maturity, in the next two years the share of loans with interest rate fixation of over one year may rise above 50 per cent (Chart 33). This is feasible if the volume of new loans and their distribution by fixation develops steadily with the present structure. In addition to the favourable structure of new loans, it also reduces the risks

Chart 33: Technical projection of outstanding mortgage loans by interest type



Note: The chart shows the technical projection of the outstanding loan structure *ceteris paribus*, and is not considered as a forecast. The projection with regard to the longer interest rate periods may be regarded as a lower estimate, bearing in mind that the debt cap rules amended in October will increasingly divert demand to loans with longer interest rate fixation. Source: MNB

that the residual maturity of the mortgage loan portfolio converted from foreign currency into forint – accounting for a major part of the variable-rate mortgage loans – is continuously decreasing, while borrowers' income may have increased in the past years.

The interest structure of outstanding mortgage loans may improve further as a result of the refinancing transactions. The spread of loans with interest rate fixation of over one year may be further facilitated by the increasing ratio of loan refinancing, which we ignored in our projection. A significant part of outstanding mortgage loans converted into forint are still characterised by relatively long residual maturity and high spread. In view of this, a substantial part of the clients may have room for replacing their variable-rate loans with fixed-rate loans under lower spread. However, the rise in the notary fees in the near future is not favourable for the spread of refinancing loans, as it makes the borrowing of the new and refinancing loans more expensive for debtors. The MNB regards it as a particularly good practice when banks contact their clients and offer to them the option to change over to fixed interest.

BOX 5: AMENDMENT OF THE PAYMENT-TO-INCOME RATIO RULES TO SUPPORT SOUND LENDING

The debt cap rules effective since 1 January 2015 efficiently mitigate the build-up of financial stability risks arising from households' excessive indebtedness. The regulation applied in Hungary from the beginning of 2015 limits the size of the monthly instalments that may be undertaken as a percentage of debtors' income (payment-to-income ratio – PTI), as well as the size of the loan that may be taken as a percentage of the collateral (loan-to-value ratio – LTV). In view of the different loan risks, the limits for these indicators are differentiated by the size of income, the collateral type and the currency of the loan.

The management of the risks arising from the potential increase in the reference rates of variable-rate loans or loans with interest fixed for short periods called for the regulatory measures. Instalments may change more frequently in the case of variable-rate loans with longer maturity or loans with interest fixed for shorter period. A potential rise in interest rates may increase instalment burdens via the repricing of variable-rate loans. As a result of this, if the income remains constant or increases to a smaller degree, the borrower's payment-to-income ratio may increase, despite the fact that he complied with the rule at the time of drawdown, thereby also increasing the probability of default.

Following amendment in October 2018, the PTI limits efficiently prevent the ratio of loans with higher interest rate risk from increasing to an excessive level. The amendment effective from 1 October 2018 ensures the maintenance of an income buffer proportionate to the interest risk undertaken by the borrower, by differentiating the PTI limits by interest period. Accordingly, in the case of riskier loans, with an interest rate fixation period shorter than 10 years, lower limits were specified. In view of the dynamic wage increases observed in recent years, the income limit permitting higher indebtedness will rise from net HUF 400,000 per month to net HUF 500,000 per month from 1 July 2019. In the case of loans denominated in euro and in other foreign currency, which were also amended, stricter limits will apply. In addition, the amendment also simplifies the process related to refinancing or contract amendment: if the consumer wishes to replace his existing loan with a loan the interest of which is fixed for longer period, the bank does not have to repeat the assessment of the PTI compliance. This supports the mitigation of the risks arising from the variable rate also in respect of the already existing loans.

The PTI limits differentiated by the interest period influence the structure of lending in line with market trends.

Diverting borrowers towards longer interest period is supported by a number of central bank schemes. One of the purposes of developing the Certified Consumer-friendly Housing Loan certification, available only for longer interest periods, was also to reduce the interest risk of households. In parallel with the spread of the certified products, the ratio of variable-rate loans within newly disbursed housing loans had fallen to nearly 10 per cent by August 2018. With the spread of loans with interest fixed for longer period, the introduction of the PTI limits, differentiated by

New DSTI rules for mortgage loans denominated in HUF with a maturity over 5 years

	Interest rate fixation period		
	Floating or fixed for less than 5 years	At least 5 years, but less than 10 years	At least 10 years or fixed for the whole term
Limits set for loans from 1 October 2018			
Income below HUF 400 000	25%	35%	50%
Income at least HUF 400 000	30%	40%	60%
Limits set for loans from 1 July 2019			
Income below HUF 500 000	25%	35%	50%
Income at least HUF 500 000	30%	40%	60%

Note: The DSTI limits pertaining to loans denominated in other currencies have also been modified.

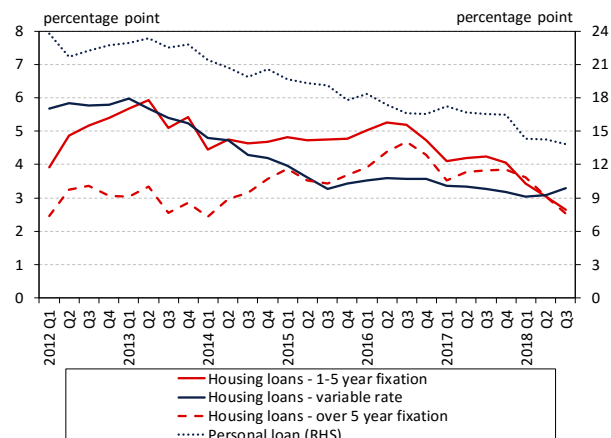
Source: MNB

ise the purpose of the loan. As a result of this, they may face somewhat higher instalments, resulting from the higher cost of interest rate fixation, becoming indebted to a maximum up to the 50-60 per cent upper boundary. The present average indebtedness of consumers cannot be deemed overly high, and thus upon the adjustment within the limits, the potential decline in the volume of new loans is expected to be negligible.

interest period, may contribute to the maintenance of the lending structure with lower interest risk without the need for excessive deleveraging.

According to our expectations, the consumers affected by the PTI limits differentiated by interest periods will apply for loans of the same amount with longer interest period for the financing of their property purchases to real-

Chart 34: Interest rate spreads on new household loans



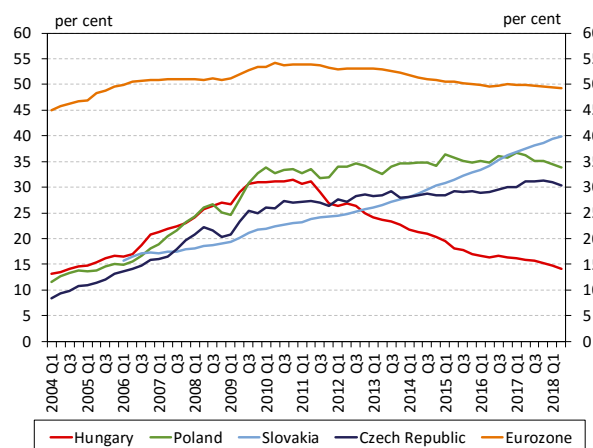
Note: In the case of variable-rate housing loans or ones with up to 1 year rate fixation the 3-month BUBOR, while in the case of housing loans fixed for a period longer than one year the corresponding APR-based smoothed spread over the IRS. For personal loans, APR-based smoothed spread over the 3-month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

The average spread on contracted fixed-rate housing loan transactions fell below that of variable-rate loans.

In the first half-year, average interest rate spreads decreased in all interest rate fixation categories, but in the third quarter, the average spread on variable rate loans rose (Chart 34). In the first three quarters of 2018, on the whole, the largest decrease was observed in the case of loans with interest rate fixation for 1–5 years: the spread on these loans declined to 2.6 percentage points after a fall of 1.4 percentage point. The spread on loans with a fixation period over 5 years dropped by 1.3 percentage point, and thus the spread with quarterly smoothing amounted to 2.5 percentage points at the end of September. The decline in spreads took place in parallel with the rise in long-term yields; however, looking ahead, the higher yield level may result in higher interest rate on loans even if spreads remain constant. The interest rate spread on personal loans also declined: compared to December 2017, it fell by 2.7 percentage points to 13.8 percentage points.

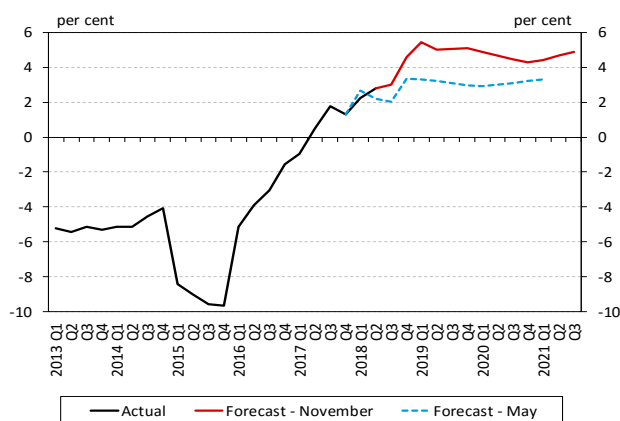
However, spreads may increase again if the rise in long-term interest rate are passed on. In 2018 H1, the decline in spreads typically occurred with constant housing loan interest rates specified in the banks' list of conditions and rising long-term yields. This may be attributable to the fact that credit institutions reflect the change in long-term

Chart 35: Household loans as a percentage of GDP in the region



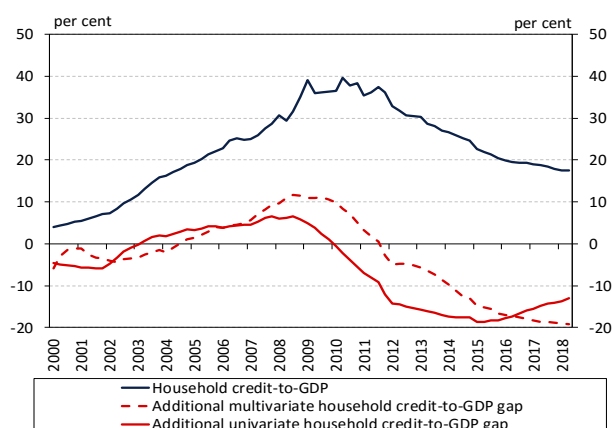
Note: Outstanding borrowing from credit institutions. Source: ECB, MNB

Chart 36: Household lending forecast



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

Chart 37: Household sector indebtedness as a proportion of GDP and changes in the credit gap



Note: Based on loans outstanding extended by the whole financial intermediary system. For the methodology see: Levente

yields in the interest rates on new loans with a lag of a few months. However, starting from July, several large banks indicated increases in interest rates in their announcements, mapping the changes in yields of the past months. Thus, in the coming period the spread on fixed-rate housing loans may increase to some extent.

Among the Visegrád countries, Hungary has the greatest potential for financial deepening. The transaction-based annual growth rate of household lending in the Visegrád countries substantially exceeds the average annual dynamics of the euro area: while in the region the rate was around 5-12 per cent, the indebtedness of the euro area households rose by 3 per cent. However, growth alone does not mean the accumulation of extreme risks, since on average households' credit-to-GDP in the region is half of the 50 per cent ratio registered in the euro area (Chart 35). However, it may represent a risk, if the outstanding borrowing appears in a concentrated form in a certain range of households, the indebtedness is excessive compared to the income or risks are attached to the borrowing which households are not prepared to bear. Within the region, exchange rate risk is no longer connected to the disbursed loans; however, in the present low interest rate environment rising instalments on the variable-rate loans – particularly in the case of housing loans – may generate problems with repayment. At the same time, there is still room for financial deepening implemented on a wider base.

At the forecast horizon, annual credit growth of over 4 per cent may be realised. As a result of deleveraging by households after the crisis, starting from 2008 household indebtedness was characterised by a decline. Although the volume of new contracts has been gradually increasing since 2013, outstanding borrowing decreased further due to repayments of housing loans and home equity withdrawals concluded before the crisis. The turnaround in lending occurred in mid-2017, when new disbursements started to exceed repayments. At present, this trend prevails both in the housing and consumer loan segments, and we expect these processes to continue in the next 3 years as well (Chart 36). Accordingly, based on the MNB's forecast, the annual growth rate of outstanding borrowing on a transaction basis will rise above 5 per cent in 2019. Thereafter, we expect deceleration in new housing loans, and through that in respect of transactions, while the continuous rise in consumer debt may once again boost the growth rate close to 5 per cent after 2020. Credit gaps also sign a significant negative cyclical position in the household segment, and this is expected to maintain on the forecast horizon (Chart 37). While prudent indebtedness of individual households

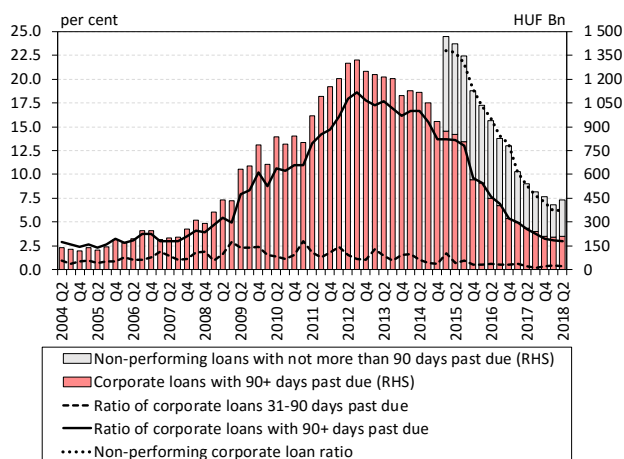
Kocsis – Miklós Sallay (2018): Credit-to-GDP gap calculation using multivariate HP filter. MNB Occasional Paper 136. Source: MNB is ensured by the debt cap rules, it is not likely even in the case of an expected increase in sectoral borrowing, that an excessive household indebtedness would develop.

4 Portfolio quality. Cleaning continued in 2018, but there are still non-performing portfolios to be reduced

Following the trend seen in recent years, the non-performing loan portfolio of the credit institution sector decreased in 2018 H1 again, but there are still several credit institutions with non-performing portfolios of substantial size. Reduction of these loans requires additional activity from the banks. The decrease in the non-performing portfolio was mostly attributable to portfolio cleansing and to the reclassification of transactions to better rating categories, both in the corporate and the household segments. The upturn in lending also made a major contribution to the decline in the ratio of non-performing loans. At the end of June 2018, the non-performing corporate loan ratio stood at 6.3 per cent, representing a decline of 0.8 percentage point compared to the end of 2017. Within the project financing loan portfolio, the non-performing ratio declined by 1.1 percentage points to 13.1 per cent, but this still significantly exceeds the 4.2 per cent ratio for the portfolio of other corporate loans. The non-performing outstanding lending of the credit institution sector to households declined by HUF 109 billion in 2018 H1, as a result of which the non-performing loan ratio of household loans also decreased to the single-digit range, i.e. to 8.4 per cent. Following the sales of receivables, in the portfolio of the financial enterprises the non-performing household mortgage loans more than 90 days overdue exceeds the similar exposure in the balance sheet of the credit institutions. Cleansing activity by credit institutions is continuous, but despite the purchase of receivables, financial enterprises were also able to reduce their non-performing loan portfolio.

4.1 Both cleansing and increasing lending activity support the decline in the corporate non-performing ratio

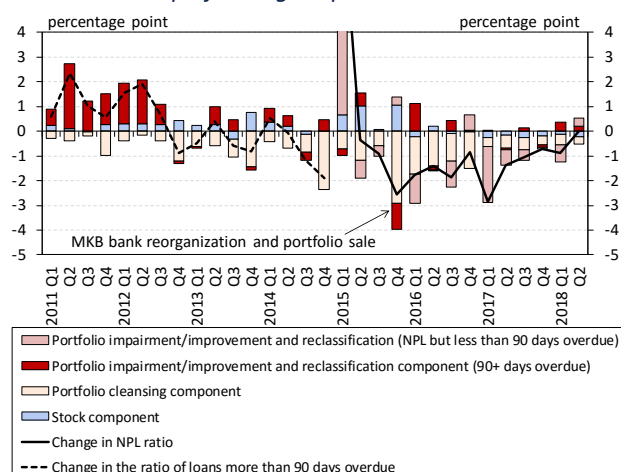
Chart 38: Stock and ratio of non-performing corporate loans in the credit institutions sector



Note: Calculated on a client basis until 2010 and on a contract basis from 2010. Source: MNB

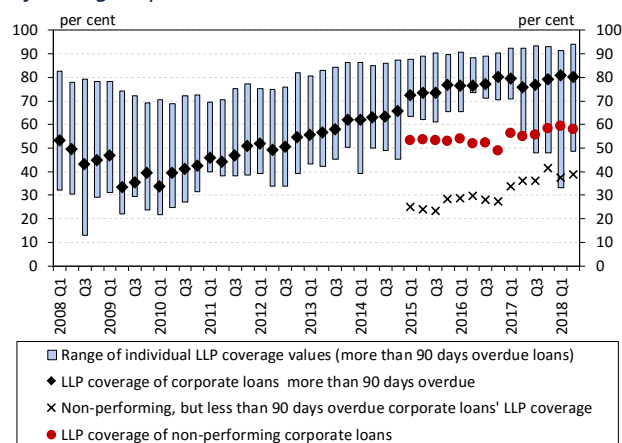
Compared to end-2017, in the first half of the year the portfolio and ratio of non-performing corporate loans declined further. The decreasing trend in the non-performing corporate loan portfolio continued in 2018 as well. In 2018 Q2, the non-performing corporate loan portfolio amounted to HUF 440 billion in total, where the level of the portfolio more than 90 days overdue was HUF 208 billion (47 per cent) (Chart 38). Owing to continuous cleansing, by the end of 2018 Q2 the ratio of loans past due over 90 days declined to 3 per cent, i.e. to the level last observed in 2007. The decrease in the non-performing portfolio less than 90 days overdue in 2018 Q1 was partly offset in the second quarter by the appearance of a major one-off item, and thus the portfolio decreased merely by HUF 16 billion. The ratio of non-performing corporate loans reached 6.3 per cent in June 2018, which represents a fall of 2.6 percentage points in annual terms, while the non-performing corporate loan portfolio decreased by roughly HUF 100 billion. Within the project financing loan portfolio, the non-performing ratio declined by 1.1 percentage point to 13.1 per cent, but this still significantly exceeds the 4.2 per cent ratio of the portfolio of other corporate loans.

Chart 39: Factors affecting changes in the ratio of non-performing corporate loans



Source: MNB

Chart 40: Loan loss provision coverage ratio for non-performing corporate loans in the credit institutions sector



Note: Banks with at least 2 per cent share in corporate lending. Calculated on a client basis until 2015 and on a contract basis from 2015. Source: MNB

The improvement in the portfolio was mostly attributable to portfolio cleansing and stock components in 2018 H1.

The improvement in the corporate non-performing loan ratio was contributed to both by portfolio cleansing and the increase in outstanding lending. Continued portfolio cleansing, which resulted in a quarterly improvement of 0.3-0.4 percentage point in the non-performing loan ratio, and the rise in outstanding loan stock, which generated an improvement of 0.2 percentage point, reduced the corporate non-performing loan ratio in both quarters (Chart 39). The cure rate of the portfolio less than 90 days overdue in 2018 Q1⁶ exceeded the deterioration which occurred in the second quarter,⁷ and thus on the whole, this component reduced the ratio at a decelerating rate. The portfolio more than 90 days overdue deteriorated both in the first and second quarters of 2018, which thus contributed to the growth in the non-performing loan ratio. Despite the steady decline in the non-performing corporate loan portfolio over several years, there are still a number of credit institutions with sizeable non-performing portfolios, reaching as high as several tens of billions of forints. With the continued cleansing of those – in conjunction with expanding lending activity – the non-performing ratio of 6.3 per cent registered at the end of June 2018, may move closer to the ratio of maximum 5 per cent, deemed desirable for the credit institution sector.⁸

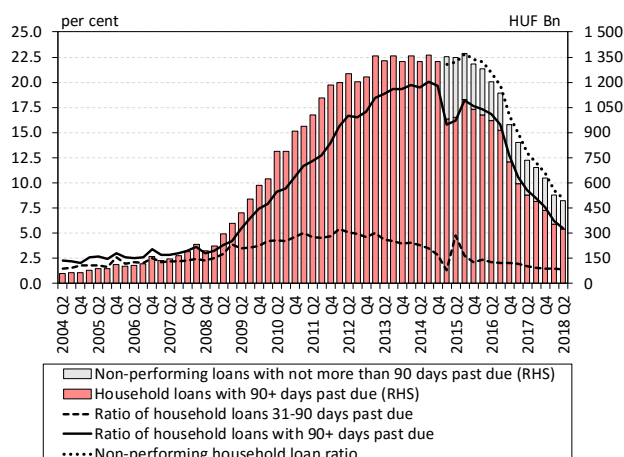
The loan loss provision coverage of the non-performing corporate loan portfolio remains at a high level. The loan loss provision (LLP) coverage of the non-performing corporate loan portfolio was at 58 per cent in June 2018, corresponding to the LLP coverage ratio registered at end-2017 (Chart 40). While the coverage ratio for loans more than 90 days overdue rose by 1.1 percentage point (to 80 per cent) in the past two quarters, during the same period the LLP coverage of the non-performing portfolio less than 90 days overdue decreased by 2.5 percentage points (to 38.9 per cent). At the end of 2018 Q1, the LLP coverage ratio of the key banks varied in a broader range than before, which was due to the fact that the LLP coverage ratio of the bank with the lowest coverage temporarily fell to 33 per cent. By the

⁶ 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 servicing burden resulting from restructuring; reclassifications of a technical nature may also occur, justified by reviews of the credit rating and also permitted by the effective regulation.

⁷ We talk about a portfolio deterioration 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 improvement of the portfolio.

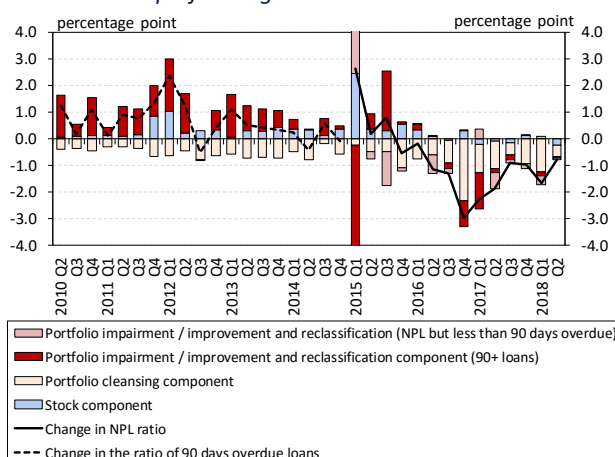
⁸ In the past, the MNB determined a 5 per cent NPL level among the 10 criteria of a well-functioning banking sector (<https://www.mnb.hu/letoltes/egy-bt-mukodo-magyar-bankrendszer-10-ismerve.pdf>), but at EU level as well, a level of not more than 5 per cent is desirable for each Member State.

Chart 41: Stock and ratio of non-performing household loans of credit institutions by contracts



Source: MNB

Chart 42: Factors affecting changes in the ratio of non-performing household loans⁵



Source: MNB

end of the second quarter, the level of the individual LLP coverage ratios returned to a bandwidth similar to that observed at the end of last year (between 48.6 and 94 per cent).

4.2 As a result of portfolio cleansing, the ratio of non-performing household loans fell below 10 per cent

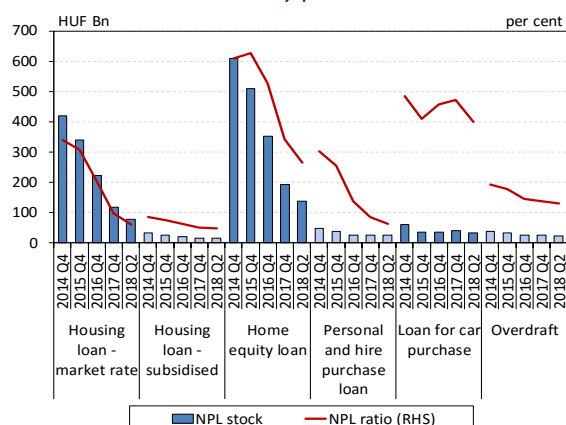
The ratio of non-performing household loans moved into single-digit territory. Since end-2017, the non-performing loan ratio for the household sector dropped by 2.5 percentage points to 8.4 per cent, thereby pushing down the non-performing loan portfolio to the level of HUF 496 billion by the end of June (Chart 41). In the first half of the year, the largest reduction (HUF 86 billion) was observed in loans more than 90 days overdue, which, in the amount of HUF 325 billion, accounted for 5.9 per cent of households' total outstanding loan stock. The non-performing portfolio less than 90 days overdue decreased by HUF 22 billion to HUF 171 billion by the end of the period under review. Since end-2016, the non-performing household loan ratio has halved, but it remains at a high level.

The fall in the non-performing loan ratio for households was mainly attributable to credit institutions' portfolio cleansing activity. In 2018 H1, the decrease in households' non-performing loan ratio was primarily attributable to banks' portfolio cleansing, resulting in a decline of 1.6 percentage point (Chart 42). In the first half-year, sales and write-offs of non-performing debts amounted to approximately HUF 97 billion at the sector level. In 2018 Q1, the fall in the ratio was supported by the improvement of the portfolio less than 90 days overdue, in addition to portfolio cleansing, whereas during in the second quarter the growth in outstanding loan stock also played a significant role.

Mortgage loans account for two thirds of the credit institution sectors' non-performing household loans. In 2018 H1, the ratio of loans more than 90 days overdue declined for all households products in the credit institution sector (Chart 43). The biggest improvement was observed for general purpose mortgage loans, with the largest non-performing portfolio (HUF 138 billion), where the ratio of loans more than 90 days overdue fell by 3.8 percentage points to

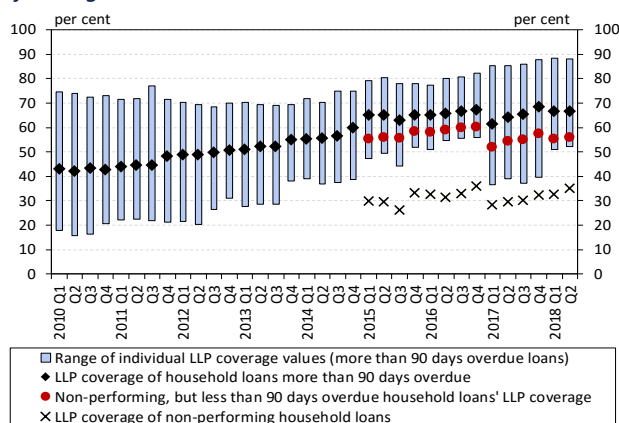
⁵ In 2015 Q1, the change in the ratio of non-performing loans was substantially influenced by three one-off items. Firstly, the settlement primarily reduced arrears, and secondly, it also reduced the total loan portfolio, and finally, the ratio of non-performing loans became higher as a result of the new definition. In 2015 Q3, the fact that the formerly overdue contracts affected by the settlement once again became overdue by more than 90 days, represented a one-off effect.

Chart 43: Ratio and stock of 90+ days past due household loans by products



Source: MNB

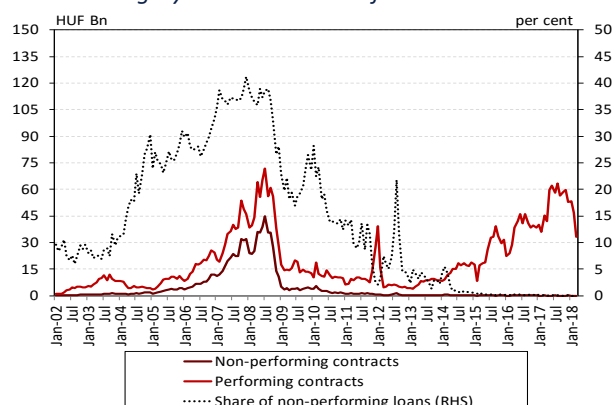
Chart 44: Loan loss provision coverage ratio of non-performing household loans in the credit institutions sector



Note: Banks with at least 2 per cent share in household lending.

Source: MNB

Chart 45: Distribution of household mortgage loan contracts outstanding at the end of March 2018 by rating category and the month of disbursement



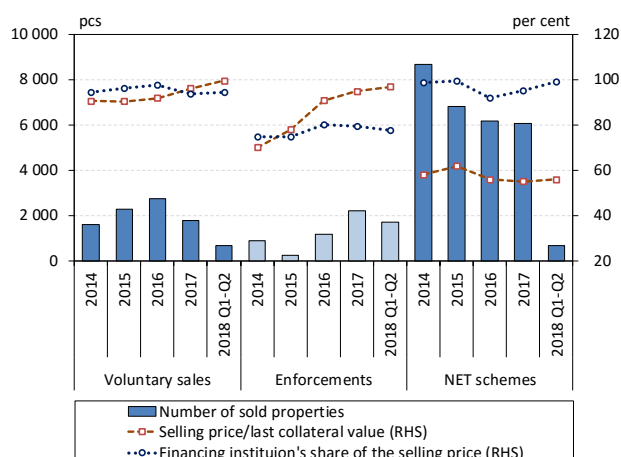
Note: The non-performing category contains the contracts where the overdue amount is continuously at least the minimum wage amount for no less than 90 days. Source: CCIS, MNB

13.3 per cent by the end of 2018 Q2. In the case of loans for car purchase, the non-performing ratio also improved significantly, by roughly 3.6 percentage points, compared to the end of December, but remains the highest among household products, as one fifth of outstanding loans for car purchase at credit institutions are more than 90 days overdue. In terms of volume, general purpose mortgage loans and housing loans with market interest rates (including the portfolio converted into forints) represent the greatest problem; their total volume past due over 90 days accounted for more than two thirds of all delinquent loans.

The LLP coverage ratio of non-performing household loans decreased slightly. The LLP coverage of the total non-performing portfolio – also including non-performing loans less than 90 days overdue – amounted to 55.9 per cent in June 2018. This represents a decrease of 1.6 percentage point compared to end-2017, and was connected to two large banks. In 2018 H1, the LLP coverage of outstanding household loans more than 90 days overdue rose by 47 basis points to 69.1 per cent (Chart 44). The value of the LLP coverage ratio varies substantially by institutions: while in the case of the bank with highest coverage ratio was 87.9 per cent at end-June 2018, at the bank with the lowest LLP coverage ratio it was at 52.2 per cent, after a rise of 12.7 percentage points; with this the range of LLP coverage narrowed. Receivables sales in the past eighteen months showed that the sold non-performing household loans were covered by sufficient LLP, since the impact on profit of the transactions was often positive, but at least neutral. However, it should be noted that the adequacy of the provisioning level was supported, and is supported at present as well, by the property market trends through the dynamically rising property prices.

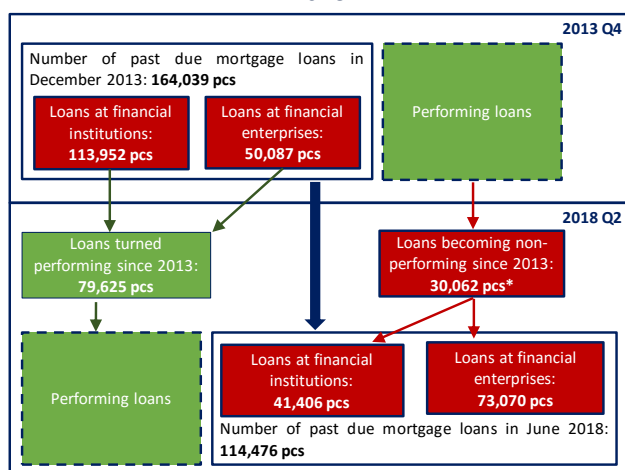
The default rate of the mortgage loans disbursed in the new lending cycle is currently minimal. Only a negligible ratio of the mortgage loans disbursed after 2010 is past due; the vast majority of the non-performing loan portfolio consists of loans concluded before the crisis (Chart 45). The ratio of contracts that became non-performing within those concluded in the given months sank persistently below 5 per cent by 2013 from the band of 20–40 per cent registered before 2010 and has not exceeded 1 per cent since May 2014. The low default rate for loan contracts from past years is partly attributable to the fact that the time elapsed since their disbursement is short and the period was characterised constantly by low and typically declining interest rates. The favourable economic environment, without economic shocks, also supported fulfilment of the loans at a high rate; in addition, in the new lending

Chart 46: Number of collateral realisations in the banking sector and average return



Source: MNB

Chart 47: Change in the number of non-performing household mortgage loan receivables between 2013 and 2018



Note: *Of the contracts becoming non-performing between December 2013 and June 2018, 26,403 loans were disbursed before 2010 and 3,569 from 2010. Source: CCIS, MNB

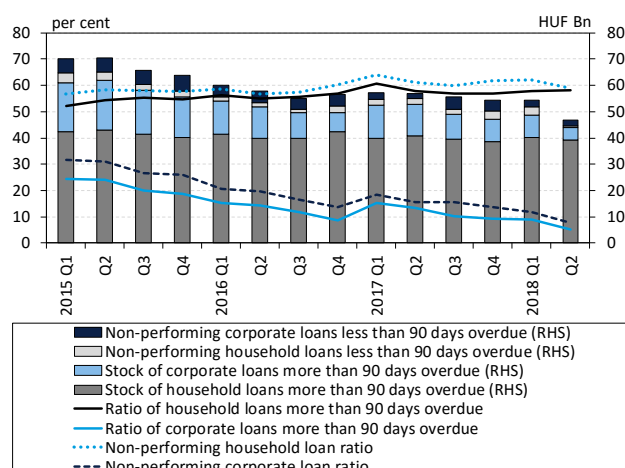
cycle, despite the active disbursement of new loans, the tightening debt cap rules prevent the excessive indebtedness of households.

Enforcement plays an increasing role in banks' portfolio cleansing. As a result of the property market boom in recent years, by 2018 the recovery on properties sold through enforcement reached the recovery realisable through voluntary sales (Chart 46). In the first half of the year, the number of receivables collected through enforcement was close to the number of voluntary sales conducted in 2017, despite the fact that – due to the enforcement costs – the lender obtains an amount which is 17 per cent lower than the sales price on average than in the case of collateral enforcement outside a legal procedure. The rise in the number and ratio of sales through enforcement may be attributable, on the one hand, to the fact that in part of the non-performing loans remaining after the cleansing performed in the past years the debtors are unwilling to cooperate in the sales.

The number of non-performing mortgage loan receivables is also declining in the entire financial system. In recent years, credit institutions' non-performing loan portfolio declined primarily due to the sales of receivables. As a result of this, in 2018 H1 the majority of overdue mortgage loan receivables (roughly 64 per cent) were already on the balance sheet of financial enterprises. However, the number of past due contracts declined not only on the credit institutions' balance sheets, but also in respect of the entire financial sector: at end-2013, the Central Credit Information System (CCIS) had 164,000 past due mortgage loan contracts on its records, but this number had dropped to 114,000 by June 2018 (Chart 47). The decline in the number of contracts by almost 50,000 is the combined result of the improvement of roughly 80,000 contracts and 30,000 contracts, which were mostly disbursed before the outbreak of the crisis, becoming delinquent.

The non-performing portfolio on financial enterprises' balance sheets is shrinking, despite the purchasing activity. In the past years, as a result of the portfolio cleansing performed by the credit institution sector, the vast majority of the non-performing receivables were transferred to the balance sheets of debt management companies. It is worth noting that in many cases the aforementioned financial enterprises are in the ownership of banks, meaning that the risks connected to the non-performing loans are not fully eliminated from the given bank's balance sheet. As a consequence, in the case of some bank groups the NPL ratios calculated from the consolidated data are higher

Chart 48: Stock and ratio of financial enterprises' non-performing loans at book value



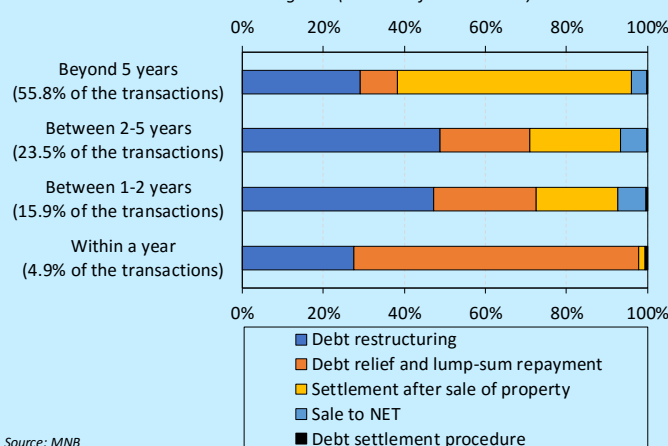
Source: MNB

than the ratio calculated from the individual bank data. However, transferring the NPL stocks to debt management enterprises does result in a decrease in risks as their specialised activity ensures more effective management of the non-performing loans. In terms of book value, despite the continuous purchases of receivables, the non-performing portfolio on the financial enterprises' balance sheets declined from HUF 705 billion at the end of June 2015 to HUF 468 billion by the end of June 2018 (Chart 48). The decline is primarily connected to corporate non-performing loans; however, in 2018 Q2, there was also a spectacular improvement in non-performing household loans outstanding, which were less than 90 days overdue. Debt management companies made a major contribution to this, as these institutions are able to devise customised solutions together with the debtors for the repayment of the overdue amounts (Box 6).

BOX 6: WHAT HAPPENS TO MORTGAGE LOAN RECEIVABLES ACQUIRED BY DEBT MANAGEMENT COMPANIES?

Outstanding receivables of the key debt management companies (with at least 1,000 past due mortgage loan receivables) from mortgage loans exceeded HUF 767 billion at the beginning of 2018 Q2. The majority of the receivables (53 per cent of the portfolio) is past due for at least 5 years, and the larger part of those past due for shorter period than that also have delinquent status for at least two years. Owing to their specialised skills, compared to banks, debt management companies may be more suitable for realising recovery on non-performing receivables. This is confirmed by the fact that, on the one hand, the key debt management companies managed to liaise with 82 per cent of the debtors, and on the other hand, in almost 72 per cent of the receivables taken over they were also able to reach an arrangement with the debtor.

Share of the debt management companies' agreement methods by oldest arrears categories (number of transactions)



Source: MNB

The agreements concluded with debtors vary substantially, depending on the length of the debtor's delinquency. In the case of the (relatively few) debtors with arrears within one year, the agreements were dominated by lump-sum repayment and restructuring. In the case of receivables past due for a longer period, recovery through the sale of the property becomes increasingly frequent in parallel with the increase in the time elapsed since the oldest arrears. In the category of receivables past due for more than 5 years, which represents the largest volume, debt management companies opt for this solution in 58 per cent of the cases. The limited role of the National Asset Management Agency (NET) is explained by reaching the statutory limit of properties eligible for purchase, while there is still limited interest in personal bankruptcy.

Within its supervisory duties, the MNB pays special attention to ensuring that the debtors' situation does not become more onerous due to the fact that the beneficiary of their obligation has changed. This is ensured by the supervisory considerations, pointing beyond the statutory requirements, appearing in supervisory regulatory tools, such as the recommendations and CEO letters, and which stipulate norms to be followed in respect of the purchase of receivables, the provision of regular information to debtors by the debt management companies and the manner

of liaising with debtors. An example of these, among other things, is the recommendation issued by the MNB in March 2016, on the recovery of delinquent household mortgage loans; an additional recommendation is currently being elaborated, which will provide complex guidance for the debt management sector, formulating even more stringent requirements for market participants.

The planned new MNB recommendation for the debt management sector stipulates the supervisory requirements in a comprehensive framework. The purpose of the recommendation is primarily to ensure fair and cooperative conduct, and in relation to this, the development of uniform institutional practice, and furthermore – through the expansion of the information available to debtors – preserving trust between the parties and improving the quality of cooperation. The supervisory requirements related to the charging of interest, fees and costs form a significant element of the planned recommendation, with a view to ensuring that during their operation debt management companies charge to debtors only the confirmed and justified costs incurred in relation to the enforcement of the receivables.

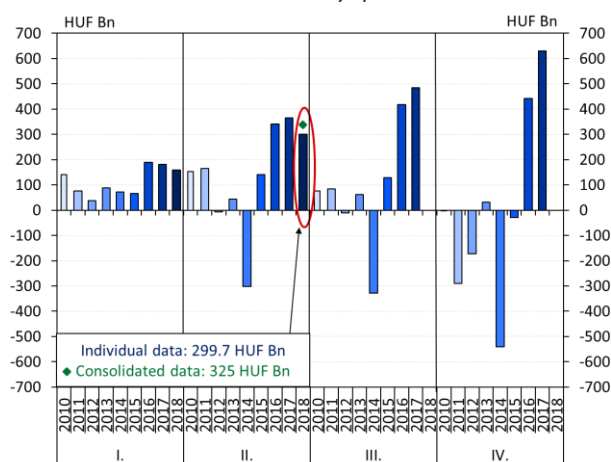
5 Income and capital position. The profit effect of reversals of provisions seems to be wearing off

At the end of June 2018, according to non-consolidated data, the credit institution sector's interim cumulated income after tax amounted to almost HUF 300 billion (based on consolidated data HUF 325 billion), which falls short of the profit realised in the same period of the previous year by roughly HUF 65 billion. The 12-month return on equity reached 15 per cent at the end of 2018 H1. Of the key profit and loss items, a significant positive change was only observed in the result of net trading income, while there was a minor improvement in the case of commission and fee income as well. The largest – roughly 50 per cent – decrease occurred in the profit-improving effect of loan loss provisions, indicating the exhaustion of reversals, which was not sustainable over the long run. Furthermore, operating expenses, net interest income and dividend income also moved in a negative direction. The decrease in net interest income, in contrast to the previous periods, took place in conjunction with rising revenues and expenditures, which may reflect the impact of the growth registered in the funding costs during the period. The increase in the balance sheet total may play a major role in the improvement of cost-to-assets, but based on international experience, the spread of digital solutions is also essential to boost efficiency.

Although the capitalisation level of the overall credit institution sector is still high, the total consolidated capital adequacy ratio of 17.2 per cent registered at the end of June represents a moderate decline compared to December 2017. The decrease is attributable to the growth of 7.6 per cent in total risk exposure. All credit institutions meet the regulatory minimum requirement of 9.875 per cent valid for 2018 together with the capital conservation buffer. The sector has a high free capital buffer, almost 70 per cent of which, however, is still concentrated at three institutions.

5.1 Reversal of loan loss provisions increases banks' profit to a smaller degree

Chart 49: Cumulative after-tax profit of the credit institution sector by quarter

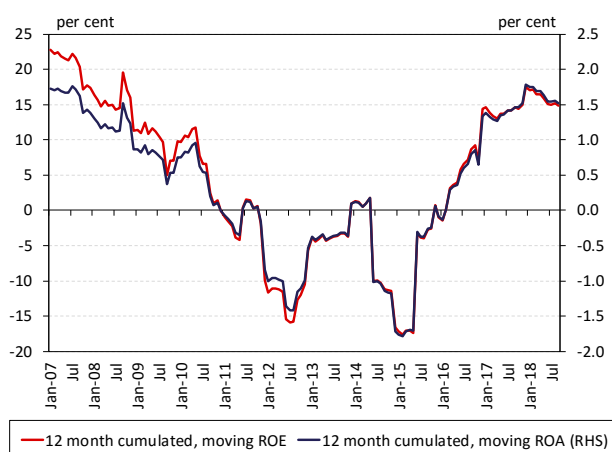


Source: MNB

For the first half-year, the profit reported by the credit institutions fell moderately short of the year-on-year profit registered for the same period in the previous two years. In 2018 H1, the credit institution sector realised an after-tax profit of HUF 299.7 billion based on the non-consolidated data, while the consolidated profit and loss amounted to HUF 324.6 billion (Chart 49). According to non-consolidated data, the pre-tax profit amounted to HUF 316.8 billion in the same period. The relatively high profit was slightly lower than the record-high profit figures from the previous two years, which points to weakening of the uptrend that began in 2015. Financial enterprises outside the credit institution sector realised intra-year cumulated after-tax income of HUF 23.8 billion. The number of loss-making institutions in the credit institution sector declined to four, which can be deemed a record low level even in the light of their 1 per cent market share based on balance sheet total.

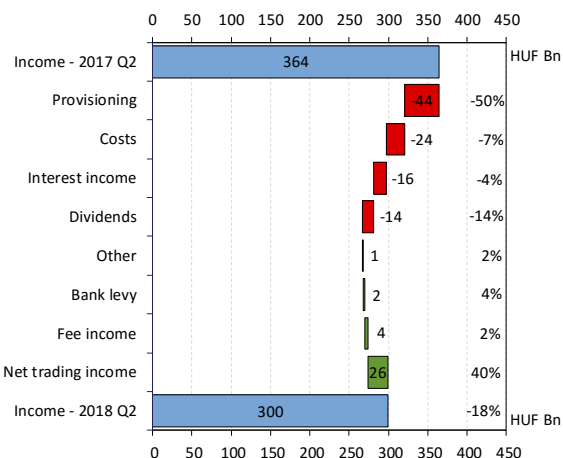
The profitability of the sector also declined in terms of the 12-month rolling indicators. The intra-year decline in the cumulated semi-annual result was also reflected in the 12-month rolling profitability indicators. The credit institution sector's return on equity (ROE) and return on assets (ROA)

Chart 50: Return-on-equity and return-on-assets of the credit institutions sector



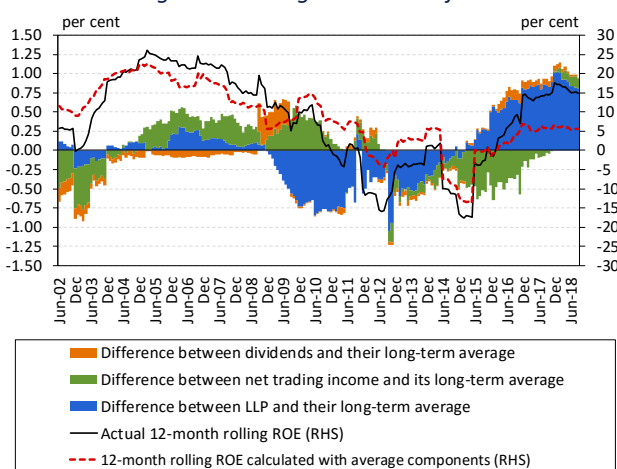
Source: MNB

Chart 51: Change in the main income components between June 2017 and 2018



Source: MNB

Chart 52: Deviation of volatile income components from their long-term average and the adjusted ROE



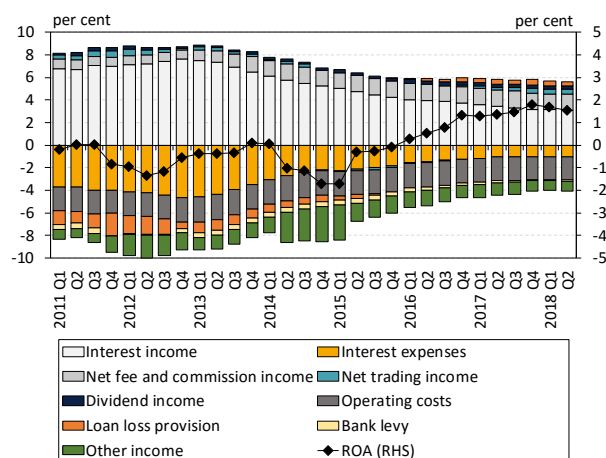
Note: The long-term average of the income components was calculated from June 2002. Source: MNB

fell to nearly 15.1 per cent and 1.5 per cent, respectively, compared to the outstanding levels of 17.5 and 1.8 per cent recorded at the end of 2017 (Chart 50). Owing to the profit realised in 2017 H2, both indicators still exceed the prior-year levels and are also outstanding by international standards. The ROE of financial corporations fell from 1.6 per cent in December 2017 to -0.48 per cent by the end of 2018 H1.

The drop in profit was mostly due to lower net reversals of provisions. As regards the key profit components of the credit institution sector's profit, the negative intra-year changes are relatively more prevalent (Chart 51). Compared to 2017 H1, a significant improvement was only seen in net trading income, while only a moderate rise was seen for commission and fee income and other income, which also includes the net income from the sales of own and purchased receivables. In the case of net trading income, the positive change was often realised in conjunction with simultaneous growth in revenues and expenditures, which is attributable to the more volatile movement in exchange rates and yields observed in 2018 H1. By contrast, credit institutions reported a major decline of roughly 50 per cent in net impairments, which have contributed positively to the sector's profit since 2015. This decline presumably indicates the exhaustion of reversals of loan loss provisions, which are not sustainable in the long run. In addition, operating expenses increased as result of the concentrated growth in personnel expenditures, partially related to the changeover to IFRS, while dividend income and net interest income fell. In the case of the latter, in contrast to the previous trend, increases were recorded for both income and expenditures, the rise in expenditures was more significant.

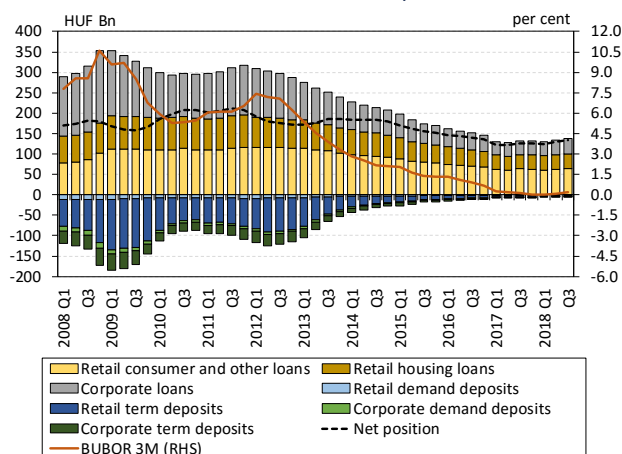
The net effect of provisions appears to be reverting to its long-term average. If we replace the volatile items in the income for the past 12 months, i.e. net effect of loan loss provisions, dividend income and net trading income, with the average levels for these items calculated from June 2002, the adjusted ROE thus obtained declines to a smaller degree, from 6.7 per cent to 5.3 per cent compared to December 2017 (Chart 52). Net loan loss provisions as a percentage of the balance sheet total still exceed the long-term average by almost 0.8 per cent, but declined by 14 basis points in 2018 H1. The deviation in the net trading income as a ratio of assets rose, but the difference is still substantially lower than in the case of net impairments. While it is more difficult to forecast the trends in dividend income and the net trading income, in the case of net loan loss provisions we can expect a further decline, due to the

Chart 53: Main aggregate income components of the credit institutions sector as a proportion of the 12-month average balance sheet total



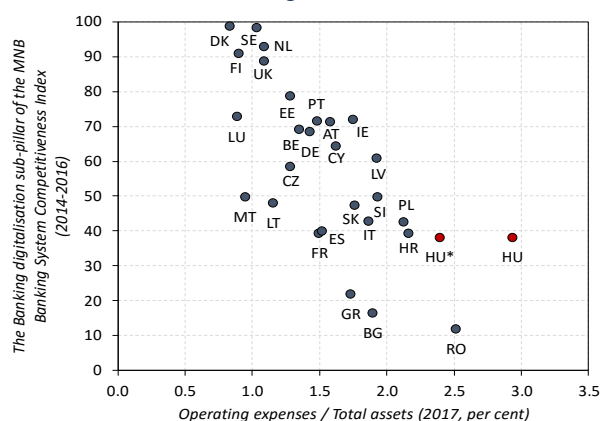
Source: MNB

Chart 54: Estimated net interest position of the credit institutions sector vis-à-vis the private sector



Note: The incomes and expenses vis-à-vis the private sector were calculated based on the month-end balances and the annualised interest rates. Source: MNB

Chart 55: The relationship between cost-to-assets and bank digitalisation



Note: The operating costs-to-assets ratio is based on consolidated data, HU* is adjusted for one-off effects (foreign subsidiaries, state levies). The MNB BSCI Banking digitalisation sub-

unsustainable nature of the reversals. However, the magnitude of this profit and loss item may stabilise at a level that is more favourable than the long-term average, since the latter also contains the very high losses from the post-crisis period and is not necessarily applicable to the future.

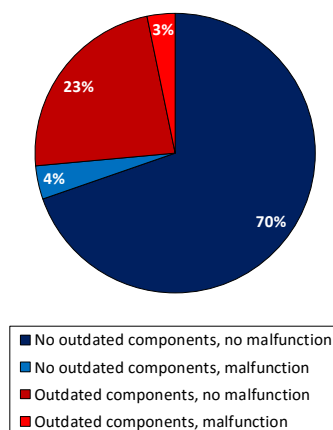
A decline was also registered for most of the profit and loss components in the 12-month rolling time series as well. The rolling value of the major profit and loss components was also characterised by a decrease, but at the end of June 2018 ROA still exceeded the prior-year value (Chart 53). The semi-annual decline in the components occurred in parallel with growth of almost 6 per cent in the balance sheet total. Consequently, although operating expenses rose in absolute terms, the cost-to-asset ratio decreased according to the non-consolidated data. Net commission and fee income to total assets also declined both at the semi-annual and annual horizons. In addition to the foregoing, net interest income as a ratio of interest-bearing assets also continued on its downward trend.

Credit institutions' net interest income from the private sector increased moderately compared to the level registered at the end of 2017. Compared to the stagnation observed in the past 18 months, there was a moderate increase in the estimated value of credit institutions' net interest income on products provided to the private sector (Chart 54). The expansion of outstanding lending also facilitated growth in income, but the increasing interest rates – driven in part by the increases in benchmark rates – also contributed to the rise in interest income. Looking at household loan products, the rise in interest rates currently appears to be more persistent in the case of consumer and other loans, as opposed to overdraft and housing loans. In addition, in the corporate segment an increase was also seen in interest income from overdrafts and other loans. On the liability side, in the period under review, only the interest expenses on corporate demand deposits increased, but the change was negligible compared to interest on loans, and thus credit institutions' interest income from the private sector rose.

Growth in assets provides a supportive environment for improved efficiency, but the spread of digital solutions is also essential. At the end of 2017, the cost-to-asset of the Hungarian banking sector suggested low efficiency by international standards. Although the ratio of operating expenses to assets declined in the past period, the improvement has only been gradual and can mainly be attributable to the rise in total assets. However, the development of procedures and spread of digital solutions are also

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. Source: MNB, ECB, CBD, Eurostat, WB

Chart 56: Outdatedness of domestic institutions' IT systems

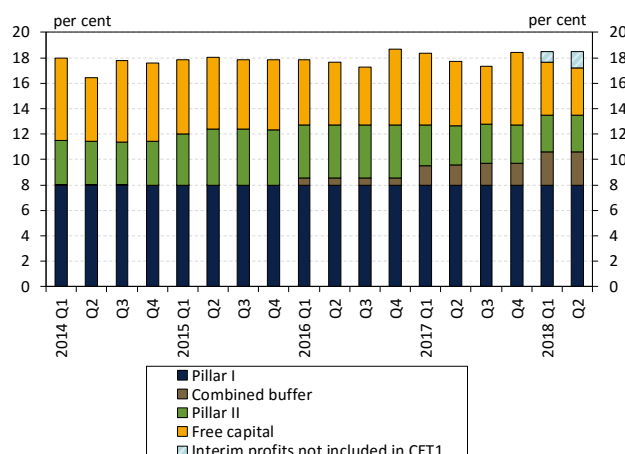


Note: In the survey, institutions were asked regarding their core banking system, data warehouse, securities settlement system, collateral system and CRM system. Source: MNB

essential for the further improvement of efficiency. According to Eurostat data, in 2017 the internet usage of the Hungarian population lagged behind the EU average, and the penetration of internet banking is low even among internet users in Hungary. International comparison shows that the countries which are in the vanguard of applying digital solutions are able to operate a truly efficient banking sector (Chart 55). Modernisation of internal systems enhances the efficiency of institutions not only directly, but in parallel with promoting the new channels and improving customer experience, costs may also be reduced in the long run by the phase-out of obsolete processes.

Modern banking systems cause smaller problems in institutions' operations. The MNB conducted a questionnaire-based survey on the domestic banks' IT systems. The survey revealed that 26.5 per cent of the institutions still have obsolete system components (no longer supported by the manufacturer) and incidents did occur during operation with about 12.2 per cent of these systems (Chart 56). By contrast, only about 5.3 per cent of the systems integrating only modern components generated problems. The results imply that modernisation could reduce costs both in respect of the operation and maintenance by the prevention of failures. The replacement of obsolete components alone is not sufficient to reach the EU average in terms of the operating cost-to-asset ratio. In the future, it will be necessary to replace obsolete system components and to integrate newer, more efficient IT systems into the operations of the organisations, as well as to develop and promote up-to-date services built on them. In addition to the foregoing, obsolete components may also represent stability risks in the case of failure and they are more vulnerable to cyber attacks as well.

Chart 57: Consolidated CAR of the banking system

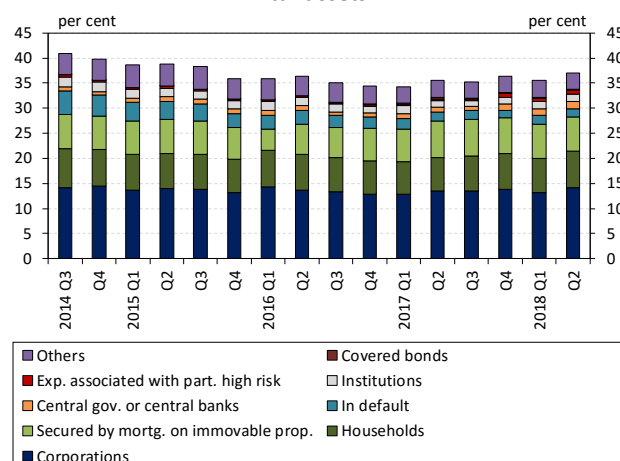


Note: The combined capital buffer contains the capital conservation buffer (CCB), the countercyclical capital buffer (CCyB), the systemic risk buffer (SRB) and the buffer of other systemically important institutions (O-SII). Source: MNB

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

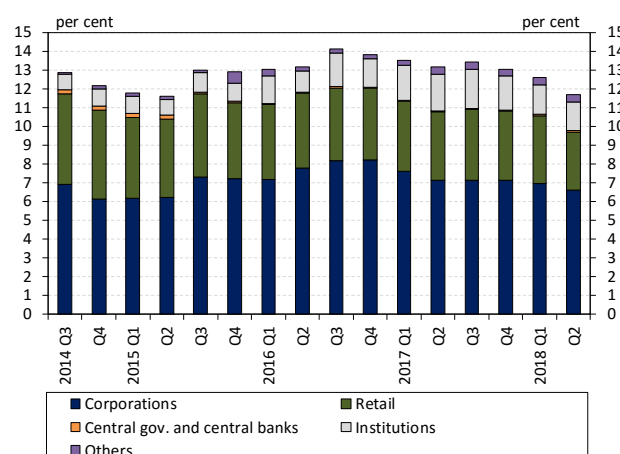
The rise in total risk exposure has offset the increase in the level of regulatory capital. Although the banking sector's consolidated capital adequacy ratio (CAR) declined from 18.4 per cent to 17.2 per cent compared to December 2017 (Chart 57), the capital position of the banking sector can still be deemed strong. The relative deterioration in this indicator took place in conjunction with a simultaneous rise in the aggregated regulatory capital and the total risk exposure. The limited possibility to take the interim-period income into consideration also has a significant role in the rise in the indicator, and thus while the regulatory capital increased by roughly 0.4 per cent, the total risk

Chart 58: Risk exposures calculated under the standardised approach as a proportion of the banking system's total assets



Source: MNB

Chart 59: Risk exposures calculated under the internal approach as a proportion of the banking system's total assets



Source: MNB

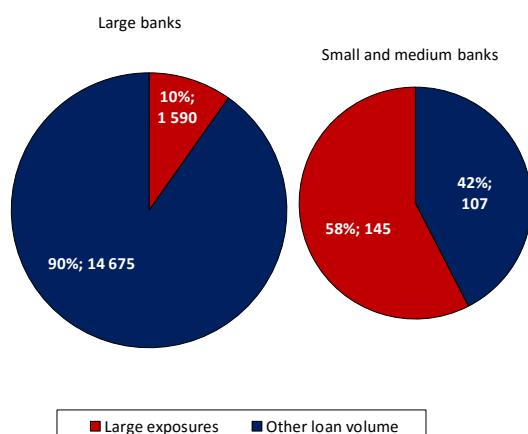
exposure value grew by more than 7.6 per cent in six months. Taking the interim-period result into full consideration, the capital adequacy ratio would be 18.5 per cent. As regards the components of the capital requirements, the amount of capital prescribed in Pillar II stagnated, while the combined buffer requirement rose by almost 1 percentage point, and thus free capital declined by roughly 2 percentage points as a proportion of the total risk exposure. Free capital is still substantially concentrated: 68.5 per cent of the buffer is held by three institutions.

Calculated using the standardised approach, the total risk exposure rose as a proportion of assets. Upon analysing the change in the total risk exposure, it is worth examining the components of the risk-weighted exposure amounts for credit, counterparty credit, dilution risks and free deliveries calculated using the standardised approach and the internal rating-based (IRB) approach separately. The components are always compared to the risk exposure of the entire banking sector, to ensure that we also obtain a picture of the aggregated risks and the distribution of those between the institutions applying the standardised and the IRB approach. As regards the standardised approach, the total exposures to corporations rose to the largest degree as a proportion of assets (by about 0.3 percentage point). The largest fall was recorded in the exposures related to mortgages, which declined by more than 0.2 percentage point as a proportion of assets (Chart 58).

Total risk exposure as a proportion of assets decreased under the IRB approach. In contrast to the stagnating amount in the case of central governments and central banks, retail exposures and exposures to corporations and institutions decreased as a proportion of the balance sheet total between December 2017 and June 2018 (Chart 59). The supportive economic environment and particularly the recovery in the real estate market may have contributed to the decrease in risk exposure, since the internal rating-based approach provides financial institutions greater flexibility for enforcing the effect of the improving macroeconomic environment in the risk weighting. Thus, it can be stated that the decline in CAR was mostly attributable to the temporary rise in the total balance sheet to the regulatory capital ratio. It cannot not be attributed to the rise in the average riskiness of the assets (expressed as the ratio of the total risk exposure and the balance sheet total), which fell from 60.6 per cent to 58.3 per cent in 2018 H1, based on the consolidated data.

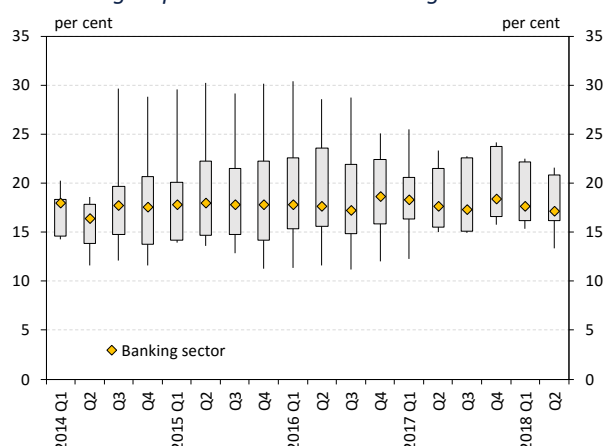
In the sector of small and medium-sized banks, the ratio of large exposures is higher. Large exposures are

Chart 60: Share of large exposures of large banks (left side) and small and medium sized banks (right side)



Source: MNB

Chart 61: Distribution of CAR of the ten largest banking groups and the whole banking sector



Note: In addition to the 25–75 percentile of the CARs of the ten largest consolidated banking groups in terms of balance sheet total as well as their minimum and maximum values, the chart shows the CAR for the credit institutions sector as a whole.

Source: MNB

exposures that exceed 10 per cent of the regulatory capital even after reducing them by exemptions. Exposures of such weight can represent a significant risk for a lender upon default, since the default of just a few of such exposures can jeopardise capital adequacy. In a breakdown by institutions, the average ratio of large exposures is significantly higher at the small and medium-sized banks compared to the large banks, which – in view of the relatively weaker capital adequacy of these institutions – represents an increased vulnerability (Chart 60). As a result of this, in the future it may be advisable to reduce the ratio of similar exposures, i.e. to orient small and medium-sized banks towards more diversified lending in smaller amounts.

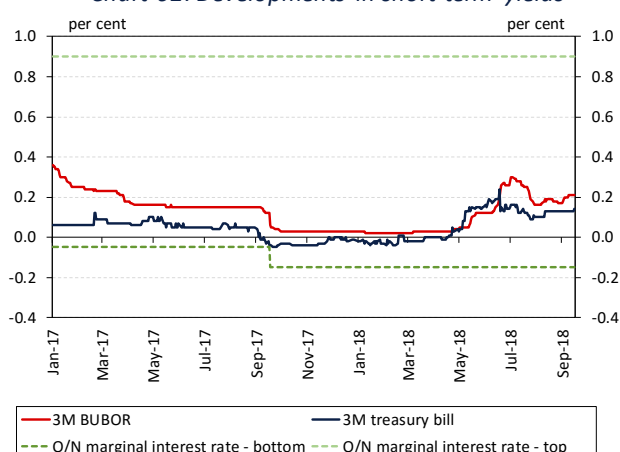
The CAR distribution of the ten largest banking groups also reflects the stability of the banking sector. Examining the distribution of the CAR figures – based on balance sheet total – among the ten largest banking groups, it can be stated that – despite the decrease in the lower bound of the distribution – the capital position of the banking sector continues to be stable (Chart 61). All banks comply with the minimum capital requirement of 9.875 per cent, including the capital conservation buffer, valid in 2018 and the capital adequacy supplemented by Pillar II. In 2019, the capital conservation buffer will increase by a further 0.625 percentage point, thereby reaching its ultimate level of 2.5 per cent. Based on the persistently negative value of the prevailing credit-to-GDP gap, and the supplementary indicators relevant for Hungarian financial systemic risks, the MNB left the countercyclical capital buffer at 0 per cent. In addition – considering the ongoing portfolio cleansing – the MNB only obliged one bank to maintain a systemic risk capital buffer this year, starting from 1 July, based on the 2018 Q1 problematic portfolio.⁹

⁹ <https://www.mnb.hu/sajtoszoba/sajtokozlemenyek/2018-evi-sajtokozlemenyek/az-mnb-egy-bankot-tovabbra-is-rendszerkockazati-tokepuffer-tartasara-kotelez-a-problemass-projekthitelek-kapcsan>

6 Market and bank liquidity. With changing yields, the liquidity of credit institutions remains adequate

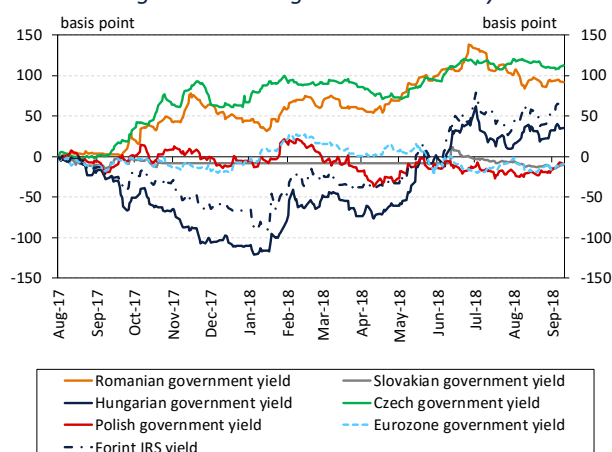
Due to the money market turbulence in May, there was a temporary rise in short-term yields, followed by some adjustment by August. Long-term yields were continuously on the rise from the beginning of the year, and due to the tightening regulatory requirements they increasingly determine banks' average funding costs. The liquidity situation of the credit institution sector is still characterised by abundance, with liquid assets accounting for 32 per cent of the balance sheet total. Behind the systemic abundance of liquidity, the liquidity situation of the individual institutions is heterogeneous. Due to the increasingly dynamic rise in household and corporate lending, the loan-to-deposit ratio increased even in conjunction the continued substantial accumulation of deposits. Short-term external debt, which is of outstanding importance in terms of the banking sector's external vulnerability, is at a low level of HUF 2,000 billion. The risks of the banking sector's external debt is mitigated by the fact that an increasingly large part thereof serves to finance the banking sector's foreign assets rather than the expansion in domestic lending.

Chart 62: Developments in short-term yields



Source: Government Debt Management Agency, MNB

Chart 63: Change in 10Y government securities yields in the region and change in 10Y HUF IRS yields



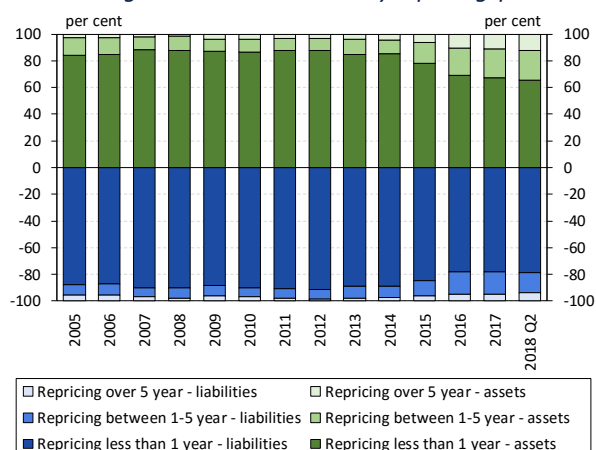
Source: Bloomberg

6.1 Rise in short and long yields on the domestic markets

Following the rise which started in May, short yields have stabilised since the beginning of July. The 3-month BUBOR, which is key for the pricing of bank loans and is used as reference rate, reached its local peak at 0.30 per cent at the beginning of July, followed by a gradual decrease to 0.21 per cent until the end of the period under review (Chart 62). Factors behind the rise in yields that commenced in the spring included inflation developments, the deterioration in global investor sentiment and the rising government securities market yields resulting from the Government Debt Management Agency's high funding needs at the beginning of the year. Yields on the discount Treasury bill of the same maturity rose to 0.19 per cent in June, followed by a decline to 0.14 per cent by the middle of September.

Long-term yields, which are gaining increasing importance in terms of banks' fund raising, have been on the rise since the start of the year. The 10-year Hungarian government securities market yield, considered as a benchmark for long-term yields, rose by 158 basis points since the beginning of January, and at the middle of September it stood at 3.7 per cent (Chart 63). This yield increase significantly exceeded the change in yields observed in the neighbouring countries in the same period, which can partially be regarded as an adjustment of the yield decrease characterising the second half of the previous year. As regards the changes in yields since August 2017, the increase in Hungarian yields lags behind the rise in Romanian and Czech yields. Forint interest rate swap (IRS) yields rose at a similar rate as government securities

Chart 64: Distribution of the banking sector's interest-bearing assets and liabilities by repricing period



Note: Off-balance sheet receivables are marked in assets, and off-balance sheet liabilities are marked in liabilities.

Source: MNB

market yields in the past period, and stood at 2.93 per cent at the end of August; this level is a determinant factor in terms of hedging the interest rate risk of long-term bank assets. As a result of the macroprudential regulation (Foreign Exchange Funding Adequacy Ratio, Mortgage Funding Adequacy Ratio, Interbank Funding Ratio), long-term funds are of the utmost significance in terms of banks' fund raising, and thus the importance of long-term yields increased in terms of shaping banks' balance sheet and profitability. In addition to the regulation applicable to market developments and the structure of banks' balance sheet, banks' asset-liability management is also influenced by the normalisation of monetary policy and the related changes in the central bank's set of instruments (Box 7).

The share of assets and liabilities repriced over one year increased. Starting from 2014, with the spread of loans with long-term interest fixation, within total interest-bearing assets the ratio of assets repriced within one year fell from 85 per cent to 66 per cent (Chart 64). The central bank's schemes played an important role in the spreading of interest rate fixation for longer terms, both on the asset and liability sides. The Funding for Growth Scheme and the Self-financing Programme increased the ratio of products with longer interest fixation within both interest-bearing assets and interest-bearing liabilities, while on the asset side the Certified Consumer-friendly Housing Loan certification also contributed to this trend.

BOX 7: TRANSFORMING THE SET OF MONETARY POLICY INSTRUMENTS SERVES NORMALISATION

With its September decisions on the central bank's set of monetary policy instruments, the MNB made it clear that it is ready for the cautious and gradual normalisation of monetary policy. According to the forecast in the MNB's September Inflation Report, achieving the inflation target in a sustainable manner is still expected from mid-2019, which also necessitates the maintenance of the policy rate and the loose monetary conditions. In September, the central bank implemented several amendments to its set of monetary policy instruments, making it clear that it has prepared for the cautious and gradual normalisation of monetary policy. The MNB's set of instruments became suitable for making monetary policy capable of taking the necessary steps, if the inflation processes justify it, to achieve the inflation target in a sustainable manner.

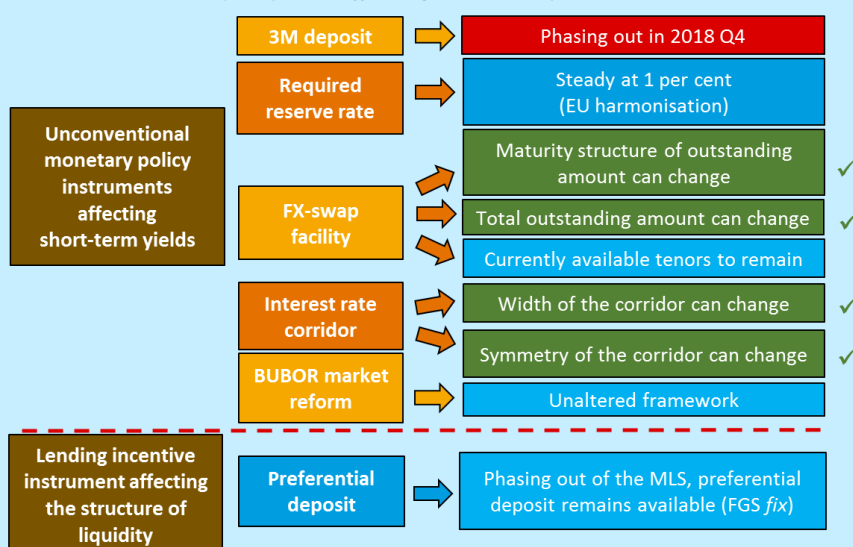
The MNB published its strategy related to the set of monetary policy instruments, where it presents the instruments it will use when the need arises. The strategy related to the set of monetary policy instruments does not deal with the monetary policy stance and does not intend to provide a specific schedule; as regards the timing and degree of the potential steps, the regular monthly interest communications of the Monetary Council serve as guidance. During the future normalisation of monetary policy, the first steps will affect the set of unconventional instruments. Following the principles of transparency and gradualism, in relation to the future framework of the set of unconventional instruments, the MNB stated that

- during the future formulation of monetary policy, it would first apply the optimal combination of the steps related to the central bank's foreign exchange swap instrument and the interest rate corridor,

- in terms of monetary policy transmission, it considers the deposit and loan instruments, as well as the width and symmetry of the interest rate corridor equally important,
- it will continue to decide regularly on the crowding-out from the assets accruing interest at the policy rate and on the central bank's foreign exchange swap portfolio,
- the present framework of the BUBOR market and the required reserve ratio will not change,
- the preferential deposit – related to the new FGS *fix* scheme – remains part of the set of instruments,
- looking ahead, the MNB regards the foreign exchange swap instrument as a strategic component of the central bank's set of instruments, it will continue to announce it on all maturities, and although the volume of the instrument may change, it will not fall to zero in medium term, and a substantial part of the portfolio will permanently remain in the balance sheet.

With a view to simplifying the central bank's instruments, the MNB will phase out the 3-month deposit facility in 2018 Q4. This will simplify the set of instruments, and the use of the instruments will become more transparent and predictable. The portfolio of HUF 75 billion outstanding at the end of September cannot be deemed significant compared to the total liquidity level of roughly HUF 1,500 billion or to the HUF 800 billion balance of interest-bearing assets accruing interest at the base rate, and thus the phase-out of the facility has no material impact on liquidity developments and monetary conditions. In the case of the crowding-out effect, the MNB decided to maintain for 2018 Q4 the level of at least HUF 400–600 billion, defined for the previous quarters as well. Following the decrease in the 3-month deposit portfolio to zero, the role of the main policy instrument will be taken over by the required reserves.

The potential future development of monetary policy tools affecting short term yields

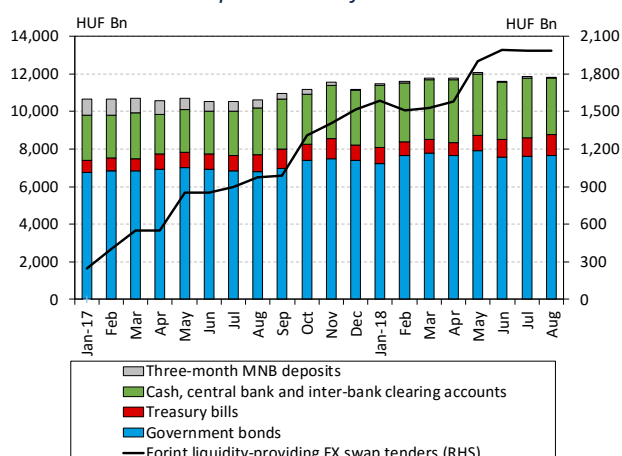


Source: MNB

Within the scope of the fine-tuning of the set of unconventional instruments affecting long-term yields, the MNB decided to phase out the monetary policy IRS instrument and the mortgage bond purchasing programme by the end of 2018. Based on the decision of the Monetary Council, the annual facility amount of the monetary policy IRS instrument for 2018 is HUF 1,100 billion. The mortgage bond purchasing programme is closing in two steps; primary market purchases will continue until 31 December 2018, while the secondary market purchases ended on 30 September 2018. Within the scope of the fine-tuning of the set of instru-

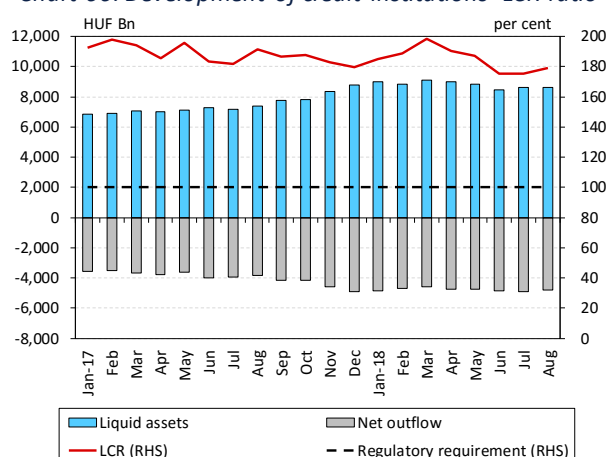
ments affecting long-term yields, the Funding for Growth Scheme *Fix* will be introduced from January 2019, the purpose of which is to develop the sound and prudent structure of lending to SMEs, while – since the MNB will sterilise the excess liquidity by the preferential deposit facility earning interest at the policy rate – it will have a neutral effect on liquidity and short-term yields.

Chart 65: Liquid assets of credit institutions



Source: MNB

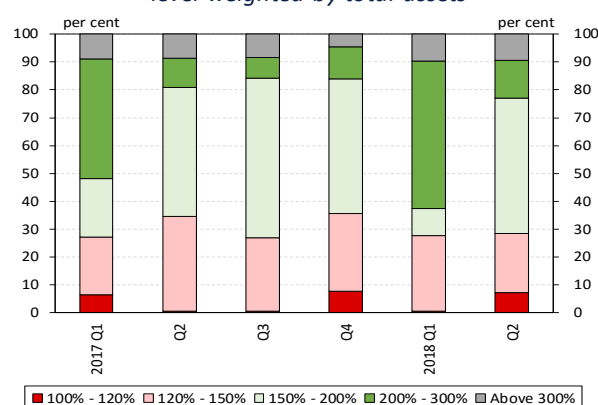
Chart 66: Development of credit institutions' LCR ratio



Note: Without mortgage banks and building societies.

Source: MNB

Chart 67: Distribution of the individual institutions' LCR level weighted by total assets



Note: Without mortgage banks and building societies.

Source: MNB

6.2 The Hungarian credit institution sector is still characterised by ample liquidity

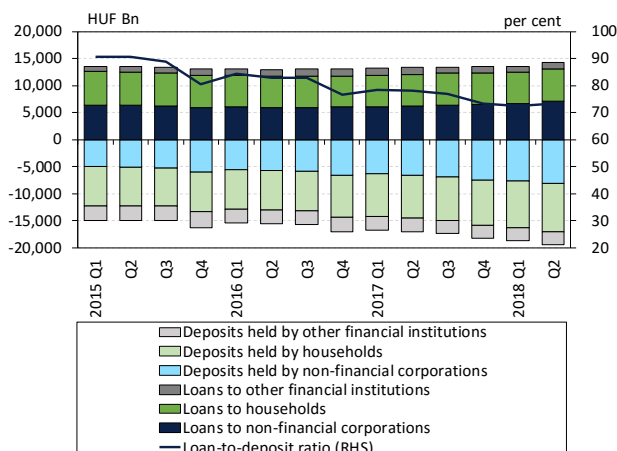
The average balance of liquid assets is high and the liquidity situation is stable at the sector level. The balance of liquid assets is close to HUF 12,000 billion at the end of August 2018 (Chart 65), accounting for roughly 32 per cent of the balance sheet total of the credit institution sector. Within liquid assets, the largest ratio is represented by government securities, the balance of which amounted to HUF 8,788 billion in the sector's balance sheet at the end of the period under review. The high liquidity of the sector and the maintenance of the loose monetary conditions are supported by the MNB's forint liquidity-providing outstanding swap amount, which amounted to HUF 1,988 billion at the end of the period.

The liquidity buffer of the sector substantially exceeds the expected net outflow in the case of a 30-day liquidity shock. The liquidity coverage ratio (LCR) of the credit institution sector was at 179 per cent at the end of August and thus substantially exceeded the regulatory limit of 100 per cent, which has been required since April 2016 (Chart 66). The liquidity buffer, representing the numerator of the index, is increasing on the longer horizon, but it fell moderately since the end of last year, mostly owing to the decline in O/N deposits. 99 per cent of the liquidity buffer is comprised of Level 1 assets,¹⁰ the liquidity coverage eligibility of which may be between 80 and 100 per cent of the total exposure.

At the level of the individual banks, the picture is heterogeneous behind the stable systemic liquidity. All of the credit institutions comply with the regulatory requirement, but at some institutions, which follow a special business model, the liquidity buffers came close to the minimum requirement at the end of 2018 Q2 (Chart 67). The variance of the liquidity coverage ratio of the key credit institutions decreased between March and June 2018, which was attributable to the decrease in the ratio in the case of institutions with excess coverage. In the event of a systemic liquidity shock, fund raising would become critical primarily at institutions with a tight liquidity situation, for which the market provides funds at higher spreads anyway.

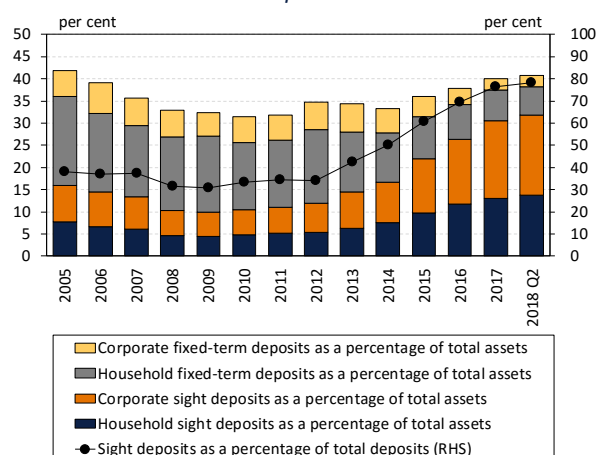
¹⁰ Based on the European regulation on the amendment of Regulation 575/2013/EU of the European Parliament and of the Council regarding liquidity coverage requirements for credit institutions.

Chart 68: Decomposition of the loan-to-deposit ratio of credit institutions



Source: MNB

Chart 69: Ratio of corporate and household deposits to total liabilities, and ratio of sight deposits within total deposits



Source: MNB

Due to the upturn in lending, the loan-to-deposit ratio rose even despite the growth in deposits. Compared to the end of 2017, the growth of HUF 738 billion and HUF 217 billion in the outstanding borrowing of corporations and households, respectively, contributed to the rise in the loan-to-deposit ratio, and thus at the end of 2018 Q2 the loan-to-deposit ratio was 73.2 per cent (Chart 68). The increase in the ratio continues to be slowed by the substantial inflow of deposits, as the deposits of corporations and households rose by HUF 458 billion and 342 billion, respectively, in the past quarter.

The ratio of the sight deposits is at a historic high both within total deposits and total liabilities. The dynamic rise in deposits observed in recent years was primarily reflected by the increase in the balance of sight deposits. In 2018 Q2, the sight deposits received from corporations and households amounted to HUF 7,138 billion and 5,469 billion, respectively. This portfolio reflects a substantial change in the structure of deposits: while in 2012 only 34 per cent of the deposits were sight deposits, by the first half of 2018 this ratio had risen to almost 80 per cent (Chart 69). Thus, the ratio of sight deposits already accounts for almost one third of the liabilities on banks' balance sheets. The rise in the ratio of sight deposits may have been mostly attributable to the monetary easing cycle, which significantly reduced the interest gap between fixed and sight deposits. The high ratio of sight deposits may represent an increasing liquidity risk for the banking sector particularly after the implementation of instant payments in July 2019, when clients may have access to their funds in a matter of seconds (Box 8).

BOX 8: FINANCIAL STABILITY CONSIDERATIONS DURING THE INTRODUCTION OF THE INSTANT PAYMENT SYSTEM

The instant payment service, which has already been introduced in several countries around the world, will be also available in Hungary from July 2019. The system will permit the execution of credit transfers below HUF 10 million within 5 seconds, at the most, at any hour of the day and on any day of the year. Shortening the time required for credit transfers will be a substantial positive change for consumers, but at the same time it will increase the complexity of liquidity management for banks.

The introduction of instant payments will lead to fundamental changes in the operation of payment service providers. In terms of liquidity management, compared to the payment systems in place at present, the innovation of the instant payment system (IPS) is that the clients may move their forint liquidity extremely quickly and on all days of the year, 24 hours a day, between the members of the system. Since – by default – transactions of HUF 10 million or less are executed in 5 seconds, there is a theoretical possibility that the clients of one member of the system could withdraw their deposits from the respective member in a short time; however, at the systemic level, the degree of liquidity may fall drastically only in very exceptional cases. There are three main reasons for financial stability risks:

1. A panic developing due to a technical problem of the IPS and potential operational risk events

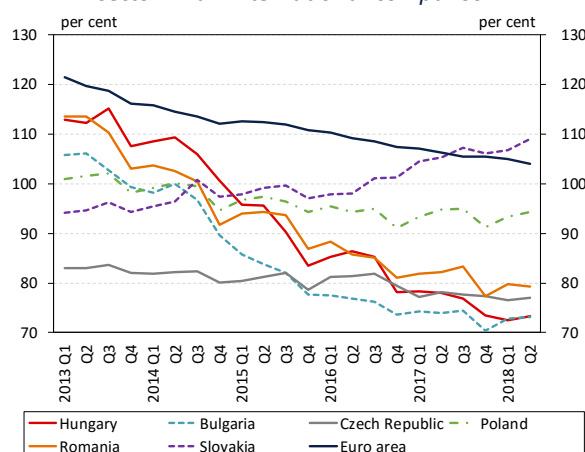
2. Spread of negative news based on presumed or real information
 - a. Withdrawal of deposits targeted at one or several members of the system
 - b. Withdrawal of deposits affecting the entire banking sector

When developing the instant payment system, both GIRO and the MNB made efforts to reduce the probability of the events listed in point 1 as much as possible. One example of this is, the high, monthly 99.9 per cent availability of the system, guaranteed by GIRO, i.e. the development of an IT infrastructure, which will operate without scheduled downtime, and under minimum downtime in the case of unplanned events.

In the case of the spread of negative news, problems may occur primarily in terms of liquidity management. During the operating hours of VIBER, the system members can continuously control their liquidity situation, and thus first (in fact immediately) they can respond to developing emergency situations, and then, within a short time, they can also inform the MNB and request the central bank's support. For periods outside the operating hours of VIBER (during the night or at weekends) the MNB elaborated a method for the system members to draw down a collateralised loan for the stabilisation of their liquidity situation. This is meant to mitigate the risk that overnight or during the weekend system members run out of liquidity in the IPS, thereby generating a panic among clients of system members. The IPS credit line of individual system members is calculated by the MNB, based on the securities collateral pledged for the MNB.

For similar reasons, the MNB supported the banks' request to the effect that the balance of the IPS subaccounts in the IPS should be included in the fulfilment of the credit institutions' reserve requirement at the central bank. Through the fulfilment of the reserve requirement on the IPS subaccounts, the IPS members required to hold reserves will be able to provide the liquidity necessary for the safe operation without sacrificing any interest. As a result of this, the IPS liquidity of system members will be presumably less stretched, due to which the likelihood of liquidity difficulties in the system will be lower also outside the operating hours of VIBER.

Chart 70: Loan-to-deposit ratio of the credit institution sector in an international comparison

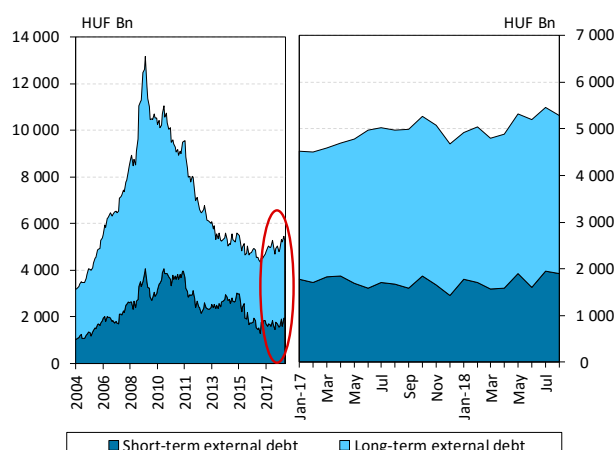


Source: ECB, MNB

The low Hungarian loan-to-deposit ratio provides substantial room for further expansion in lending. In most of the countries in the region, the loan-to-deposit ratio increased in the past period. In Bulgaria, due to the dynamic credit growth, the loan-to-deposit ratio started to rise moderately from its trough registered at the end of 2017, and thus it stands at the same level as the Hungarian figure, i.e. 73 per cent (Chart 70). A similar upward trend can also be observed in Poland and Slovakia, despite the fact that credit growth has decelerated in these countries. In Romania, the strong credit growth increased the loan-to-deposit ratio by 2 percentage points compared to December 2017, bringing the figure to 79 per cent in 2018 Q2. In the euro area, a moderate, 1 per cent decrease was observed, but the value of the indicator is still above 100 per cent, i.e. loans outstanding exceed the volume of deposits. On the whole, it can be stated that the distinctly low loan-to-deposit ratio of the Hungarian banks, even in a regional comparison, provides substantial room for further credit expansion.

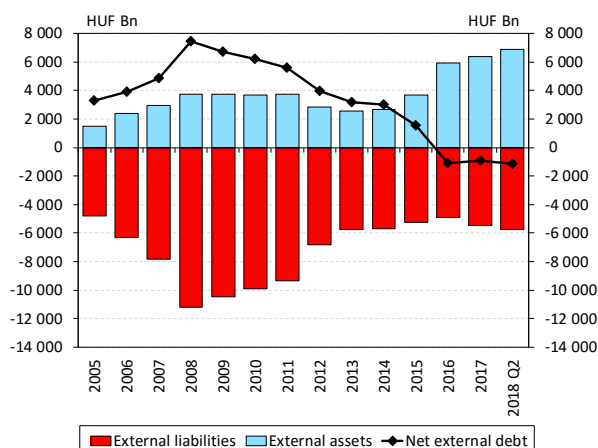
The volume of external liabilities rose slightly, but the funding risk continues to be moderate. Short-term external debt rose moderately in the past months, and thus the balance reached HUF 1,899 billion in August (Chart 71).

Chart 71: Gross external debt of the credit institution sector



Source: MNB

Chart 72: Net on-balance sheet external debt of the credit institution sector



Source: MNB

The balance of foreign loans, with maturity over one year, also increased slightly during the period under review, and thus total external debt amounted to HUF 5,277 billion in August. 58 per cent of the total external debt comprises funds provided by parent banks, which carries lower rollover risk. Despite the rise in external liabilities, the level of such is still substantially lower than the record high of HUF 13,151 billion registered in 2009.

External liabilities finance external assets at a higher rate than before. When assessing the risks of external liabilities, one important aspect is which items they finance within the banking sector's asset side components. In the pre-crisis years, the large-scale foreign funding served as the source of foreign currency lending in Hungary, contributing significantly to the development of Hungary's financial vulnerability. However, in the past years, the volume of the banking sector's foreign assets rose substantially and in the case of certain institutions, the foreign loans on the liabilities side finance this foreign activity (Chart 72). In view of this, present outstanding foreign liabilities represent a lower risk than before, since the abrupt exhaustion of external liabilities would not directly hinder credit expansion in Hungary.

7 Bank stress tests. Banks would remain liquid and have strong capital adequacy after a negative shock

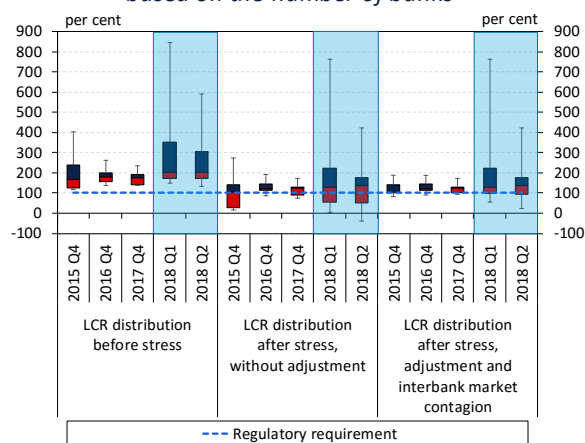
Based on the results of the liquidity stress test, in 2018 H1 most of the banks would have met the minimum LCR requirement even in the case of the serious liquidity shocks of the stress test. The Liquidity Stress Index rose from its value registered at the end of 2017 to 5.1 per cent by the end of 2018 Q2; however, this figure is still low and reflects no substantial risks to financial stability. The capital position and profitability of the banking sector would remain robust even in an unfavourable macroeconomic scenario. The vast majority of the banks would not become loss-making even in the case of a major deceleration in economic growth; in fact, several institutions would have substantial capital buffers over the regulatory requirement even in the stress scenario.

Table 2: 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 73: Distribution of LCR before and after stress, based on the number of banks



Note: The edges of the box of the box plot represent the lower and upper quartiles of the distribution; the horizontal line in it represents its median. The lower whisker of the plot shows the tenth, while the upper denotes the ninetieth percentile. The periods for which the stress test is performed on an enlarged institutional base are marked by a blue band. Source: MNB

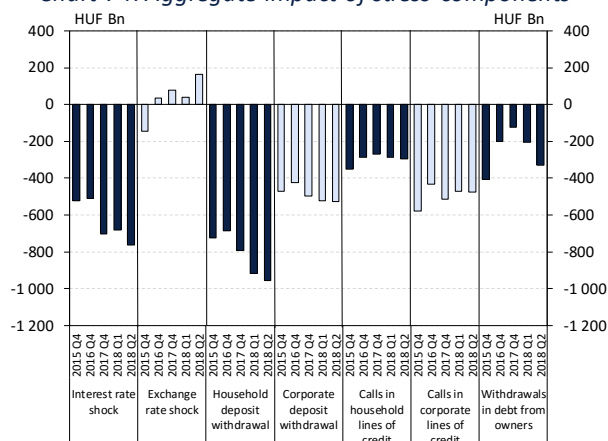
7.1 The banking sector's general resilience to liquidity stress remains adequate

The complex 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 the 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, when determining the outcome of the stress test, banks' short-term adjustment opportunities as well as the contagion effects of these adjustment channels and of defaults on the interbank market are also taken into account (Table 2).¹¹

The vast majority of credit institutions would have complied with the regulatory minimum of the LCR in the event of a stress in 2018 H1. In contrast to our previous practice, from now on we conduct our quarterly-frequency liquidity stress test not only for the nine largest financial institutions, but for the entire credit institution sector (without specialised credit institutions focused on development aims). In addition, we take into consideration the banking groups subject to consolidated supervision in a consolidated manner. The direct results of the stress test, in particular the LCR distributions related to the first and second quarter of 2018, cannot be fully compared with the results of the previous periods due to the different range of institutions (Chart 73). Based on the number of institutions, the smaller institutions which are now included in

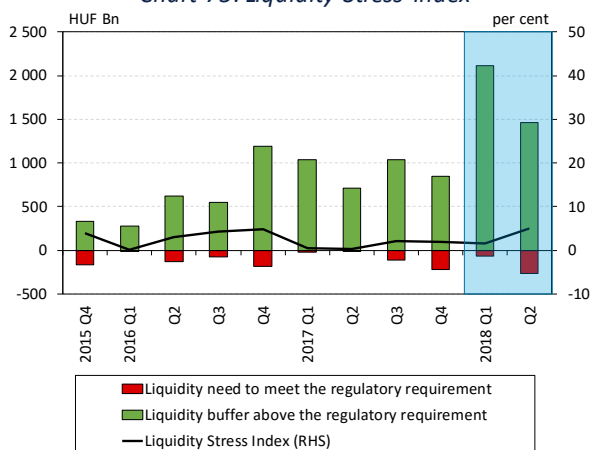
¹¹ For a detailed description of the methodology see Box 9 of the May 2016 Financial Stability Report. In terms of its objective, logic and applied assumptions, our stress test is fundamentally different from the liquidity stress test used in the supervisory review of the Internal Liquidity Adequacy Assessment Process (ILAAP). Therefore, our findings cannot be directly compared to that.

Chart 74: Aggregate impact of stress components



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

Chart 75: Liquidity Stress Index



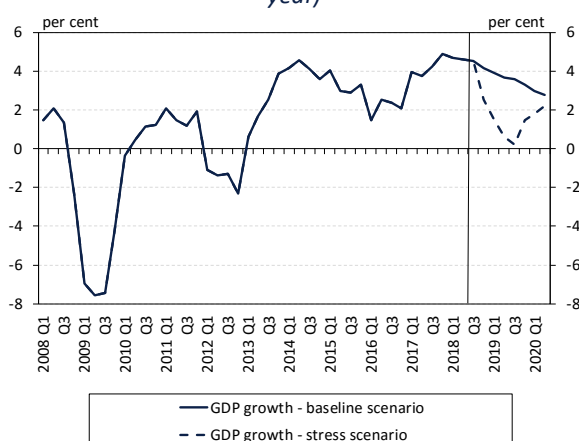
Note: The indicator is the sum of liquidity shortfalls in percentage points (but maximum 100 percentage points) compared to the 100 per cent regulatory limit of the LCR, weighted by the balance sheet total in the stress scenario. The higher the value of the indicator, the greater the liquidity risk.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

the test substantially increased the distribution range for all three indicators. The growth in dispersion reflects in part the more specialised business model and higher vulnerability of the small institutions. Nevertheless, the median of the distribution rose substantially compared to the end of 2017, and its value of 136.25 per cent at the end of 2018 Q2 materially exceeded the regulatory minimum. Although in the lower quartile of the distribution reflecting the segment of higher-risk institutions, the stress would generate a sharp decline, following the adjustment triggered by the shock, this segment would also be characterised only by a moderate liquidity shortage compared to the regulatory requirement. Accordingly, in the first half of 2018, most of the banks would have met the minimum LCR requirement even in the case of the serious liquidity shocks of the stress test.

Of the components of the stress, the interest rate shock as well as the shock of households' deposit withdrawals have the most significant LCR-reducing impact at the systemic level. 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 74). In addition, the sources of risk with the highest impact continue to be the interest rate shock and the shock-like withdrawal of household deposits. The importance of the first rose moderately in 2018 H1, while that of the latter increased substantially. The rise is partly due to the expansion of the institutional base in the test, and partly to the increase in deposits.

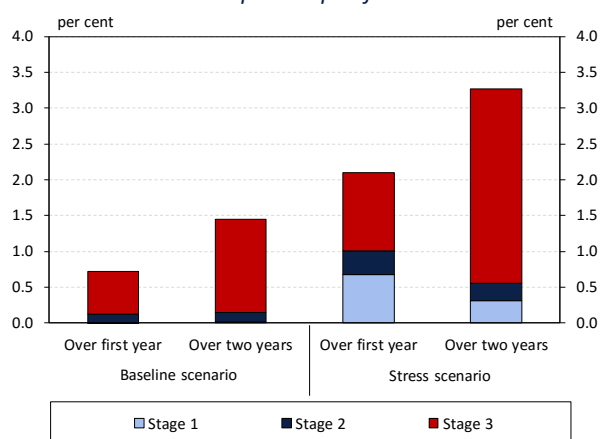
The Liquidity Stress Index rose in 2018 Q2, but remains at a low level. The Liquidity Stress Index aggregates the post-stress percentage-point liquidity shortfalls compared to the regulatory limit calculated at the individual bank level by also considering the size of the given bank. By taking into account 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 rise in the value of the index was attributable, on the one hand, to the – in certain cases more significant – percentage-based stress-situation shortfalls of the smaller institutions which were newly added to the test, and on the other hand, to the liquidity shortages of certain larger banks, at which the liquidity shortages are more moderate on a percentage basis compared to the smaller banks. However, the 5.1 per cent value of the index at the end of 2018 Q2 is still low and reflects no significant risks to financial stability (Chart 75). For the sake of comparison: the Liquidity Stress Index used before the introduction of the LCR – comparing the

Chart 76: GDP growth rate in the different scenarios (compared to the corresponding period of the previous year)



Source: MNB

Chart 77: Cumulated loan loss provision rate for the corporate portfolio



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

stock of liquid assets to 10 per cent of the balance sheet total, but prepared based on similar logic – was at 65.5 per cent in January 2009 and at 34.6 per cent in November 2011. As a result, among other things, of expanding the institutional base, the liquidity surplus of the banks in excess of the regulatory limit rose substantially and amounted to HUF 1,465 billion at the end of 2018 Q2, while the potential liquidity need necessary for meeting the regulatory requirement is HUF 265 billion.

7.2 In terms of capital adequacy, the shock absorbing capacity of the banking sector is strong

In our solvency stress test, we examine the impact on the banking sector of a substantially more unfavourable scenario, compared to the baseline scenario of the Inflation Report. In the stress scenario, we assume a decline in growth in the developed countries, continued weakening of world trade, strengthening of the uncertainties related to emerging countries and an increase in the domestic labour shortage. All of this would result in weaker demand for exports, increasing capital outflows, a decline in investment activity, depreciation of the exchange rate and a rise in domestic interest rates. In the stress scenario, we assume an exchange rate that is roughly 14.5 per cent weaker, an interest rate that is almost 250 basis points higher than in the baseline scenario, and at the two-year horizon economic growth weaker by about 4 percentage points in total (Chart 76).

The changeover to the IFRS 9 standard increases the sensitivity of the banking sector to unfavourable macroeconomic shocks, as it prescribes the immediate recognition of a large volume of impairments. The IFRS 9 standard prescribes for the banks the use of impairment models, which necessitate the recognition of appropriate impairments in a forward-looking manner, already upon deterioration of the macroeconomic prospects, prior to the realisation of actual defaults. Accordingly, as a first step, we revised the calculation of the impairment of the corporate portfolio within the framework of the stress test, which is presented in more detail in Box 9. Under the new regime, upon the realisation of the shocks, relatively high impairments must be recognised on the corporate portfolio, which is otherwise characterised by extremely low credit risk parameters in the baseline scenario (Chart 77). The larger part of this is attributable to the fact that part of the portfolio which used to be performing up until then is transferred to categories of lower rating (Stage 2 or Stage

3) as a result of the shocks, and thus, after the reclassification, it immediately becomes necessary to recognise the expected loss in respect of these not only for one year, but for the full tenor, as an impairment. The impact of the shock also lowers the expected recovery on the loans non-performing from the outset, and thus we recognised additional impairment for these loans as well. However, due to the materially lower ratio of non-performing loans, compared to previous years, this item is negligible.

BOX 9: MODELLING CREDIT IMPAIRMENT UNDER IFRS 9 IN THE SOLVENCY STRESS TEST

From the beginning of 2018, the vast majority of the credit institutions operating in Hungary are required to prepare their reports in accordance with IFRS international accounting standards. Of these, the IFRS 9 standard, which is applicable to the accounting treatment of financial instruments, bears the utmost importance, as its innovations related to the recognition of impairment may have significant profitability impacts. Compared to the former impairment recognition model based on incurred loss, from 2018 **impairment under IFRS 9 must be recognised on the basis of expected losses**. In addition, contracts must be classified into categories based on the change in their credit risk since the initial recognition (inclusion in the balance sheet). For these categories, different impairment rules apply.

- The **first category (Stage 1)** includes exposures for which the individual credit risk has not deteriorated significantly since initiation. For Stage 1 items, one-year forward-looking impairment must be recognised.
- The **second category (Stage 2)** contains contracts for which the credit risk has increased significantly since initial recognition (e.g. a payment was missed or macroeconomic prospects have worsened significantly). In the case of exposures belonging to Stage 2, impairment must be recognised for the losses expected over their entire lifetime.
- The **last category (Stage 3)** includes the non-performing contracts, for which impairment must be also recognised for the whole lifetime.

According to the logic of IFRS 9, a macroeconomic shock increases banks' impairment through two channels. On the one hand, the deteriorating prospects immediately raise the impairment to be recognised for contracts with unchanged Stage classification (increasing expected loss). On the other hand, the probability of staying in worse categories also increases due to the shock, and thus impairment is to be recognised for the lifetime expected losses for a larger number of exposures.

In order to map the relation between banks' capital adequacy and the macro scenarios in a credible way, we also implemented the new impairment recognition requirement in our top-down credit risk stress test. The mapping of the relation practically means that we must estimate the **stock of impairment recognised by the banks based on a specific macroeconomic scenario and their loan portfolio in each quarter of the stress test horizon**. Since the recognition of impairment is governed by different rules between the above categories, we chose the approach that (1) we model the probability of a specific contract's being in each Stage at a given point of time, and (2) estimate the expected loss applicable to it on the horizon corresponding to the Stage. The former can be obtained from the estimated transition probabilities between the Stages, while the latter necessitates the determination of the probability of default (*PD*), the loss given default (*LGD*) and the exposure at default (*EAD*).¹²

In our transition models we model transitions between four categories. The first category includes loans that have never been past due for more than 30 days, while the second category includes those that have had such a delay, but

¹² Since Stage 3 (represented by our category) and the definition of default (in MNB Decree 39/2016) are more or less the same, instead of the explicit modelling of the *PD*, we also had the opportunity to calculate it based on the transition probabilities between the categories.

at present are performing. The third category includes contracts past due between 30 and 90 days, while exposures past due over 90 days were treated as the fourth, absorbing category. Although, according to IFRS, both the first and the second categories correspond to Stage 1, there is a large difference between them in terms of risk, and thus we modelled them separately. Although the definitions thus formulated do not fully correspond to the official IFRS 9 definitions, the MNB Recommendation¹³ on the application of the standard stipulates the number of days past due as a sufficient condition for classification to the appropriate Stage.

We estimate the individual transitions separately, using proportional hazard econometric models for the banking sector's corporate loan portfolio, employing the data from the Central Credit Information System for the period of 2010 Q1 – 2018 Q2, supplemented with macroeconomic time series and the financial statement data obtained from the National Tax and Customs Administration. In our estimates including in total more than one million contracts, we use macro variables, corporate characteristics (e.g. sector of core activity, enterprise size, enterprise age) and contract attributes (e.g. year of disbursement) as independent variables. The stress scenario impacts the transition probabilities through the macro variables. The growth in the risk premium and the deceleration of GDP growth increase the probability of transition to a worse category, while the depreciation of the exchange rate and the deceleration of the growth in final consumption result in both a rise in the probability of deterioration as well as a decrease in the probability of moving to a better category.

Average estimated transition probabilities for a given period of the baseline and the stress scenario, for the corporate portfolio

Baseline scenario	Always performing	Currently performing	Delinquency of 30 - 90 days	Delinquency of at least 90 days
Always performing	99.4%		0.4%	0.2%
Currently performing		90.9%	6.0%	3.1%
Delinquency of 30 - 90 days		46.1%	15.4%	38.6%
Delinquency of at least 90 days				100.0%
Stress scenario	Always performing	Currently performing	Delinquency of 30 - 90 days	Delinquency of at least 90 days
Always performing	99.1%		0.7%	0.2%
Currently performing		90.4%	6.3%	3.3%
Delinquency of 30 - 90 days		45.6%	15.2%	39.2%
Delinquency of at least 90 days				100.0%

Note: The matrix contains the transition probabilities estimated for 2019 Q1 at a quarterly frequency according to the baseline and the stress scenario, weighted by the outstanding exposures in 2018 Q2. Values indicate the probabilities of transition from a given row to a given column. Probabilities of deterioration marked with red, probabilities of improvement with green.

Source: MNB

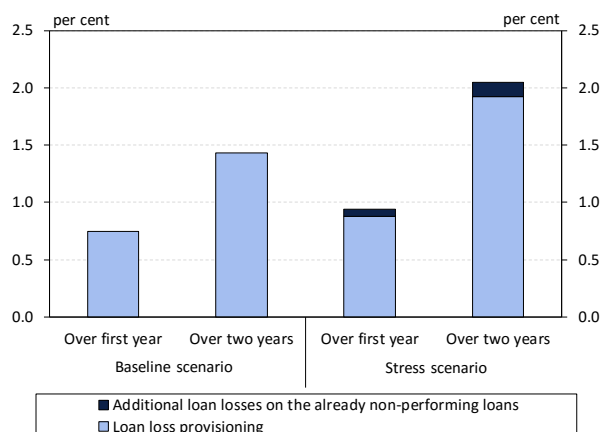
performing, but used to be past due at least once, is on average 5.99 per cent. During this period, the probability that contracts 30 days past due once again become performing is 46.07 per cent, while the same recovery is not possible from the category of 90 days past due, because of the absorbing nature of the category. In the stress scenario – in accordance with our expectations – we experience an increase in the transition probabilities of the deterioration, and a decrease in the probability of recovery. Proportionally, the change is largest in the case of deterioration from the category of always performing loans.

As it is also confirmed by the impairments calculated on the basis of the aforementioned estimates (see Chart 77), as a result of the introduction of IFRS 9, the shocks shape impairments differently than before both in terms of magnitude and dynamics. A large part of the impairment must be recognised already upon the occurrence of the shock, rather than upon the default of the exposures, as a result of the shock-like change in the expectations. Due to this, a shock can weaken the banks' capital position to a larger degree than before. On the other hand, as a result of the new standard, the difference between the impairment stocks during a business cycle's periods of positive and negative prospects

¹³ Recommendation No. 12/2017 (XI.6) of the Magyar Nemzeti Bank on the issues related to the application of the impairment requirements of IFRS 9.

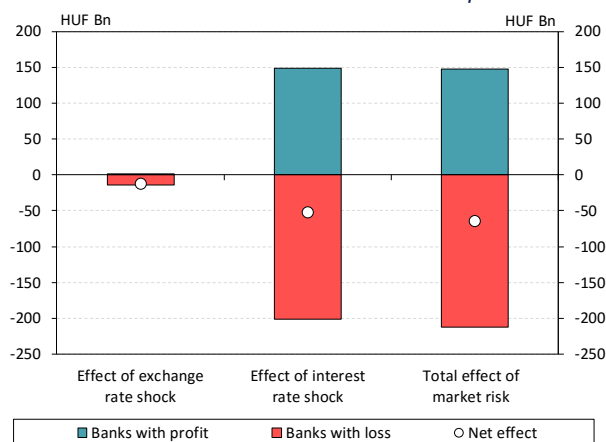
will be larger. As a result of the foregoing, the standard may strengthen the banking sector's procyclical behaviour, which is also confirmed, among others, by the ESRB's¹⁴ model.

Chart 78: Cumulated loan loss provision rate for the household portfolio



Note: The chart shows the net generated loan loss provisions, cumulated from the starting point of the stress test. Source: MNB

Chart 79: Market risk stress test impacts



Source: MNB

For the household portfolio, we project relatively moderate additional losses even in the stress scenario. Since final consumption remains on a growth path in the stress scenario as well, and household loans are almost entirely denominated in forint, in terms of the shocks it is the rise in interest rates that has the most critical effect. However, this effect is mitigated by the fact that an increasing ratio of new loans are fixed-rate loans, while the vast majority of variable-rate loans in the older portfolios (mostly those converted into forint earlier) remained performing even with significantly higher instalments before the settlement of the unilateral interest rate increases. The sensitivity of these loans to interest rate shocks is also reduced by the fact that their average remaining maturity is already much shorter than that of newly issued mortgage loans. For the time being, we calculated the credit loss of the household portfolio based on our former credit risk models, and thus after the occurrence of the shock the recognition of impairments takes place gradually, over a longer period, just like the occurrence of the default (Chart 78). The additional impairment of the initial non-performing portfolio recognised in the stress scenario is somewhat higher due to the higher initial default ratio than in the case of the corporate portfolio, but it still cannot be deemed high in a historical comparison.

Banks' earnings potential remains adequate in the stress scenario as well. Although the income of banks before loan losses is not outstanding as a ratio of equity or total assets, in nominal terms it is relatively high historically. In the baseline scenario, we expect that earning potential remains high, while in the stress scenario it decreases by 20 per cent relative to the baseline scenario. However, at most of the institutions this will not be turned into a loss even by the recognition of weaker earnings and higher loan losses.

Due to the hedging of exchange rate positions, in terms of the market risks it is still the interest rate shock that primarily affects the profit and loss. The exchange rate position of financial instruments is closed in the Hungarian banking sector, but as a result of an interest rate shock, immediate losses and profits would be generated through

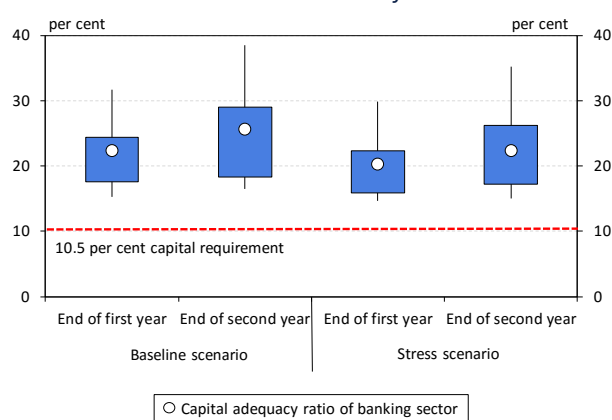
¹⁴ Abad, J., & Suarez, J. (2017). Assessing the cyclical implications of IFRS 9 – a recursive model. ESRB Occasional Paper Series No. 12, European Systemic Risk Board.

Table 3: Stress test results at 8 and 10.5 per cent capital requirements

		Baseline scenario		Stress scenario	
		End of first year	End of second year	End of first year	End of second year
8 per cent capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	2 253	2 790	1 956	2 303
10.5 per cent capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	1 860	2 394	1 557	1 901

Source: MNB

Chart 80: Distribution of the capital adequacy ratio based on the number of banks



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

the repricing of the instruments. Based on the June 2018 interest rate positions, in the stress scenario the losses of the individual institutions exceed the result of those realising a profit, and thus at the systemic level the impact of the interest rate shock applied in the stress scenario is also negative (Chart 79).

The capital adequacy of the banking sector remains at a high level over the entire horizon of the stress test, and no capital injection need arises in the stress scenario. The banks with high capital adequacy at the initial stage, realise a positive result both in the baseline and in the stress scenarios despite the credit losses, and thus their capital adequacy strengthens instead of weakening. Accordingly, no need for increasing the capital or taking measures for the restriction of future dividend payments arises in either of the scenarios (Table 3). The capital adequacy ratios vary on a broad scale, but they are at a high level almost without exception in both scenarios, which is also attributable to the fact that we do not project dividend payments in either scenario, and the static balance sheet assumption continues to prevail in the case of the household portfolio¹⁵ (Chart 80).

¹⁵ Upon calculating the impairment of the corporate 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 between 2017 Q3 and 2018 Q2.

List of Charts

Chart 1: Changes in the macroeconomic environment of developed countries	7
Chart 2: Evolution of European and US stock market volatility indices and geopolitical risks	7
Chart 3: Evolution of capital flows in emerging markets	8
Chart 4: Changes in foreign exchange rates and in the 10-year government bond yields in certain emerging countries	8
Chart 5: Cumulated bond flows as a percentage of assets under management in 2018.....	8
Chart 6: Household, corporate and sovereign debt in the EU Member States	9
Chart 7: Evolution of the European financial stress index	9
Chart 8: Profitability indicators of the EU banking sector.....	10
Chart 9: Ratio and volume of non-performing loans in Europe.....	10
Chart 10: Credit dynamics and non-performing loans in the EU Member States in 2018 Q1.....	10
Chart 11: Ownership structure of sovereign debt in the EU Member States	11
Chart 12: Long-term average of return on equity and market valuation.....	11
Chart 13: Aggregated and Budapest MNB housing price index and annual growth rates	12
Chart 14: Deviation of real house prices from the estimated level justified by fundamentals, nationally and in Budapest	12
Chart 15: Distribution of housing loans disbursed in the period of 2017–2018 Q2 by loan-to-value ratio.....	13
Chart 16: Number of completed newly built dwellings in Budapest and nationally, and forecast for Budapest.....	13
Chart 17: Deviation of house prices from the level justified by fundamentals, in a European comparison.....	14
Chart 18: Composition of the Hungarian commercial real estate market's investment volume by market segments, and the prime yield premium	14
Chart 19: New completions and vacancy rate on the Budapest office market	15
Chart 20: New commercial real estate loans in the credit institutions sector	15
Chart 21: Office market vacancy rate, prime yields and investment volumes in a regional comparison	15
Chart 22: Growth rate of loans outstanding of the overall corporate sector and the SME sector.....	18
Chart 23: Changes in credit conditions in the corporate sub-segments	19
Chart 24: New SME forint loans by interest rate fixation and maturity.....	20
Chart 25: Changes in foreign loans outstanding of non-financial corporations in an international comparison.....	22
Chart 26: Forecast of corporate and SME lending.....	22
Chart 27: Corporate sector indebtedness as a proportion of GDP and the credit-to-GDP gap	22
Chart 28: Quarterly change in the outstanding household loans of the financial intermediary system	23
Chart 29: New household loans in the credit institutions sector	23
Chart 30: Changes in credit conditions and credit demand in the household segment	25
Chart 31: Housing loans by interest rate fixation and the proportion of certified consumer-friendly housing loans	26
Chart 32: Distribution of new housing loans by interest period in the European Union	26
Chart 33: Technical projection of outstanding mortgage loans by interest type	27
Chart 34: Interest rate spreads on new household loans	28
Chart 35: Household loans as a percentage of GDP in the region	29
Chart 36: Household lending forecast.....	29
Chart 37: Household sector indebtedness as a proportion of GDP and changes in the credit gap.....	29
Chart 38: Stock and ratio of non-performing corporate loans in the credit institutions sector	31
Chart 39: Factors affecting changes in the ratio of non-performing corporate loans	32
Chart 40: Loan loss provision coverage ratio for non-performing corporate loans in the credit institutions sector.....	32
Chart 41: Stock and ratio of non-performing household loans of credit institutions by contracts.....	33
Chart 42: Factors affecting changes in the ratio of non-performing household loans	33
Chart 43: Ratio and stock of 90+ days past due household loans by products	34
Chart 44: Loan loss provision coverage ratio of non-performing household loans in the credit institutions sector	34
Chart 45: Distribution of household mortgage loan contracts outstanding at the end of March 2018 by rating category and the month of disbursement	34
Chart 46: Number of collateral realisations in the banking sector and average return	35
Chart 47: Change in the number of non-performing household mortgage loan receivables between 2013 and 2018... 35	35
Chart 48: Stock and ratio of financial enterprises' non-performing loans at book value	36
Chart 49: Cumulative after-tax profit of the credit institution sector by quarter	38
Chart 50: Return-on-equity and return-on-assets of the credit institutions sector	39
Chart 51: Change in the main income components between June 2017 and 2018.....	39
Chart 52: Deviation of volatile income components from their long-term average and the adjusted ROE.....	39

Chart 53: Main aggregate income components of the credit institutions sector as a proportion of the 12-month average balance sheet total.....	40
Chart 54: Estimated net interest position of the credit institutions sector vis-à-vis the private sector.....	40
Chart 55: The relationship between cost-to-assets and bank digitalisation.....	40
Chart 56: Outdatedness of domestic institutions' IT systems	41
Chart 57: Consolidated CAR of the banking system	41
Chart 58: Risk exposures calculated under the standardised approach as a proportion of the banking system's total assets	42
Chart 59: Risk exposures calculated under the internal approach as a proportion of the banking system's total assets.....	42
Chart 60: Share of large exposures of large banks (left side) and small and medium sized banks (right side)	43
Chart 61: Distribution of CAR of the ten largest banking groups and the whole banking sector	43
Chart 62: Developments in short-term yields	44
Chart 63: Change in 10Y government securities yields in the region and change in 10Y HUF IRS yields	44
Chart 64: Distribution of the banking sector's interest-bearing assets and liabilities by repricing period	45
Chart 65: Liquid assets of credit institutions	47
Chart 66: Development of credit institutions' LCR ratio	47
Chart 67: Distribution of the individual institutions' LCR level weighted by total assets	47
Chart 68: Decomposition of the loan-to-deposit ratio of credit institutions.....	48
Chart 69: Ratio of corporate and household deposits to total liabilities, and ratio of sight deposits within total deposits	48
Chart 70: Loan-to-deposit ratio of the credit institution sector in an international comparison	49
Chart 71: Gross external debt of the credit institution sector	50
Chart 72: Net on-balance sheet external debt of the credit institution sector	50
Chart 73: Distribution of LCR before and after stress, based on the number of banks	51
Chart 74: Aggregate impact of stress components	52
Chart 75: Liquidity Stress Index.....	52
Chart 76: GDP growth rate in the different scenarios (compared to the corresponding period of the previous year) ...	53
Chart 77: Cumulated loan loss provision rate for the corporate portfolio	53
Chart 78: Cumulated loan loss provision rate for the household portfolio.....	56
Chart 79: Market risk stress test impacts.....	56
Chart 80: Distribution of the capital adequacy ratio based on the number of banks.....	57

List of Tables

Table 1: Monthly average maturity and loan amount of new housing loans and personal loans	25
Table 2: Main parameters of the liquidity stress test	51
Table 3: Stress test results at 8 and 10.5 per cent capital requirements	57

Appendix: Macprudential indicators

1 Risk appetite

Chart 1: Primary risk indicators

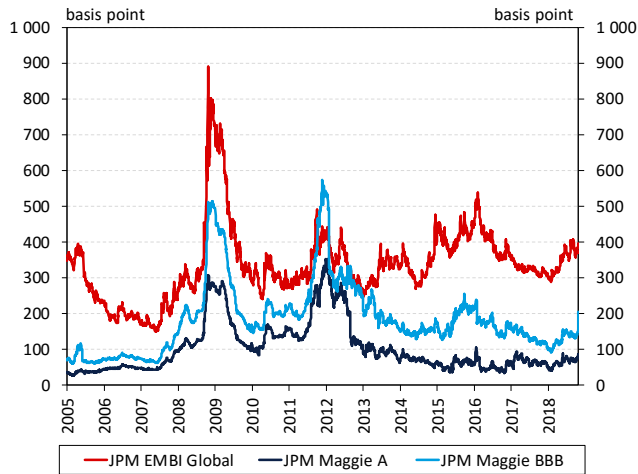


Chart 2: Implied volatility of the primary markets

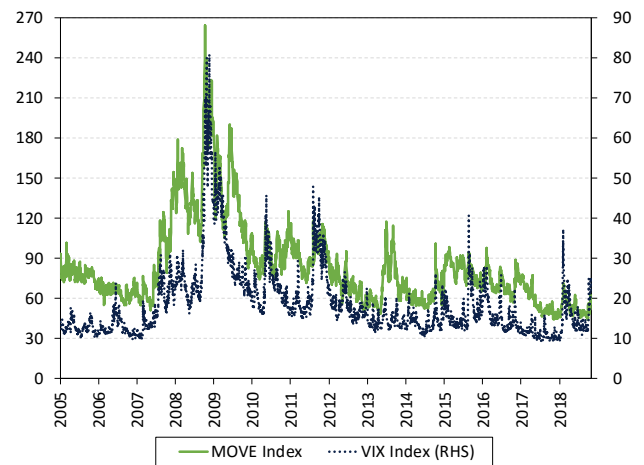
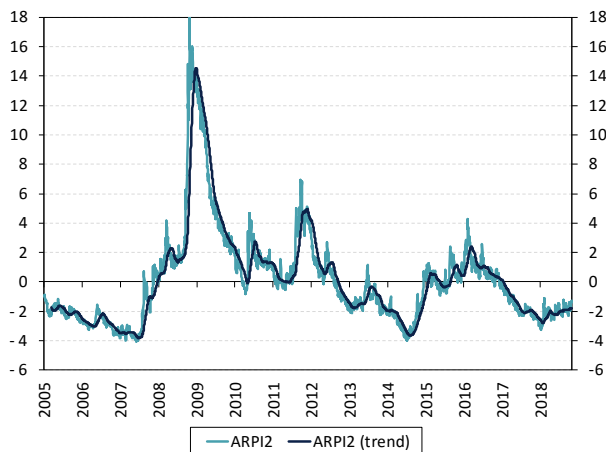


Chart 3: Dresdner Kleinwort indicator



2 External balance and vulnerability

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

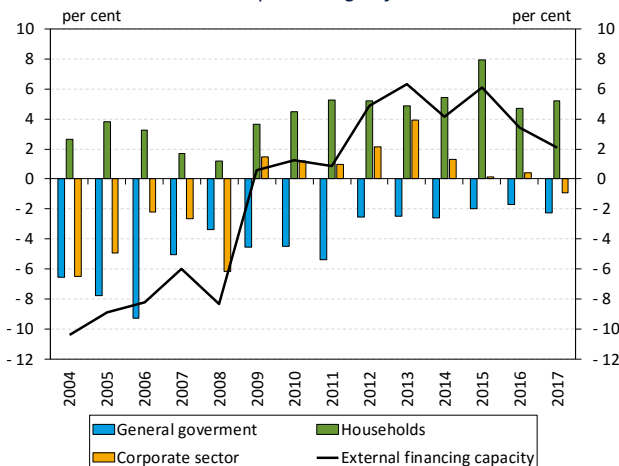


Chart 5: External financing requirement and its financing as a percentage of GDP

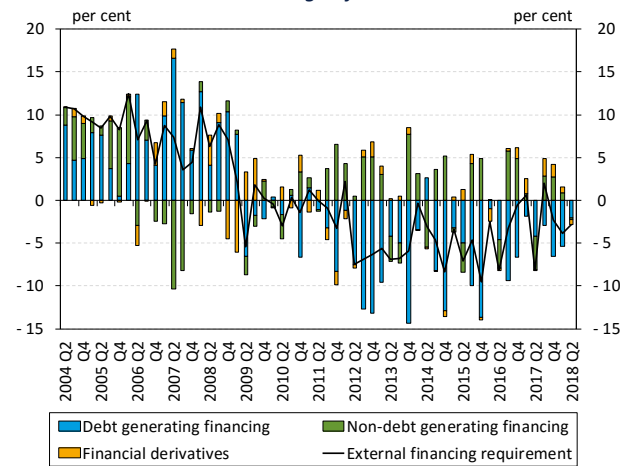
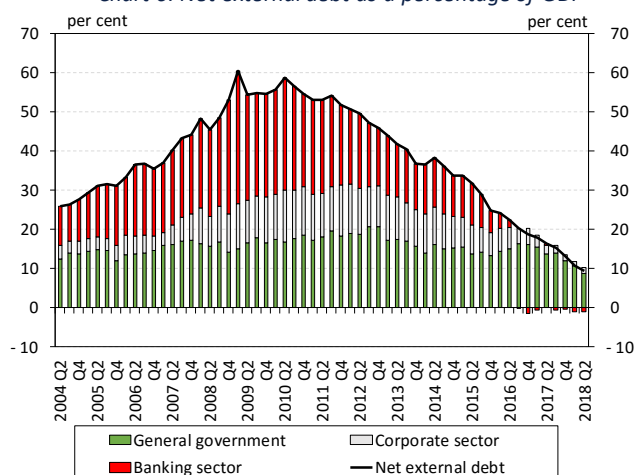
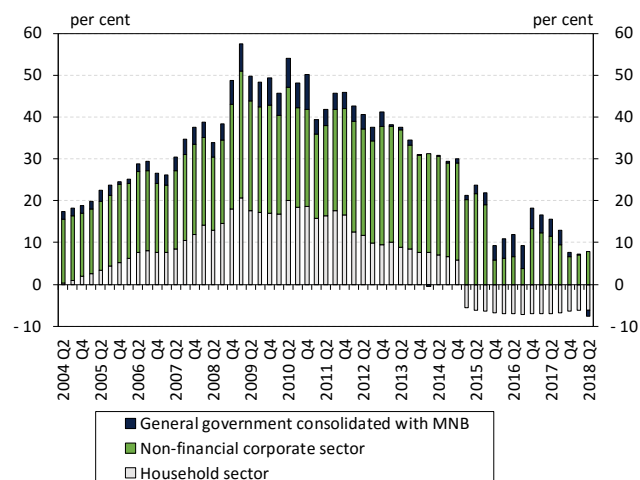


Chart 6: Net external debt as a percentage of GDP



Source: MNB

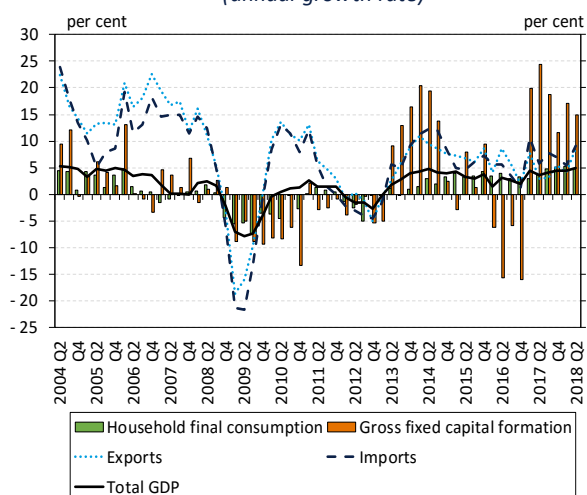
Chart 7: Open FX position of the main sectors in the balance sheet as percentage of GDP



Source: MNB

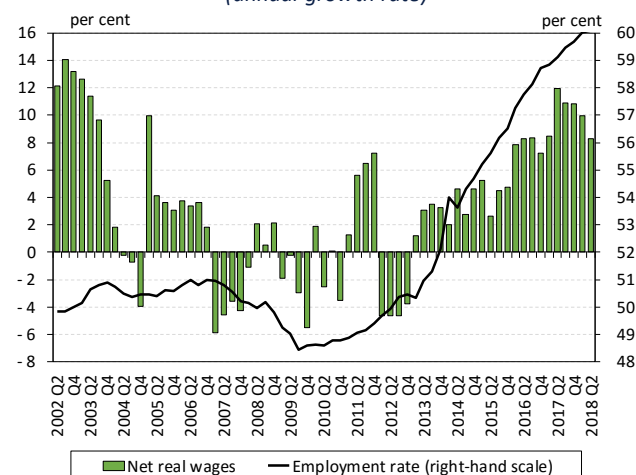
3 Macroeconomic performance

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



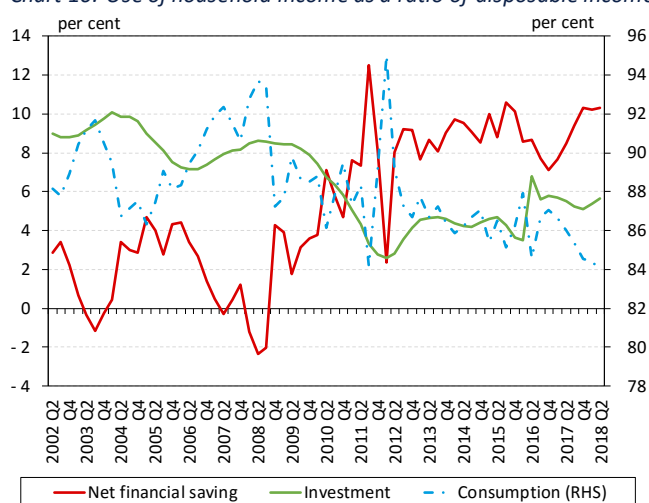
Source: HCSO

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



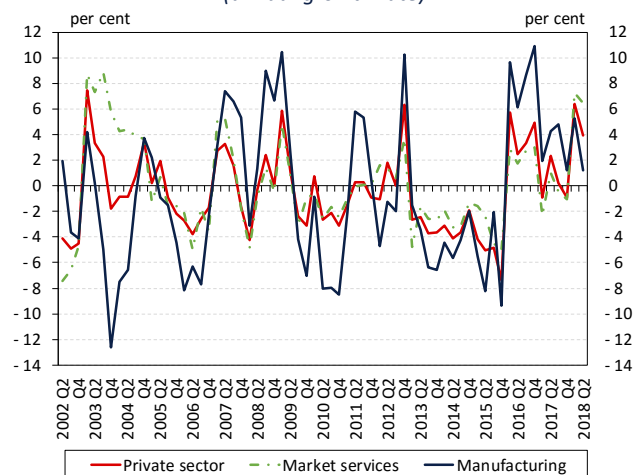
Source: HCSO

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



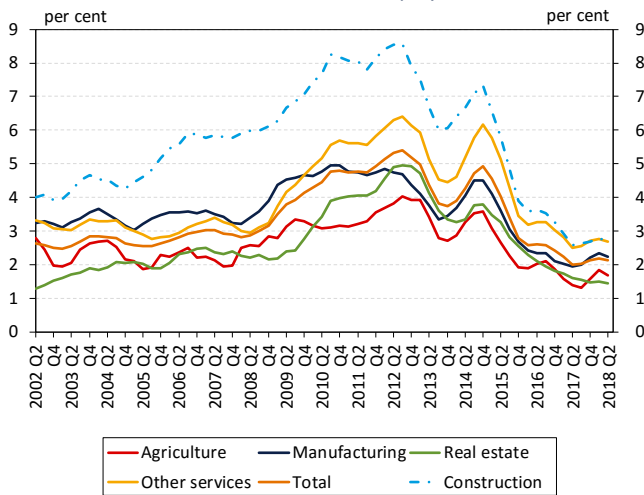
Source: HCSO, MNB

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



Source: HCSO, MNB

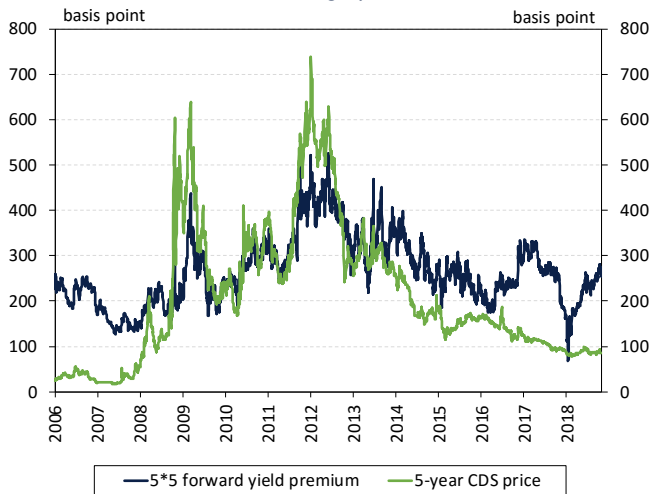
Chart 12: Sectoral bankruptcy rates



Source: Opten, MNB, HCSO

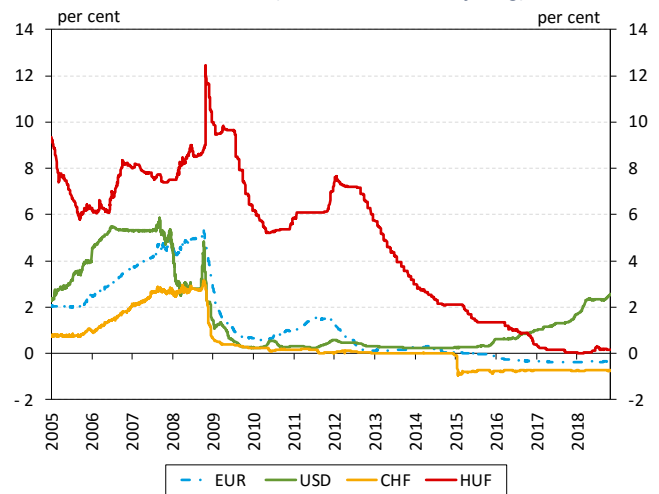
4 Monetary and financial conditions

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



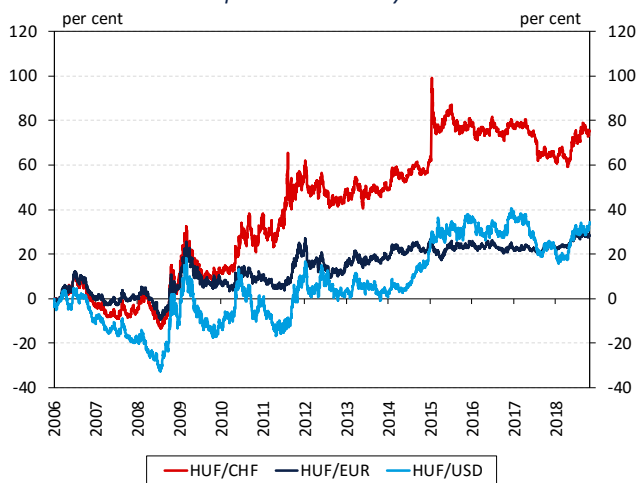
Source: Datastream, Reuters, Bloomberg

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



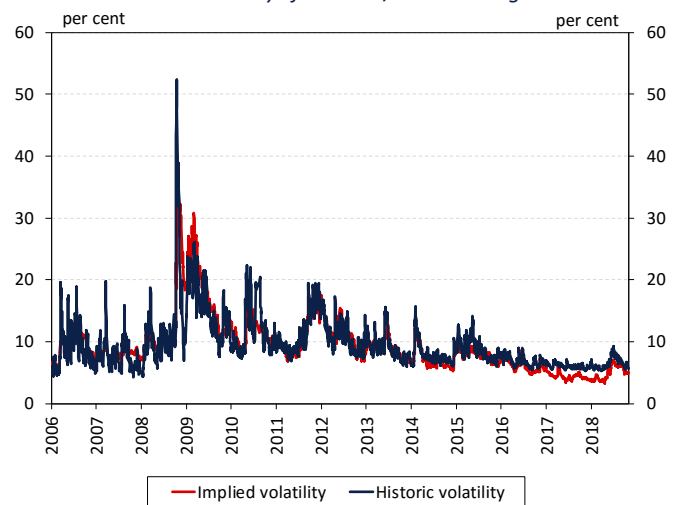
Source: Reuters

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



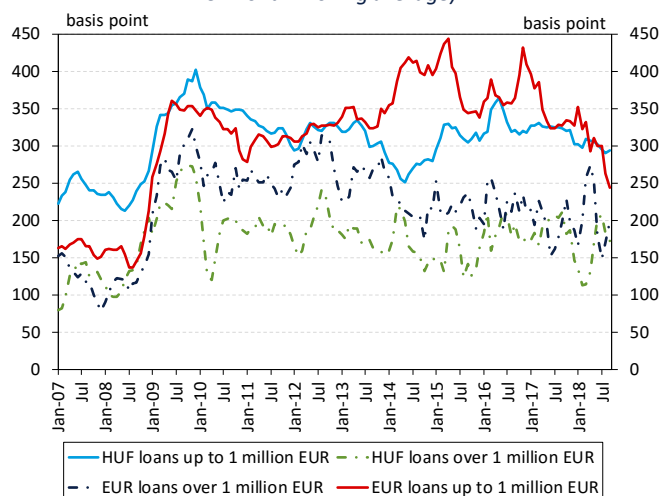
Source: Reuters

Chart 16: Volatility of the HUF/EUR exchange rate



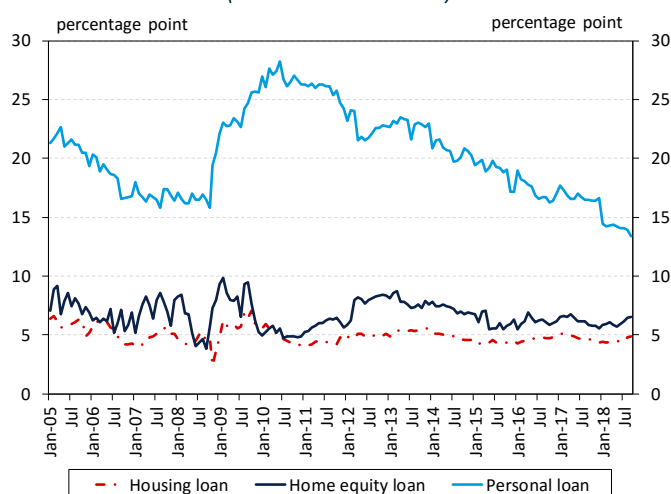
Source: MNB, Reuters

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

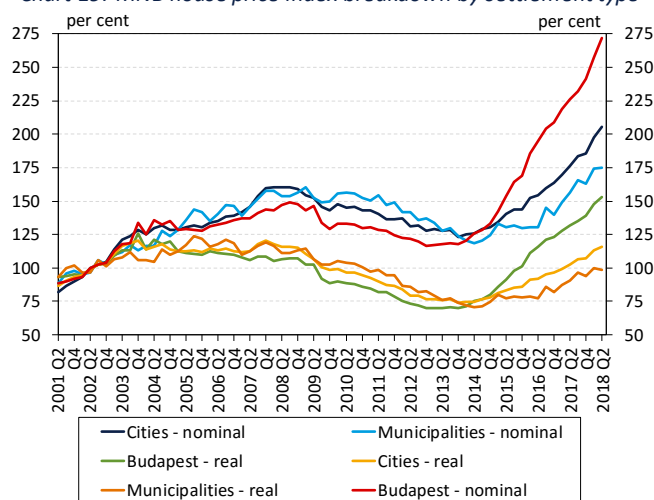
Chart 18: Interest rate premium of new HUF loans to households (over 3-month BUBOR)



Source: MNB

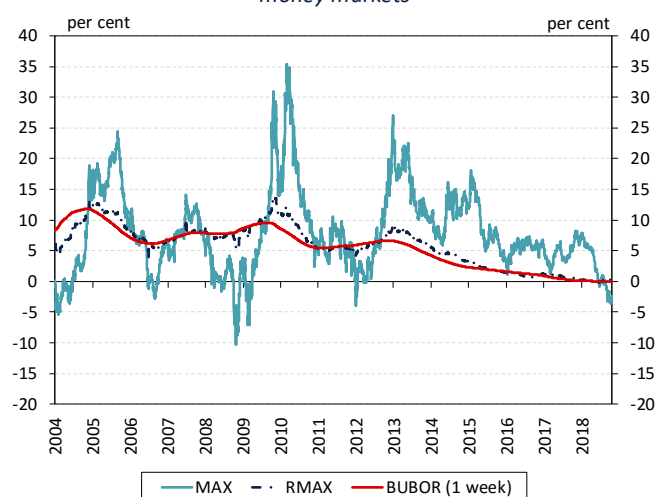
5 Asset prices

Chart 19: MNB house price index breakdown by settlement type



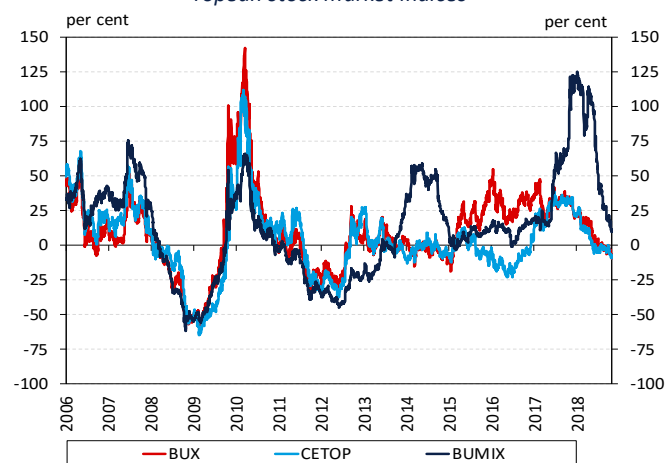
Source: MNB

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



Source: ÁKK, MNB, portfolio.hu

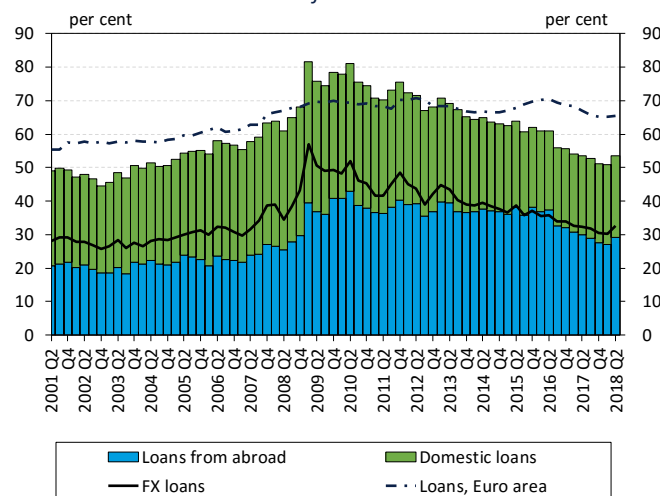
Chart 21: Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: BSE, portfolio.hu

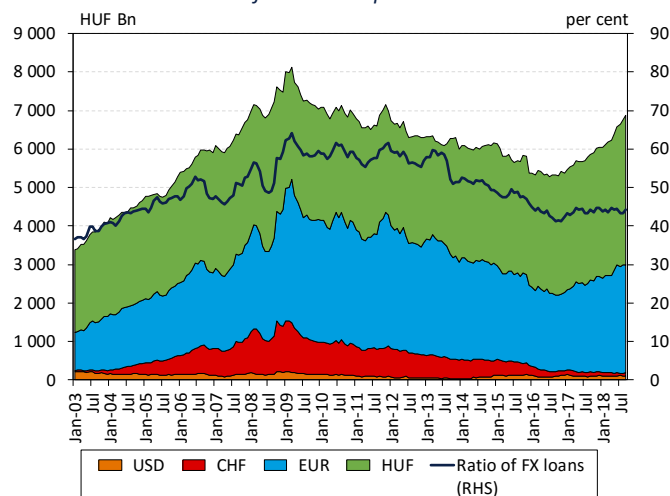
6 Risks of the financial intermediary system

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



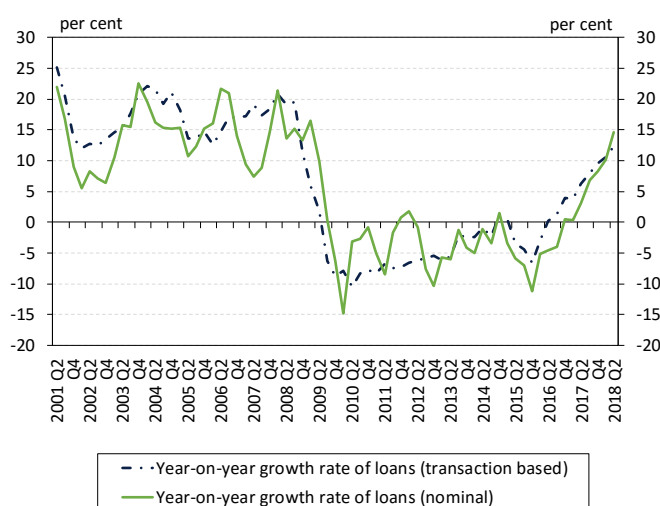
Source: MNB, ECB, Eurostat

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



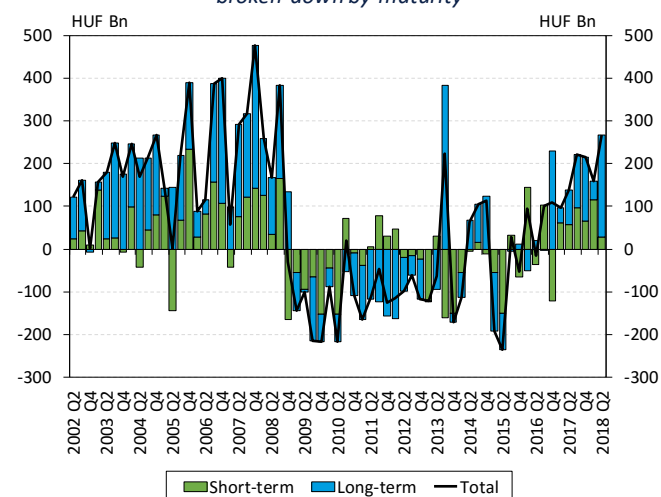
Source: MNB

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



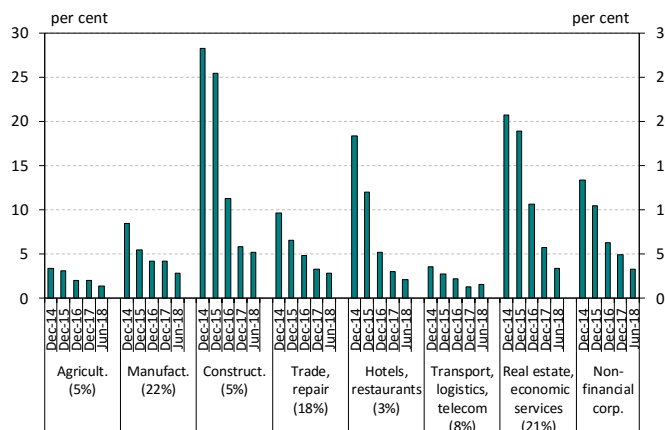
Source: MNB

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



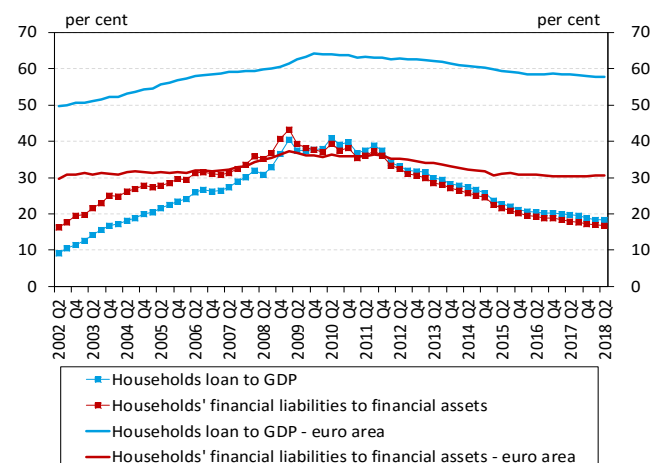
Source: MNB

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



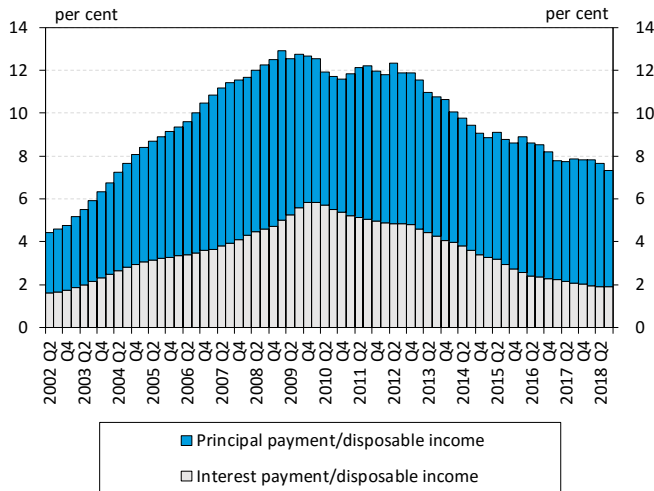
Source: MNB

Chart 27: Indebtedness of households in international comparison



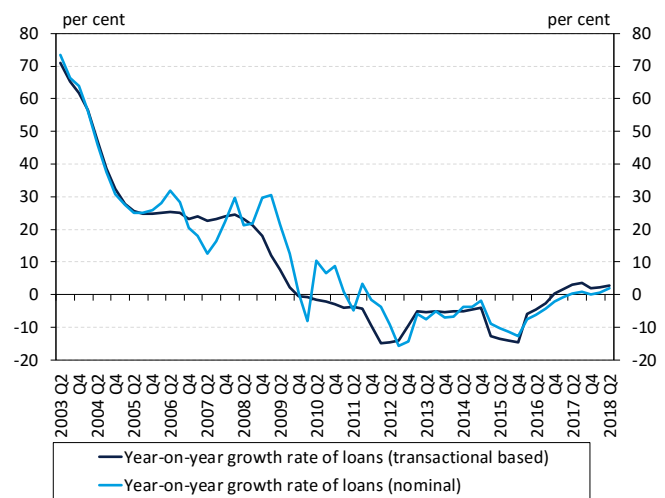
Source: MNB, ECB

Chart 28: Debt service burden of the household sector



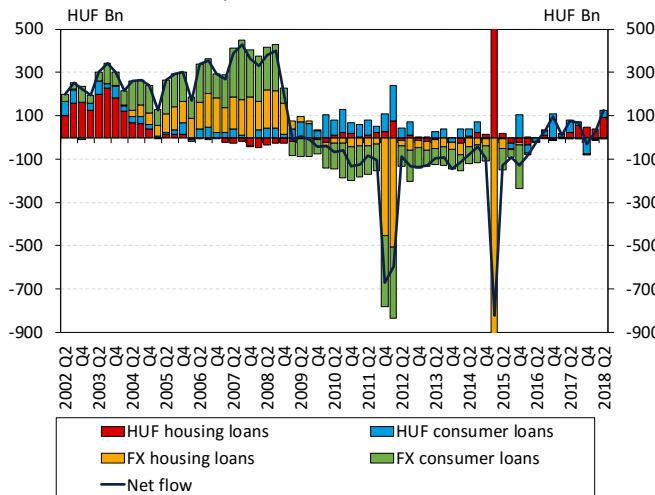
Source: MNB

Chart 29: Debt service burden of the household sector



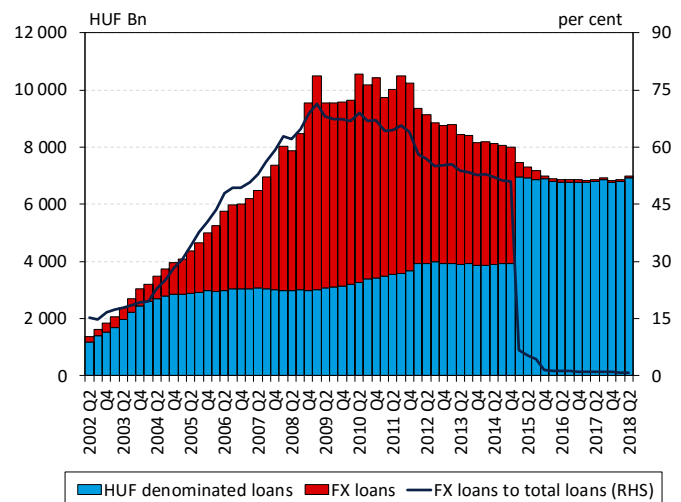
Source: MNB

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



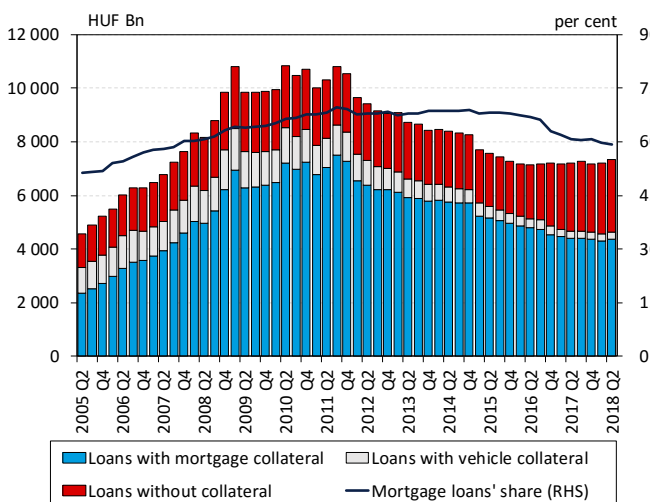
Source: MNB

Chart 31: The denomination structure of household loans



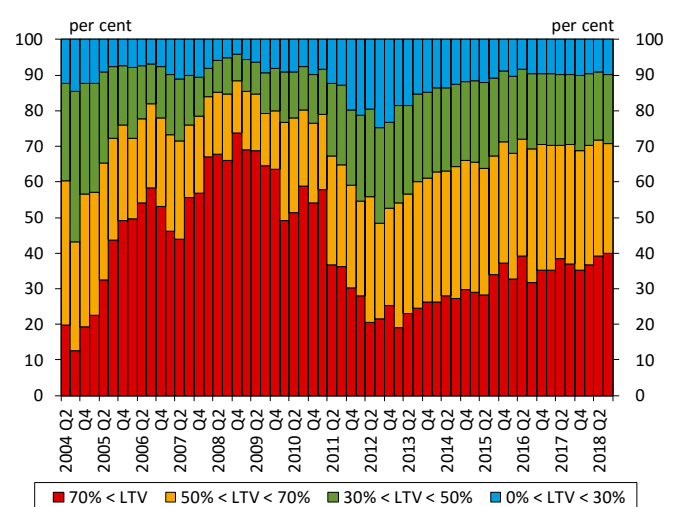
Source: MNB

Chart 32: Household loans distribution by collateralisation



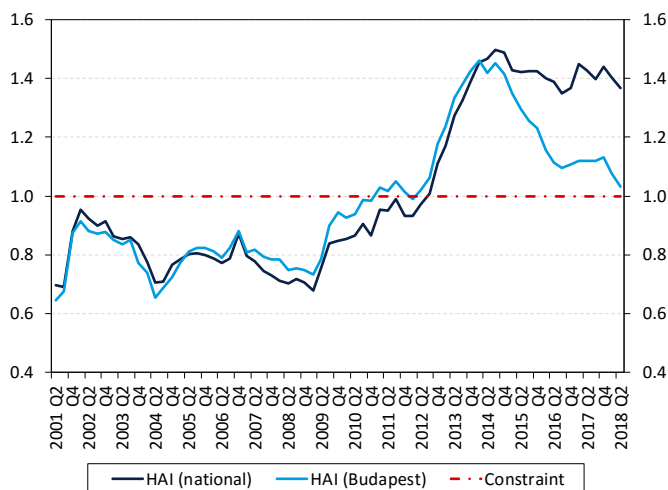
Source: MNB

Chart 33: Distribution of new housing loans by LTV



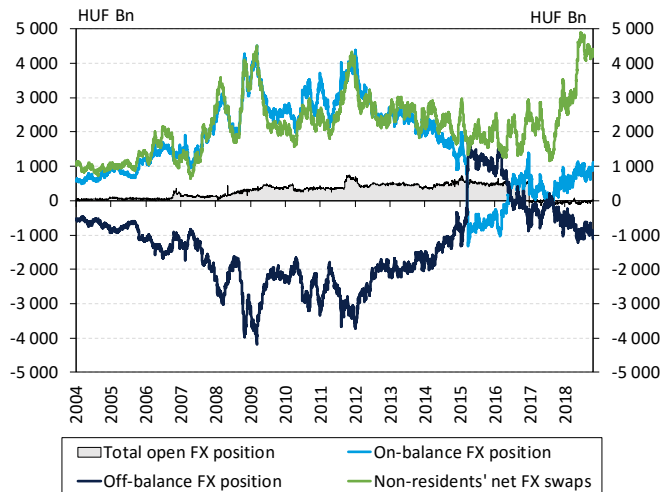
Source: MNB

Chart 34: Housing Affordability Index (HAI)



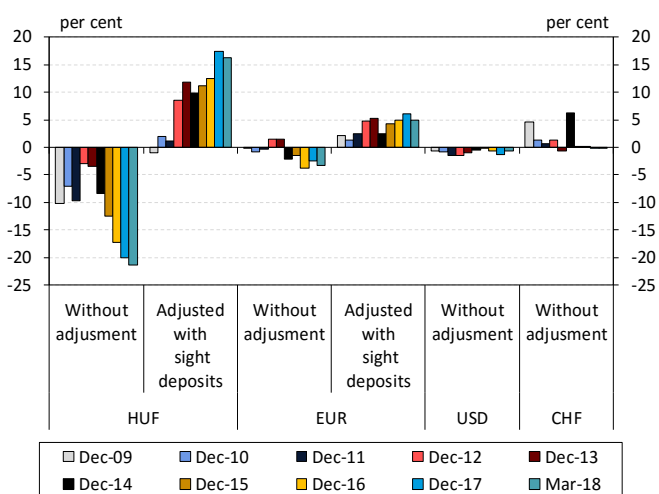
Source: MNB

Chart 36: Open FX position of the domestic banking sector



Source: MNB

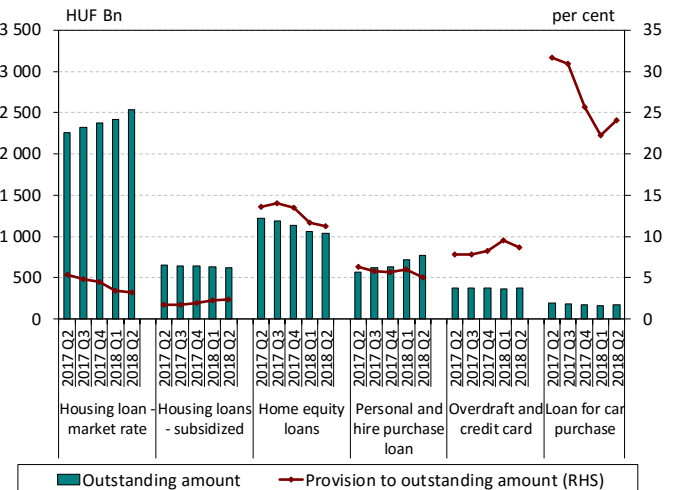
Chart 38: 90-day re-pricing gap of the banking sector



Source: MNB

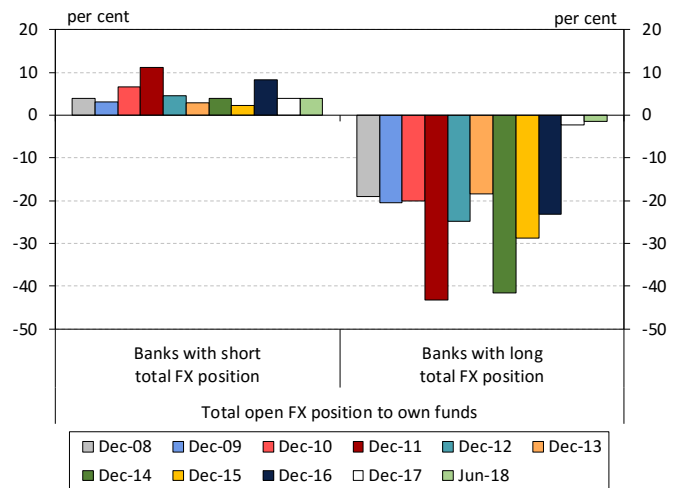
Chart 40: Liquidity index (exponentially weighted moving average)

Chart 35: Provisioning on household loans of financial institutions



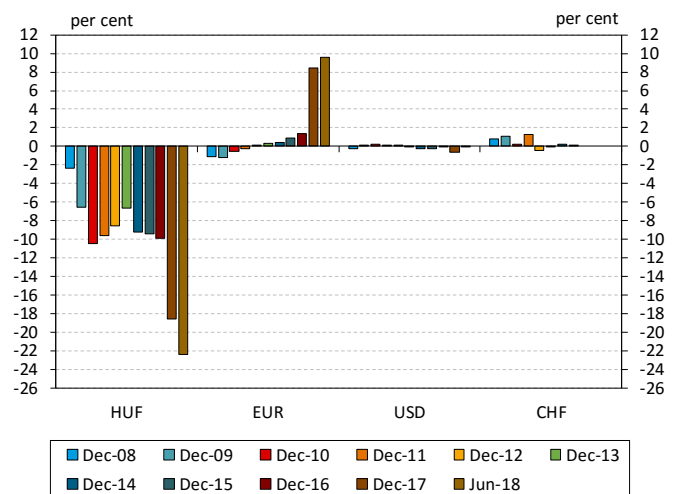
Source: MNB

Chart 37: The exchange rate exposure of the banking sector

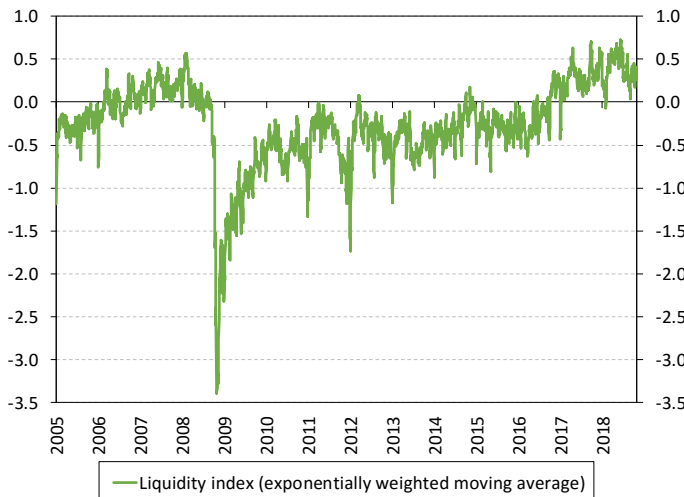


Source: MNB

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

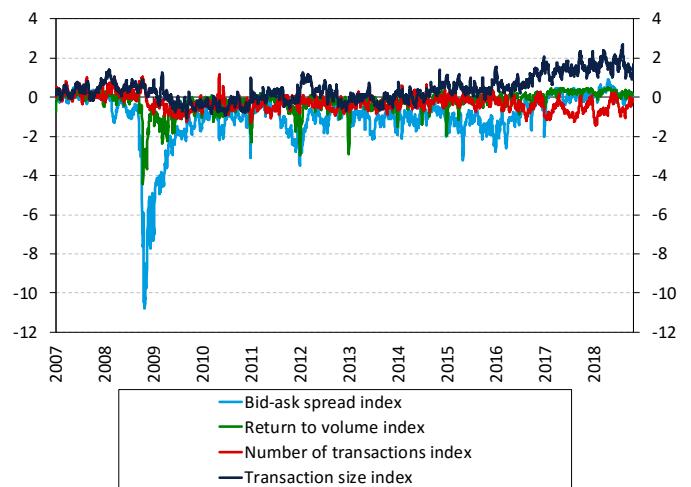


Source: MNB



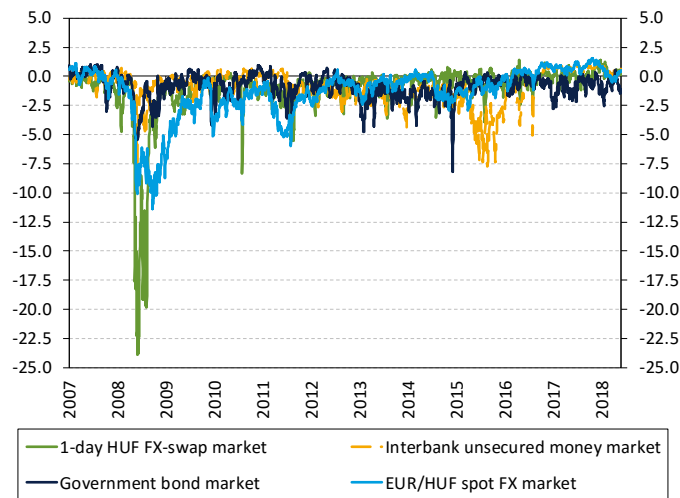
Source: MNB, KELER, Reuters, DrKW

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



Source: MNB, KELER, Reuters, DrKW

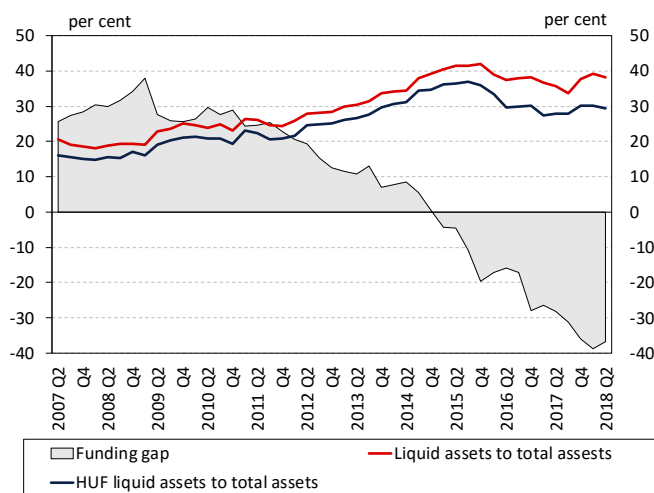
Chart 42: Bid-ask spread indices of the major domestic financial markets (exponentially weighted moving average)



Source: MNB

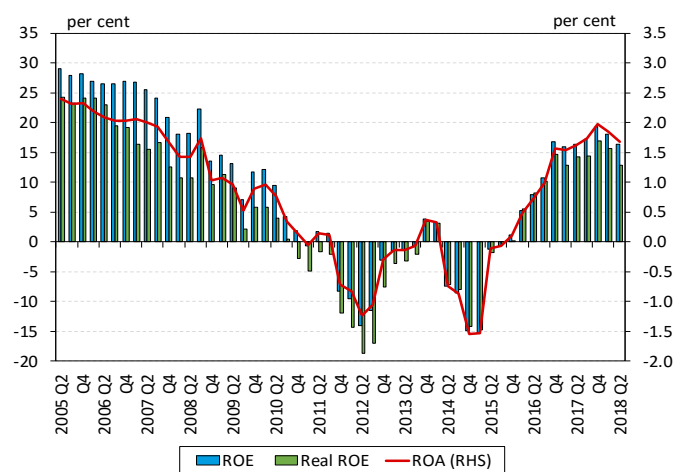
Chart 43: Credit to deposit ratio of the banking sector

Chart 44: Liquidity ratios of the banking sector



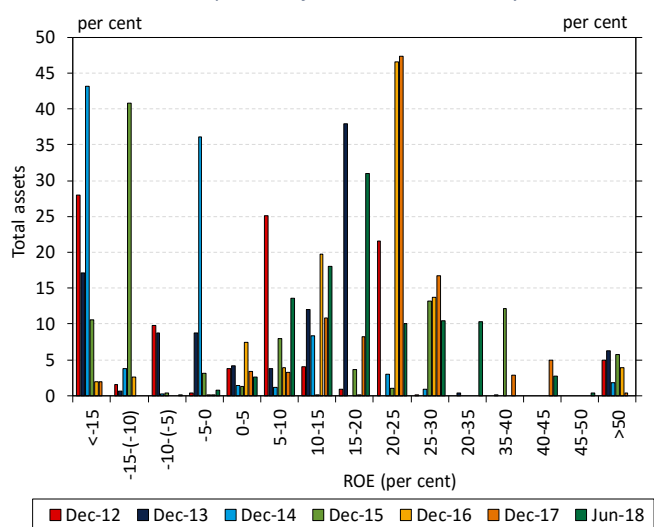
Source: MNB

Chart 45: ROA, ROE and real ROE of the credit institution sector



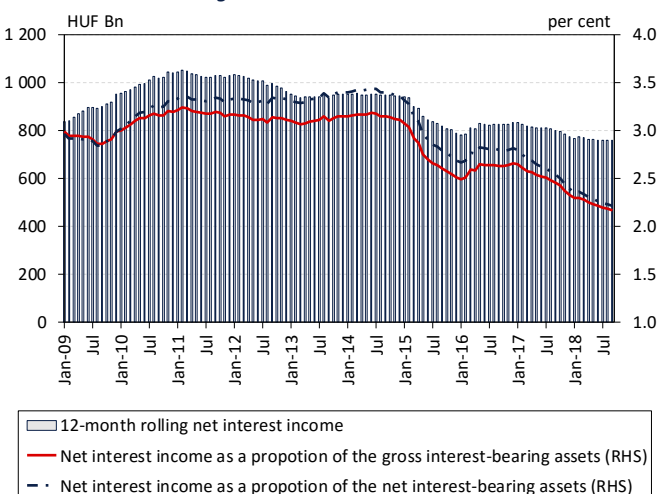
Source: MNB

Chart 46: Dispersion of banks' total assets by ROE



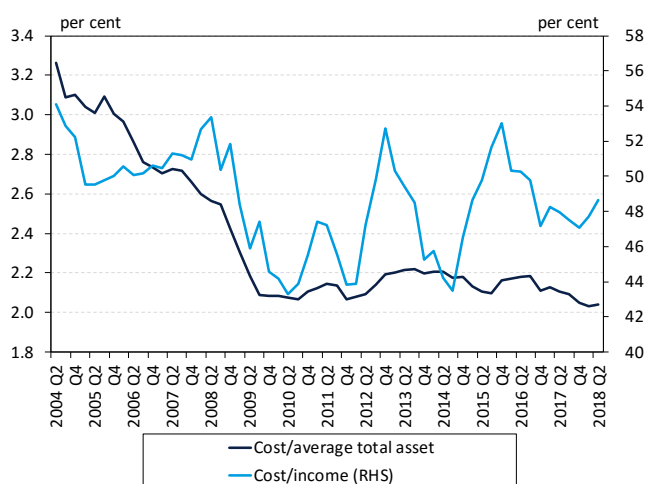
Source: MNB

Chart 47: Net interest income as a proportion of the gross and net interest bearing assets in the credit institution sector



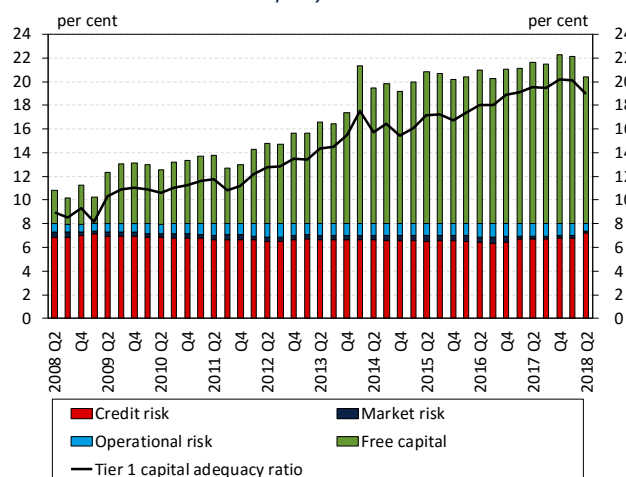
Source: MNB

Chart 48: Operating efficiency indicators of the banking sector



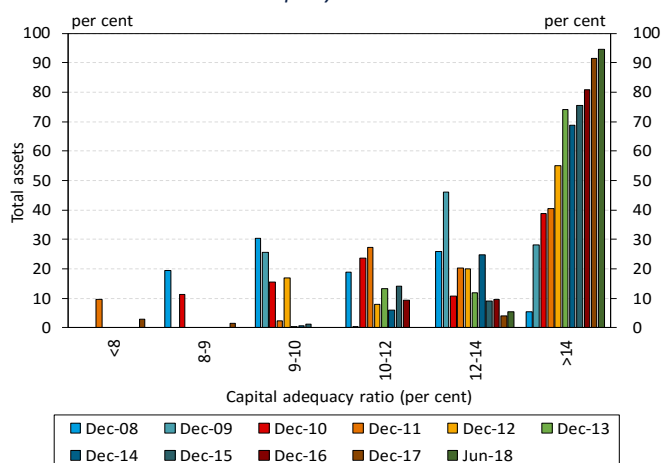
Source: MNB

Chart 49: Banks' capital adequacy ratio (CAR) and Tier 1 capital adequacy ratio



Source: MNB

Chart 50: Dispersion of banking sector's total assets by capital adequacy ratio



Source: MNB

7 Institutional investors

Chart 51: Underline data of insurance tax

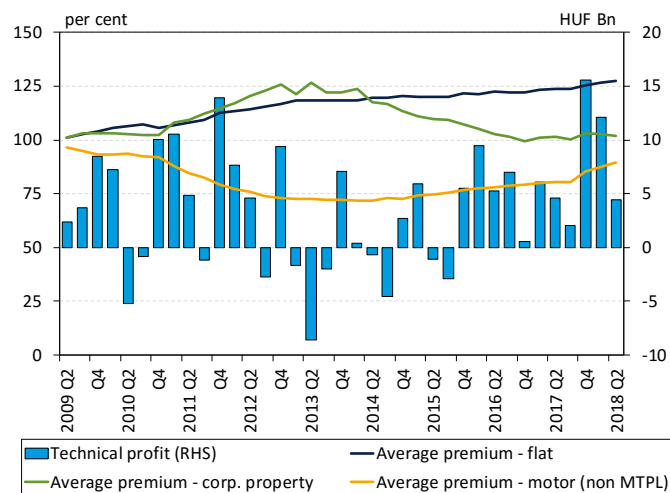


Chart 52: Development of the outstanding amount of non-life insurance

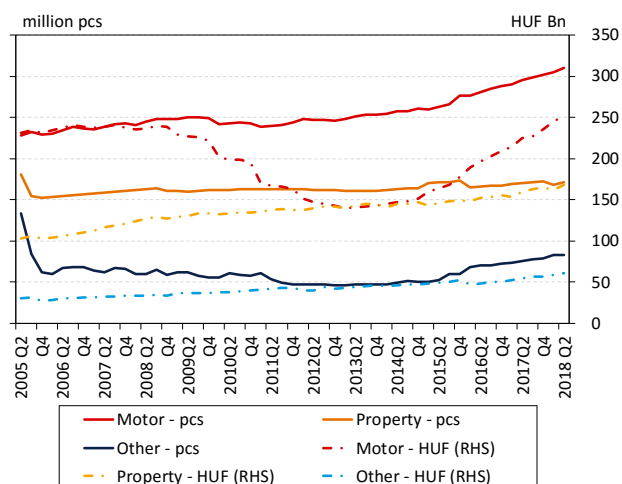


Chart 53: Development of the outstanding amount of life insurance

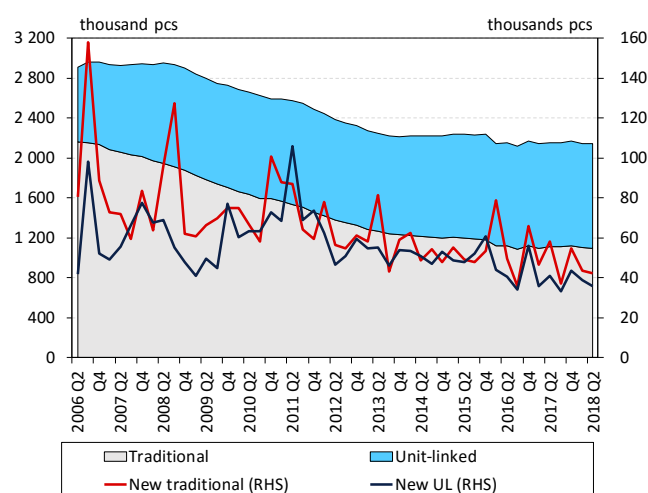


Chart 54: Development of the outstanding amount of life insurance benefits

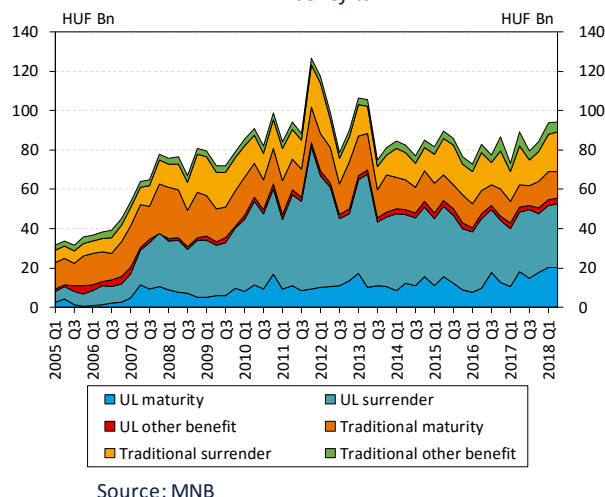


Chart 55: Costs in the insurance sector

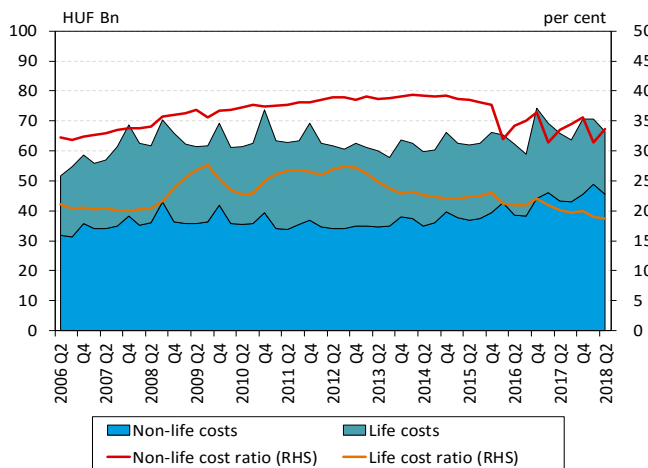


Chart 56: Development of mtpl insurance contracts

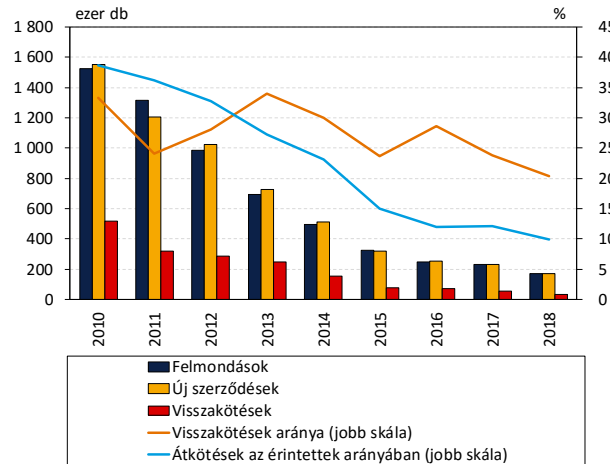
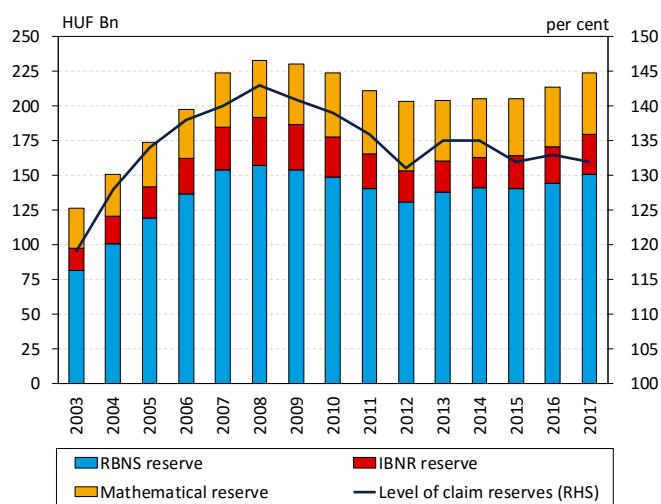
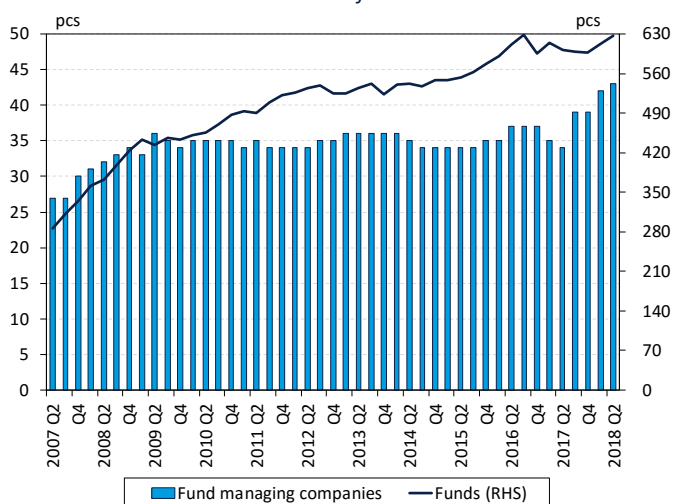


Chart 57: Development of gross mtpl reserves



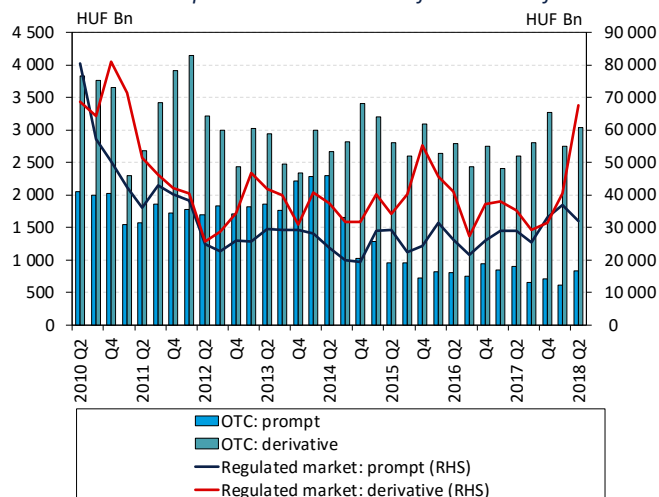
Source: MNB

Chart 58: Number of investment fund managing companies and investment funds



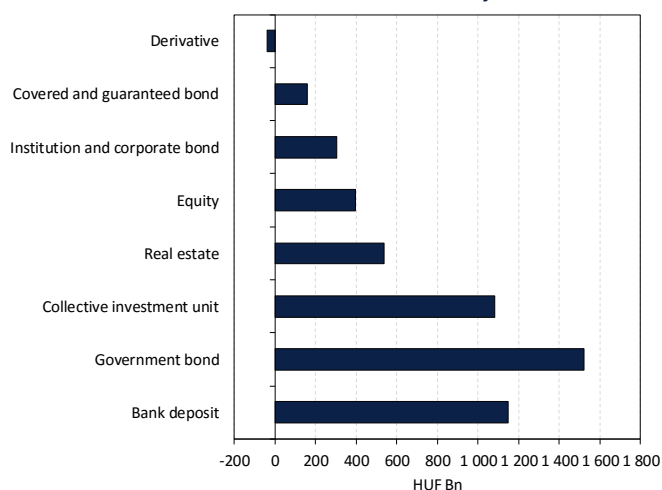
Source: MNB

Chart 59: Capital market turnover of investment firms



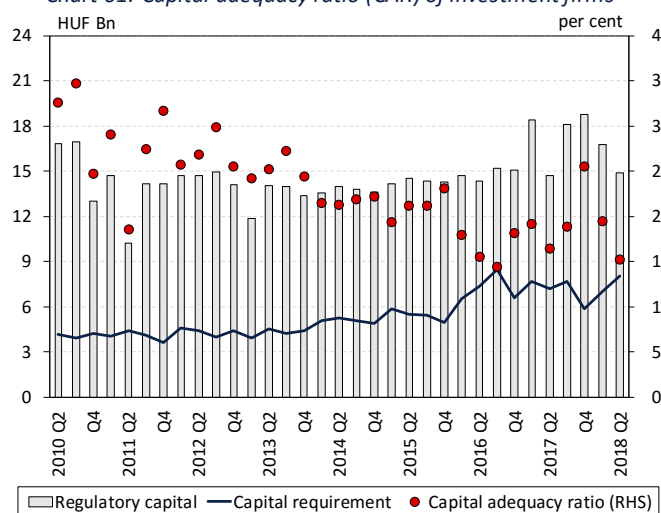
Source: MNB

Chart 60: Asset allocation in mutual funds



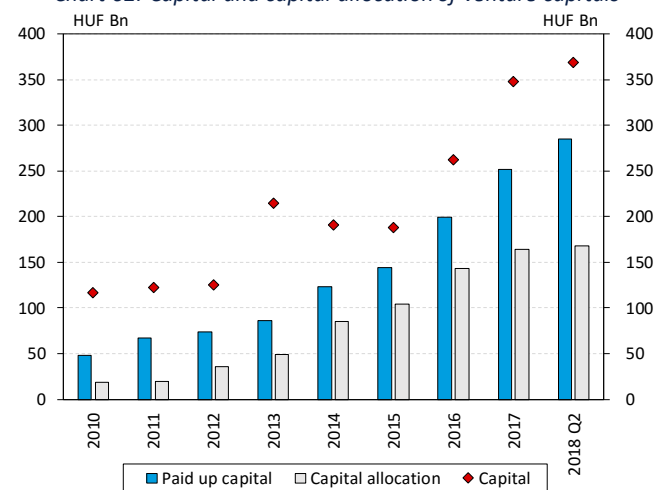
Source: MNB

Chart 61: Capital adequacy ratio (CAR) of investment firms



Source: MNB

Chart 62: 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 31st of December) if it's not 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 m²) dwelling from loan. Parameters of loan product are except for the interest rate 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. The MNB does not take responsibility for the accuracy of the data. 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:

Funding gap is the difference between the exchange rate adjusted customer credit and deposit, divided by the exchange rate adjusted customer credit.

Chart 45:

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 46:

Pre-tax profit.

Chart 47:

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 48:

Cost: previous 12 months.

Income: previous 12 months.

Average total asset: mean of previous 12 months.

Chart 49:

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 59:

Sum turnover of investment firms and credit institution.

Chart 60:

29-Jun-2018

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.

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