



FINANCIAL STABILITY REPORT



NOVEMBER
2017

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

Ferenc Deák



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

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

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

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

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

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 24th October and 21st November 2017, and those of the Monetary Council following its meeting on 7th November 2017.

This Report is based on information in the period to 16th November 2017. Since data frequency is divergent through the analyses, the analysis horizons may also alter.

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EXECUTIVE SUMMARY

The overall shock-absorbing capacity of the Hungarian banking sector can be considered strong, both in terms of liquidity and capital adequacy, furthermore, favourable profitability helps to keep it sustainable. The domestic economic environment of the banking sector has been characterised by broad-based expansion, and growth continued in both lending and the real estate market. In this report, special attention is devoted to the extent of households' financial vulnerability, and we also discuss the vulnerability-mitigating characteristics of the certified consumer-friendly housing loans. The gap between spreads on fixed and variable-rate loans is considered significant in an international comparison. Risks arising from variable rate mortgages might be mitigated with incentives for interest rate fixation. Banks' profitability can be treated satisfactory over the long term, while it can mainly be ensured by boosting lending activity and increasing cost efficiency for the future. As a regulator, the MNB is committed to supporting digital innovation, which contributes to increasing cost efficiency and competitiveness in the banking sector.

Since the May Financial Stability Report, the international macro environment has been characterised by continued economic growth, both in developed and emerging countries. Previously identified risks related to the global economy eased, but have not disappeared completely. Banks in some European countries still face legacy issues from the crisis, which resulted in sluggish lending activity. The low global interest rate environment is leading to price increases for real assets (including real estate) and, in conjunction with a further rise in indebtedness, this may end up in intensifying risks in vulnerable countries. Concerning Hungary, however, it can be established that the domestic banking sector's resilience to external shocks remained strong.

The domestic economic environment of the banking sector has been characterised by broad-based expansion in 2017. Growth continued in both corporate and household lending, and in addition to the SME segment, overall corporate lending also reached the 5-10 per cent growth band supporting sustainable economic growth. Thus, following the phase-out of the Funding for Growth Scheme in early 2017, corporate lending continued to increase, and SME financing was ensured by market-based lending. Looking ahead, rising demand and continuously easing credit standards can be expected, and hence we anticipate similar growth dynamics in corporate lending.

New disbursement of household loans continued to rise in 2017 as well, which was accompanied by a slight easing of credit conditions, predominantly for loans for housing purposes. Developments in the domestic housing market continue to be determined by robust demand, which may be mitigated by a rising supply of new homes in the near future. Examining the changes in real estate prices from an equilibrium perspective, it can be stated that – at the national level – average housing prices remain well below the level justified by current economic fundamentals, while housing prices in the capital do not deviate markedly from the equilibrium, according to our estimations.

In this report, special attention is devoted to the extent of households' financial vulnerability, and at the same time households' financial literacy is also assessed. In relation to this subject, we examine borrowers' decisions regarding their choice between fixed-rate and variable-rate products, and also discuss the vulnerability-mitigating characteristics of the certified consumer-friendly housing loans in particular. The previously observed gap between spreads on fixed and variable-rate loans persists, which can be considered significant in an international comparison. Looking ahead, certified consumer-friendly housing loans are intended to address this issue through new lending, while in relation to risks arising in the existing stock of loans, incentives for refinancing with interest rate fixation might be taken into consideration.

The credit institutions sector was characterised by extremely high profitability in 2017 H1 again, although this is still attributable to unsustainable, one-off items. In assessing banks' profitability, the current extraordinary interest rate environment must be taken into account: compared to risk-free returns or the inflation rate, the current profitability can be seen as satisfactory and its level is similar to what was seen in the months immediately preceding the crisis. Based on the long-term evaluation of profitability, for the sector as a whole it can be stated that since the crisis banks have mainly attempted to compensate for the decline in net interest income by reducing operating expenses. With regard to the largest banks, however, it can be seen on the one hand that there was relatively less adjustment in

these expenses, and on the other hand that the level of income actually increased in proportion to their assets, compared to the pre-crisis levels.

Over the medium and long term, the profitability of the banking sector can mainly be ensured by boosting lending activity, expanding the range of services and increasing cost efficiency; the latter can be achieved by intensifying the utilisation of digital technologies. As a regulator, the MNB is committed to supporting digital innovation: a regulatory framework which is designed for the characteristics of the domestic market can contribute to the spread of FinTech innovations, and thus help increase competitiveness and cost efficiency in the banking sector.

The portfolio cleaning of non-performing loans from banks' balance sheets continued in 2017 and so far this has not resulted in any significant losses for the Hungarian banking sector. Thanks to this portfolio cleaning, the shock resilience of the sector has improved significantly. The initial capital adequacy of institutions is solid, and loan loss provisions would not increase significantly even in a stress scenario. Thus, most of the banks would remain profitable even in the scenario assumed in the stress test. The cleaning of balance sheets will help to improve banks' lending activity over the long term, while the social implications of debt settlement should be followed with increased attention.

1 MACROECONOMIC RISKS: VARIOUS CHALLENGES IN THE CHANGING INTEREST RATE ENVIRONMENT

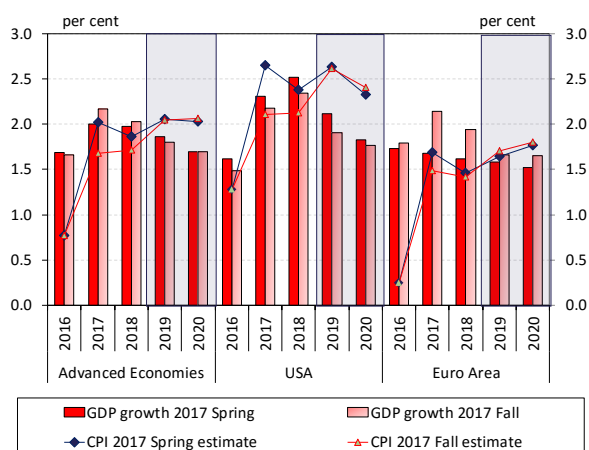
Economic expansion continued in both the developed and developing countries in 2017. However, the earlier global rise in inflation came to a halt, and inflation declined again in some regions. As a result, the anticipated monetary tightening by the globally important central banks might be delayed. In the present low interest rate environment, imbalances may evolve in the capital markets, and this may spread to new asset classes which are becoming increasingly integrated, such as cryptocurrencies. In recent years, significant price increases were typical in the European real estate markets, in both the markets of commercial and residential properties. In the case of the former, this is reflected in falling yields and declining vacancy rates, while in the case of the housing market this development may already lead to serious systemic risks in some countries, coupled with the high level of indebtedness.

1.1. Various European risks still need to be resolved in the improving macroeconomic environment

A continued improvement in economic prospects has been observed at the global level. According to the latest forecasts, economic growth in developed countries may continue over the short run, although recent estimates were lower for the USA and more favourable for the euro area in comparison with previous ones (Chart 1). Nevertheless, significant heterogeneity is observed behind the strong global economic growth. Inflation forecasts for the United States declined, primarily due to the more constrained-than-expected fiscal expansion compared to what was expected. In parallel with the improving economic activity in the euro area and the closing of the output gap, inflation may only gradually increase to the ECB's 2 per cent inflation target. These two factors, however, necessitated the recalibration of monetary conditions in the euro area. Accordingly, starting from January 2018, the ECB will reduce its securities purchases in its asset purchase programme to EUR 30 billion per month, which is expected to be maintained until September 2018. The monetary policy prospects of the central banks of developed countries continue to diverge, but in order to ensure loose monetary conditions, central banks' attitude to inflation may be more tolerant than in the past.

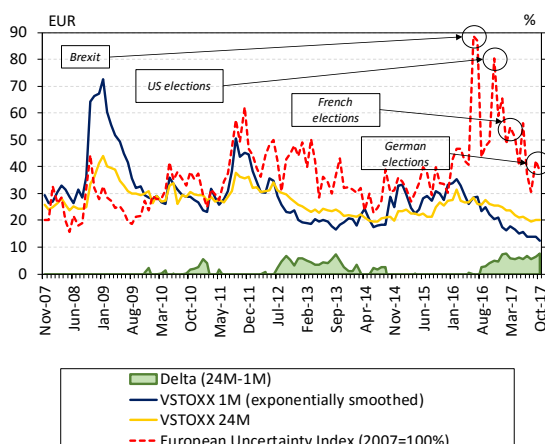
Some political uncertainty factors declined considerably in Europe, although other future risks remain. During the past two years, the European political uncertainty index rose to historical highs, as a result of, *inter alia*, the British referendum as well as elections in Europe and the United States (Chart 2). In the past period, however, political noise declined significantly after the elections took place in a number of Western European countries (the Netherlands, France, Germany). Nevertheless, investors remain cautious due to doubts about the future of the European Union and the ongoing geopolitical risks. In parallel with this, a decline

Chart 1: Macroeconomic environment in developed economies



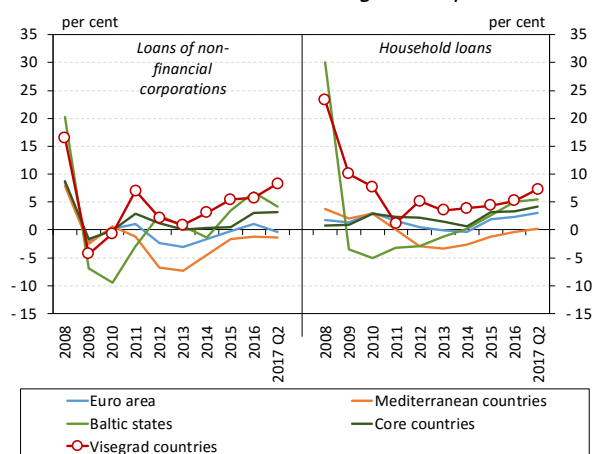
Source: IMF WEO

Chart 2: Changes in the European stock market volatility index and the European political uncertainty index



Source: Datastream, PolicyUncertainty.com

Chart 3: Annual growth rate of corporate and household lending in Europe

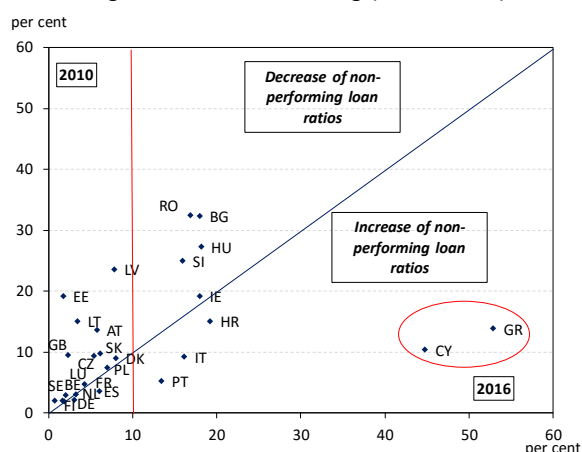


Note: Transaction-based annual growth rates.
Source: ECB

was observed in the long and short-term risks priced in by the European derivatives and options markets. In 2016, the political uncertainty index departed from the market volatility index, but the divergent developments already moderated in the most recent period under review. No significant turbulence developed on the stock markets, and the gap between the volatility indicators of long-term (2-year) and short-term (1-month) option prices has diminished.

Apart from the Mediterranean countries, a pick-up in lending has been observed in the EU. In terms of lending, significant heterogeneity continues to be observed across European countries and country groups (Chart 3). As a result of the loose monetary conditions and the upturn in business activity, European lending activity started to pick up. Nevertheless, a complete turnaround in lending has not occurred yet, due to subdued corporate lending in some regions. According to the ECB’s lending survey, from the demand side, growth has been registered in several segments, while easing in credit conditions is also typical in parallel with that. The moderate decline in supply constraints is mainly attributable to the improving European economic prospects. Based on the growth rates of loans outstanding, both the Visegrád and Baltic countries are among the leaders in Europe, as in these countries sharp growth is experienced along relatively low credit penetration.

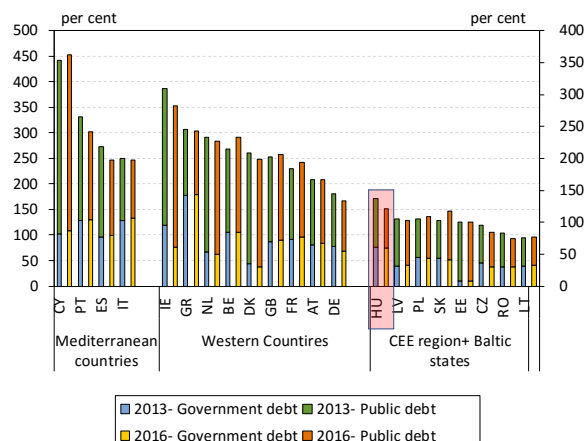
Chart 4: Problem loans in European countries compared to gross loans outstanding (2010–2016)



Source: SNL

The structural and profitability problems of the European banking sector have not yet been solved completely. In view of the gradually improving economic fundamentals, the stronger capital position, the resolution of banks in an orderly manner and the gradual improvement in balance sheets, the market assessment of European banks improved. As a result of the more favourable market assessment, the performance of bank shares is positive in the European stock exchanges. At the same time, actors in the European banking sector continue to be burdened by inherited structural difficulties and cyclical problems. The European economic upturn is accelerating, but the banking sector is not supporting this development in every region. In many cases, one-off items are behind the apparent improvement in results, while long-term earning power remains under pressure. Both profitability and the solution of structural problems are significantly hindered by the fact that the ratio of problematic loans is high in several EU Member States (Chart 4).

Chart 5: Changes in the government debt-to-GDP ratio and private sector debt in Europe (2013–2016)



Source: Eurostat

The rise in outstanding debts continues to pose a risk in the event of possible market repricing. The sustainability of the outstanding debt of the state and the private sector continues to be questionable in a number of European countries. The slow economic upturn and geopolitical uncertainty has significantly hindered the implementation of debt management reforms. A possible rise in long-term yield expectations would increase the yields of government bonds, which would further deepen debt repayment problems. The problem is well reflected by the fact that in the past years the high gross debt-to-GDP ratio of both the public and private sectors continued to grow in several European economies (Chart 5).

Chart 6: Correlation indicators between the main investment instruments (as of 2016)

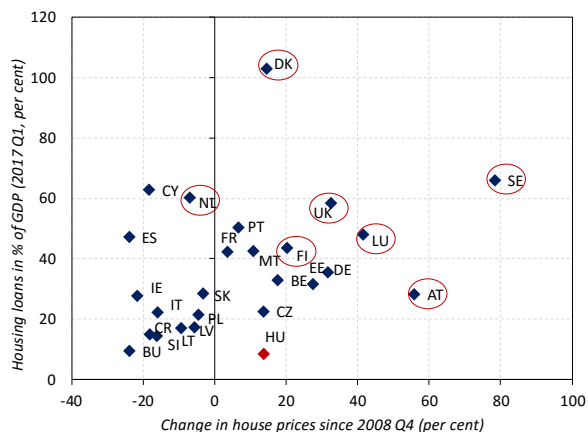
	Bitcoin/USD exchange rate	S&P 500-Benchmark index	Crude oil price	Gold price	S&P 600-Real Estate	10Y US government bond yield	Emerging market currencies
Bitcoin/USD exchange rate		-0.03	0.01	0.10	-0.02	0.05	-0.05
S&P 500-Benchmark index	-0.03		0.40	-0.27	0.66	-0.39	0.37
Crude oil price	0.01	0.40		-0.09	0.20	-0.35	0.35
Gold price	0.10	-0.27	-0.09		-0.08	0.38	0.17
S&P 600-Real Estate	-0.02	0.66	0.20	-0.08		-0.04	0.29
10Y USA government bond yield	0.05	-0.39	-0.35	0.38	-0.04		-0.08
Emerging market currencies	-0.05	0.37	0.35	0.17	0.29	-0.08	

Source: Datastream

In the low interest rate environment, imbalances may develop in various asset prices, even in new but increasingly integrated markets as well. The price volatility of the bitcoin was many times higher than that of ‘traditional’ assets in 2017. The yields of the bitcoin and similar cryptocurrencies often significantly exceed those of the assets offered in the stock and bond markets, and thus may represent an attractive investment alternative for many investors. However, the market of these assets is often not supervised by state authorities, and thus the probability of the evolution of extreme price movements or bubbles, which may even spread over to other asset markets, may be higher. The correlation coefficient of the yields calculated for the bitcoin since 2016 and of the yields of other ‘traditional’ investment assets may be considered relatively low; therefore, at present, in the case of extreme exchange rate fluctuations the possible contagion effect of the bitcoin may be limited (Chart 6). However, in the case of increasing integration of cryptocurrencies, the channels of contagion between markets may become more significant.

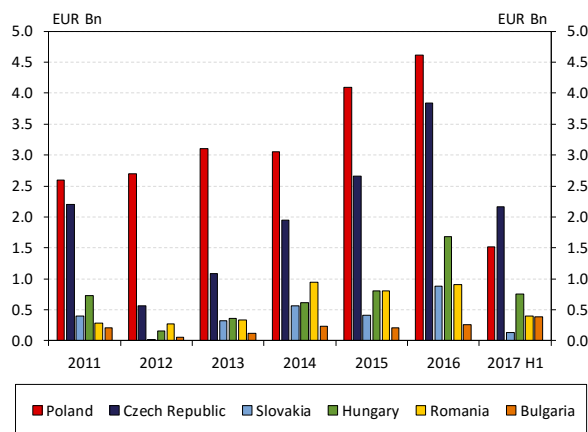
The increase in housing prices is coupled with a high level of household indebtedness in most European countries. In the years following the crisis, continuous, significant housing price increases were observed in a number of EU countries. In parallel with this, households’ outstanding housing loans as a proportion of GDP rose to high levels in many member countries, especially in Denmark, where the ratio already exceeds 100 per cent. In view of the increasing indebtedness and debt servicing of households as well as rising housing prices, which occasionally depart from the fundamentals, the European Systemic Risk Board (ESRB)

Chart 7: Changes in house prices and the ratio of housing loans to GDP in a European comparison



Note: Circled in red are the countries warned by the ESRB.
Sources: Eurostat, BIS, MNB

Chart 8: Investment turnover in the commercial real estate markets of the regional countries



Source: MNB compilation, based on the data of CBRE, Colliers, Cushman & Wakefield and JLL

issued warnings in the case of eight countries.¹ According to the ESRB’s announcement, developments in the housing market may be sources of evolving systemic risks in the medium term, but Member States have already taken steps in order to increase the banking sectors’ resilience to shocks. House prices increased significantly in Hungary in recent years. It must be added, however, that this can rather be considered as adjustment following the crisis, while households’ indebtedness is still among the lowest within the European Union (Chart 7).

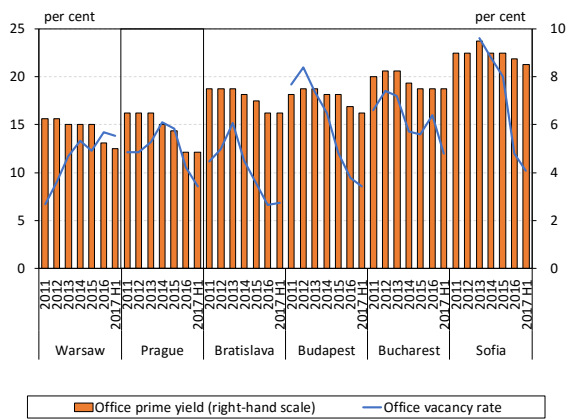
1.2. Increasing investor demand in the European commercial property market

The commercial real estate market of Central and Eastern European countries is a popular target among international investors. Since 2012, major increases in investment volume have been observed in the commercial real estate markets of the region’s capital cities. Compared to the previous seven or eight years, 2016 saw record turnover in almost all of the countries, while the three most popular investment targets are Poland, the Czech Republic and Hungary (Chart 8). Around 40 per cent of the capital flows into the commercial real estate market of the Central and Eastern European countries arrives from Western Europe and from the United States. Due to the low interest rate and yield environment, investors are rearranging their portfolios and striving to attain higher yields in the real estate markets of the region (search for yield), taking advantage of the favourable developments in economic activity in the CEE countries.

In parallel with the increase in investment demand, yields declined gradually in the past three to four years. In terms of prime office market yields, the yield level is currently the lowest in Prague and Warsaw, where investors have to be content with initial yields of 4.85 per cent and 5 per cent, respectively, in the case of purchasing the best quality office buildings at the best locations (Chart 9). At the same time, the best projects in Bucharest and Sofia are being traded at 7.5 per cent and 8.5 per cent yields, respectively.

¹ The ESRB issued warnings on medium-term residential real estate vulnerabilities for eight countries: <https://www.esrb.europa.eu/news/pr/date/2016/html/pr161128.en.html>

Chart 9: Vacancy and prime yields in the office markets of capitals in the region



There was no capital under review where the office market vacancy rate exceeded 14 per cent at the end of June 2017. The lowest indicator (6.9 per cent) was measured in Bratislava, and the vacancy rate is below 10 per cent in the office markets of Prague and Budapest as well. Since end-2015, an upward trend in the ratio of vacant office space has only been seen in Warsaw, which is explained by the high volume of completions in 2016. As a result of planned completions, vacancy rates are expected to rise again from their lows in the coming quarters and years.

Source: MNB compilation, based on the data of CBRE, Colliers, Cushman & Wakefield and JLL

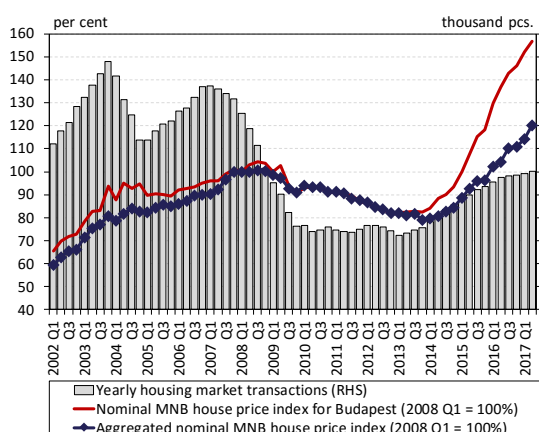
2 DEVELOPMENTS IN LENDING AND REAL ESTATES – EXPANDING LENDING, SHORTAGE OF SUPPLY IN REAL ESTATE MARKETS

The previously observed, regional differences in Hungarian housing market developments were typical in 2017 H1 as well, while housing prices continued to rise on a national average. This is primarily attributable to the continued strong pick-up in demand, which may be mitigated by the expansion in new supply in the close future. Following the average 14 per cent price rise seen in recent years, according to our estimations, average housing prices remain lower than the level justified by macroeconomic fundamentals, while home purchase with borrowing also seems to be affordable, taking into account the average income position of households. Visible signs of this are reflected in the continued expansion in housing loans: an increasing ratio of housing market transactions is related to borrowing. In H1, the volume of new housing loans continued to increase dynamically, as in the case of consumer products as well. Thus, overall, transaction-based expansion in the household loan portfolio as a whole was also observed in 2017 H1. The growth in credit demand perceivable by banks took place without any major change in loan supply conditions.

Corporate lending as a whole also continued to expand in the first three quarters. Accordingly, based on transactions, loans outstanding increased by 8.3 per cent in year-on-year terms. Including the transactions of the self-employed sector, the annual growth in SME lending amounted to 13 per cent, but even excluding the latter the annual growth rate was 9.5 per cent. Following the termination of the Funding for Growth Scheme at the end of Q1, the dynamics of SME lending and also total corporate lending remained practically unchanged. Market-based lending is still supported by the central bank's Market-based Lending Scheme, in the framework of which banks raised their lending commitments related to this year to nearly HUF 230 billion, which corresponds to some 6 per cent of outstanding SME loans.

According to corporate size, banks eased their credit conditions in all segments and in the case of commercial real estate loans as well. In parallel with that, banks' activity is increasing in commercial real estate financing as well, but they still account for a low proportion. Changes in demand for commercial real estate loans must also be monitored, because in the period under review the rental market of commercial real estate was also characterised by a shortage of supply, which may be offset in the Budapest office market by large volumes of new completions starting from the end of the year.

Chart 10: MNB house price index for the whole country and for Budapest, and the annual number of housing market transactions

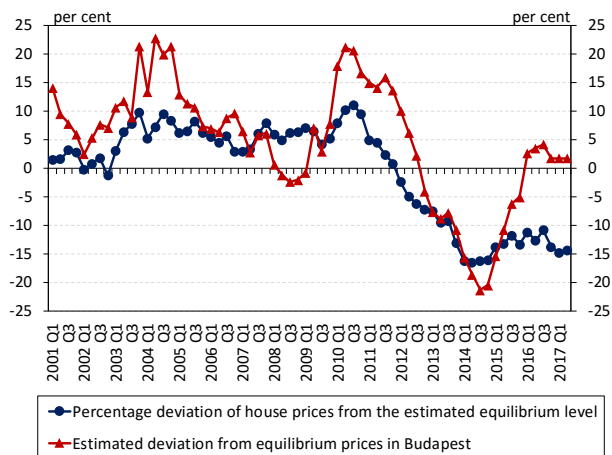


Sources: HCSO, MNB

2.1. Rising house prices do not yet entail an increase in vulnerability

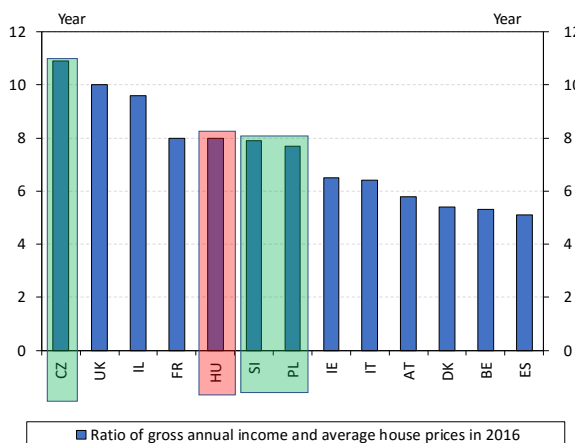
House prices continued to increase, mainly in the Budapest housing market. Since the turnaround in the Hungarian housing market observed from early 2014, housing prices in nominal terms have increased by nearly 44 per cent, corresponding to an average rise of some 14 per cent at an annual level. On a regional basis, however, the Hungarian housing market is heterogeneous in terms of market turnover, changes in prices and the developments in housing starts, with the most striking difference seen in house prices. From end-2013 until 2017 Q2, house price increased by nearly 90 per cent in Budapest, rising by about double the national rate. Various demand factors are contributing to the continuous upswing in the housing market: in addition to the low interest rate environment, households' favourable income and labour market position also facilitates the upturn in the market. As a result of the significant price appreciation, the ex-

Chart 11: Percentage deviation of house prices from the estimated equilibrium level in the country and Budapest



Source: MNB

Chart 12: How many years of gross income is needed for the purchase of an average, 70 sq. metre new dwelling?



Source: European statistical offices, Deloitte

pansion in market turnover already slowed down slightly starting from 2016 and amounted to 5 per cent at the end of 2017 H1. The annual turnover of 150,000 transactions still falls short of the long-term average of 157,000 transactions per year (Chart 10).

Despite the dynamic increase, housing prices remain below the level justified by fundamentals. The MNB assesses the current cyclical position of domestic housing prices with the help of the combined result of several models.² According to our calculations, on a national average, the level of domestic housing prices still does not reach the equilibrium level justified by the macroeconomic fundamentals, i.e. in terms of the national average one cannot yet speak of overheating in terms of the elevated housing price level. Nevertheless, housing prices in Budapest already exceed the level justified by the demand side fundamentals of the housing market, albeit just slightly (Chart 11).

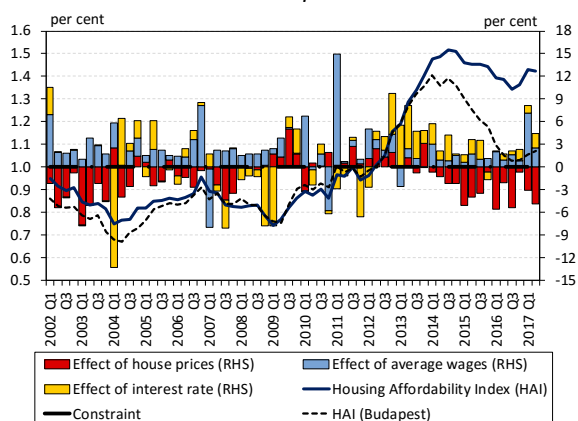
The affordability of newly built dwellings in Hungary does not differ significantly from that of other CEE countries. One common indicator for the affordability of dwellings is to calculate how many years of gross income is needed to purchase a typical newly built dwelling (70 sq. metre). The comparison of affordability of European dwellings is made more difficult by the different personal income taxation, housing lending and quality composition of dwellings. However, in total, the CEE region is in the middle among European countries according to the indicator, with a necessary gross income of around eight years (Chart 12). In the region, in comparison to Hungary, a similar affordability in terms of the share of income can be observed in Slovenia and Poland, but in the Czech Republic the necessary income for homes is much higher: 11 years of gross salary is needed for the purchase of an average 70 square metre new dwelling. Nevertheless, expected growth in income and credit conditions are also factors, which significantly affect the affordability of homes.

Despite the steady rise in house prices, the affordability of buying homes from loans is considered high. The HAI index,³ which condenses the combined effect of several variables, captures the affordability of home purchases financed with a loan. The negative effect of the housing

² For a methodological description, see: [MNB: Housing Market Report, May 2017](#), [MNB: Financial Stability Report, May 2017](#).

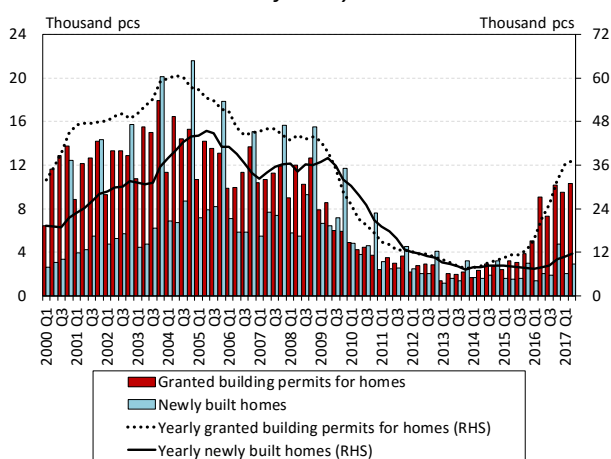
³ The HAI (Housing Affordability Index) shows how many times the income of a household with two average wages covers the income necessary for the purchase of an average (65 m²) dwelling with a loan. The parameters of the loan product, except for the interest rate, are constant until maturity. LTV = 70%, PTI = 30%, maturity = 15 years.

Chart 13: Housing Affordability Index (HAI) and its decomposition



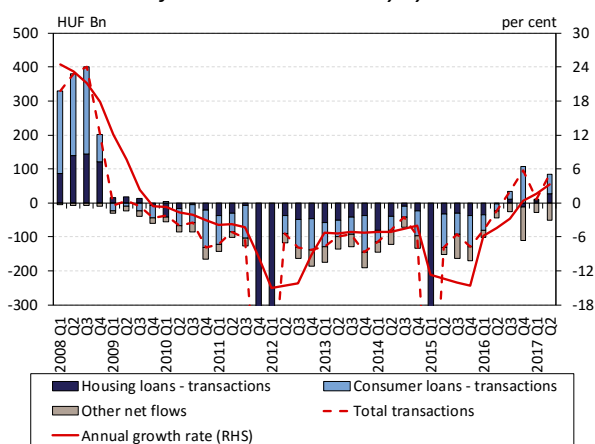
Source: MNB

Chart 14: Number of home building permits issued and the number of newly built homes



Source: HCSO

Chart 15: Quarterly transactions of household loans of the financial intermediary system



Source: MNB

price appreciation seen in recent years was offset by the rise in households' average earnings, and thus the index rose slightly in 2017 due to the improvement in the income position. The indicator reached its highest value at the beginning of the turnaround in the housing market in 2014, as house prices and lending rates were declining until then, while a gradual increase in average earnings was observed (Chart 13). According to the latest index values, the affordability of home purchases from a loan can be considered historically good on a national average. As a result, the strong demand for home purchases and housing loans may continue.

The expected increase in new supply may mitigate the pressure on housing price appreciation. Starting from 2016, the strong growth in housing market demand was followed by an expansion in supply as well, which was reflected in a sharp rise in the number of newly issued home building permits. In 2016, a total 31,600 building permits were issued, representing a 152 per cent increase compared to 2015. This increase continued in 2017: the 19,800 building permits issued in H1 represents a rise of nearly 40 per cent year on year. From 2017, the upswing in the number of building permits was followed by a 46 per cent year-on-year increase in the number of home completions in H1 (Chart 14). The expected further increase in new supply may dampen the rapid rise in housing prices.

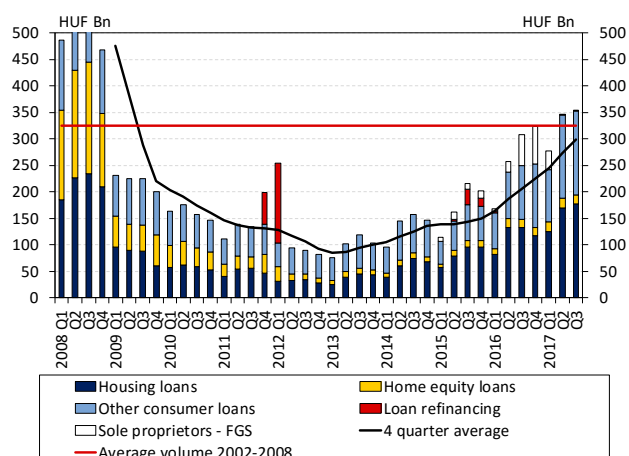
2.2. Household lending on a steadily rising path

Outstanding housing and consumer loans both expanded as a result of transactions. In 2017 H1, the household sector's loan transactions vis-à-vis the financial intermediary system as a whole amounted to a total HUF 96 billion (Chart 15). Although this total value is lower than in the previous six months, a significant difference compared to the previous period is that the volume of loans borrowed by the self-employed sector⁴ stabilised at the level of the historical average with the termination of the Funding for Growth Scheme. In H1, the values of housing loan and consumer loan transactions amounted to HUF 33 billion and HUF 63 billion, respectively. In the period under review, one-off portfolio sales reduced the value of transactions by a total HUF 28 billion; in parallel with

⁴ Private entrepreneurs and agricultural small-scale producers that are part of the household sector in statistical terms.

that, some one-off loan transactions resulted in a total increase of HUF 29 billion. Other changes in outstanding loans reduced the value of the total loans by HUF 78 billion. Thus, as a result of loan transactions, household loans outstanding vis-à-vis the financial intermediary system expanded by 3.3 per cent year-on-year. In Q3, loan transactions amounted to HUF 70 billion, HUF 59 billion of which were housing loans. The former corresponds to a year-on-year growth of 3.8 per cent.

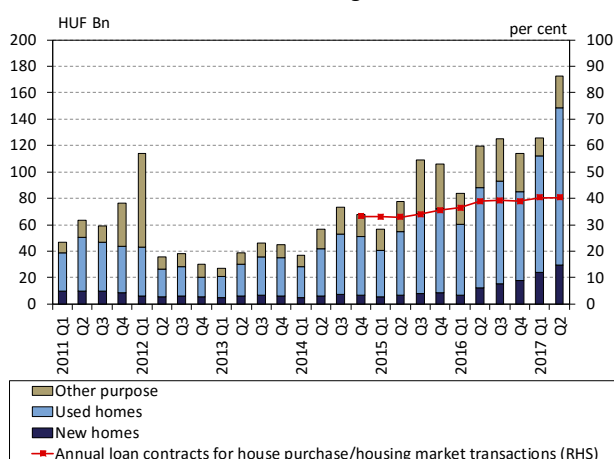
Chart 16: New household loans in the credit institution sector



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

The volume of new loan contracts continued to grow dynamically in the credit institution sector. The volume of new loans amounted to HUF 585 billion in H1 and amounted to another HUF 353 billion in Q3, corresponding to an annual average expansion of 43 per cent (Chart 16). Quarterly average lending reached the average value of the pre-crisis years. The annual average increase in housing loans and home equity loans amounted to 29 and 28 per cent respectively, although the issued volume and weight of the latter within total lending is still low. The extension of unsecured consumer loans increased by an annual average of 45 per cent. Within that, the extension of personal loans, vehicle loans and commercial credit and other loans was up by 46 per cent, 53 per cent and 38 per cent, respectively. The value of FGS loans granted to the self-employed sector amounted to a total HUF 36 billion until the end of the scheme in March.

Chart 17: New housing loans issued

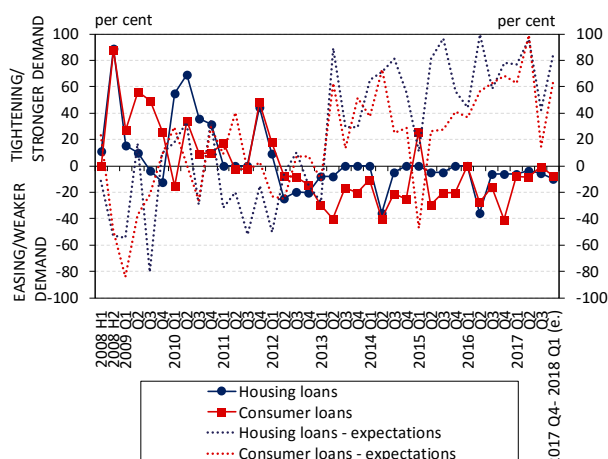


Source: MNB

Within the issue of housing loans, the proportion of borrowing for the construction and purchase of new homes increased. The breakdown of housing loans by loan purpose reveals that – starting from a low of 7-8 per cent in 2015 and reaching 16 per cent at end-2016 – the ratio of loans for new dwellings increased to 17-18 per cent in the first 3 quarters of 2017. Accordingly, of the total volume of housing loans of HUF 477 billion contracted during the period under review, HUF 85 billion was borrowed by households to build or purchase new homes (Chart 17). In H1, 17 per cent, i.e. some HUF 50 billion, of the housing loans issued was related to the Home Purchase Subsidy Scheme for Families (HPS). The growth rate of loan transactions slightly exceeds the increase in housing transactions, and thus a rising proportion of home purchases is financed with loans.

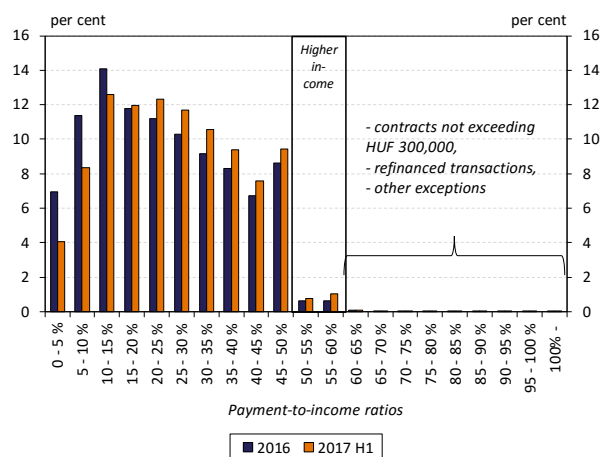
In parallel with a pick-up in demand, a slight easing in credit conditions was observed. According to banks' responses to the Lending Survey, loan demand for both product groups increased in 2017 Q1-Q3 (Chart 18). Almost all responding banks experienced a pick-up in de-

Chart 18: Changes in credit conditions and in credit demand in the household segment



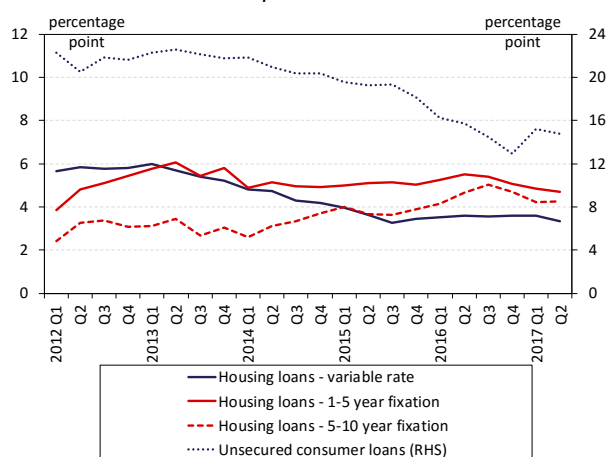
Note: Net ratio is the difference between tightening and easing banks, weighted by market share. Source: MNB, based on banks' responses

Chart 19: Distribution of PTI values of new loans by number



Source: MNB

Chart 20: 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. In the case of the other products, APR-based smoothed spread over the 3-month BUBOR. Source: MNB

mand for housing loan products and looking ahead they also expect this trend to continue in H2 as well. In parallel with that, however, a mere 4–6 per cent of institutions in net terms reported an easing in lending standards, which was mainly implemented in price conditions. An easing of credit conditions would be justified, both by housing market developments and banks' market share targets. Nevertheless, in net terms 10-13 per cent of the institutions plan easing for H2. A significant pick-up in demand in the consumer credit market was also reported by banks participating in the survey, and two thirds of them expect further expansion. On the whole, there was no major change in credit conditions during the past half year. At the same time, looking at the partial conditions, banks reduced the spreads on unsecured loans, and in the next half year they may open towards riskier clients as well.

In the case of housing loans disbursed, non-price conditions remained practically unchanged. The average coverage of newly issued housing loans did not change during H1, and the average loan-to-value (LTV) ratio remains at 55 per cent. Average maturity declined slightly: housing loans in H1 were issued with an average maturity of 16.2 years. The average payment-to-income ratio rose slightly, which was mainly attributable to the increase, compared to the previous year, in the proportion of those who typically borrowed at a 20–40 per cent ratio (Chart 19). On the whole, however, near the upper limits still no major increase is observed among borrowing households.

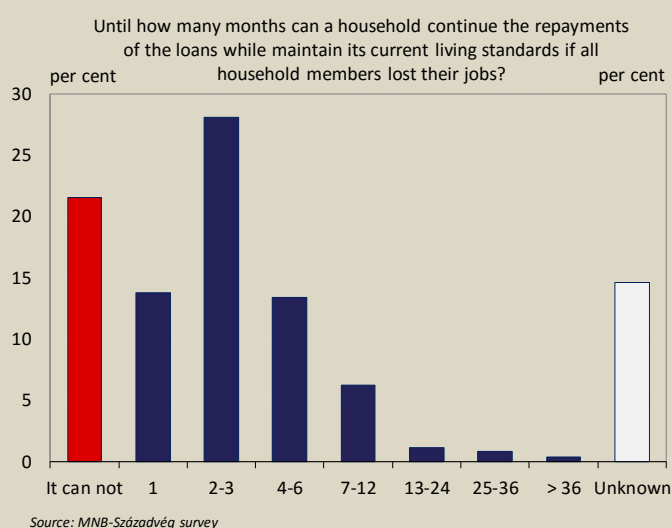
Interest rate spreads on housing loans declined slightly in H1. The average APR on newly issued housing loans declined from 5.5 per cent to 5.1 per cent between end-2016 and June 2017. In addition, the average level of spreads declined by 0.1 percentage points, thus standing at 4.5 percentage points at the end of 2017 H1 (Chart 20). During H1, the spread on loans with interest rate fixation of up to 5 years and over 5 years declined by 0.4 percentage points, and thus by the end of the period under review their average smoothed interest rate spreads amounted to 4.7 percentage points and 4.3 percentage points, respectively. In Q3, only the spreads of products with interest rate fixation of over 5 years were further reduced, on the whole by 0.1 percentage points. In the case of variable-rate housing loans, the average spread declined by 0.2 percentage points in the first three quarters. In the case of consumer credit, interest rates as well as spreads increased both on home equity loans and unsecured loans; in the unsecured segment it

was partly the adjustment of the decline observed at end-2016.

BOX 1: FINANCIAL VULNERABILITY OF HUNGARIAN HOUSEHOLDS

In the spring of 2017, the Magyar Nemzeti Bank conducted a questionnaire survey of 1,500 Hungarian households with loans; representativeness according to region, type of settlement and type of loan was ensured. **The objective of the research was to explore household vulnerability in respect of indebtedness;** both objective (income, wealth) and subjective (awareness) aspects played a role.

Micro-level examination of financial vulnerability is necessitated by the fact that **risks may occur in a concentrated manner in the case of a social group. In a case like this, a vulnerability centre appearing at a lower level of the household sector may also cause serious welfare losses and stability problems,** even if at the level of macro aggregates the sector as a whole or on average cannot be considered vulnerable or excessively indebted. Comparison of vulnerability and awareness is justified by the fact that households where financial decision-making is less conscious may more easily find themselves in a position where they do not react in an adequate manner or at the right time to the situation that changed upon the realisation of risks, which may lead to more significant deterioration in their financial situation.



Based on the findings of the survey, the income position of households that have loans is satisfactory, as around one half of those interviewed can cover their expenditures with strict budget planning, while the proportion of those who nearly 'live from day to day' is insignificant (2 per cent). In the past one year, in the case of 43 per cent of households incomes typically exceeded expenditures, so these households were able to save as well.

Based on the examination of the most important indebtedness indicators – payment-to-income ratio, debt-to-wealth ratio, debt-to-income ratio – the proportion of excessively indebted households is estimated to be between 3–8 per cent. However, by their own admission, 22 per cent of the surveyed households would not be able to continue the loan repayment even for 1 month without a change in their living standards if all wage-earners lost their jobs. At the same time, 8.5 per cent of the respondents would be able to continue debt servicing for even more than half a year.

For the identification of vulnerable households we used the methodology of Ampudia et al.⁵ Accordingly, fragility can be captured by comparing the household's financial balance to the value of the household's liquid assets. In this context, a household is fragile if its financial balance – i.e. the household's disposable monthly income after the deduction of taxes and contributions, the debt service and the costs necessary for living – is negative, in addition, the value of the household's liquid assets does not reach a determined multiple of the negative balance.⁶ Thus, a household is deemed vulnerable if the monthly income does not cover the expenditures, and the household does not have savings either to cover the portion of expenditures above the income. By contrast, the financial position is considered stable if the monthly income covers the expenditures, or even if it does not, at least the savings provide a temporary cover. On this basis, **15 per cent of the households with loans – and 18 per cent of those that have mortgage loans – can be considered financially vulnerable.**

⁵ Ampudia – Vlokhoven – Zochowski (2016): Financial fragility of euro area households. *Journal of Financial Stability*, Vol 27. pp. 250–262

⁶ The coefficient indicates the number of months during which the household is able to cover the portion of monthly expenditures in excess of income from its liquid assets.

The survey also covered the forward-looking financial awareness of the surveyed households' financial decision-maker. The concept of financial awareness we used captured the circumstances that have an impact on the behaviour that can be anticipated in the case of a financial stress situation. Awareness was defined by taking five attitudes into account: preparedness for unexpected events, carpe diem attitude, ignorance in connection with financial products, willingness to borrow to cover daily expenses and perplexity in a financial stress situation. Accordingly, five clusters were produced, which can be classified into three grades of awareness. Based on this method, one fifth of the financially fragile households can be classified into the least conscious category.

By widening the definition of financial vulnerability, the proportion of those households can be determined that cannot be considered vulnerable, but are close to this threshold, and at the current level of their financial awareness it can be presumed that they would not be able to react to a negative change in their indebtedness or income position adequately and rapidly enough, and thus the household could become vulnerable. Therefore, in addition to the 15 per

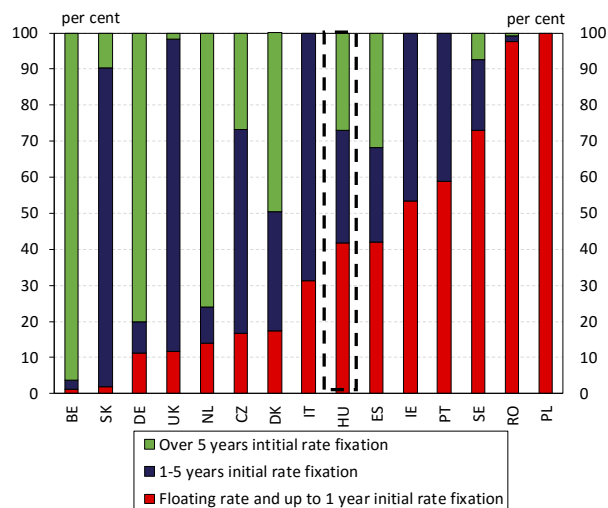
cent ratio presented above as financially vulnerable, another 12 per cent segment can be identified, which is not yet vulnerable, but its financial awareness is unsatisfactory. Nevertheless, this group is more than half of the transitional set around the vulnerability threshold, i.e. **increasing financial awareness may move a considerable portion of households out of the zone that is close to vulnerability.**

*Dimensions of financial fragility and financial awareness
within Hungarian households repaying loans*

		Fragility				Total
		Fragile	Moderate	Stable	Unknown	
Awareness	Low awareness	3.1%	3.8%	3.1%	2.3%	12.3%
	Medium awareness	6.0%	8.5%	13.8%	12.3%	40.6%
	Adequate awareness	5.2%	7.1%	16.9%	12.2%	41.4%
	Unknown	0.7%	1.5%	2.3%	1.1%	5.6%
	Total	15.1%	20.9%	36.1%	27.9%	100.0%

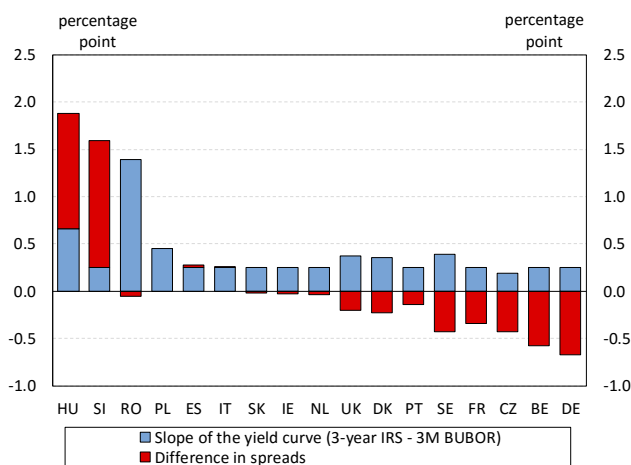
Source: MNB - Századvég survey

Chart 21: Distribution of new housing loan contracts by interest rate fixation in selected countries (2017 Q1)



Source: European Mortgage Federation

Chart 22: Components of the difference between interest rates of housing loans fixed for 1-5 years and loans with a floating rate



Note: The magnitudes of the spread differences are calculated based on the average interest rates of actually disbursed loans. Thus, comparison is complicated by the potential composition effect (2017 Q1).

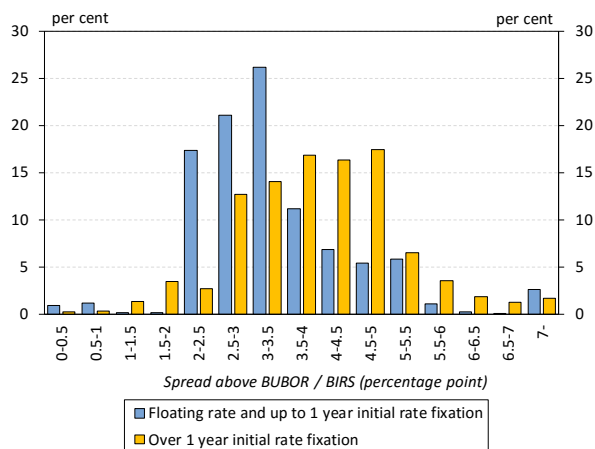
Source: ECB, national central banks

Variable-rate loans continue to represent a significant proportion within new housing loan contracts. Variable rate loans account for a steadily large part within newly concluded housing loan contracts. The share of these products within all loan issues was 42 per cent in Q2, but excluding home savings and loan associations, which disburse special products, the share increases to 51 per cent (Chart 21). Within outstanding housing loans, the share is even higher, at around 63 per cent. In the current low interest rate environment, the high proportion of variable-rate loans represents a one-way interest rate risk for households, especially considering that – on the basis of the available data – such products are borrowed by more vulnerable households. Compared to the core countries of the EU, in Hungary there is still room for the expansion of fixed-rate loans, and at the same time, a simultaneous increase in the average duration of interest rate fixation and longer average maturity would also be desirable. According to the latest data, the ratio of products with interest rate fixation exceeding 10 years, which provide real safety, is hardly 6 per cent within the new disbursements of Hungarian credit institutions.

In Hungary, in addition to the slope of the yield curve, the higher spreads applied by banks also contribute to higher interest rates at fixation. In an ideal credit market, the difference between variable and fixed interest rates should primarily reflect the expected path of short-term interest rates. In Hungary, the yield curve is steeper compared to other European countries, which contributes considerably to the fact that fixed-rate housing loans are relatively more expensive. However, if we adjust for the difference in the slope of the yield curve, we see that the “pure” spread applied by banks is quite a bit higher than in other EU countries (Chart 22). International experience shows that in countries with a deep covered bond market (e.g. Germany, Denmark) loans with and without interest rate fixation are disbursed at a much lower interest rate difference. Moreover, in more than one country, fixed-rate loans are even cheaper on average than variable-rate loans.

The high spread on fixed-rate loans may be reduced by intensive competition and the deepening of the covered bond market. Examining the interest rate spread on newly disbursed housing loans, a sharp difference can still be identified between variable-rate and fixed-rate loans. While 67 per cent of variable-rate loans are disbursed with an interest rate spread of below 350 basis points, this ratio is only 35 per cent in the case of loans

Chart 23: Distribution of housing loans concluded in 2017 according to the spread above the reference rate

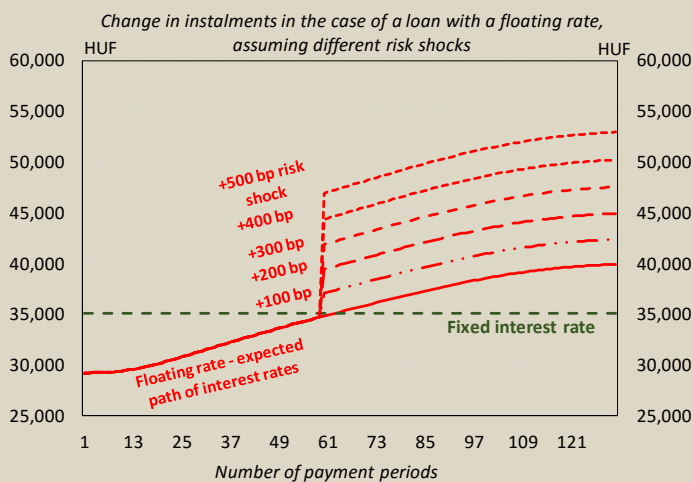


Note: Spread above the three-month BUBOR in the case of loans with initial rate fixation of up to one year. In the case of loans with initial rate fixation of over one year, spread above the BIRS of corresponding maturity. Source: MNB

with interest rate fixation over 1 year (Chart 23). In the case of a well-functioning market, the interest rate spread between the two products should primarily reflect the expected interest rate path (and additionally, the differences in the risks of early repayment), but the difference between the spreads over the relevant reference rates shows that the fixed-rate loans contain a premium above this interest rate spread as well. The expansion of the MNB’s Certified Consumer-Friendly Mortgage product in the market may mitigate this problem through the easier comparability of conditions, thereby stimulating competition. Further progress is fostered by the deepening of the covered bond market, which allows banks to raise funds with long-term interest rate fixation and long maturities. International experience also shows that countries with developed covered bond markets (Germany, Denmark) are also characterised by housing loan markets with actual long-term interest rate fixation.

BOX 2: CERTIFIED CONSUMER-FRIENDLY HOUSING LOANS – COMPARABILITY AND RISK PROTECTION

Due to the current record-low yield levels, looking at a time period of some years, interest rates are more likely to increase than to decline further. These prospects especially concern those who take out variable-rate loans, as for them an increase in interest rates may result in higher instalments. In terms of repricing, instalments are the most sensitive where the maturity of the loan is relatively long and its amount is high, i.e. in the case of housing loans. Fixed-rate loans, however, provide longer-term safety for debtors. The price for this is the higher interest rate upon borrowing in the case of a rising yield curve. However, if the interest rate difference between variable-rate and fixed-rate products contains only the effect of the expected interest rate path, the cost of the two products is offset during the interest rate period as a whole. Nevertheless, it should be emphasised that this equality is only met if the difference in the interest rates of the two products merely contains the effect of the different type of interest rates of their funding – i.e. the spread over the reference interest rates is the same – which can be approximated by the difference between the IRS on a given interest rate period and the short interbank rate.

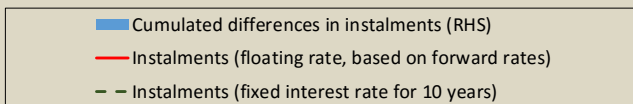
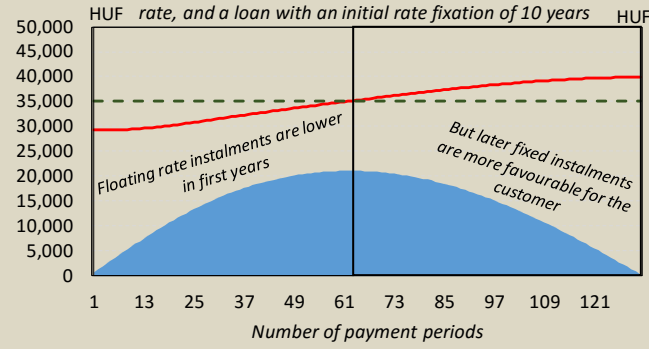


In the Hungarian banking system, at the sector level the interest rate spread between the two products does not reflect only the steepness of the yield curve (derived from IRS fixings), which is shown by the differences in spreads over various reference rates corresponding to the period of the fixation (in this case, we control for the different cost of funds due to the steepness of the yield curve by taking the interbank rate of adequate maturity or the interest rate swap as the cost of funds, and thus the above equality would hold in the case of the concordance of the spreads). We conducted a survey among Hungarian banks regarding differences in the pricing of the two products. Based on the answers of financial institutions, one part of the difference can be explained by the distinct magnitude of prepayment risks, since in the case of a fixed rate loan, the bank may suffer a loss if it needs to close the interest rate swap hedging interest rate risk before the initially expected maturity of the contract. Differences in credit risk could also explain a

part of the interest rate difference between the two products (assuming that in the case of a loan with constant instalments the probability of default is lower), however, this factor is usually not considered in Hungarian practice when pricing the two products.

The average maturity and contract amount of variable-rate loans disbursed since 2015 are much higher than that of loans with a longer initial rate fixation, which may result in higher financial vulnerability of the households concerned. Another problem may be that the types of loans often offered with conditions that are non-transparent to average

Expected change in instalments in the case of a loan with a floating HUF rate, and a loan with an initial rate fixation of 10 years HUF



Note: Contracted amount is HUF 5 million, with 20 years maturity, and a 350 basis point spread. Expected change of 3M BUBOR is derived from BIRS fixings. Source: MNB

consumers do not support thorough decision-making, as products that are difficult to compare do not provide an opportunity for prudent choice.

In order to create easily comparable housing loan products, manage the risks of interest rate increases, encourage the refinancing of loans that got stuck at an earlier, higher interest rate level and to stimulate market competition, the MNB set up the Certified Consumer-Friendly Housing Loan classification system. The product concept was formulated with the involvement of professional and civil organisations, also taking financial stability and consumer protection aspects into consideration.

The uniform and therefore transparent conditions of the certified products provide greater help for conscious choices by consumers, support grounded decision-making, entail a debt-servicing burden that is more predictable over the longer term, and strengthen the comparability of bank offers, thereby boosting competition in the market. This purpose is served by the standardised credit conditions, the easy-to-understand information and the credit calculator available on the www.minositetthitel.hu website, which is independent of market participants, where accurate, customised offers can be found in a couple of minutes. As the website and the comparison application are run by the MNB, the certified products of all credit institutions have the same opportunity to appear among the downloadable offers, in order to support the decision of consumers.

With the certified housing loan, consumers can borrow with shorter administrative deadlines and lower costs. Loan costs are alleviated not only by the spread limited to 3.5 percentage points, but also by the maximisation and the easy comparability of other fees due upon disbursement. The disbursement fee may not exceed 0.75 per cent of the amount of the loan, and it is maximised in HUF 150,000. By lowering costs, the certified housing loan could also incentivise loan refinancing, since the prepayment fee may not exceed 1 per cent of the prepaid amount, while prepayment

from deposits kept with home savings and loan associations is cost-free up to the amount of the saving that can be reached according to the contract, the related state subsidy and the interest credited for such. The consumer benefit achievable with the certified housing loan is also realised through the lowering of credit risks. Only annuity,

Comparison between a certified consumer-friendly housing loan and a regular housing loan offered by the same institution (5-year interest rate period)

	Certified Consumer-Friendly Housing Loan (CFL)	Regular housing loan	Benefits of choosing the CFL product
Instalment type	annuity	annuity	
Contracted amount	HUF 10,000,000	HUF 10,000,000	
Maturity	20 years	20 years	
APRC	3.89%	4.46%	0.57%
Total sum the customer needs to pay back	HUF 14,291,848	HUF 14,989,949	HUF 698,101
Monthly instalment	HUF 59 549	HUF 62 458	2,909 HUF/month; 34,908 HUF/year
Interest rate	3.95%	4.50%	0.55%

Source: www.minositetthitel.hu and institutional loan calculation

HUF-based products may receive the certificate, and thus the exchange rate risk has been eliminated, and no significant lump sum repayment obligation may remain at the end of the term. Long-term interest rate risk can be better managed with 3, 5 and especially 10-year interest rate periods or by choosing rate fixing until the end of the term.

Consumers' advantage may be expressed in forints as well. Based on the market survey conducted by the MNB, if input parameters are the same and factors remain unchanged, presuming performance in conformity with the contract, in the case of a housing loan with twenty-year maturity, annuity repayment and 5-year interest rate period, one can save HUF 35,000 a year, i.e. nearly HUF 700,000 over the whole term with the Certified Consumer-Friendly Housing Loan compared to the best non-certified products available on the market.

Since June 2017, in the form of voluntary application 52 credit institutions have won the certification (since then the number of institutions offering certified housing loans declined to 45 owing to the mergers of a number of cooperative credit institutions).⁷ As a result, Certified Consumer-Friendly Housing Loans are available in the branch networks of financial service providers at nearly 2,400 locations in the country.

⁷ <http://minositetthitel.hu/hitelintezeteknek> Data as of 18 October 2017.

BOX 3: THE MNB'S NEW MONETARY POLICY INSTRUMENTS MAY ALSO FACILITATE A REDUCTION OF INTEREST RATE RISK

According to the decision of the Monetary Council of the Magyar Nemzeti Bank on 21 November 2017, two new unconventional instruments are to be introduced in January 2018. The objective of the monetary policy IRS facility and the mortgage bond purchase programme is to allow loose monetary conditions to prevail not only on the short end of the yield curve, but also on the longer end. Within the framework of the unconditional monetary policy IRS, which has a general effect on the market, the MNB will conclude long-term interest rate swap transactions with partner banks at 5-year and 10-year maturities at regular tenders. With these transactions, banks can cover their interest rate risks stemming from their long-term assets.

In line with the monetary policy objective, the mortgage bond purchase programme will reduce mortgage bond market yields in a targeted manner, which will also result in lower interest rates on fixed-rate mortgage loans. The MNB will purchase mortgage bonds with 3-year or longer maturities within the framework of the programme. In addition to the monetary policy objective, the programme may also contribute to the spread of fixed-rate loans. The introduction of the mortgage bond purchase programme and the IRS facility with their monetary policy objectives is in conformity with other central bank programmes and steps taken by the central bank to date. Strengthening one another, these programmes will start from January 2018 and may contribute to ensuring loose monetary conditions in long-term yields.

Main parameters of the newly announced monetary policy instruments

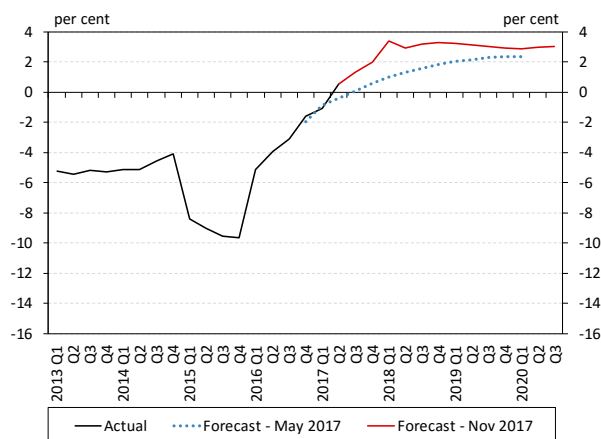
	Unconditional monetary policy IRS	Mortgage bond purchase programme
Introduction of the programme	January 2018	January 2018
Volumes	Allocation amount set to HUF 300 bn for Q1 2018	50 per cent of the outstanding volumes of covered bonds
Maturities	5 and 10 years	At least 3-year original maturities
Targeted securities		Fixed rate mortgage bonds denominated in HUF
Markets		Primary and secondary markets

Source: MNB

The announced instruments will have a favourable impact on housing loan interest rates through various channels. For example, as the central bank offers interest rate swaps to banks, the latter may have access with favourable conditions to funds with interest rates fixed for a long term, which are needed to manage the interest rate risk of fixed-rate housing loans. Long-term yields will decline even if banks use the swap to hedge the interest rate risk of other long-term assets and not of housing loans, which also contributes to a decrease in the cost of funds of housing loans. In addition, the purchase of mortgage bonds by the central bank has a direct impact on the market that serves the financing of mortgage loans. The central bank's purchases may increase the depth of this market and increase liquidity, thus reducing the liquidity premium of mortgage bonds and ultimately the cost of funds of banks.

The decline in banks' costs of funds entails a decrease in lending rates as well. This effect will first be perceived in the case of new housing loans, as these are the loans where banks can pass on the changes in the cost of funds instantly. At the same time, in the case of the outstanding loans this mechanism is ensured in the medium term by the interest rate change indicators prescribed in the 'fair bank' regulation: namely, the indicators typically include costs of funds the term of which is in line with the interest rate fixation (government securities reference yield, BIRS), and a decline in which automatically results in lower interest rates as well, following the end of the interest rate period. Accordingly, through the reduction of banks' costs of funds, the announced central bank programmes also contribute to the possibility that clients can borrow with interest rates fixed for a long period at a lower interest rate premium, thus adequately managing risks stemming from changes in the yield curve.

Chart 24: Household lending forecast



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

Further expansion in household lending is expected over the forecast horizon. Household lending had reached a turning point in the financial intermediary system as a whole by end-2016. Accordingly, starting from 2017, household lending is expected to grow steadily over the forecast horizon (Chart 24). The low interest rate environment and rising wage level, which boost credit demand together with the family support programme, also contribute to the growth. The credit gap will not close over the forecast horizon, i.e. lending is not expected to be overheated, and the build-up of prudent lending is ensured by the debt cap rules in force.

BOX 4: HOW DO HOUSEHOLDS DECIDE ON THE TYPE OF INTEREST RATE?

One of the most important decisions a household has to make upon borrowing is related to the type of the interest rate on the loan. One of the extremes in terms of interest rate types is *variable-rate loans* tied to short-term reference rates, while the other extremes are *products with an interest rate fixed* for the entire term. There are many different methods between the two extremes: In Hungary, for example, products with 5–10 years of initial rate fixation are already very common, but some banks already offer loans with an interest rate fixed for 20 years. With the expansion of fixed-rate loans now is the first time that such a high proportion of Hungarian households take housing loans *on a market basis*, with interest rate fixation over one year, in spite of the fact that they have to pay a premium for that.

An important aspect in the analysis of the choice between the two types of products is to see what factors other than the offered rate influence debtors in their decision to borrow at a fixed or variable rate. Based on international literature, the following may play an important role in this:

- characteristics of the household, such as the size and instability of income, indebtedness of the household, the number of unemployed within the household, possible intention to move,
- features of the deal, such as the amount of loan and its maturity, the loan-to-value ratio as well as,
- price factors, i.e. the size of the interest rate spread between the two product types. The role of the interest rate spread is far from being trivial, as the spread reflects the expected interest rate path to a great degree. The interest rate on currently cheaper products is likely to exceed the interest rate on the other product later, and thus, in the case of adequate pricing by the bank, the expected costs of the two products are equal over the term as a whole. Therefore, the fact that the role of the interest rate spread is significant according to various empirical studies indicates that households choose loan products on the basis of short-term costs and not rationality.

In addition to the above, the choice between fixed-rate and variable-rate products may also be influenced by institutional factors: in countries with developed mortgage bond markets or smooth securitisation it is easier to obtain long-term funds with interest rate fixation for a long time necessary for offering fixed rates, and thus the proportion of fixed-rate loan products may also be higher.

Moreover, according to our preliminary assumption, in Hungary the phenomenon of foreign currency lending may also play a prominent role in the expansion of loans with initial rate fixation over one year. The extreme fluctuations in instalments experienced due to the exchange rate depreciation and the ensuing social tensions may have encouraged large numbers of borrowers to strive for unchanged instalments in their forward-looking decisions.

In order to map Hungarian borrowers' motives, we performed probit estimates on a micro level database.⁸ Our target variable was whether the client fixes the interest rate on the borrowed housing loan for at least five years, while our most important explanatory variable was the size of the exchange rate loss suffered earlier by the client, and we also used other control variables (e.g. contracted amount, maturity, income, loan-to-value ratio, payment-to-income ratio, whether the client had a mortgage loan before).

Based on our findings, there is greater chance of borrowing fixed-rate loans in the case of those who suffered higher exchange rate losses on their foreign currency loans in the past. If the client had previous experience (had a mortgage

Some descriptive statistics of housing loans with initial rate fixation of less than 1 year, and rate fixation of more than 1 year (median values)

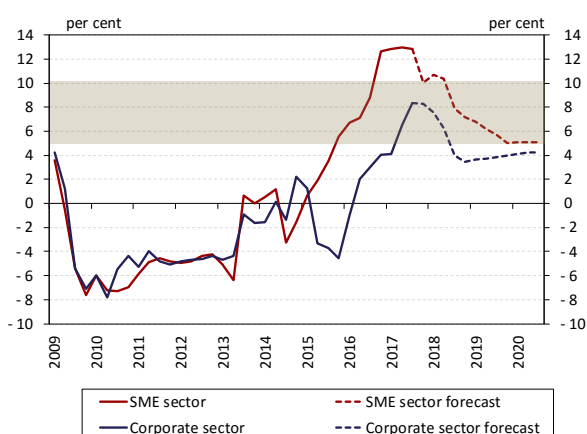
	Interest rate fixation less than 1 year	Interest rate fixation more than 1 year
Contracted amount (HUF)	6,400,000	4,270,000
Maturity (years)	15.3	11.3
Income (HUF)	297,014	323,613
PTI (%)	26.0	25.0
LTV (%)	60.6	53.5

Source: MNB

that the variable-rate is often coupled with lower incomes, higher amount of loan and longer maturity, which indicates that financially stretched households are more urged to choose the variable rate because of the interest rate spread. Nevertheless, their risk exposure is also the highest in this case. If the loan was mediated by an agent, that, *ceteris paribus*, also drives debtors towards variable-rate products. This latter finding raises consumer protection concerns as well, since it is not sure that the agent always keeps only the client's interests in mind.

The availability of products is another important aspect. Based on previous experiences, upon borrowing, Hungarian households choose from a narrower range of banks than the potential one, for example for geographical reasons or the low willingness to change banks.⁹ Accordingly, depending on the individual banks' product supply, it may occur that some borrowers do not even think of the possibility of choosing a fixed-rate product because the bank preferred by them offers only variable-rate loans.

Chart 25: Annual changes in lending to non-financial corporates and SMEs



Note: Transaction-based annual change. Source: MNB

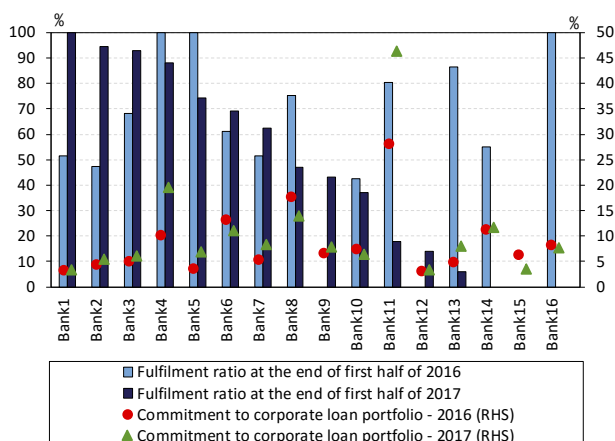
2.3. Corporate lending continues to expand, thanks to the favourable outlook

Corporate lending continued to grow dynamically in 2017. In the first nine months, the outstanding loans of non-financial corporations at credit institutions and financial enterprises increased by a total HUF 464 billion on a transaction basis, in which significant proportion was driven by some high volume one-off transactions in 2016 Q3. Accordingly, a transaction-based expansion rate of 8.3 per cent year-on-year was observed at the end of the third quarter (Chart 25). The annual growth rate of the SME sector's outstanding loans including the self-employed was nearly 13 per cent, while the outstanding loans of the sector of micro, small and medium-sized enterprises in a narrow sense increased by 9.5 per cent in

⁸ The following study contains a detailed description of the estimates and findings: Dancsik, B. (2017): Analysing the decision of fixing housing loan interest rates on micro-level data: does FX loan history matter? *Economic Review*, Year LXIV, pp. 1030–1055.

⁹ Aczél, Á. – Banai, Á. – Borsos, A. – Dancsik, B. (2016): Identifying the determinants of housing loan margins in the Hungarian banking system. *Financial and Economic Review*, December 2016, pp. 5–44.

Chart 26: H1 fulfilment ratios of lending commitments under the MLS

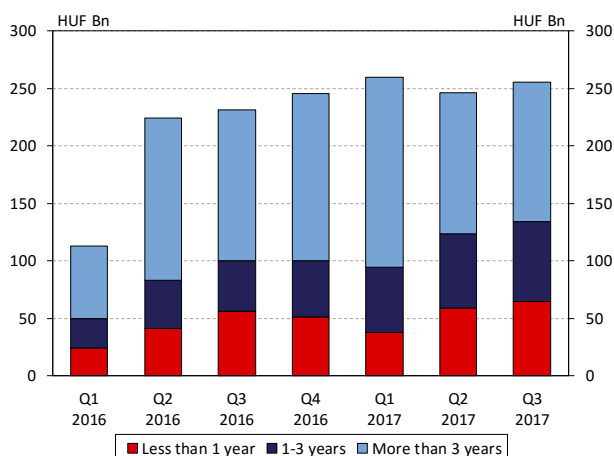


Note: The fulfilment ratios presented here for 2016 Q2 may differ from previously published values due to revisions and later incoming data.
Source: MNB

the period under review. Credit conditions eased in H1, and this easing is expected to continue on the basis of banks' indications.¹⁰ This is supported by the MNB's Market-based Lending Scheme (MLS) as well as companies' robust credit demand. As a result, lending dynamics in 2018 and the subsequent years as well may be around the 5–10 per cent band, which supports sustainable economic growth.

In the second phase of the MLS, banks raised their SME lending commitments for the current year by more than 30 per cent. At the MNB's tender in July 2017, nine banks made new commitments, and thus credit institutions' earlier undertaking of a total HUF 170 billion for SME lending for this year increased to HUF 227 billion, corresponding to some 6 per cent of SME loans outstanding. By the end of H1, the banks participating in the scheme had raised their SME lending by a total HUF 82 billion, which corresponds to a fulfilment ratio of 36 per cent and thus exceeds the value for the first half of last year, excluding seasonality (Chart 26). Fulfilment ratios show wide dispersion. For the time being, the fulfilment of one bank reached 100 per cent, but all commitments may be fulfilled by the end of the year. This is supported by the fact that – upon making their additional commitments in July – banks already took into account the volumes of loan contracts being concluded and the loan demands they perceived. In addition, the second half of the year is usually characterised by more buoyant lending activity.

Chart 27: New SME loan contracts by maturity



Source: MNB

The end of the FGS at the end of March did not result in any major decline in SME lending. Both in 2017 Q2 and Q3, credit institutions concluded loan contracts with SMEs in a total amount of around HUF 250 billion, which is not much different from the values observed in the past quarters. Nevertheless, changes were observed in the quality features of the loans: the term distribution shifted towards shorter maturities, and the ratio of fixed-rate loans moderated. In the Lending Survey in 2017 Q2 and Q3, 70-80 per cent of banks reported that demand for short-term loans increased, which is also reflected in the volume of the SME loans concluded: in 2017 Q2 and Q3, loans with maturities of less than three years accounted for some 50 per cent of all SME loans, while in the previous quarters this ratio was only between 35–45 per cent. In parallel with this, partly as a result of real estate purchases brought forward to the last quarter of

¹⁰ For more details on changes in corporate credit conditions, see MNB (2017): Trends in lending, August 2017, p. 9. (<https://www.mnb.hu/letoltes/hitelezesi-folyamatok-2017-augusztus-en.PDF>).

the FGS, the proportion of longer-term loans declined (Chart 27). Following the phasing out of the scheme, the ratio of fixed-rate loans also dropped, mainly at longer maturities. Looking ahead, the MLS and the increase in competition between banks may contribute to the expansion in lending as well as to favourable changes in the quality features of loans (term, type of interest rate).

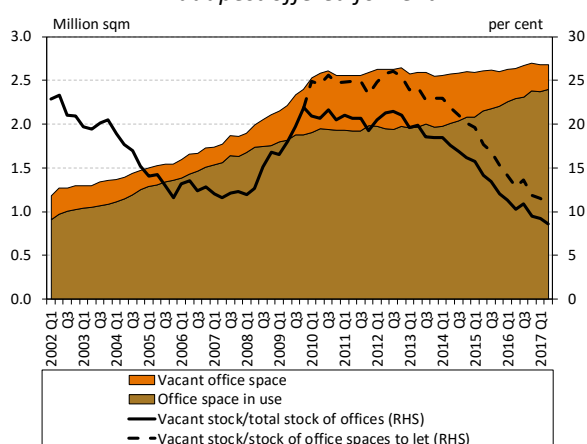
2.4. Bank financing is also playing a larger role in the upturn in commercial real estate investment

In 2017 H1, the rental market for commercial real estate continued to be characterised by a shortage of supply. Advantageous developments were typical of the commercial real estate market for investors. A further decline in vacancy rates and an increase in rents had a positive impact on the profitability of real estates. The vacancy of the modern office market in Budapest declined to 8.6 per cent of the total stock (Chart 28), reaching an all-time low. The average vacancy rate of industrial and logistics properties in Budapest and its surroundings also stood at a record low (5.5 per cent) at the end of June 2017. Of the shopping centres in Budapest, the (primary) ones at good locations had minimal vacant spaces, and demand for properties with less advantageous qualities (so-called secondary properties) is also growing.

Starting from 2017 Q4, there will be continuous, high-volume completions in the Budapest office market. The volume of new office space expected in the market for 2018 will be three times higher than average completions in 2016 and 2017; moreover, it will significantly exceed even the average annual completions of the peak period between 2006 and 2009 (Chart 29). In the period until end-2019, the supply of offices for rent in Budapest may increase by nearly 20–25 per cent, depending on the implementation of projects. While the vacancy rate is expected to grow in the office market in 2018, continued tight supply and low vacancy are expected to be typical of the industrial-logistics and retail segments in the near term.

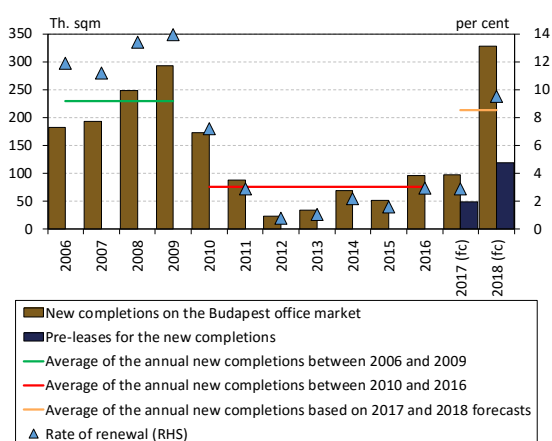
The investment market is still characterised by excessive demand, as a result of which the declining trend in yields continued. Based on the decline in vacancy rates, the increase in rents and the decrease in yields, it can be seen that the developments in 2017 H1 had an impact on price increases in all segments of the commercial real estate market. Investment turnover was 22 per cent

Chart 28: Area and vacancy rate of modern offices in Budapest offered for rent



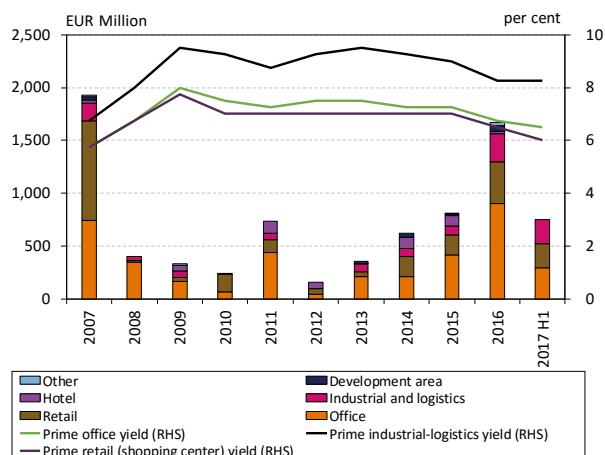
Sources: Budapest Research Forum, MNB

Chart 29: Development activity in the Budapest office market 2006–2018



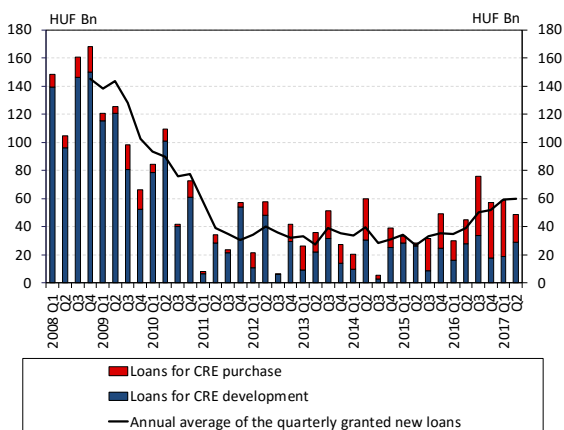
Note: Based on data as of 30 June 2017. Source: Budapest Research Forum, Cushman&Wakefield

Chart 30: Investment turnover and its composition in the Hungarian commercial real estate market and prime yields



Sources: MNB compilation, based the data of CBRE and Cushman&Wakefield

Chart 31: Project loan disbursements for domestic companies covered by commercial real estate



Source: MNB

lower than in 2016 H1; commercial properties changed hands in an amount of EUR 750 million in the first six months of 2017 (Chart 30). The role of Hungarian investors remained significant, as they reached a 37 per cent share of total turnover. With a combined share of 28 per cent in total investment turnover, three Hungarian real estate investment funds stand out among these investors.

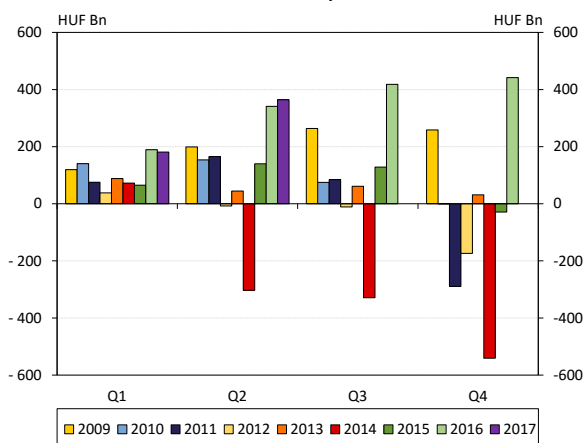
The role of banks in financing this segment is still moderate, but their activity is increasing. At present, the volume of quarterly disbursements amounts to 40 per cent of the pre-crisis average. Most of the activity is concentrated at certain actors, and the majority (more than 80 per cent) of disbursements took place in foreign currency in 2016 as well as 2017 H1. With the increase in the investment activity in the commercial real estate market, over the past two years a shift was observed in the composition of disbursements towards loans granted for the purpose of real estate purchases (Chart 31). In 2016, the loan contracts concluded by construction companies and enterprises dealing with real estate trade and utilisation accounted for 18 per cent of the loan contracts concluded by the entire non-financial corporate sector, while in the first six months of 2017 the corresponding ratio was 14 per cent.

3 INCOME AND CAPITAL POSITION – PROFITABILITY CAN BE IMPROVED BY AN UPTURN IN LENDING AND A REDUCTION OF COSTS

In 2017 H1, domestic credit institutions achieved an all-time high after-tax profit of HUF 364 billion. With this result, return on equity also continued to be favourable, at 13.8 per cent at the end of H1. Nevertheless, a significant portion of this high profitability stems from the reversal of previously recognised provisions. The return calculated with the long-term level of loan loss provisioning was between 5–7 per cent, which is much lower than the nominal profitability in the pre-crisis years. Nevertheless, in evaluating profitability, it is important to take into account the currently prevailing special yield environment: compared to the risk-free yields and inflation, the current profitability is satisfactory, and its magnitude is similar to the level of the months directly preceding the outbreak of the crisis. As a result of the outstanding profit, the capital position of Hungarian credit institutions remains robust, and on the whole, the reversal of provisions did not add to the sector’s capital adequacy risks.

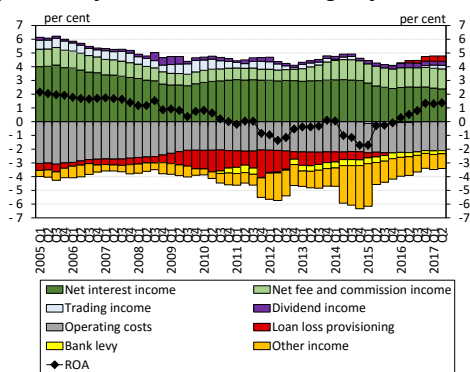
In the medium term, credit institutions’ profitability may be supported by a rise in non-interest revenues as well as an increase in activity, in parallel with the declining costs, because the ratio of the private sector’s loans within all bank assets is rather low in Hungary, and thus, on the whole, the negative credit gap may allow the stimulation of banks’ lending activity in the medium term. In addition to expanded activity, a decline in costs is also extremely important. However, the necessary closing of branches in banks’ networks may be hindered by the low degree of digitalisation of the Hungarian population.

Chart 32: Credit institutions’ after-tax income cumulated within the year



Source: MNB

Chart 33: Aggregate profit items of credit institutions as a proportion of the 12-month average of total assets



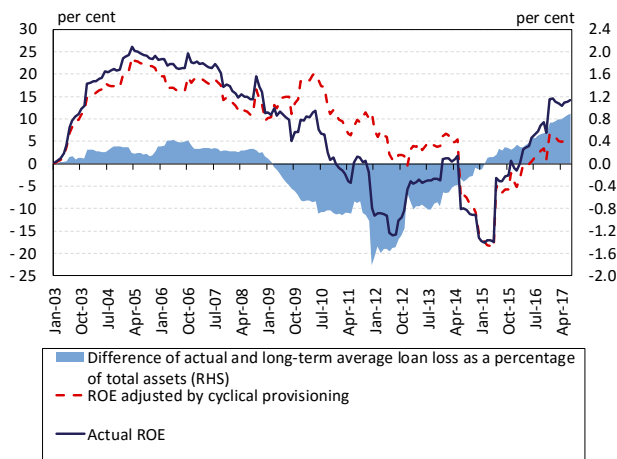
Source: MNB

3.1. Credit institutions continue to be characterised by high, but mostly unsustainable profitability

In 2017 H1, credit institutions reached an all-time high after-tax profit. The credit institutions sector closed 2017 H1 with after-tax (pre-tax) profits cumulated within the year amounting to HUF 364.5 billion (HUF 397.6 billion), which exceeded even the record profitability of the same period of the previous year (Chart 32). As a result, the profitability indicators for the previous 12-months also remained level compared to end-2016: at end-June, the after-tax return on equity and return on assets stood at 13.8 per cent and 1.4 per cent, respectively.

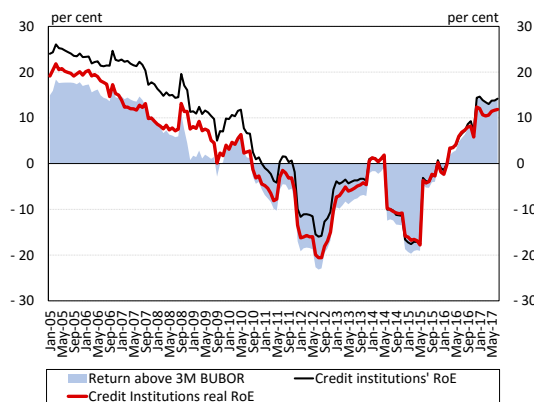
The high profit level is still primarily attributable to the reversal of provisions. The contribution of certain components of the return on assets changed significantly compared to what was observed before 2016 (Chart 33). Along with the considerable decline in interest income, similarly to the previous year’s outstanding result, the current profit is related to one-off, volatile items. First of all, one of these items is loan loss provisioning, which, as a result of the outstanding reversals that are unsustainable over the long-term, and contrary to the usual practice, had an impact on credit institutions’ profit with a positive balance. In addition to the reversal of provisions, still high dividend revenue concentrated within the banking sector was observed, and the negative impact of the bank levy on profits also declined further. Profits on financial transactions increased mainly in relation to certain banks and is thus also considered temporary, while

Chart 34: Actual RoE of credit institutions and its value adjusted by cyclical provisioning



Note: The income effect of selling a loan portfolio is considered as a part of provisioning before 2017. Source: MNB

Chart 35: Nominal and real RoE of credit institutions and return above the 3M BUBOR



Note: the real return on equity was a result of deflating with the consumer price index. Source: MNB

growth in net income from fees and commissions was generally observed at most of the major institutions.

Calculating profitability together with the long-term average loan loss provisioning, the return on equity declines to 5–7 per cent. As reversals of provisions have an impact on credit institutions' profits to an unsustainable degree over the long-term, the currently observed profitability indicators may present a distorted picture of the sector's profit originating from its primary activity. If the return on equity is calculated with the long-term average of this component,¹¹ excluding the actual loan loss, the indicator declines, *ceteris paribus*, to the range between 5–7 per cent, which represents a significant difference compared to the 13.8 per cent level mentioned above (Chart 34). As by nature the contribution of the balance of loan losses to the profits of financial institutions is usually negative, a reversal of the current trend is expected, and thus it is expedient to examine the profitability of credit institutions in the light of the primary profit components and external factors.

Credit institutions' profitability is cyclically affected by the extremely low interest rate environment. Although the above-mentioned 5–7 per cent return on equity is well below the pre-crisis level, in evaluating the profit/loss of the credit institutions sector special attention must also be paid to the general yield environment and the level of inflation. While prior to the outbreak of the crisis the size of banks' incomes was strongly supported by the high interest rate level, the currently typical risk-free yield environment of around zero per cent poses challenges to maintain banks' incomes. In real terms and compared to the interbank rate, the banking sector's sustainable income is similar to the values observed immediately prior to the outbreak of the crisis; therefore, the current profit level cannot be considered very low by historical standards (Chart 35).

BOX 5: CHANGING TRENDS IN THE PROFITABILITY OF THE CREDIT INSTITUTION SECTOR

The credit institution sector must have adequate earnings power for the long-term sustainability of its operations and for the realisation of investments necessary to increase its efficiency. For the long-term assessment of the banking system's profitability the following are needed:

i) it is advantageous to filter out one-off and volatile items arising in the short run; ii) it is expedient to examine the changes in external and internal factors of profitability over time. The latter is a relevant aspect because the significance and magnitude of the factors which determine banks' income may change substantially in the various phases

¹¹ We calculated the long-term average as a proportion of assets and of loan as well, on the basis of the data for the period between June 2002 and June 2017. As the proportion of loans within the balance sheet has shown a declining trend in recent years, the long-term average as a proportion of assets provides a more conservative estimate.

of the economic cycle. In the following, we attempt to examine these aspects of bank profitability by decomposing and comparing the current and pre-crisis returns on assets (RoA) over time as well as by building on the results of dynamic panel regressions run on a bank-level database.

The decomposition of the RoA and the comparison of the resulting items over time reveals how the contribution of individual RoA components to the final income changed between 2008 and 2016. For example, it can be observed within the aggregate 48 basis point growth that institutions' interest income and interest expenditures as a proportion of assets both shrank by more than 4 percentage points. While in the case of the sector as a whole, interest income declined by 21 basis points in view of the declining yield environment, after narrowing the sample to 10

Aggregated profit components as a percentage of total assets for the credit institution sector and the ten largest institutions

	Credit institution sector		Large banks	
	2008	2016	2008	2016
Taxed income	0.87%	1.34%	0.89%	1.59%
Interest income	2.73%	2.53%	2.59%	2.63%
Interest revenue	8.23%	3.77%	8.28%	3.85%
Interest expenses	-5.50%	-1.24%	-5.70%	-1.22%
Adjusted fee net income	0.90%	0.91%	0.97%	1.06%
Financial operations net income	0.49%	0.14%	0.51%	0.07%
Dividends	0.54%	0.31%	0.68%	0.40%
Operational costs	-2.42%	-2.11%	-2.37%	-2.13%
Personnel costs	-1.23%	-1.08%	-1.17%	-1.10%
Other administrative costs (material costs)	-0.98%	-0.84%	-0.97%	-0.81%
Depreciation	-0.21%	-0.19%	-0.23%	-0.22%
Provisioning	-0.56%	0.04%	-0.58%	0.16%
Bank levy	0.00%	-0.20%	0.00%	-0.22%

Note: the table contains the taxed income and its components as a percentage of total assets based on the aggregated data of the whole credit institution sector and the ten largest banks based on their total assets in 2008 and 2016. Source: MNB

large banks, a 4 basis point aggregate increase is observed. At the credit institution level, improvement took place in all of the items of operating costs and in loan losses, and stagnation is seen in net income from commissions and fees adjusted for the transaction levy. Large banks' aggregate data show different dynamics in the case of these items as well: the improvement in operating costs was more moderate, and was mainly seen in the item of personnel expenses; adjusted net income from commissions and fees increased by 10 basis points, and there was a stronger positive change in loan losses as well. **Based on these results it can be established that large banks were able to better isolate themselves from the effect of the low interest rate environment,** and the contribution of net income from commissions and fees to their return on assets is also higher than in the case of the other institutions of the sector.

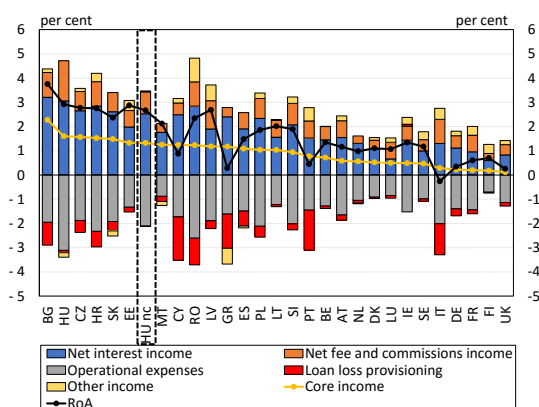
Numerous studies were conducted to examine banks' income in a panel regression. Target variables usually include items of return on assets or equity, while explanatory variables are constituted by bank-specific (internal) as well as macro-specific and sector-specific (external) indicators. The studies that also examine the relationship between profit and the economic cycle usually find evidence of the procyclical nature of bank profitability. See, for example, the studies by Athanasoglou et al. (2008), Albertazzi and Gambacorta (2009) or Dietrich and Wanzenried (2011). From the aspect of our analysis, the study by Albertazzi and Gambacorta is of particular relevance; the authors researched the possibility of a structural break following the introduction of the euro, although without any statistically significant result. Our primary objective was to reveal the transformed relationships between banks' incomes and the factors affecting the changes in such incomes in the periods preceding and following the outbreak of the financial crisis in Hungary. Therefore, we examined the degree of the impact on profitability of the explanatory variables that are in focus separately in the periods between 2002–2008 and 2009–2016 by applying interactions with a dummy variable.

On the whole, the database used for the modelling contains the data of 19 domestic institutions at a quarterly frequency for the period between 2002–2016. The dynamic fixed-effect panel regression is an appropriate model framework for examining the profitability of the sector. The model is dynamic, because the lagged value of the target variable is also among the explanatory variables, as typically a certain degree of persistence is observed in banks' profitability. This can also be said of the domestic institutions, since the coefficient of the lagged value proved to be

statistically significant in all considered specifications at a 1 per cent level as well. The results presented below are also robust; they were significant in various specifications, with different scopes of control variables.

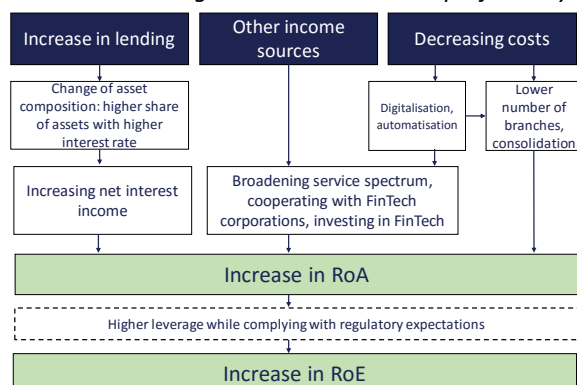
It can be established that **there is a significant relationship between the domestic macroeconomic environment and banks' profitability**: a positive relationship is observed between the annual GDP growth rate and bank profitability, although the size of the impact declined considerably after 2008. **This finding is in line with the results pointed out in the aforementioned literature, i.e. with the fact that bank profitability behaves in a procyclical manner.** The effect of performing household and corporate loans as a proportion of assets on banks' income proved to be positive over the entire horizon, and the degree of the effect was greater in the case of household loans in the period between 2009 and 2016. A further decomposition of the target variable to net income from interest as well as commissions and fees provides a more complex picture of the source of these correlations. Based on the results of estimates, the GDP growth rate may have strengthened banks' profitability through the increase in interest income, while the larger impact of performing household loans observed in the period following the outbreak of the crisis may have done so primarily through the net income from commissions and fees. The former is presumably attributable to the gradual decline in the yield environment observed in the past years, while the latter **implies an increasing fee burden on household loans.**

Chart 36: Composition of credit institutions' return on assets in international comparison



Note: 'HU nc' stands for non-consolidated Hungarian data, where the size of the transaction levy was also excluded from income from commissions and fees. Sources: ECB, MNB

Chart 37: Strategies to increase banks' profitability



Source: MNB

Even in a European comparison, domestic credit institutions' profitability is not considered unfavourable. An international cross-sectional comparison may provide an appropriate basis of comparison for assessing the current level of profit/loss components (Chart 36). Taking into account the basic profit and loss items, the Hungarian banking sector's non-consolidated profitability excluding the effect of the transaction levy is ranked sixth best in the European Union. In terms of the total return on assets, the data show an even more favourable picture, although in this respect the comparison may significantly be distorted by the high level of provision reversals, which, in contrast to Hungary, was not typical of the banking sectors of most countries in the past period.

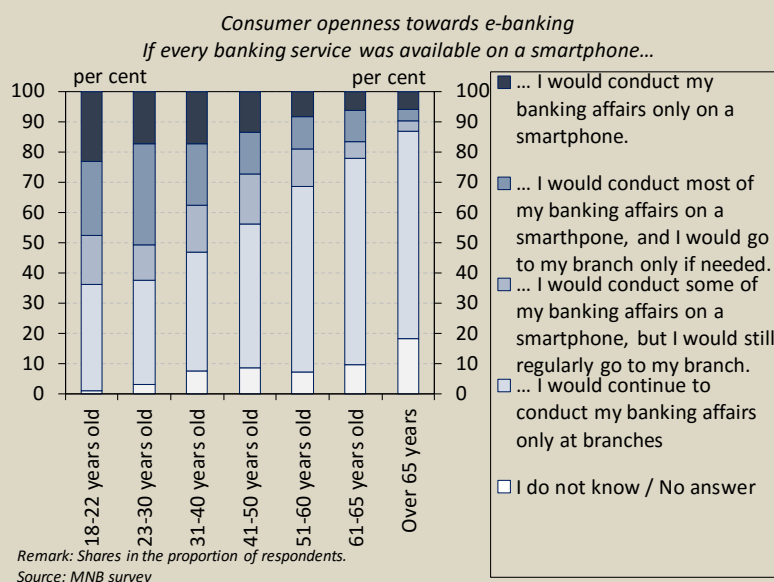
In addition to the increase in non-interest revenues and the decline in costs, the rising activity may also contribute to credit institutions' profitability. The global low yield environment forces each country's banking sector to try to compensate the profit eroding effect of declining interest revenues from other sources of income. The most obvious reflection of this endeavour is the intention to reduce costs and to increase non-interest revenues (Chart 37). In both cases, a prominent role is given to FinTech enterprises, which appear in the market as parties which implement the cost-reducing developments and, in the case of revenues, as potential competitors of banks. Looking at domestic credit institutions' incomes in an international comparison, a high ratio of net interest revenues is seen (some 71 per cent), which indicates that there is still room for a shift towards non-interest incomes. Another important aspect concerning Hungarian credit institutions is that compared to other countries

there is still ample room for the expansion of lending. Accordingly, financial institutions can increase their profitability on a volume basis as well, even through a slight increase in leverage.

BOX 6: OVERVIEW OF FINTECH INNOVATION IN HUNGARY

In recent years, the fintech industry has been vigorously expanding at the international and regional level as well, both in terms of the capital invested and the number of innovative firms. The increasingly widespread use of innovative, digital solutions can considerably improve the cost effectiveness and competitiveness of the financial system, but may also involve dangers from a consumer protection, microprudential and macroprudential perspective. In the summer and autumn of 2017, the MNB conducted a comprehensive study to survey and closely monitor market developments related to fintech innovations. In this study, consumer’s openness towards innovations on the one hand, and the results and future plans of market participants on the other hand were examined. Consumers’ opinion and attitude towards fintech solutions were measured using focus group interviews and a questionnaire-based survey, on a sample of over 1,500 people. The MNB assessed the view of credit institution players, fintech companies and venture capital firms with a special questionnaire on innovations and the regulatory opportunities surrounding them, and also with personal interviews, covering a total of 60 stakeholder institutions.

Certain consumer groups are very keen on fintech solutions. There are substantial differences in consumers’ attitude by income level, educational attainment and primarily age. One major portion of consumers, approximately 15–20 per cent, are already very open towards fintech innovations. Thus, in terms of the active population, 1 million consumers can already generate potential demand for novel solutions. Among them, due to practical reasons, such as simplicity, flexibility and quickness, online banking and administration are highly popular when it comes to the digital solutions which are already available. Although for the time being a considerable share of the older

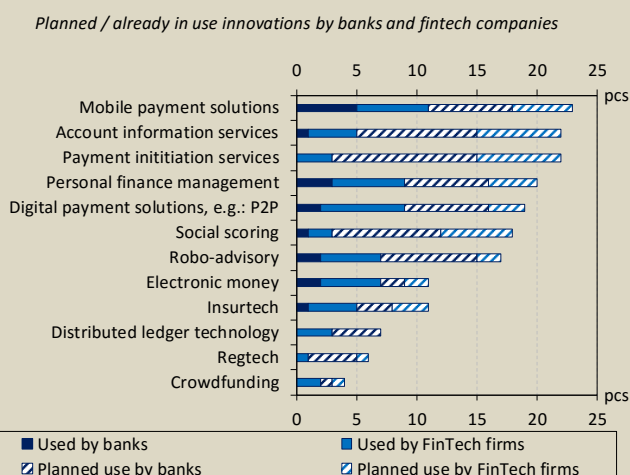


age group are reluctant to adopt the innovative solutions and primarily conduct their banking in branches, the spread of the positive experiences with digital solutions and banks’ own campaigns can help boost the receptiveness of these social groups. This market can also grow as the income position of the current young generation improves and their demand for banking services increases. Respondents who were open towards these innovations cited mainly privacy issues as potential dangers in connection with fintech firms, and they trust banks more in this respect, which is an important factor regarding future fintech developments.

Hungarian institutions mainly see the spread of fintech innovations as an opportunity, which may support their efficient functioning and facilitate the faster integration of digitalisation into banking processes. They do not feel that their position would be threatened, as they consider their know-how and experience accumulated in recent decades to be a major competitive edge. The majority of Hungarian banks already have some ties to fintech firms and plan to expand these relationships. According to their plans, the current and future partnerships with fintech firms will provide efficient solutions to all parties concerned, i.e. banks, technology companies and consumers. The surveys show that banks are now developing online and mobile platforms, but will also implement new technologies that will appear as a result of fintech innovations. In addition to the facilitation and development of mobile payment, the plans

regarding account information and payment initiation services, which appeared due to PSD2, are also dominant.

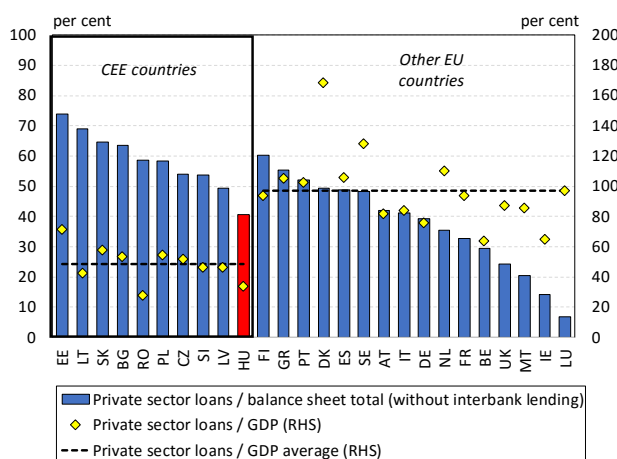
Hungarian fintech firms believe that they will be able to survive in the long run, either as part of a banking system integration or as independent actors. Most fintech firms interviewed do not feel that Hungarian banks would be dismissive, and a large portion of them are already cooperating with traditional banking actors. Cooperation with banks typically also entails financial support, but most firms finance their operating activities on their own. The openness of fintech firms towards the banking system is expected to continue, and further cooperation is projected. Currently, Hungarian companies are active in several segments, and a wide range of products and services are being developed. The current paths of development show that the various digital payment solutions are the most widespread, fintech firms' plans are similar to those of banks, and the new payment services enabled by PSD2 attract considerable interest.



Source: MNB

Based on the results of the MNB's market consultation, there is strong demand on the market for the regulatory support for fintech innovations. The discussions with market participants confirmed that there is substantial openness towards the regulatory solutions that help the development and testing of fintech innovations in an organised framework. According to international experiences, the establishment of an Innovation Hub providing guidance on Hungarian laws and operating frameworks, as well as a regulatory sandbox enabling a controlled innovation testing ground could prove beneficial. The Hungarian actors are open towards using both instruments, and around half of the respondents have not only the intention to engage in testing in a regulatory sandbox, but also a product or service ready for testing. An adequately flexible regulatory framework developed based on international best practices, and tailored to the special Hungarian conditions can contribute to the efficient utilisation of fintech innovations, and boost the competitiveness and cost effectiveness of the Hungarian financial system.

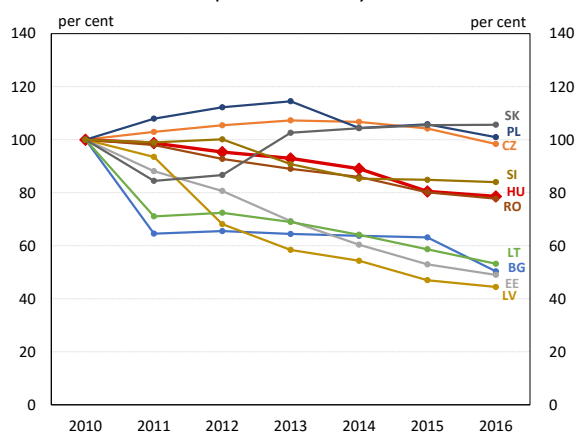
Chart 38: Ratio of private sector loans to banks' balance sheet total and the credit-to-GDP ratio



Source: ECB

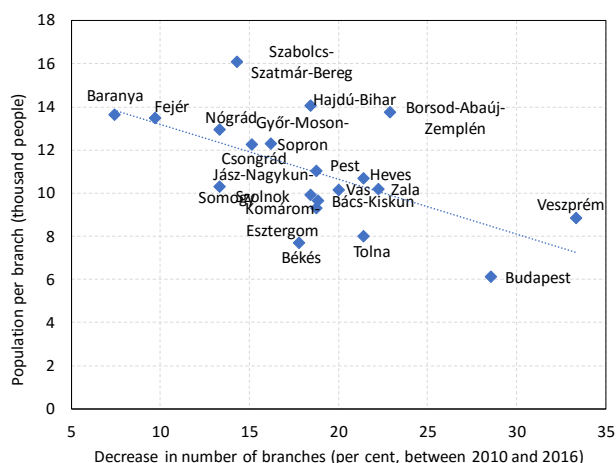
Domestic credit institutions have ample room to increase their loans to the private sector. Following the outbreak of the crisis, the Hungarian credit institutions sector was characterised by a reduction in private sector indebtedness for several years. This trend left its mark on the balance sheet structure of banks as well: in 2017 Q1, of the CEE countries Hungary had the lowest proportion of loans to the private sector (at a mere 40 per cent) within all assets. Not independently of this, the size of the private sector's bank loans as a proportion of GDP is also below the corresponding figures in the majority of the countries of the region (Chart 38). These indicators, as well as the negative credit gap typical of both the household and corporate segments, all indicate that there is ample room for banks' lending activity to increase in the domestic private sector. The increase in loans outstanding to the debit of liquid assets also contributes to the rise in net interest revenues, thus facilitating growth in the sector's profitability.

Chart 39: Change in number of branches in CEE countries (2010 = 100%)



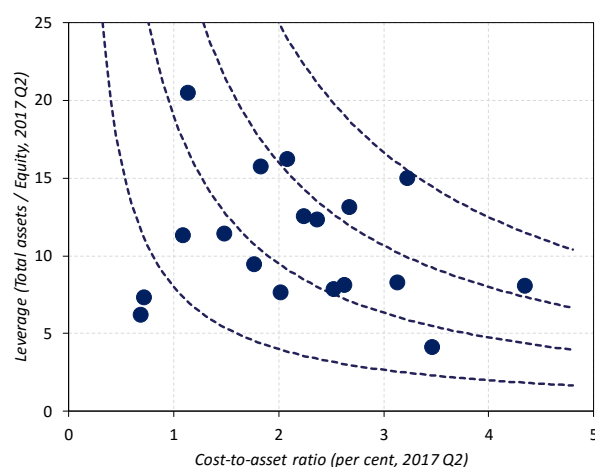
Source: ECB

Chart 40: Number of inhabitants per branch and the decrease in the number of branches by counties



Note: Based on the data of five large banks. Source: MNB

Chart 41: Leverage and cost-to-asset ratio of Hungarian banks (2017 Q2)



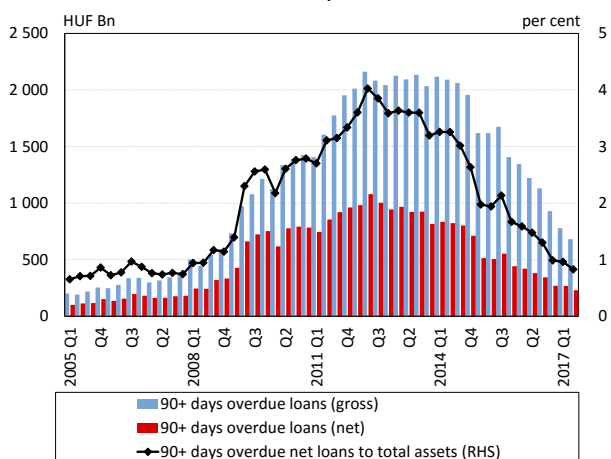
Note: Based on the data of banks whose balance sheet total exceeds HUF 100 billion. Source: MNB

Domestic credit institutions took significant steps to reduce the number of branches. Hungarian credit institutions have reduced the size of their branch network by 21 per cent since 2010. With this, Hungary complies with the trends observed in the CEE region: the closure of branches was especially typical in the Baltic states, but network reductions similar to that seen in Hungary were also observed in Romania and Slovenia (Chart 39). In recent years, the number of branches has remained unchanged or increased slightly in the countries less affected by the crisis (Slovakia, Poland, Czech Republic).

The major Hungarian banks mainly downsized their branch networks in counties where the number of branches had previously grown too high. According to the May 2017 Financial Stability Review of the European Central Bank, over the past two decades banks' branch networks mainly declined in countries where the ratio of internet banking users was higher within the population. In Hungary, however, an examination of the branch closures reveals that network downsizing mainly took place in the counties where the network was excessively dense in recent years (Chart 40). The largest decline of 29 per cent was observed in Budapest, where in the case of the five large banks under review the number of inhabitants per bank branch had been the lowest (some 6,100 people). By contrast, the degree of network reduction was less pronounced in counties where the density of branches was already relatively low (Baranya, Fejér, Nógrád and Somogy). We have not found any county-level correlation between the reduction of the number of bank branches and the ratio of internet users within the population. Nevertheless, the European-level analysis underscores that over the medium and long term the downsizing of physical infrastructure may be limited by the low degree of bank clients' digitalisation.

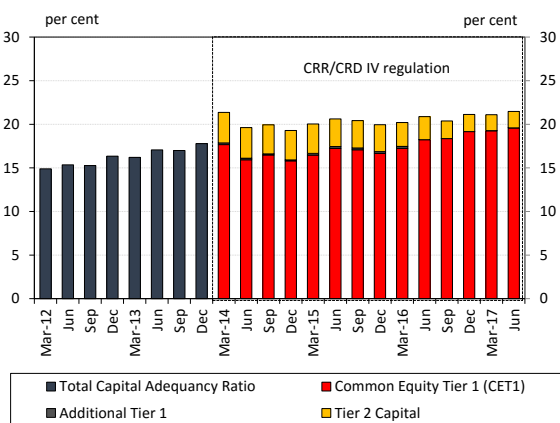
In addition to the organic development of profitability, some banks may raise their return by increasing leverage as well. A rise in interest income and non-interest income, and a decline in costs may improve the return on assets in the banking sector. However, banks with good capital adequacy may also increase their return on equity by increasing their leverage. At the present capital levels, we see some room for this in the case of some domestic institutions that have significant capital buffers (Chart 41). It must be emphasised, however, that in under no circumstances may the increase in leverage reach a degree that would significantly raise solvency risks. At present, the Hungarian credit institution sector functions with roughly tenfold leverage, which may be cautiously

Chart 42: Gross and net value of loans overdue by 90+ days



Source: MNB

Chart 43: CAR of the credit institution sector



Source: MNB

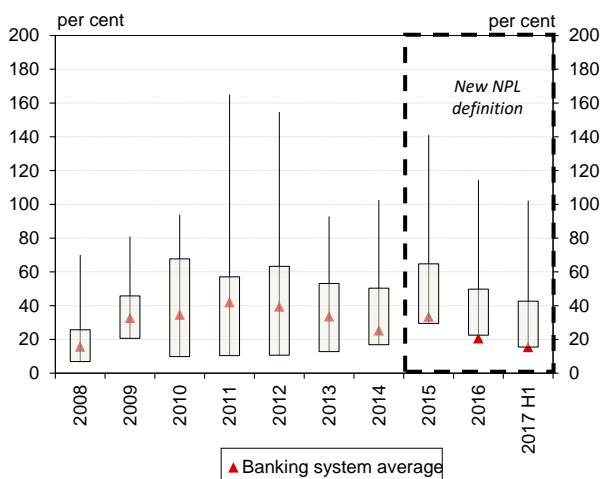
increased, but only in the case of institutions with sustainably high capital adequacy. Increasing the balance sheet total at the same time allows the banking sector to increase its efficiency by increasing its size.

3.2. Stable capital position and low amount of non-performing loans ensure prudent loan loss provisioning

Loans over 90 days past due no longer pose a major risk for the banking sector. Banks’ portfolio cleaning, the improving economic environment and the pick-up in lending all suggest that the problem of non-performing loans is declining, both in absolute and relative terms. The ratio of loans over 90 days past due is already below 10 per cent in both the household and corporate segments. In June 2017, the NPL ratio calculated using the broader definition of non-performing was 8.6 per cent and 12.7 per cent in the case of corporate and household loans, respectively. The banking sector’s non-performing loans have essentially been on a steady decline since mid-2014, while the net stock reduced by loan losses, which potentially still posing a risk (and for which the regulatory capital must provide cover), is already less than 1 per cent of the balance sheet total (Chart 42).

The capital level of the credit institution sector reached its high point observed since the crisis, and regulatory capital requirements continue to rise. At end-June 2017, credit institutions’ average non-consolidated capital adequacy amounted to 21.5 per cent (Chart 43), the highest level since the crisis. The rise in capital adequacy in H1 resulted from a roughly HUF 130 billion increase in regulatory capital, while risk-weighted exposure rose slightly. All banks comply with the minimum expectation of 9.25 per cent valid in 2017 together with the capital conservation buffer. This expectation will increase by a further 1.25 percentage points until 2019, when the capital conservation buffer requirement reaches its final level of 2.5 per cent. Additionally, in order to strengthen the shock absorbing capacity of systemically important institutions, the MNB determined an additional capital buffer requirement of 0.5–2 per cent for them. These capital buffers have to be built up gradually, in 4 years starting from 2017. The MNB revises the identification of systemically important institutions and the definition of capital buffer rates every year. In addition, the MNB left the 0 per cent countercyclical capital buffer rate unchanged, as the level of cyclical systemic risks remain low.

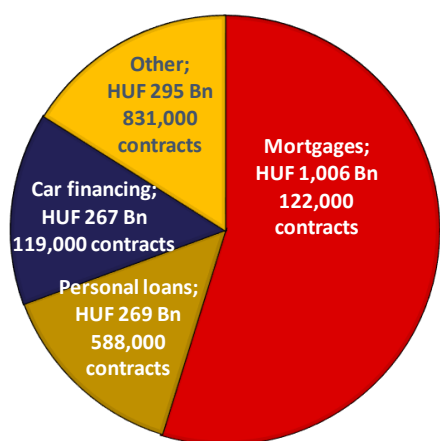
Chart 44: Net non-performing loans as a proportion of regulatory capital at major banks



Source: MNB

The reversals of loan loss provisions did not entail an increase in solvency risks. At the end of H1, in the case of the major institutions, the ratio of net non-performing loans to the regulatory capital ranged between 3 and 102 per cent (Chart 44). The banking sector level indicator amounted to 15.5 per cent, declining from its end-2011 level of 42 per cent in spite of the fact that due to the new definition of non-performing loans the scope of loans classified as non-performing has expanded since 2015. Accordingly, taking everything into account, the reversals of provisions observed in the past months – which, *ceteris paribus*, entail an increase in net non-performing loans – did not result in a rise in solvency risks in the banking sector. In terms of these risks, it is also reassuring that even the magnitude of the net non-performing portfolio of banks that paid dividends recently declined as a proportion of regulatory capital.

Chart 45: Number and volume of household loan contracts 90+ days overdue by loan segment



Note: The data refer to the financial system as a whole.
Sources: CCIS, MNB

Although banks' risks are limited by the robust capital position and the low net stock, the situation of households in default is still characterised by tensions. The non-performing loan portfolio poses a risk to banks if there is no adequate loan loss provisioning behind the loans or the capital position of the institution is stretched. However, the Hungarian banking sector has adequate reserves, and therefore, compared to previous years the problem of non-performing loans is a much less serious burden for the sector. Nevertheless, households' risks are not reduced by banks' higher provisioning in itself; households in default still owe the total amount to the bank or the debt management company. As of June 2017, the amount of overdue household loans in the financial system as a whole was HUF 1,837 billion (Chart 45). Within that stock, the around 122,000 mortgage loan contracts in default – amounting to HUF 1,006 billion – represent the largest proportion and the highest social risk. In the end of 2017 H1, the majority of such loans (57 per cent) could be found on financial corporations' (mostly debt management companies') balance sheets. Although the MNB continuously monitors the situation of these households, the social implication of the problem can primarily be treated with legislative and fiscal means.

BOX 7: INSTITUTIONAL CONSOLIDATION IN THE INTERESTS OF STRENGTHENING COMPETITIVENESS

The institutions in the cooperative integration (SZHISZ) are present all over Hungary with their services, and together they operated over half of all Hungarian bank branches in the first half of 2017. In their business model, they traditionally collect the savings and satisfy the borrowing needs of the population in their surrounding area, but they are also turning towards enterprises, a large part of which pursue agricultural activities. Their market share is mostly significant in deposit taking and small-business services, but despite their size they also process a large number of payment transactions.

Some indicators of activity of the Integration

	Institution number	Branch number	Daily average No. of GIRO transactions
Integration	55	1,428	624,555
Small banks	13	101	103,167
Large banks	16	1,084	1,759,318

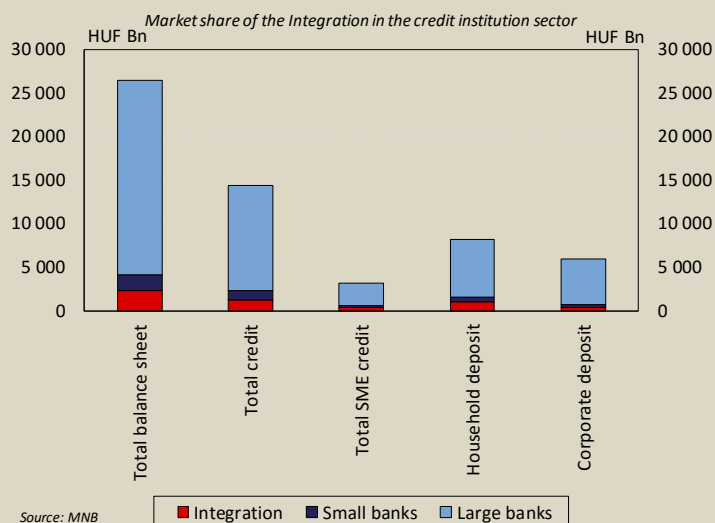
Note: Based on 2017 Q2. Forrás: MNB

In view of the changing economic environment and social conditions, the Integration adopted a new strategy in 2017, which mainly aims to expand the range of products and services, and focuses on increasing commission and fee income. The structure of the group will be radically overhauled in order to reduce costs and boost operational efficiency. The number of cooperative credit institutions will drop to 12 as a result of a series of mergers, and the remaining institutions will serve clients on a regional basis, with a sustainable size and a broader range of products and services. In the uniform Hungarian network of branches that will emerge after the consolidation, they seek to cover the entire array of financial services, and this will entail the transformation of the activities of the Magyar Takarékszövetkezeti Bank, the central bank of the Integration, as well as the FHB banks owned by the Integration.

Business performance of the Integration in 2017 H1

Even during this major restructuring, the group was able to increase its balance sheet total in the first half of 2017. This growth was driven by the above-average rise in lending activity, which can principally be attributed to the expansion in corporate loans, and the increase in household mortgages also accelerated in the recent period. Although the combined share of loans is merely 43 per cent of the consolidated balance sheet total (in contrast to the 53-per cent average in the case of banks), the group has substantial reserves in liquidity going forward, which can be used to further boost lending activity.

With respect to long-term profitability, the fact that the proportion of non-performing loans declined in both household and corporate loans is a favourable development, which can be attributed to new lending and improving workout activities. On the liabilities side, obligations to clients increased only slightly, while member institutions were able to boost their commission and fee income primarily by selling investment units and government securities.



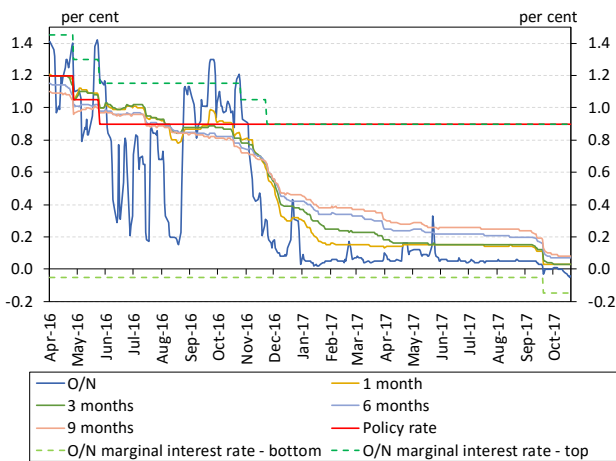
Even during the structural transformation which entailed considerable costs, the Integration continued to generate a profit at the consolidated level in the first half of the year. This was largely due to the good performance of Takarékbank, while member institutions are weighed down by substantial one-off costs related to the mergers; nevertheless, the results of the improvement in efficiency and the IT developments may emerge over the long term.

The capital position of the Integration remains strong, and the own funds of the group adequately cover the risks taken. The capital adequacy ratio decreased somewhat compared to end-2016, due to the above-average growth in lending and the investment decisions aimed at the structural transformation, yet it is still above the sectoral average. Nevertheless, if the strategic developments and the dynamic growth plans of the Integration are to be fulfilled, additional external funds may be necessary even over the medium term.

4 MARKET AND BANK LIQUIDITY – HISTORICALLY LOW INTEREST RATE ENVIRONMENT, AMPLE LIQUIDITY

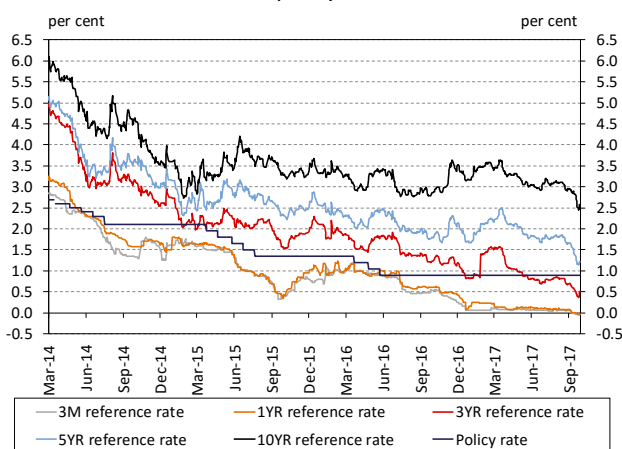
Following the September rate-setting meeting, both government securities and interbank yields reached historical lows. Accordingly, short-term yields became temporarily negative in the government securities and interbank markets as well. In the banking sector, massive corporate deposit inflows were a key factor on the liabilities side, while the assets side was determined – in addition to the pick-up in lending activity – by the increase in liquid assets, and within that by the rise in cash and overnight deposits. The quantitative limit of the main policy instrument and the increasing stock of fine-tuning FX swap tenders also contributed to the increase in these assets. At end-August, the banking sector’s historically high government bonds and treasury bill holdings of HUF 7,705 billion amounted to 23 per cent of the banking sector’s balance sheet total. Within external liabilities, long-term liabilities increased, while outstanding swaps declined in the past period.

Chart 46: BUBOR and the policy rate



Source: MNB

Chart 47: Benchmark yields of government securities and the policy rate



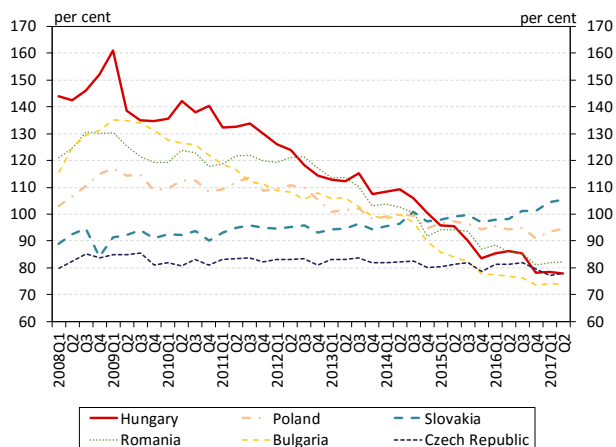
Sources: MNB, Government Debt Management Agency

4.1. Interbank and government securities yields fall to historical lows

Short-term BUBOR yields became negative for the first time in their history. At its September rate-setting meeting, the Monetary Council lowered the overnight deposit rate by 10 basis points, and thus the lower bound of the O/N interest rate corridor fell to -0.15 per cent, while the upper bound remained unchanged. As a result of the monetary policy easing, short-term (overnight and one-week) yields temporarily sank to negative territory and then tracked the size of the measure after a slight adjustment (Chart 46). Following the decline in O/N deposit rates, the deviation of the BUBOR from the base rate increased further in relation to the additional quantitative limit of the main policy instrument and the high liquidity stock of the banking sector. The one-year BUBOR yield and, without exception, BUBOR yields up to one year sank to 0.1 per cent and below 0.1 per cent, respectively.

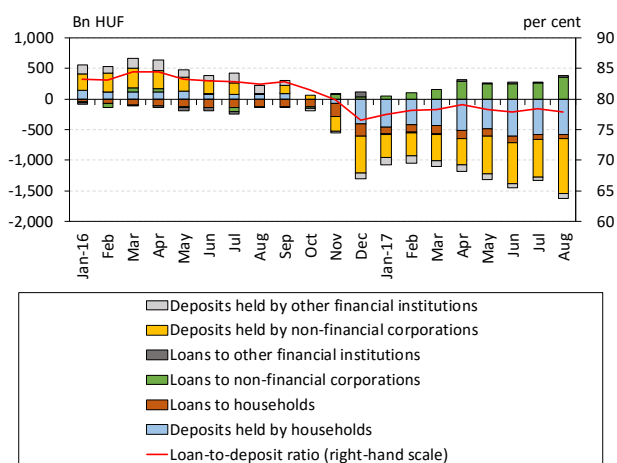
Reference yields in the government securities market also declined further. Similarly to the BUBOR, government securities market reference yields also followed the monetary policy easing (Chart 47). After the Monetary Council’s decision, the three-month yield became negative, while the one-year yield is around zero per cent. Although the decline in long-term government securities market yields, which had lasted since March, came to an end in the last two months of the summer, it returned to its previous path following the monetary policy decision in September.

Chart 48: Loan-to-deposit ratio of the banking sector in an international comparison



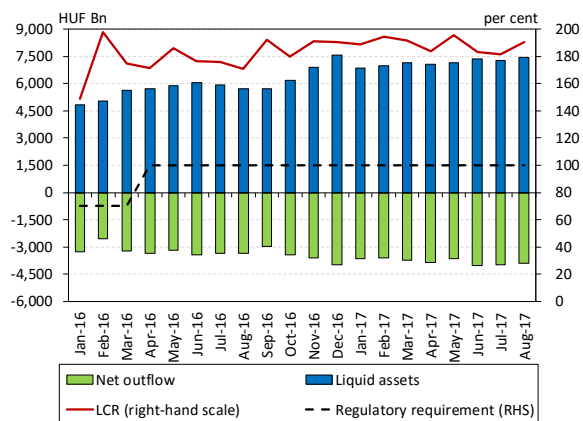
Sources: ECB, MNB

Chart 49: Decomposition of changes in the loan-to-deposit ratio of credit institutions



Source: MNB

Chart 50: Development of the LCR indicator at credit institutions



Source: MNB

The Hungarian loan-to-deposit ratio may embark on an upward path in the near future, similarly to other countries in the region. In 2017, total loans outstanding increased in all reference countries (albeit to different degrees), as a result of which the loan-to-deposit ratio is no longer declining (Chart 48). An increase was observed in Slovakia and Poland, mainly supported by the credit growth of more than 5 per cent. Due to moderate credit growth, the loan-to-deposit ratio also started to increase in Bulgaria in 2017 Q1, following a slight decline.

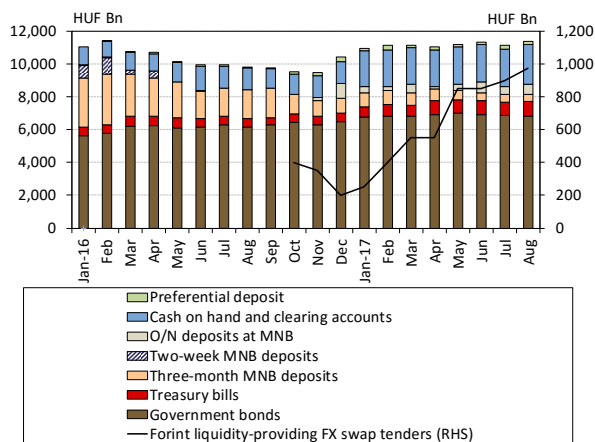
The loan-to-deposit ratio stabilised in Hungary, mainly as a result of an increase in lending. At present, the development of this ratio is determined by the expansion in corporate loans as well as the increase in corporate and household deposits (Chart 49). In 2017, the growth of HUF 192 billion in loans outstanding had a significant impact on the ratio, offsetting the rise in corporate and household deposits, and thus the ratio stabilised in the past period. Within corporate deposits, foreign currency holdings expanded by more than 10 per cent, while growth of 6 per cent was observed in HUF holdings. Households' FX and HUF deposits both increased by around 3 per cent.

4.2. Domestic credit institutions still have high liquid reserves

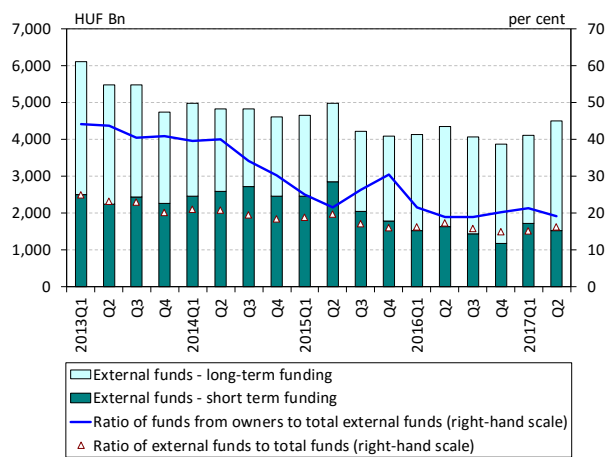
Despite a moderate decline in the past period, the level of the LCR remains high. In August, the LCR stood at 190 per cent, i.e. well above the 100 per cent regulatory requirement (Chart 50). The banking sector continues to have extremely high liquidity reserves, which were further increased during the past period. The slight, 2 per cent decline in the LCR compared to the previous period was caused by a 5 per cent increase in net outflows, which was accompanied by an only 4 per cent rise in liquid assets.

During the past period, the credit institutions sector further increased its liquid assets. With the exception of the three-month policy instrument and long-term government bonds, holdings of other liquid assets increased (Chart 51). As a result of the quantitative limit on the three-month deposit, HUF 300 billion was eliminated from this category compared to the previous period, and the market rechannelled this excess liquidity into cash assets.¹² Balances of cash and overnight deposits rose by HUF 194 billion and HUF 84 billion, respectively. As a

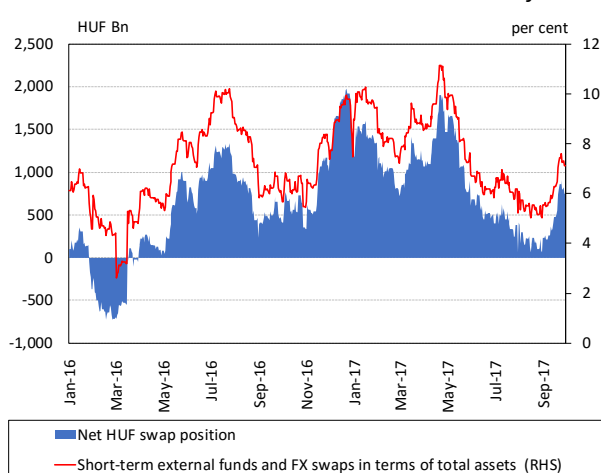
¹² Cash and clearing accounts, overnight deposits, preferential deposits.

Chart 51: Liquid assets of credit institutions


Source: MNB

Chart 52: External liabilities of credit institutions


Source: MNB

Chart 53: Development of the HUF net swap position in the credit institutions and short-term external funds


Source: MNB

result of the quantitative limit, three-month deposits will drop to HUF 75 billion by end-2017. Reallocation of the crowded-out stock is partly a result of the increasing holdings of the central bank's FX swap tenders for HUF liquidity supply, which reached HUF 989 billion at end-September. Preferential deposits that facilitate lending increased by HUF 74 billion, while holdings of government bonds and treasury bills were up by a total HUF 199 billion. The growth in the net stock of government securities was the result of a HUF 14 billion decline in government bonds and a HUF 213 billion rise in treasury bills. At end-August, the amount of government securities and treasury bills held by the banking sector reached historical highs, accounting for 23 per cent of the banking sector's balance sheet total, at HUF 7,705 billion.

Within foreign liabilities, long-term external liabilities increased significantly. Short-term external liabilities declined by HUF 196 billion, while long-term liabilities rose HUF 573 billion in 2017 Q2 (Chart 52). Accordingly, short-term external debt amounted to HUF 1,515 billion, i.e. 4.6 per cent of the total balance sheet, in June 2017. The increase in long-term liabilities is primarily due to the extension in maturities of renewed funds, with total long-term liabilities amounting to HUF 2,977 billion in 2017 Q2. In 2017 H1, there was an overall increase in both short-term and long-term liabilities, but in the case of the short-term liabilities it is important to emphasise that the rise in stock during the first two quarters took place compared to the extremely low base of December 2016.

Following a major decline, a partial correction took place in the swap positions in September. Compared to the high value of the net HUF swap position amounting to HUF 1,300 billion in March 2017, a steadily declining trend was observed. As a result, the banking sector's swap position fell to HUF 64 billion by end-August (Chart 53). Both HUF legs played a role in this: in parallel with a drop in short HUF positions, there was an increase in long HUF positions. During September, however, the stock began rising again, mainly as a result of the increase in short HUF positions, and reached a value of HUF 800 billion.

5 STRESS TESTS OF THE BANKING SYSTEM – INSTITUTIONS ARE CHARACTERIZED BY EXTREMELY STRONG SHOCK-ABSORBING CAPACITY

Based on the results of the liquidity stress test, taking into account the short-term adjustment opportunities, most banks could meet the 100 per cent minimum regulatory requirement of the liquidity coverage ratio (LCR) even after the assumed low-probability event of bank liquidity risks materialising simultaneously. The shortfall of the banks not achieving the regulatory minimum decreased considerably during the first half of 2017, and hence the Liquidity Stress Index is now close to its theoretical minimum.

Based on the solvency stress test, no capital shortfall can be expected in the stress scenario at any actor in the credit institution sector. The capital position of the institutions is strong and the loan losses do not increase drastically even in the stress scenario: therefore, a major portion of the banks may remain profitable even in an unfavourable risk scenario. Interest rate risk is more significant than in earlier periods: a sudden interest rate shock could have a substantial impact at not only the institutional level, but also in the whole banking system. This time, the stress test was prepared with the involvement of the cooperative credit institutions, for a broader group of institutions, and therefore we were able to present the institutions in the Integration Organisation of Cooperative Credit Institutions (IOCCI) on a consolidated basis.

5.1. Taking into account the short-term adjustment, most institutions under review would meet the regulatory minimum even in a stress scenario

The short-term, complex liquidity stress test measures the impact of the assumed low-probability, simultaneous occurrence of bank liquidity risks, also taking into consideration banks' short-term adjustment opportunities and contagion effects. The liquidity stress test examines the impact of an assumed low-probability, simultaneous occurrence of financial market turmoil, exchange rate shock, deposit withdrawals, credit line drawdowns and withdrawals of owners' funds on the LCR (Table 1). 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.¹³

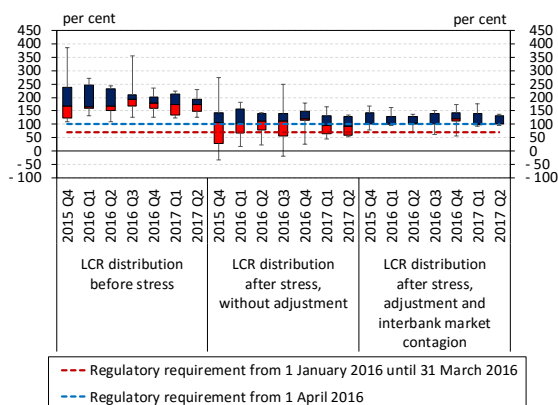
The risk factors taken into account in the liquidity stress test would in themselves considerably reduce the median LCR of the institutions under review, but taking into account the short-term adjustment opportunities, most banks would meet the minimum regulatory requirement. Our stress test was conducted at a quarterly frequency, for the end-of-quarter LCR of the nine largest financial institutions, which account for 82 per cent of the banking sector (in terms of their balance sheet total). The LCR distribution of the institutions under review prior to the stress does not

Table 1: 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 54: Distribution of the LCR before and after stress, based on the number of banks

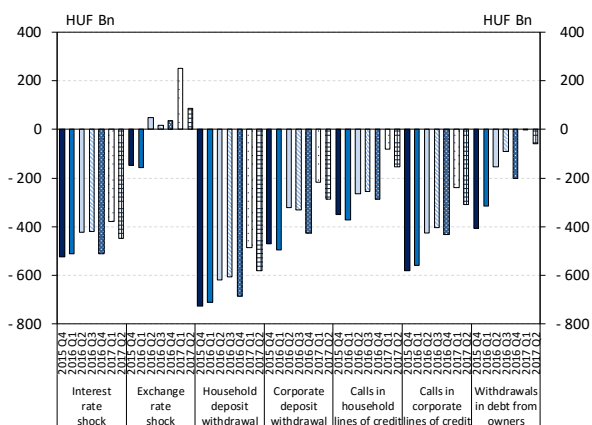


Note: The edges of the box plot represent the lower and upper quartiles of the distribution; the horizontal line in it shows its median. The lower whisker of the plot shows the lowest value, while the upper the second highest value. Source: MNB

¹³ 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.

exhibit a significantly weaker liquidity position as compared to the observations in earlier periods, but in the hypothetical case of not allowing for adjustment opportunities, due to the assumed severe negative shock the median of the LCR distribution would fall below the regulatory minimum (Chart 54). Nevertheless, taking into account the adjustment opportunities, most institutions under review would be able to meet the regulatory minimum. According to the results after stress, adjustment opportunities and interbank market contagion, the range of the LCR distribution has declined in the past half a year. Although there would still be institutions in all periods that could not comply with the regulatory minimum again after the stress even when fully utilising their adjustment opportunities, the lowest LCR value in the outcome has risen considerably, amounting to 91.75 per cent in 2017 Q1, and 95.28 per cent in 2017 Q2.

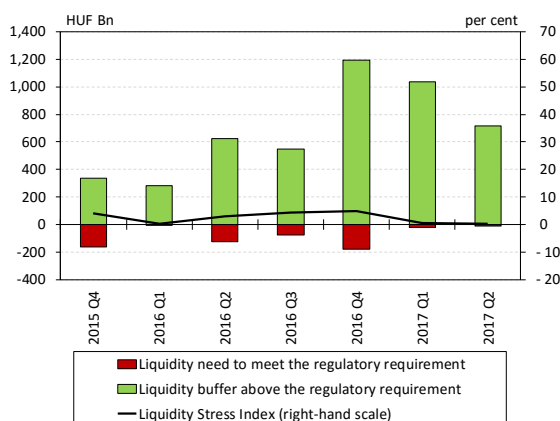
Chart 55: Aggregate impact of stress components



Note: For calculating the impact of each shock we applied the assumption that the given shock takes place on its own. Consequently, the sum of the impact of individual shocks does not necessarily reflect the combined effect of the shocks. Source: MNB

Due to the inflows that can be taken into account at the end of the time horizon, the negative impact of the stress components is mitigated in the first half of 2017. Due to the dominance of positions against the forint, the exchange rate shock to banks' derivative holdings has had a liquidity improving effect in the past quarters, and at the aggregate level, the risk factors with the greatest impact are the interest rate shock and the shock of households' deposit withdrawals (Chart 55). In addition, the negative impact of the risk factors generally decreased in the first half of 2017: in the case of the shock of households' deposit withdrawals, the decrease was moderate, while in the case of the shocks of corporate deposit withdrawals, household and corporate credit line drawdowns and withdrawals of owners' funds it was substantial. This is attributable mainly to the increase in inflows due to the three-month MNB deposits that can be taken into account at the end of the time horizon, rather than the declining risk exposures.

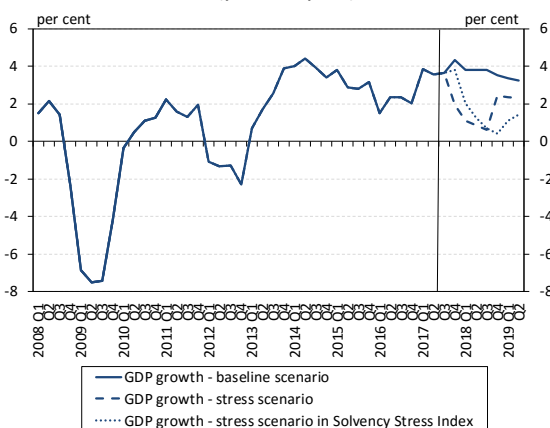
Chart 56: The Liquidity Stress Index



Note: The indicator is the sum of the liquidity shortfalls in percentage points (but maximum 100 percentage points) compared to the 100 per cent regulatory limit of the LCR, weighted by the balance sheet total in the stress scenario. The higher the indicator, the greater the liquidity risk. Source: MNB

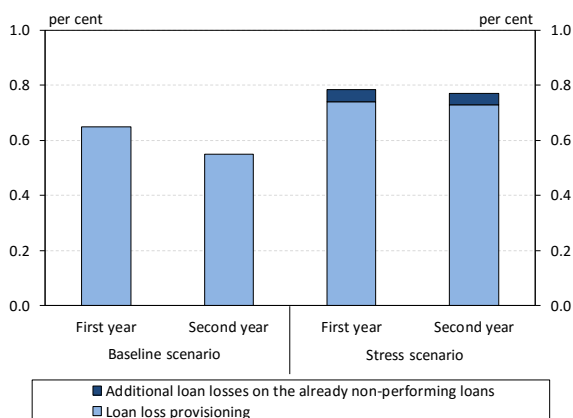
By 2017 Q2, the Liquidity Stress Index approximated its theoretical minimum, owing to a significant drop in the liquidity necessary to meet the regulatory requirement. In order to capture the heterogeneity among institutions, an analogous version of the previous Liquidity Stress Index was developed. The new version aggregates the post-stress percentage-point liquidity shortfalls compared to the regulatory limit calculated at the individual bank level by considering the size of the given bank. By taking into account the size of the institutions, we can also draw conclusions with respect to the extent of a potential stress situation within the banking system. The Liquidity Stress Index determined in this manner fell considerably from 4.78 per cent in 2016 Q4 to 0.3 per cent in the first half of 2017,

Chart 57: GDP growth rate in the scenarios (year-on-year)



Source: MNB

Chart 58: Loan loss rate for the corporate portfolio



Source: MNB

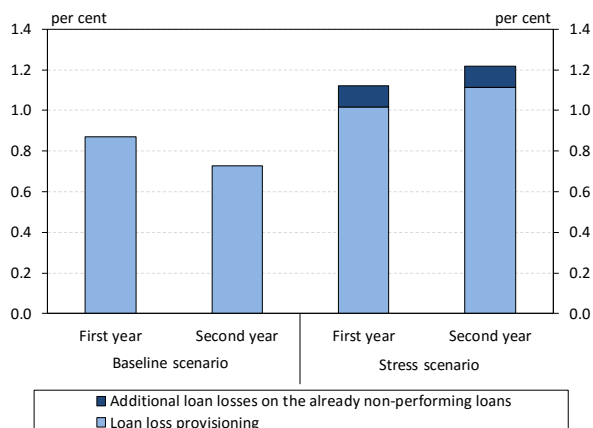
thereby approximating its theoretical minimum (Chart 56). This is attributable to the shortfall of the banks not meeting the regulatory minimum, which diminished substantially during this period. In 2017 Q2, banks' liquidity surplus exceeding the regulatory limit amounted to HUF 715.9 billion (dropping considerably), while their liquidity need necessary to meet the regulatory requirement amounted to HUF 12.5 billion.

5.2. The solvency position of the banking system continues to be very strong, and there is no need for capital at any credit institution in the stress scenario

In the stress scenario, we quantified the impact of an economic slowdown, a weaker exchange rate and a rising interest rate level on the capital position of the banking system as a result of the combined effect of several adverse external shocks. The baseline scenario of the stress test was the projection presented in the September Inflation Report. The impact of the slowdown in the global upswing, financial market turbulences and the faster rise in global inflation on Hungary was examined relative to that. These all weaken Hungarian exports, and the rising yields negatively impact consumption and investments. Therefore, in the stress scenario, growth falls short of the value measured in the baseline scenario by almost 4 percentage points (Chart 57). Following the first year's gradual exchange rate depreciation and interest rate increase, we assumed an exchange rate weaker by 12 per cent and an interest rate level higher by 212 basis points on average in the second year as compared to the baseline scenario.

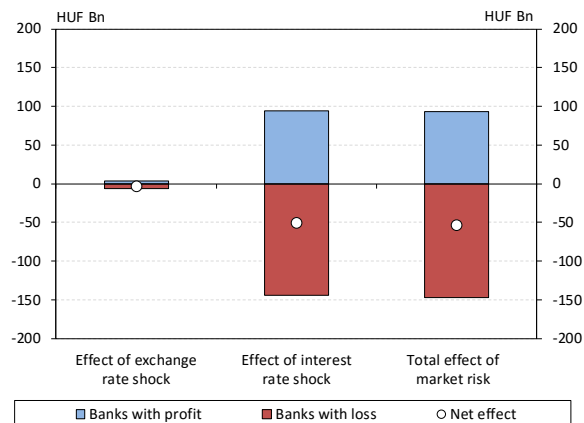
We expect to see favourable risk parameters in the case of both the corporate and the household portfolio in all scenarios, and therefore both loan loss and the costs of transition to the IFRS 9 standard are relatively moderate. The loan loss on the corporate portfolio would only rise relatively moderately even in the case of a substantial slowdown in economic growth (Chart 58), since a major portion of the portfolio was disbursed using strict loan assessment policies. We assumed low risk parameters in the household segment as well (Chart 59), although we expect a larger rise in the stress scenario. On the household side, a significant share of clients is overstretched from a liquidity perspective. In their case, a drop in income or a sudden rise in repayment instalments in variable-rate schemes would render repayments as stipulated in the contract unmanageable. We have not indicated the additional impairment recognised due to the introduction of the IFRS 9 standard in early 2018, as it was taken into account as a one-off item in the profit and loss statement and during capital calculation.

Chart 59: Loan loss rate for the household portfolio



Source: MNB

Chart 60: Market risk stress test result



Source: MNB

Table 2: Stress test result with a 10.5-per cent regulatory capital adequacy ratio

		Baseline scenario		Stress scenario	
		End of first year	End of second year	End of first year	End of second year
8% capital requirement	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	2,043	2,489	1,879	2,140
10.5% capital requirement	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	1,686	2,133	1,515	1,775

Source: MNB

We have stuck with the approach employed in the last report,¹⁴ according to which the additional impairment due to the transition equals the expected loan loss on the performing portfolio over one year.

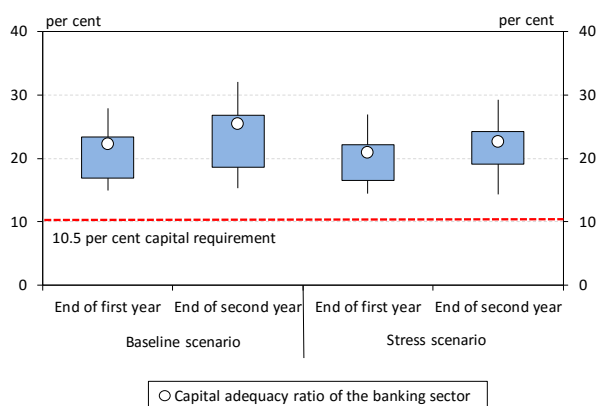
Similar to our earlier stress test, we expect to see favourable profitability in both the baseline and the stress scenario. We assumed that the high interest rate and net commission income observed recently would persist in the baseline scenario over a two-year horizon, and we used conditions somewhat worse than this but still generally favourable in the stress scenario. Due to this and the low credit risk losses, most banks are profitable not only in the baseline scenario but also in the stress scenario.

Among market risks, the impact of the interest rate shock is considerable not only at the institutional level, but also systemically. Several institutions have established an interest rate position in the recent period in such a way that a sudden interest rate increase would have a greater impact, either positive or negative. The earlier relatively balanced impact at the systemic level has been replaced by a substantial net loss based on the current positions (Chart 60). The net FX position continues to be closed both at the institutional level and systemically.

We have estimated the results of our stress test for a broader group of institutions than before, using consolidated capital calculation. Whereas the assessment was previously performed for banks operating in the form of a limited company, mortgage banks and home savings funds and their subsidiary financial enterprises, we now included cooperative credit institutions as well: we treated these institutions as one unit, at the consolidated level, as members of the Integration Organisation of Cooperative Credit Institutions during the test. In addition, we also modified the capital calculation for banking groups, and thus in contrast to the earlier practice, we relied on the consolidated reports describing group-level prudential compliance rather than using a capital calculation based on individual-level data. Due to the modifications, the results cannot be compared to earlier stress tests, this does not mean, however, that the focus of the stress test has shifted. We still examine the capital position of the Hungarian banking system in the narrow sense, and therefore the stressing of foreign subsidiary banks only appears exogenously in practice.

¹⁴ <https://www.mnb.hu/en/publications/reports/financial-stability-report/financial-stability-report-may-2017>.

Chart 61: Distribution of the capital adequacy ratio based on the number of banks



Note: Vertical line: 10–90 per cent range, rectangle: 25–75 per cent range.

Source: MNB

The capital adequacy of the Hungarian banking system remains strong, and all institutions fulfil the regulatory requirement in both the baseline and the stress scenario.

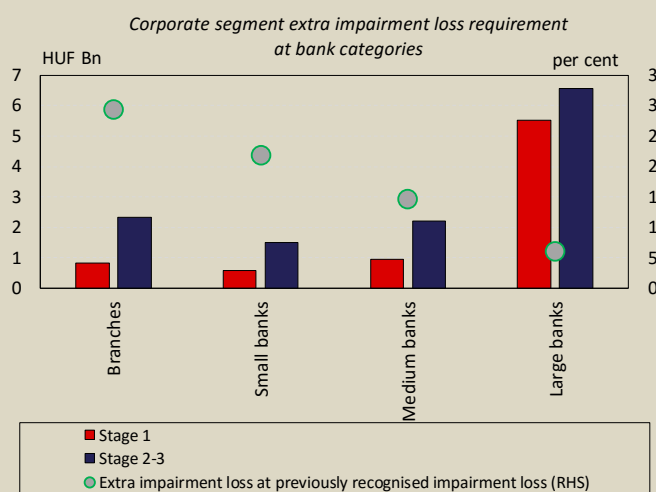
The result of the stress test was evaluated at the end of the time horizon, with a 10.5 per cent capital requirement, taking into account the required capital conservation buffer as well. Thanks to the high initial capital level, the low expected loan losses and favourable profitability, all institutions meet the increasing requirements at the end of the two-year horizon (Table 2). Since over the stress test horizon larger institutions typically have better capital adequacy, the average capital adequacy ratio is relatively high as compared to the distribution based on the number of banks (Chart 61). In calculating the Solvency Stress Index in line with the usual methodology for the current group of institutions, the index is zero, i.e. all institutions pass the test.

BOX 8: IFRS 9 – NEW IMPAIRMENT MODEL FROM 2018

Optionally, starting from 2017 and mandatorily from 2018, the majority of Hungarian credit institutions will prepare their financial statements according to the IFRS standards. An additional regulatory and institutional challenge in the transition from 2017 to 2018 is that the currently effective IAS 39 standard on financial instruments will be replaced by the new IFRS 9 standard, as a result of which banks will face much stricter impairment rules than the present ones. In order to quantify the expected effects of the changeover, the MNB conducted a broad-based survey of the institutions concerned. Below is a presentation of the results of the model partly based on preliminary impairment data submitted by banks and in larger part on the related MNB expert estimates using 2017 Q2 data.

Instead of the incurred credit loss model used to date, the new impairment regulation requires an expected credit loss model for parties which apply the standard. The IFRS 9 standard establishes three stages of impairment, conforming to the credit risk of individual and portfolio-level assets. Stage 1 includes performing loans, where 12-month expected credit losses are recognised through provisioning. At the same time it also means that a loss allowance is established simultaneously with recognition of the asset in the books, irrespective of whether the asset is performing or not. Stages 2 and 3 contain assets where deterioration in performance took place, i.e. credit risk already increased compared to the time of its recognition in the books. Reclassification of an asset into Stage 2 or 3 depending on the increase of credit risk (or with other words the decrease in probability of repayment) are carried out as follows. An asset is transferred from Stage 1 to Stage 2 if significant deterioration takes place in any of the risk circumstances of the financial instrument (for example, default of more than 30 days), while non-performing assets are classified into Stage 3.

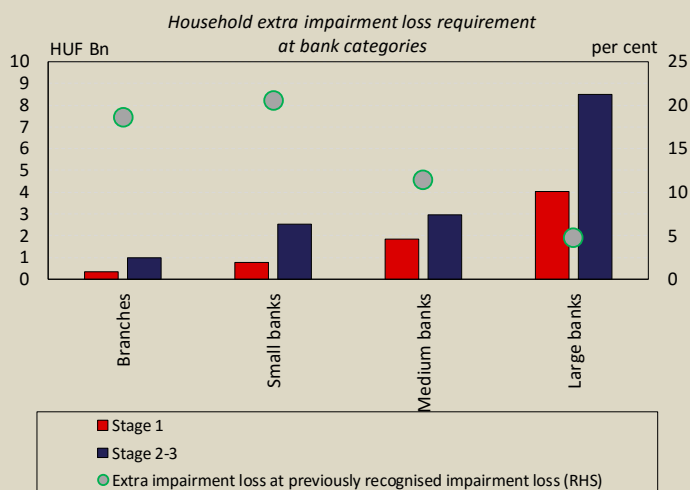
The two driving forces behind the requirement of additional impairment are as follows: firstly, in the case of performing Stage 1 assets, which, to date, – have been covered by lower impairment and provisioning –, higher and obligatory impairment is required for losses that may potentially arise in the short run as well. Secondly, in Stages 2–3, lifetime expected credit losses are recognised. Consequently, stricter criteria are applied for the whole problematic stock than in the previous, incurred loss model.



Source: MNB.

In the corporate segment of the Hungarian credit institutions sector, corporate impairment according to IFRS 9 will have to be near HUF 21 billion higher, divided in a ratio of roughly 40–60 per cent between Stage 1 and Stages 2–3. In terms of size, compared to the impairment and provisioning applied to date, the ratio of the additional impairment requirement declines with the increase in bank size. In Stage 1, small banks and branches will have to increase the current level of provisions several fold, while for large and medium-sized banks the proportionate additional impairment of the provisions will be around 70 per cent. In Stages 2–3, small banks and branches have to increase the impairment to the greatest extent.

The Stage 1 requirement of the household sector imposes higher impairments of around HUF 7 billion, while in Stages 2–3 additional impairments amounting to some HUF 15 billion are expected. The developments observed in the household segment are similar to those in the corporate segment in terms of size and the increase in the ratio of impairment. In Stage 1, with the exception of large and medium banks, all banks will have to provide for impairment that is many times higher than the current level of provisions. The additional impairment to be applied in Stages 2–3 results in the greatest increase in the ratio compared to the current levels in the case of small banks. At the same time, large banks have the most prudently applied impairment levels in this category as well.



Source: MNB.

The MNB model presented here is based on NPL data provided by banks. The unique model of individual banks may differ in their parameters (default rate, loss given default), while the volume of assets classified in different stages according to IFRS 9 may deviate from each other as well.

Nevertheless, it is important to emphasise that the loss incurred as a result of the additional impairment requirements can be recognised in both the P&L and the equity during 5 year period, i.e. the effectiveness and prudential compliance of the domestic credit institutions sector will not be burdened by a one-off, significant shock in early 2018.

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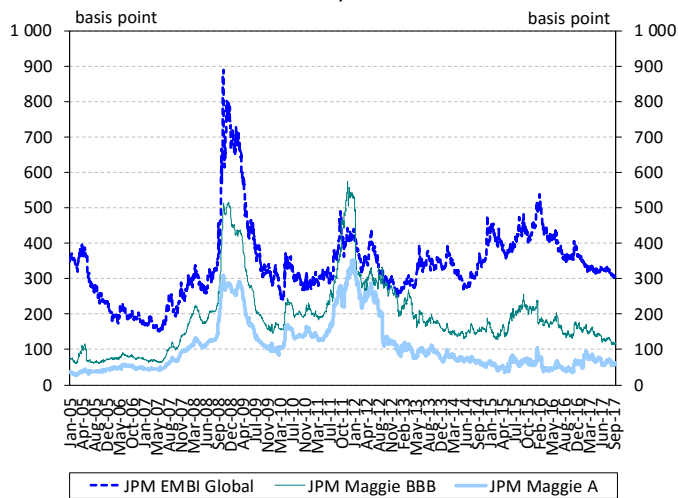
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Appendix: Macroprudential indicators

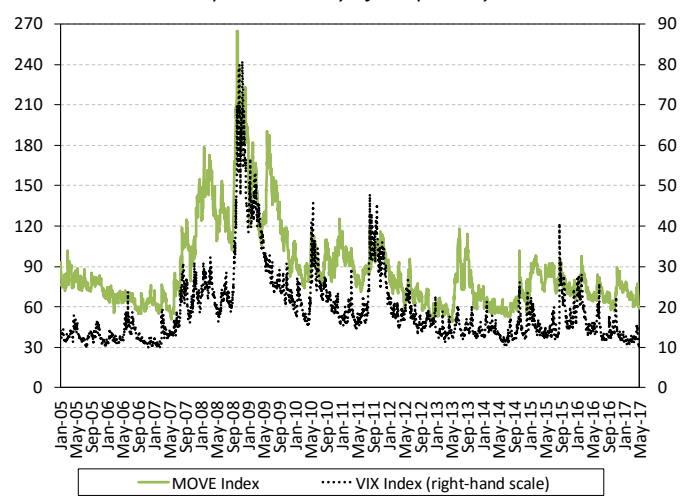
1. Risk appetite

Chart 1: Primary risk indicators



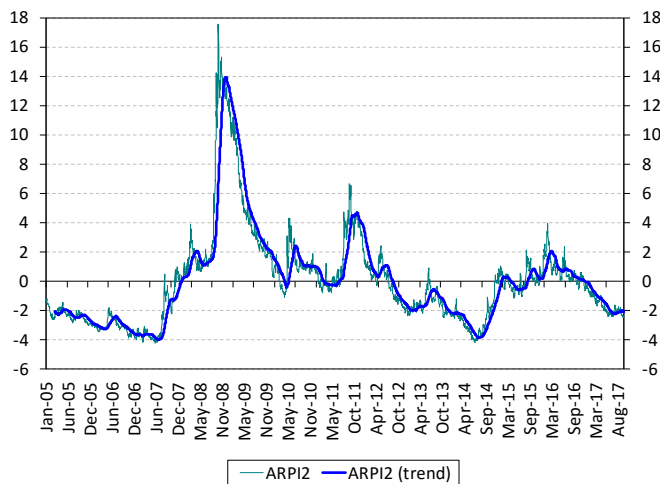
Source: Datastream, JP Morgan.

Chart 2: Implied volatility of the primary markets



Source: Datastream, Bloomberg.

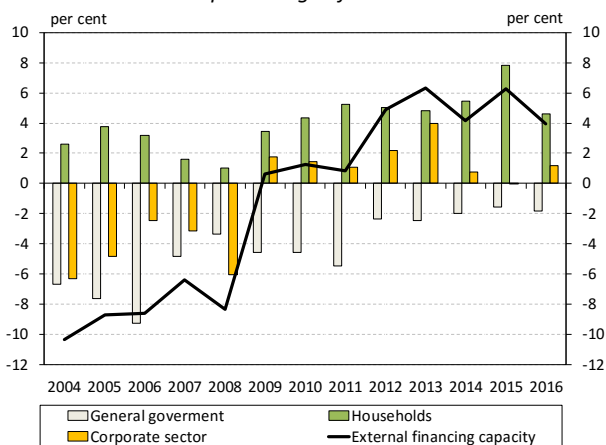
Chart 3: Dresdner Kleinwort indicator



Source: DrKW.

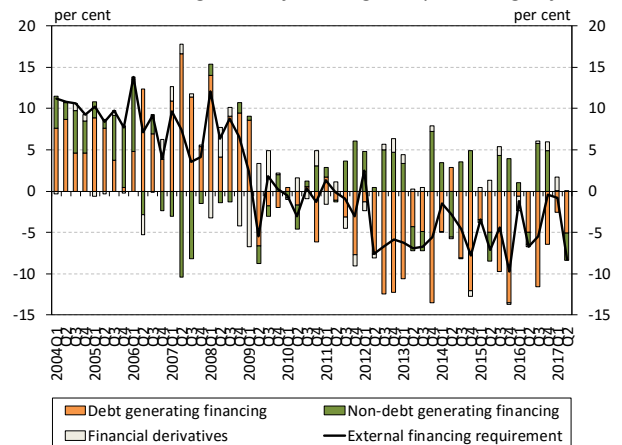
2. External balance and vulnerability

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



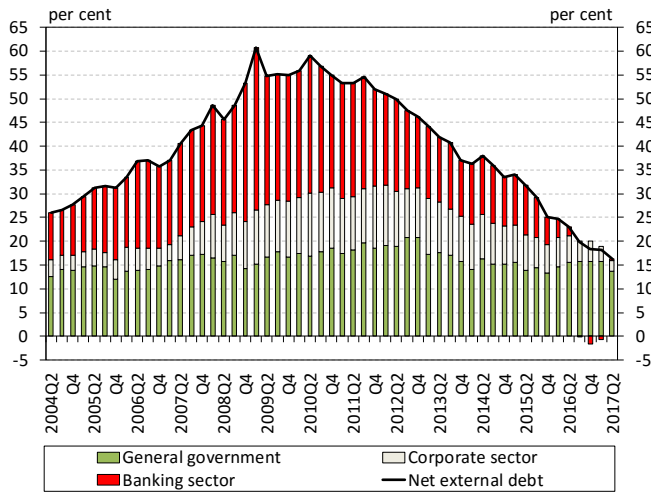
Source: MNB.

Chart 5: Net lending and its financing as a percentage of GDP



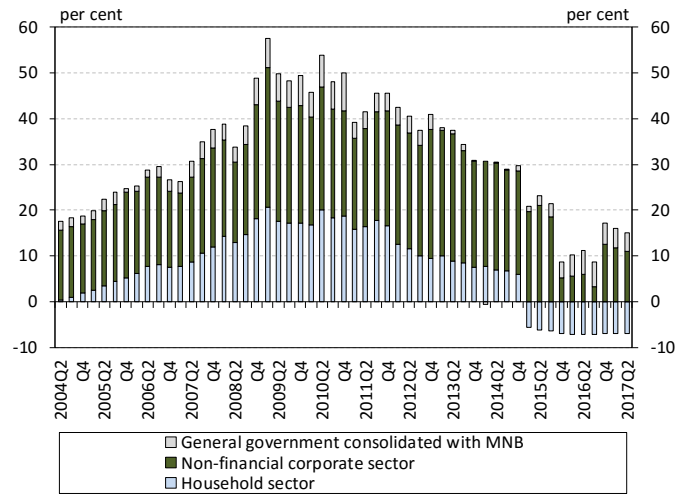
Source: MNB.

Chart 6: Net external debt as percentage of GDP



Source: MNB.

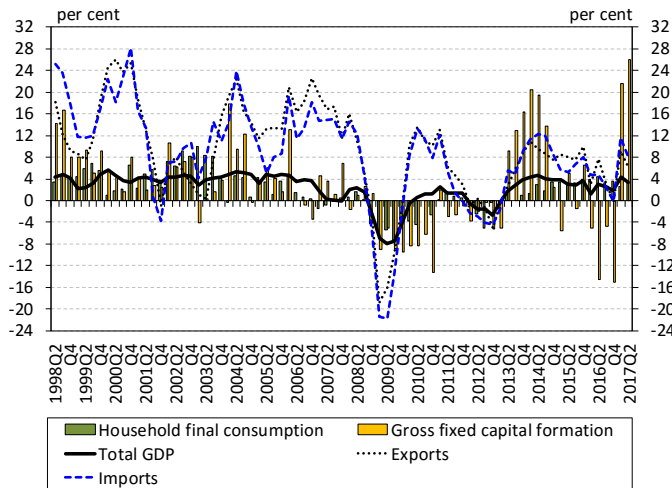
Chart 7: Open FX position of the main sectors in the balance sheet as percentage of GDP



Source: MNB.

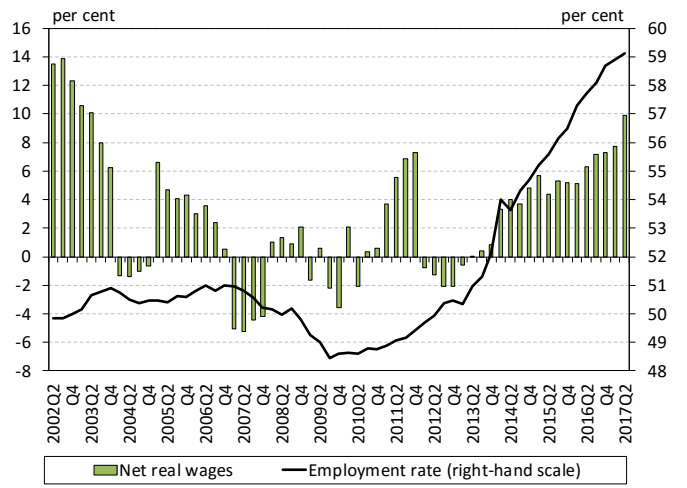
3. Macroeconomic performance

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



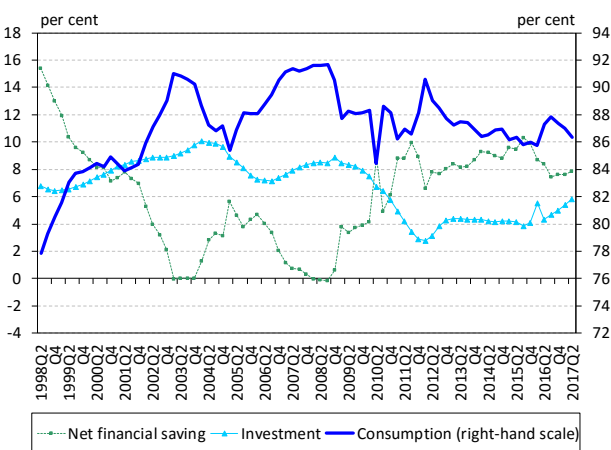
Source: HCSO.

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



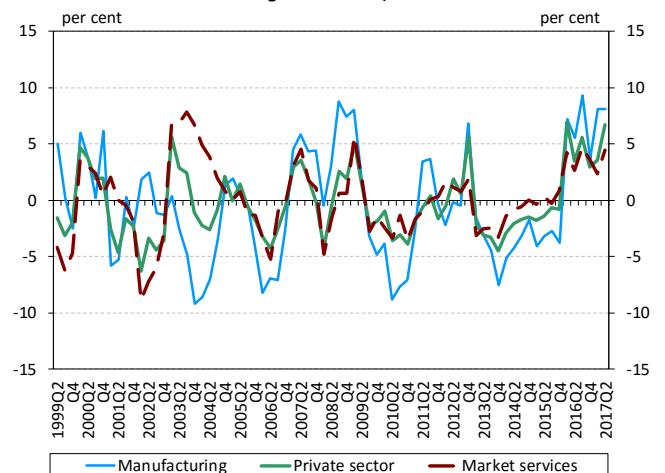
Source: HCSO.

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



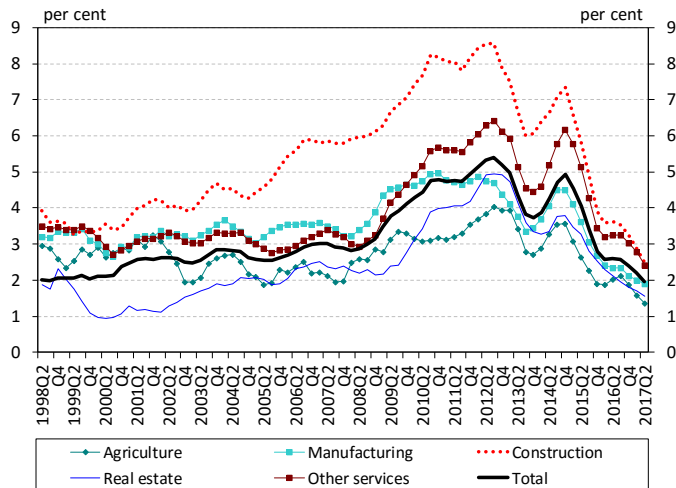
Source: HCSO, MNB.

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



Source: HCSO, MNB.

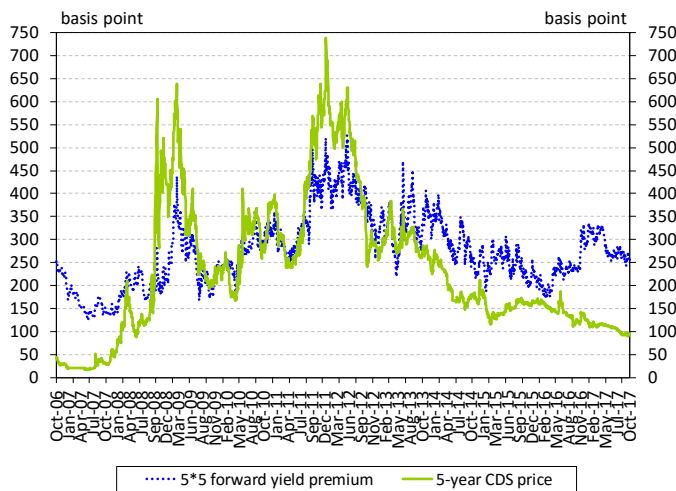
Chart 12: Sectoral bankruptcy rates



Source: Opten, MNB, HCSO.

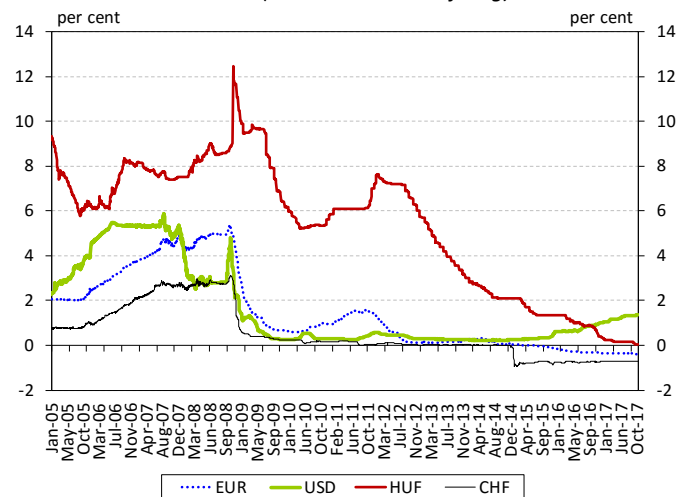
4. Monetary and financial conditions

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



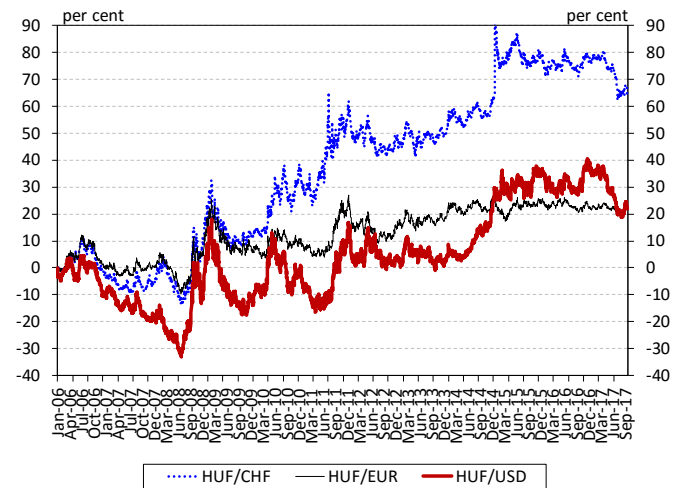
Source: Datastream, Reuters, Bloomberg.

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



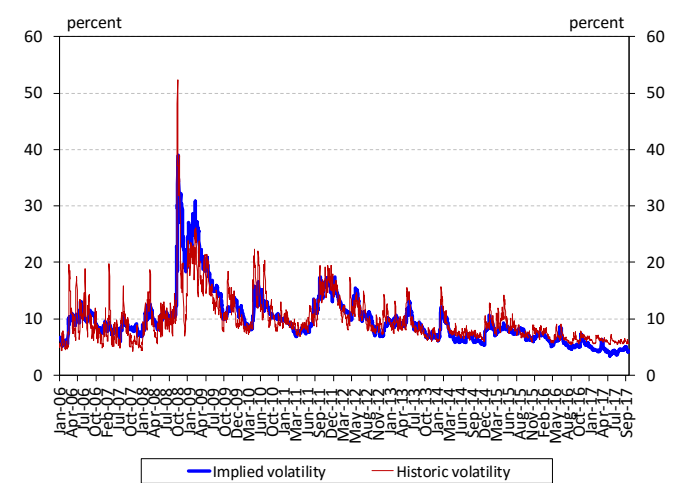
Source: Reuters.

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



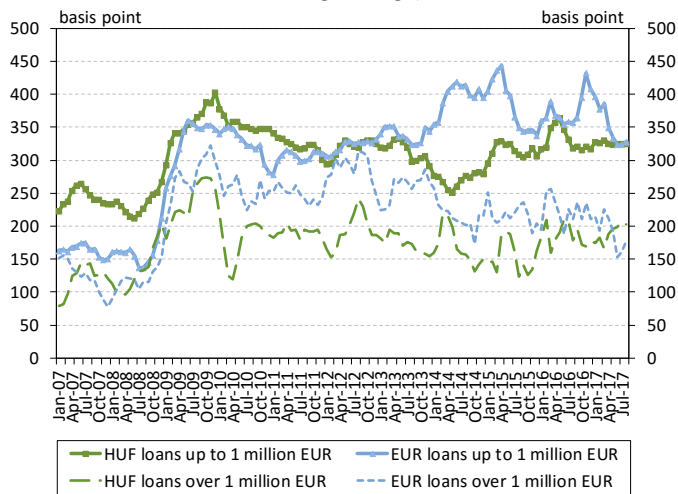
Source: Reuters.

Chart 16: Volatility of the HUF/EUR exchange rate



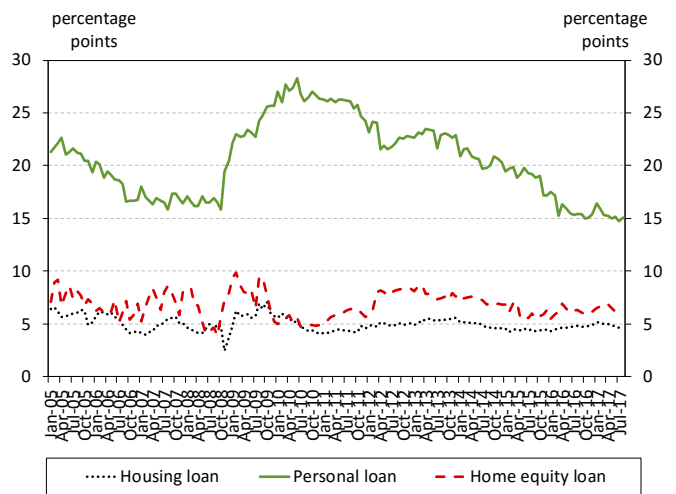
Source: MNB, Reuters.

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.

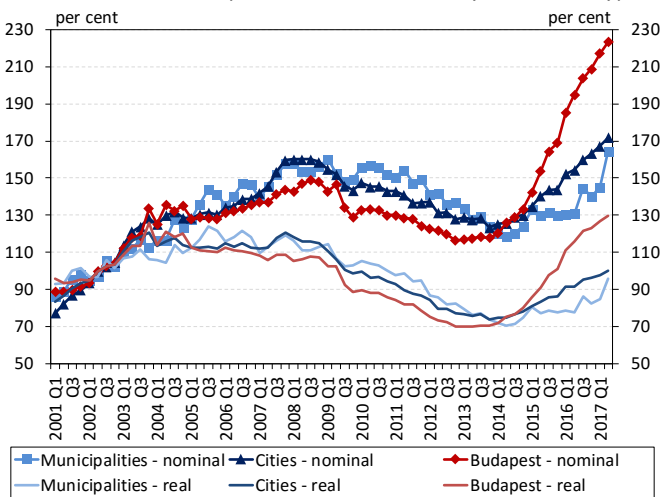
Chart 18: Interest rate premium of new HUF loans to households (over 3-month BUBOR)



Source: MNB.

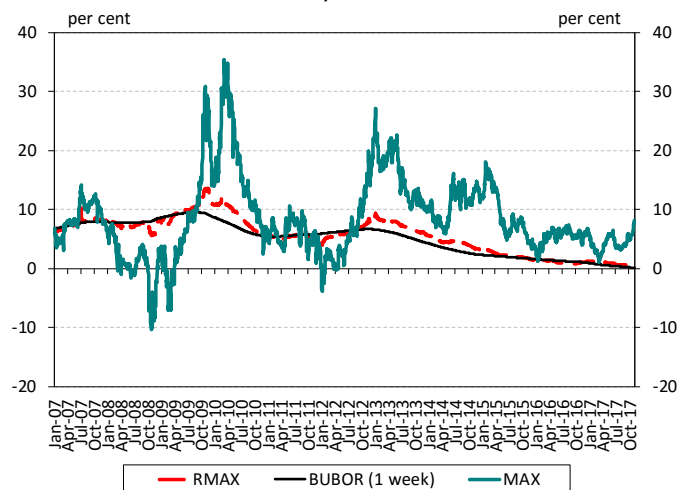
5. Asset prices

Chart 19: MNB house price index break down by settlement type



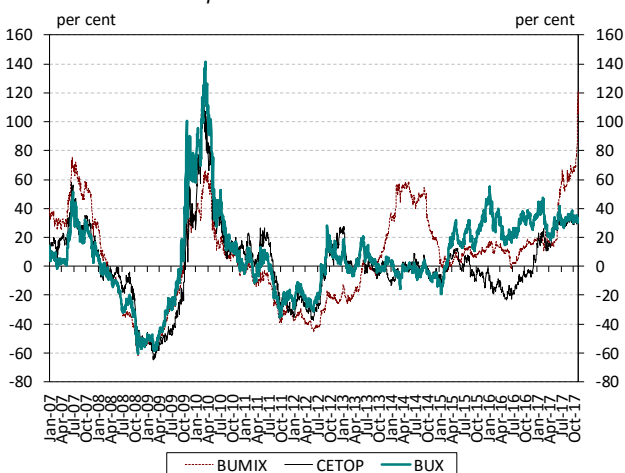
Source: MNB.

Chart 20: Annualised yields on government securities' indices and money markets



Source: ÁKK, MNB.

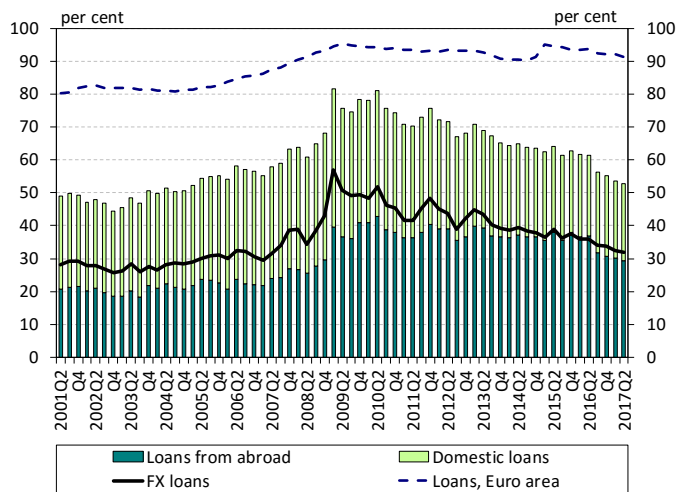
Chart 21: Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: BSE, portfolio.hu.

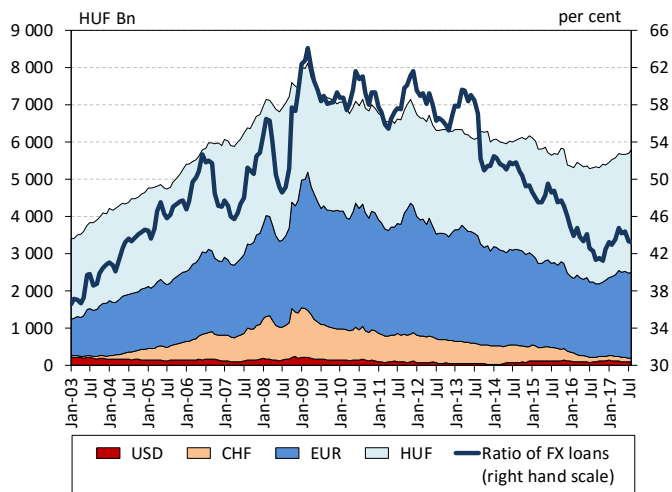
6. Risks of the financial intermediary system

Chart 22: Indebtedness of non-financial enterprises as a percentage of GDP



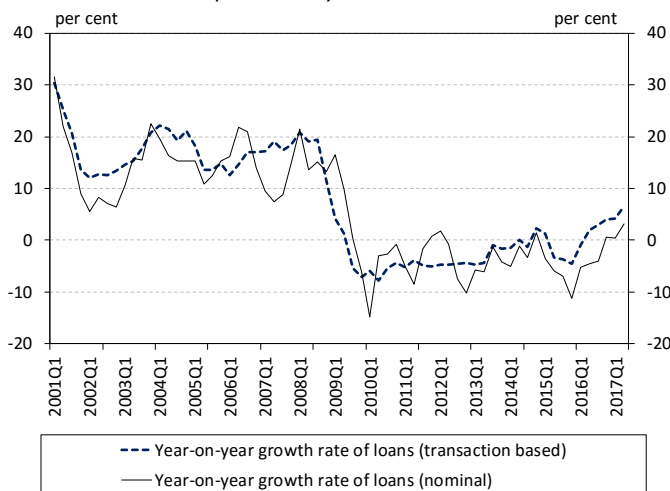
Source: MNB, ECB, Eurostat.

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



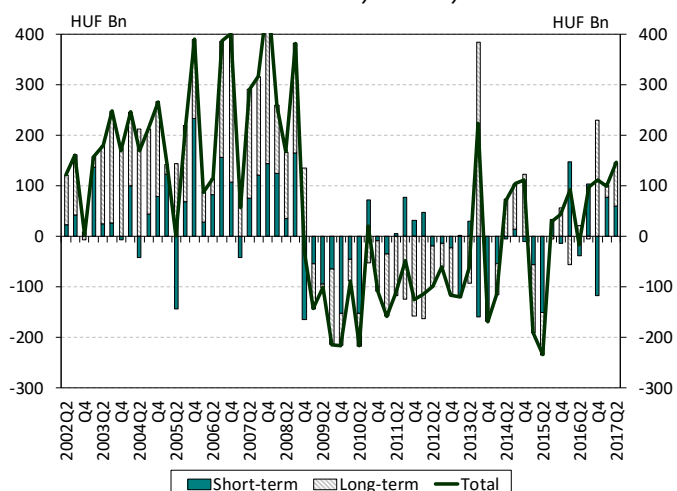
Source: MNB.

Chart 24: Annual growth rate of loans provided to non-financial corporations by domestic banks



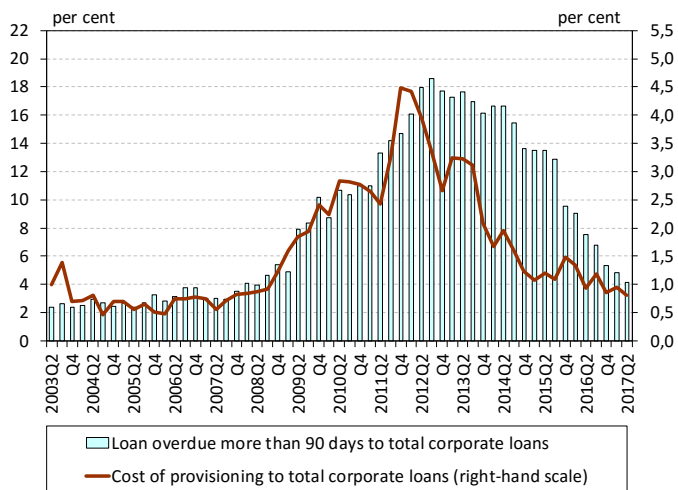
Source: MNB.

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



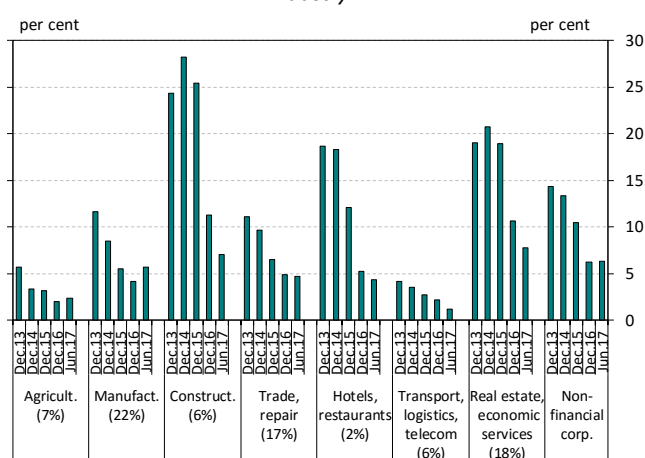
Source: MNB.

Chart 26: Quality of the corporate loan portfolio



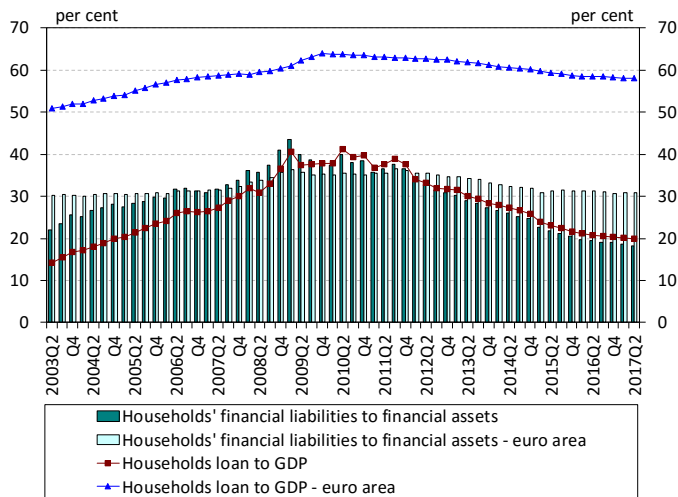
Source: MNB.

Chart 27: Provisioning on loans of non-financial corporations by industry



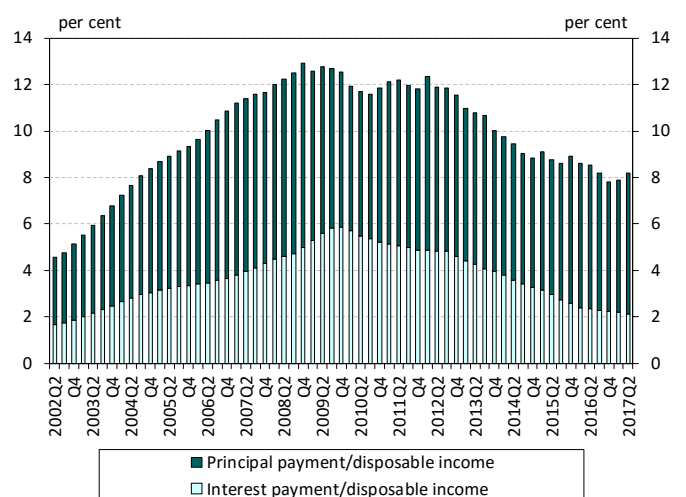
Source: MNB.

Chart 28: Indebtedness of households in international comparison



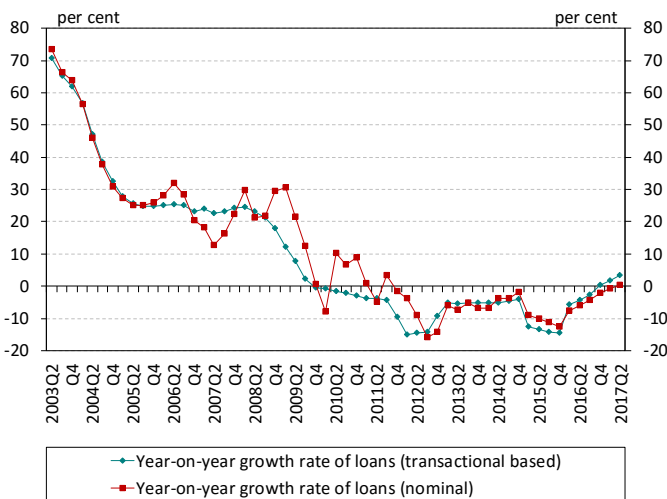
Source: MNB, ECB.

Chart 29: Debt service burden of the household sector



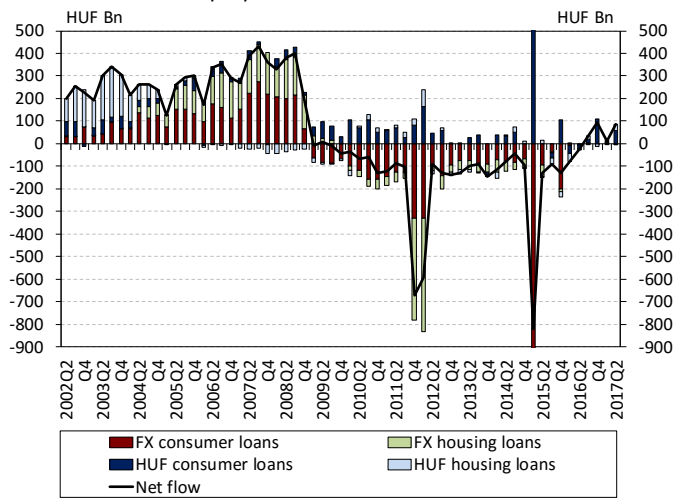
Source: MNB.

Chart 30: Annual growth rate of total domestic household loans



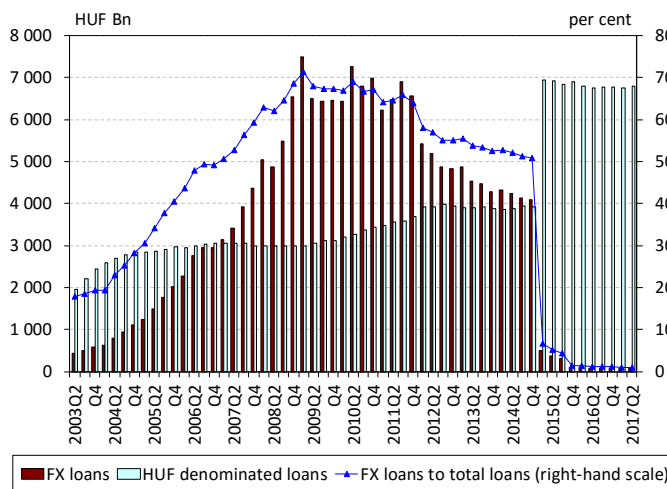
Source: MNB.

Chart 31: Transactions of household loans broken down by credit purpose and denomination



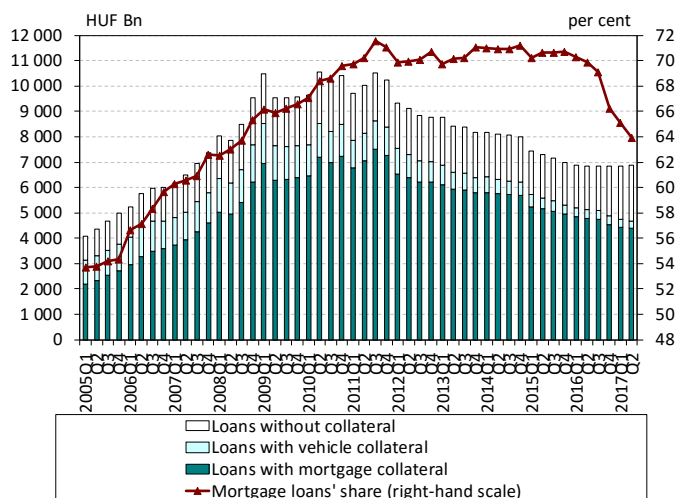
Source: MNB.

Chart 32: The denomination structure of household loans



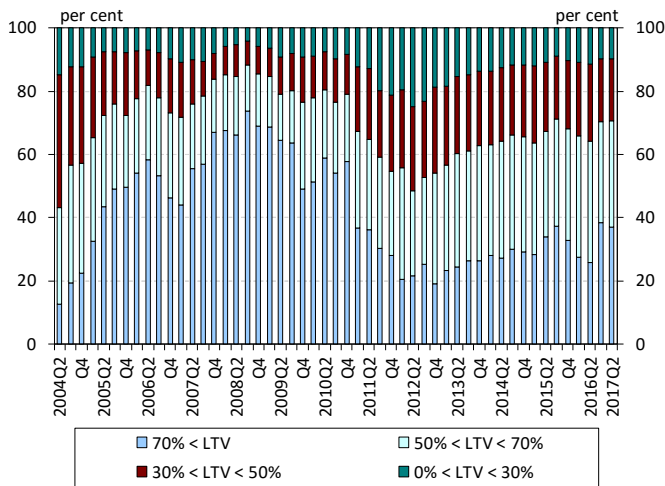
Source: MNB.

Chart 33: Household loans distribution by collateral



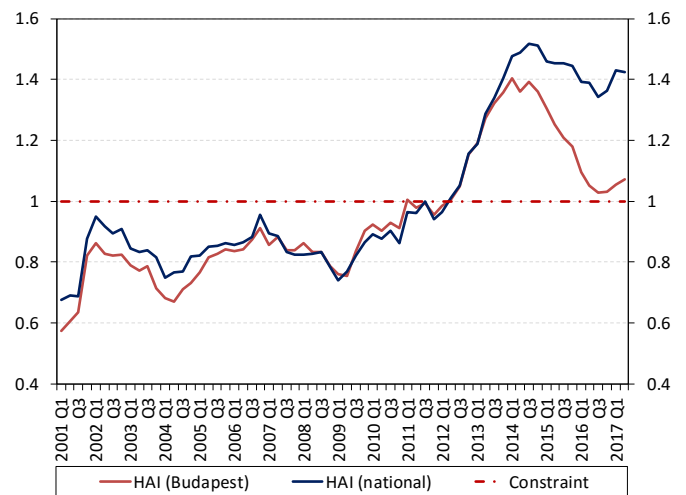
Source: MNB.

Chart 34: Distribution of new housing loans by LTV



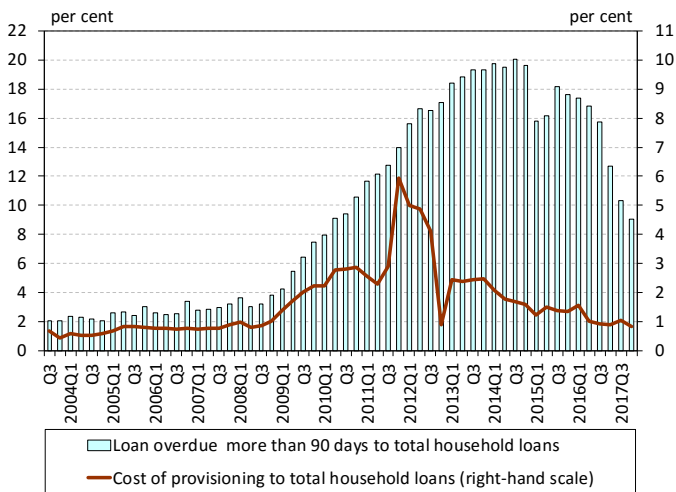
Source: MNB.

Chart 35: Housing Affordability Index (HAI)



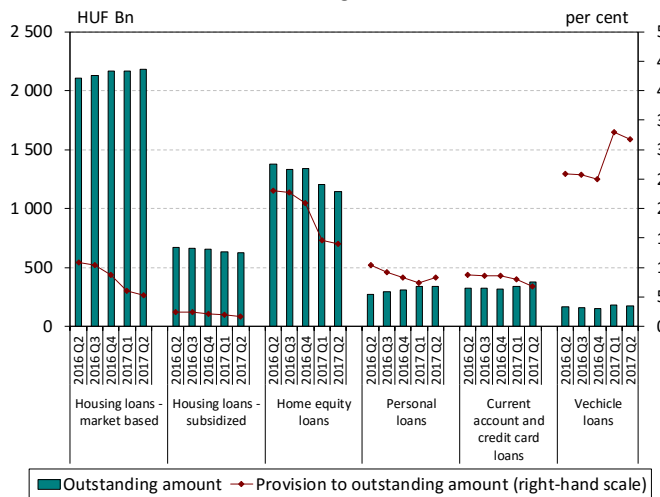
Source: MNB.

Chart 36: Quality of the household loan portfolio



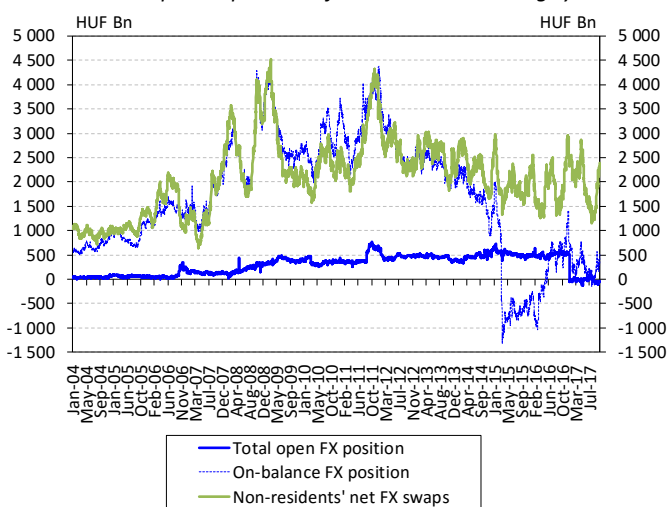
Source: MNB.

Chart 37: Provisioning on household loans



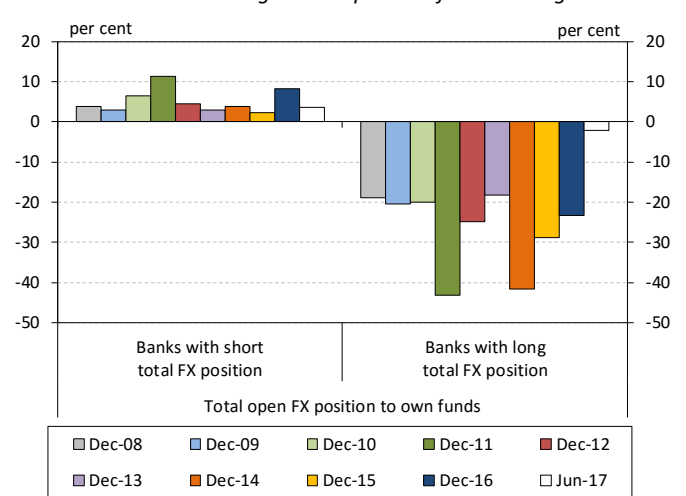
Source: MNB.

Chart 38: Open FX position of the domestic banking system



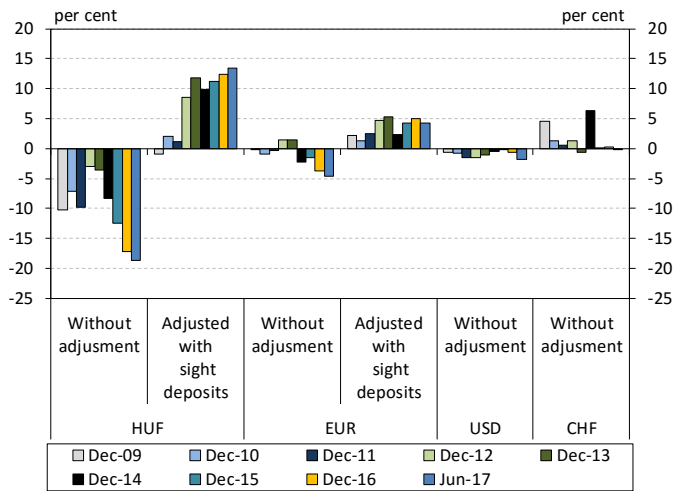
Source: MNB.

Chart 39: The exchange rate exposure of the Banking sector



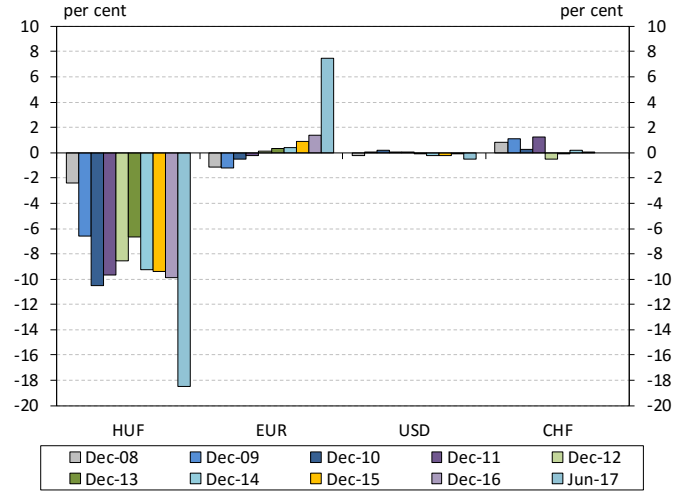
Source: MNB.

Chart 40: 90-day re-pricing gap of the banking sector



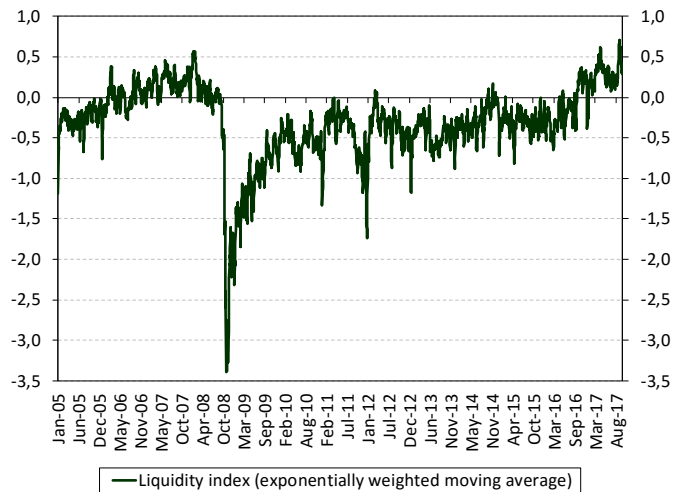
Source: MNB.

Chart 41: Estimated maximum loss based on interest rate risk stress tests relative to equity



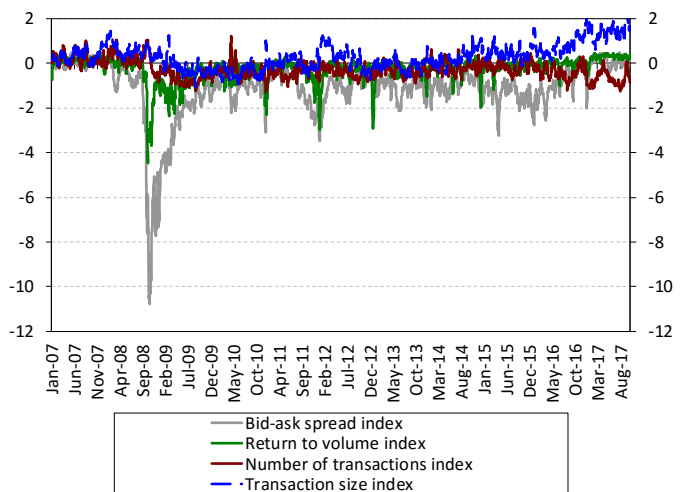
Source: MNB.

Chart 42: Liquidity index (exponentially weighted moving average)



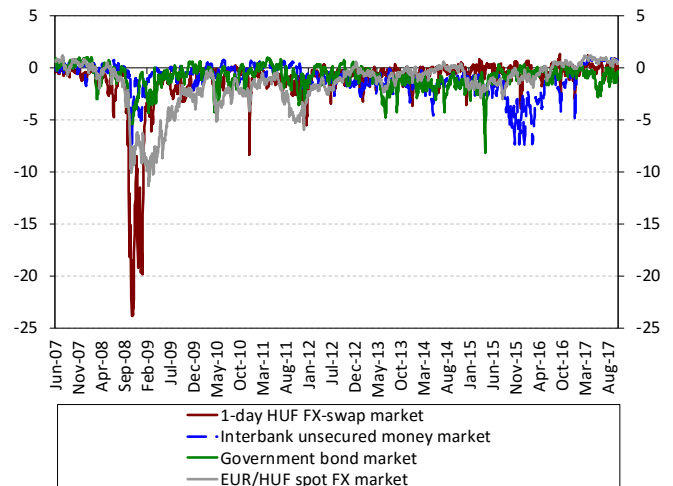
Source: MNB, KELER, Reuters, DrKW.

Chart 43: Liquidity sub-indices (exponentially weighted moving average)



Source: MNB, KELER, Reuters, DrKW.

Chart 44: Bid-ask spread indices of the major domestic financial markets (exponentially weighted moving average)



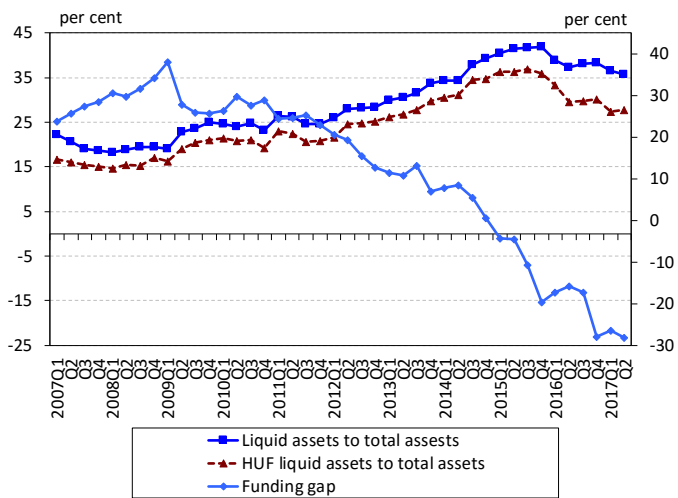
Source: MNB, KELER, Reuters, DrKW.

Chart 45: Credit to deposit ratio of the banking sector



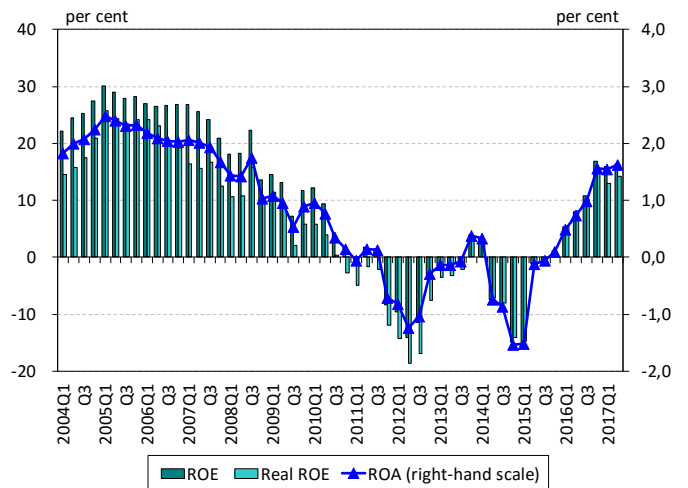
Source: MNB.

Chart 46: Liquidity ratios of the banking sector



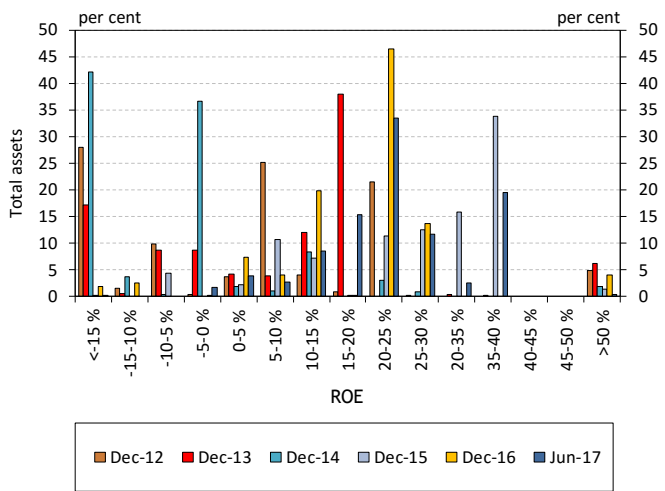
Source: MNB.

Chart 47: ROA, ROE and real ROE of the banking sector



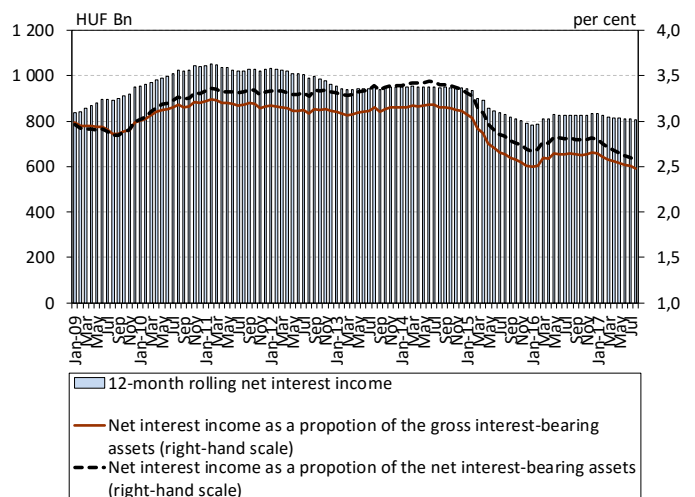
Source: MNB.

Chart 48: Distribution of banks' total assets by ROE



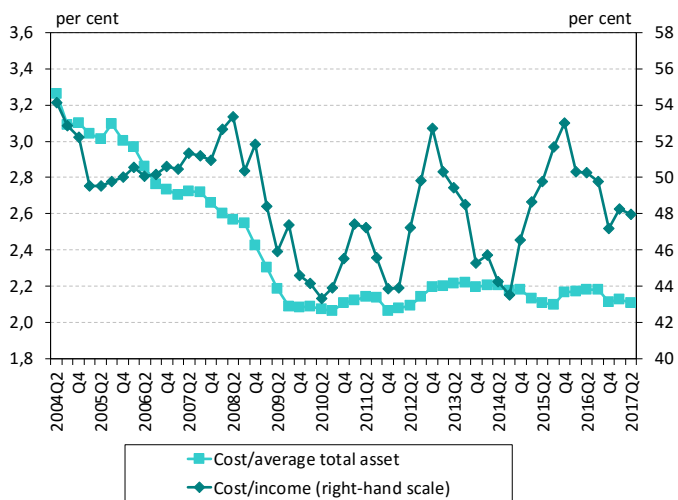
Source: MNB.

Chart 49: Net interest income as a proportion of the gross and net interest bearing assets in the banking sector



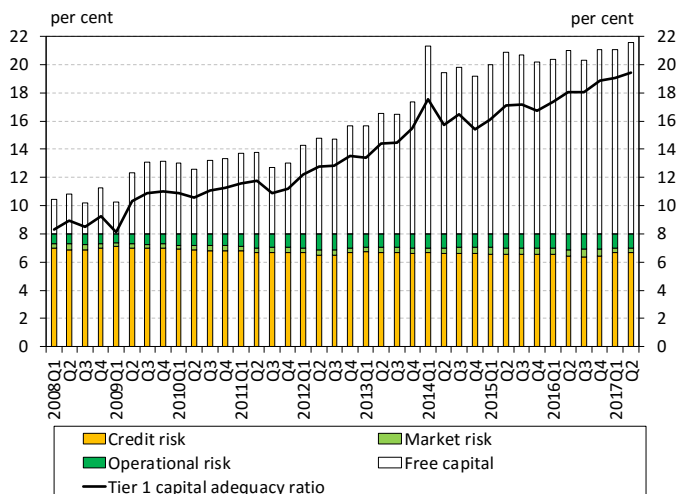
Source: MNB.

Chart 50: Operating efficiency indicators of the banking sector



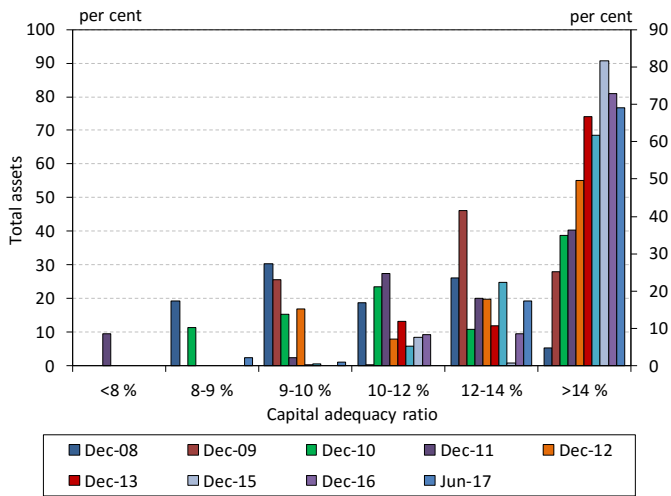
Source: MNB.

Chart 51: Banks' capital adequacy ratios



Source: MNB.

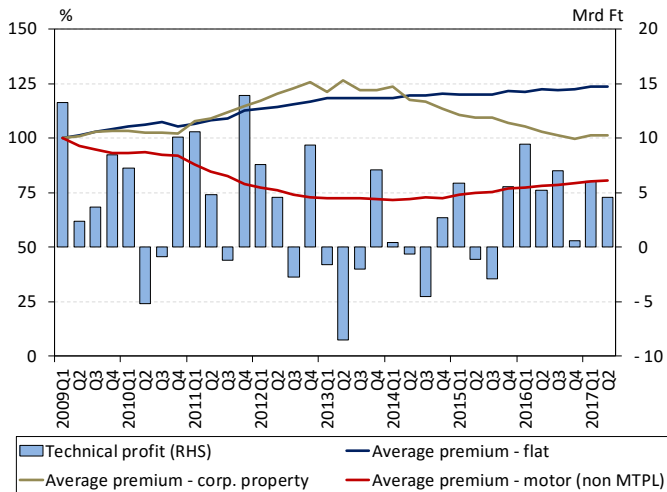
Chart 52: Distribution of banks' total assets by capital adequacy ratio



Source: MNB.

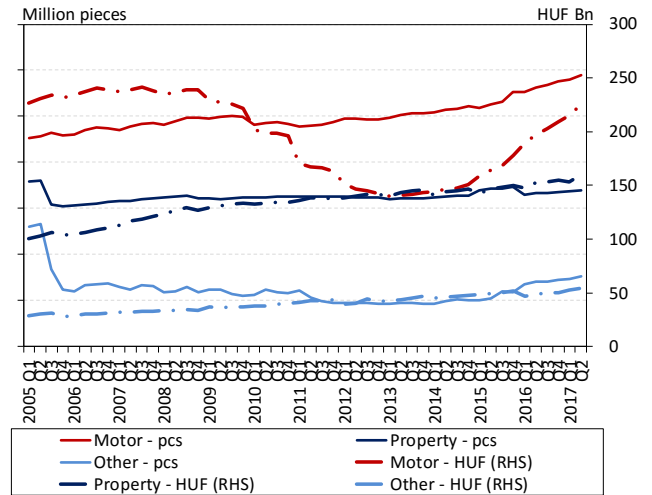
6. Institutional investors

Chart 53: Underline data of insurance tax



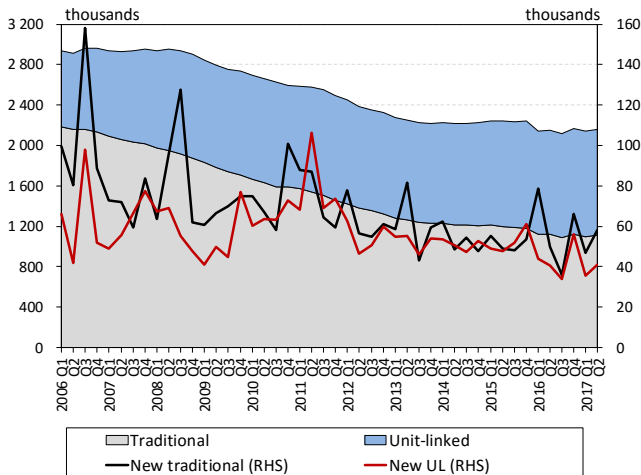
Source: MNB.

Chart 54: Development of non-life insurance



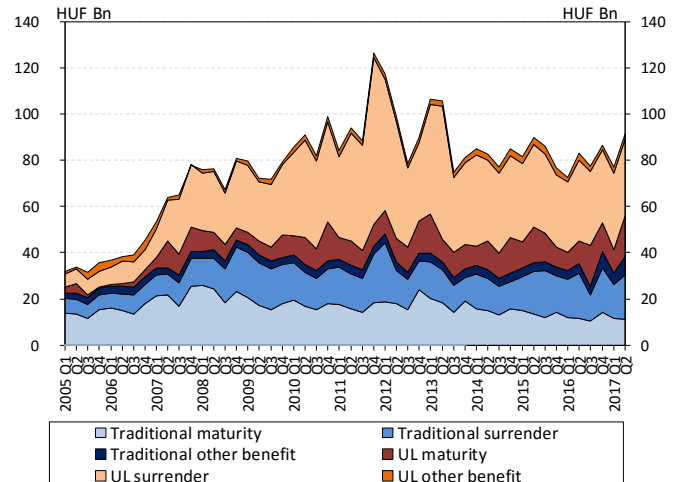
Source: MNB.

Chart 55: Development of life insurance



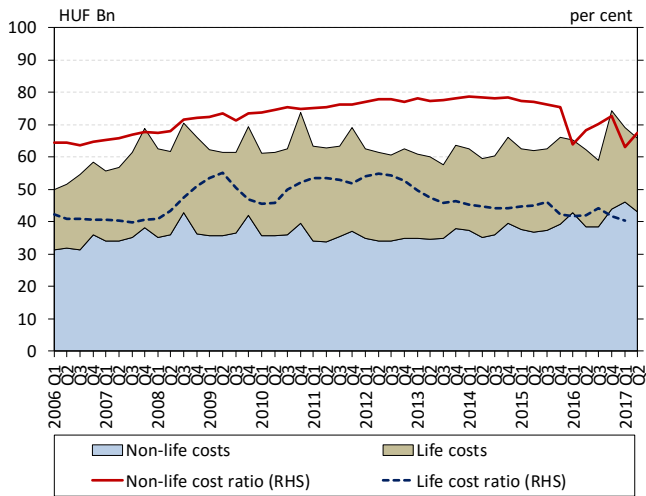
Source: MNB.

Chart 56: Life insurance benefit



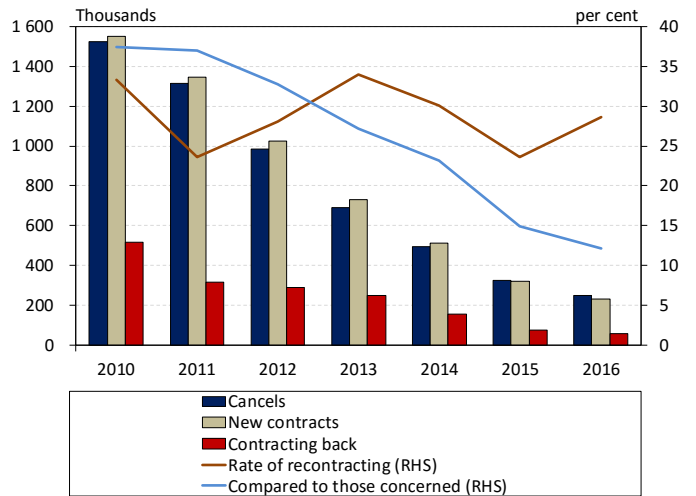
Source: MNB.

Chart 57: Costs in the insurance sector



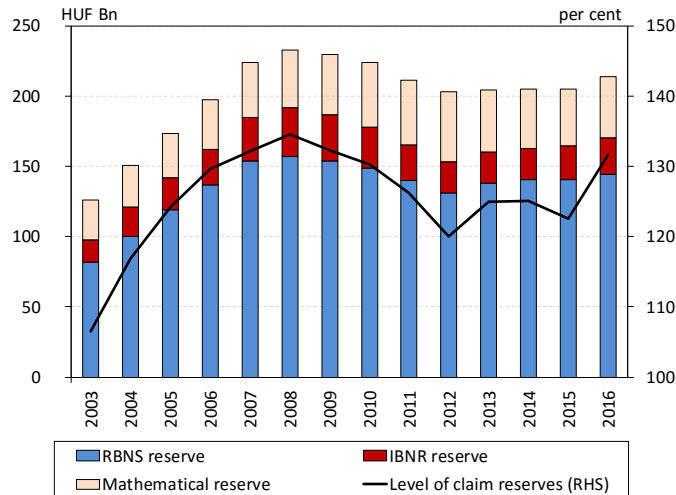
Source: MNB.

Chart 58: Development of mtpl insurance



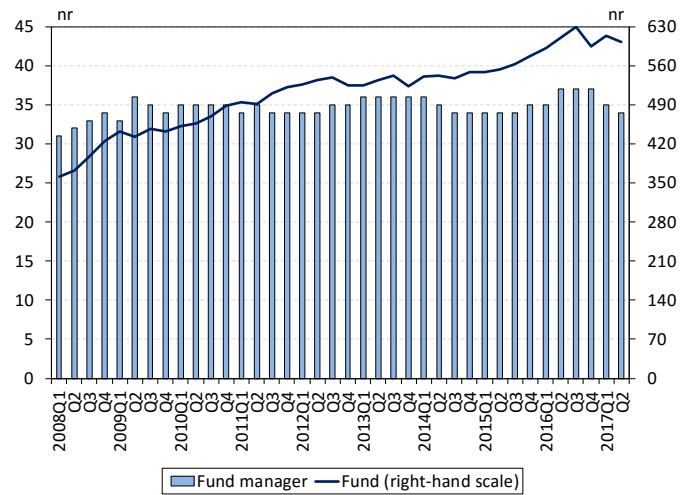
Source: MNB.

Chart 59: Development of gross mtpl reserves



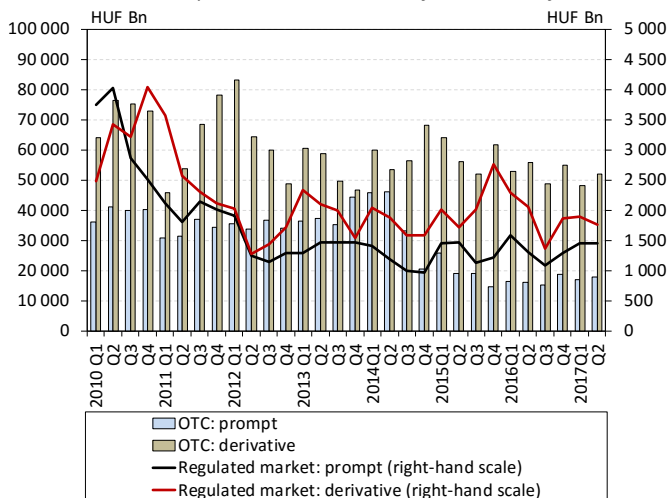
Source: MNB.

Chart 60: Number of investment fund managers and funds



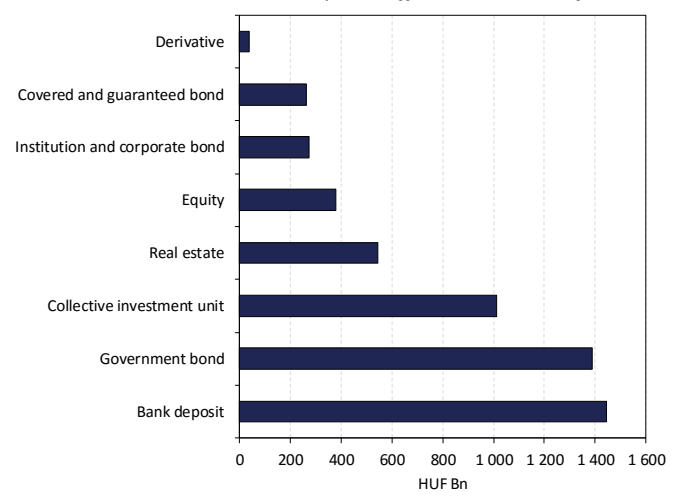
Source: MNB.

Chart 61: Capital market turnover of investment firms



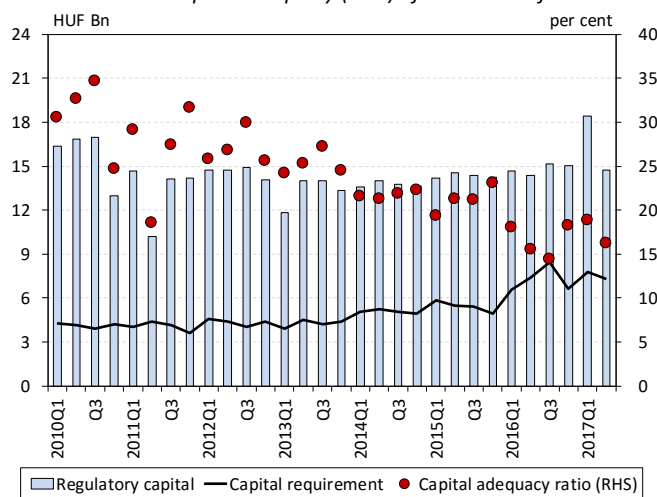
Source: MNB.

Chart 62: Asset allocation in public offered investment funds



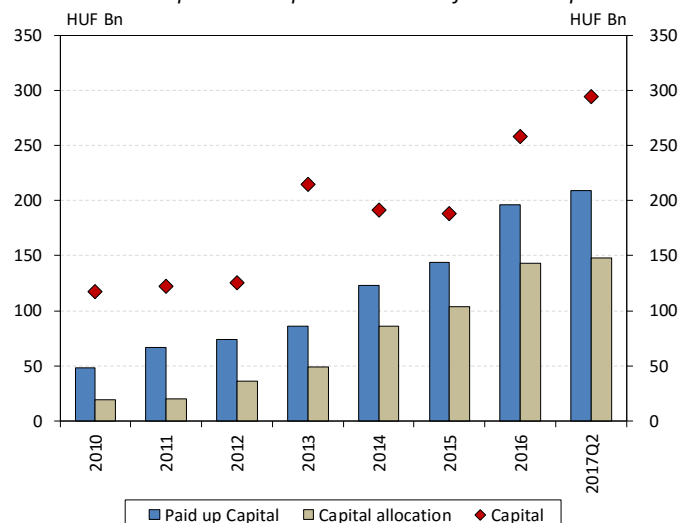
Source: MNB.

Chart 63: Capital adequacy (CAR) of investment firms



Source: MNB.

Chart 64: 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 indicates 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 38), 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 exchange rates. Revised, earlier loans were adjusted for revaluations since 1995.

Chart 25:

Exchange rate adjusted values.

Chart 26:

Loans overdue more than 90 days are calculated by clients until 2014, and by contracts from 2015.

Chart 27:

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

Chart 34:

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

Chart 35:

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:

Before 2010 by costumers, since then by contracts.

Chart 38:

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 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 41:

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 42:

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

Chart 43:

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 44:

A rise in the indices represents 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 of tom-next, overnight and spot-next transactions. The earlier version of the liquidity index included only the tom-next USD/HUF transactions.

Chart 45:

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 46:

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

Chart 47:

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 (%).

Chart 48:

Pre-tax profit.

Chart 49:

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 50:

Cost: previous 12 months

Income: previous 12 months

Average total asset: mean of previous 12 months

Chart 51:

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 61:

Sum turnover of investment firms and credit institution.

Chart 62:

30-Jun-2017

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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