



# FINANCIAL STABILITY REPORT



NOVEMBER  
2016

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

*Ferenc Deák*



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Published by the Magyar Nemzeti Bank

Publisher in charge: Eszter Hergár

H-1054 Budapest, Szabadság tér 9.

[www.mnb.hu](http://www.mnb.hu)

ISSN 2064-8863 (print)

ISSN 2064-9452 (on-line)

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 Policy directorates, and the Financial Institutions Supervision Executive Directorate, under the general direction of Barnabás VIRÁG, Executive Director for Monetary policy, financial stability 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 11 October and 8 November 2016, and those of the Monetary Council following its meeting on 25 October 2016.

*This Report is based on information in the period to 30 October 2016. Since data frequency is divergent through the analyses, the analysing horizons may also alter.*



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## EXECUTIVE SUMMARY

***The vulnerability of the Hungarian banking sector is low; its shock absorbing capacity is solid and has strengthened further since the spring Report both in terms of solvency and liquidity. Banks' lending activity is picking up both in the corporate and household segment, the annual SME loan dynamics reached the sustainable growth supporting 5–10 per cent band. It is of great importance however that recovery of lending should happen with strengthening price competition, particularly in the household segment, in order to induce higher cost-efficiency among banks. In the meantime, external risks are increasing. In addition to the still unsolved legacies of the crisis, geopolitical developments and challenges posed by the persistently low interest rate environment represent the main risks in the European banking sector.***

*The banking sector's stability risks are low, its resilience to stress improved in the past half year. At the same time, external risk factors are escalating. Possible market turbulences evolving on the weak fundamentals of the European banking system may affect the Hungarian banking sector as well through various channels of contagion. In addition, increasing political and geopolitical risks have an adverse effect on the already weak growth prospects both in the EU and globally.*

*Regarding developments in domestic lending, corporate lending dynamics has experienced a turnaround in 2016, particularly in SME lending, where central bank programmes (FGS, MLS) played a strong stimulating role. As a result, SME lending dynamics entered into the band between 5 and 10 per cent, which is necessary for sustainable growth. Market based SME lending is considered to continue without any break after phasing out of FGS. Meanwhile, the role of public credit guarantee schemes becomes more valuable and thus stronger activity and higher risk-taking is required of guarantee institutions in order to boost investment loans increasing SME's productivity.*

*The segmented pick-up in the real estate market continued. A strong price increase is observed in Budapest, but for the time being the price level cannot be considered as overheated. In contrast, price increase is not so typical in less frequented areas or smaller types of settlements. In order to track house prices and its impact on financial stability the MNB has constructed its own house price index, which is more capable of reflecting changes.*

*In parallel with the housing market developments, a turn took place in household lending as well. For the first time since 2008, as of June this year, disbursements already exceed repayments, primarily as a result of a nearly 50 per cent increase in housing loans. At present, the central bank debt cap rules keep new lending in a prudent channel. This may further be supported by a shift towards fixed-rate loans, which would especially be desirable at longer maturities, in the case of clients with higher payment-to-income ratios (PTI). This, however, requires stronger price competition among banks, since the spread of loans with fixed interest rate is very high in Hungary in international comparison.*

*The ratio of non-performing loans declined in H1, although further decrease is necessary. So far, the results of the decline are mainly attributable to regulatory measures, in particular to the active role played by the Central Bank. The turnaround of lending also helps to outgrow the problem of non-performing loans; nonetheless the active involvement of the Central Bank is still necessary, while the steps taken to date continue to urge banks to solve the problem.*

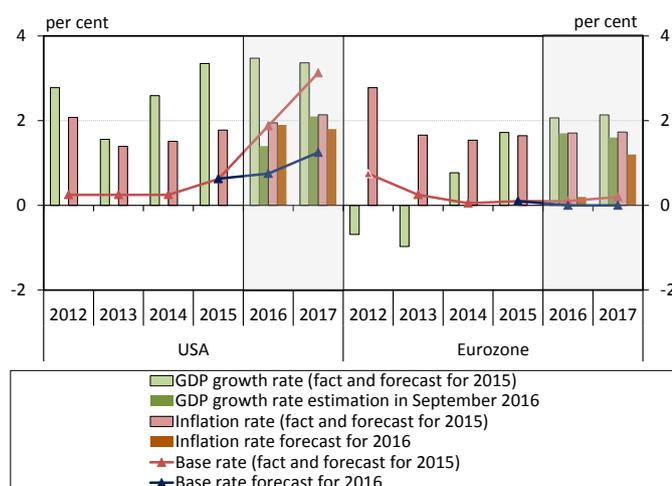
*In 2016 H1, the banking sector achieved outstanding profits. Partly due to one-off and temporary effects like write back in provisions, thus return on equity rose to nearly 9 per cent. At the same time, in the persistently low interest rate environment, banks' structural profitability will be put under pressure in the medium term due to the narrowing interest margins. In spite of the streamlining efforts of the past years, the sector's cost effectiveness did not improve significantly, and the management of the non-performing portfolio continues to take up substantial capacities.*

*In the forthcoming period improving cost efficiency is of great importance regarding the challenges of persistently low interest rates and technological development. This could be achieved through the consolidation of the banking system; adapting new digital trends in banking and reducing NPLs. Cost efficiency can be fostered by competition among banks, especially price competition in the household segment could force banks to take the necessary steps.*

## 1. ACCUMULATING MACROECONOMIC RISKS – PERSISTENTLY LOW INTEREST RATES

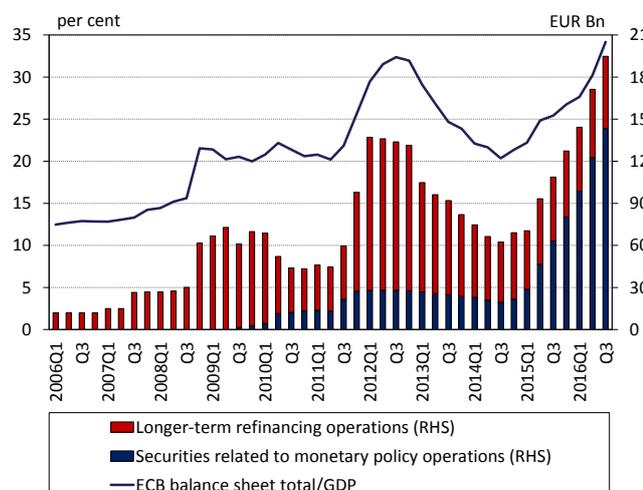
Monetary policy measures in developed countries outline that low interest rate environment will remain. Several European banks have been struggling with the severe legacy of the crisis for years which together with the consequences of the low interest rate environment keep the profitability of banks under pressure and hinder lending activity. The home countries of these banks have high outstanding government debt and this limits the range of fiscal policy, while due to weak economic growth there are still risks in the sustainability of debt trajectory and political risks are mounting as well. In view of the political uncertainty observed in developed countries and the increasing vulnerability of emerging countries, growth prospects deteriorated and financial stability risks were up both in the EU and globally. At the same time, the monetary policy responses to challenges entail unintended effects and a build-up of risks, while the persistently low interest rate environment may incite economic players to search for yield by using even riskier sources.

Chart 1: Changes in the macroeconomic outlook in the USA and the euro area



Note: 2016 and 2017: IMF, ECB and FED forecasts. Source: IMF, FED, ECB.

Chart 2: Changes in ECB balance sheet total to GDP and the volume of securities related to monetary policy operations



Source: ECB.

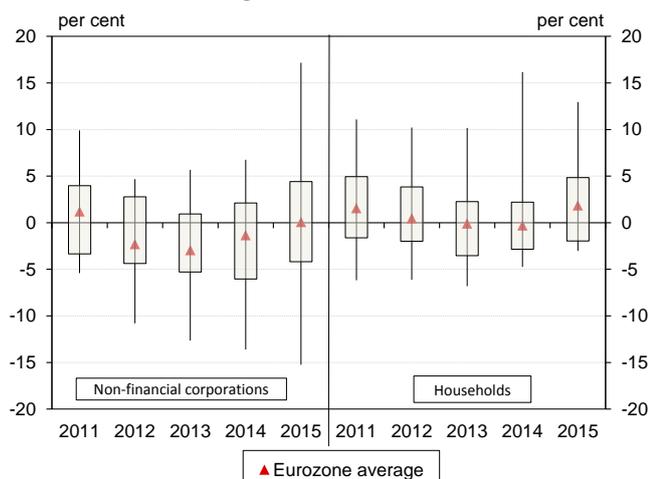
**Monetary policies of developed countries project that low interest rate environment will remain.** The Fed's 25 basis point rate increase in December 2015 has not been followed by another hike until now. On the other hand, the lack of consistency between its communication and acts may add to market uncertainty and may undermine the credibility of the institution. The weaker than expected macroeconomic data of the USA, this year's market turbulences and low commodity prices resulted in a modification in the expected trajectory of rising interest rate (Chart 1). Although the Fed continues to argue for the necessity of normalising the interest rates, the beginning of a new interest rate cycle is unlikely. However, if the Fed decides to increase the policy rate, the central banks of vulnerable emerging countries may also be compelled to reconsider their respective monetary policies in order to prevent capital outflows.

**To date, the ECB's monetary policy of several years has not resulted in any major turn in growth, but at the same time it keeps European banks' profitability under pressure.**

At its September meeting, the Governing Council (GC) of the ECB did not extend the easing of monetary conditions, and left the level of its key interest rates unchanged. In connection with the unconventional monetary policy measures, the GC confirmed that it plans to continue its monthly asset purchase programme worth EUR 80 billion (Chart 2), and, if necessary, will continue it until the rate of inflation is brought into consistency with the ECB's target. The TLTRO II was launched in June 2016. Within its framework, the ECB grants 4-year loans to banks, and the interest on these loans may be even negative. From a profitability point of view the low TLTRO II interest rate may be considered favourable, but the ECB's negative rate on the deposit facility erodes banks' profitability. At the same time, the GC's latest decision further increased the probability of the perpetuation of the lower for longer interest rates policy in the euro area.

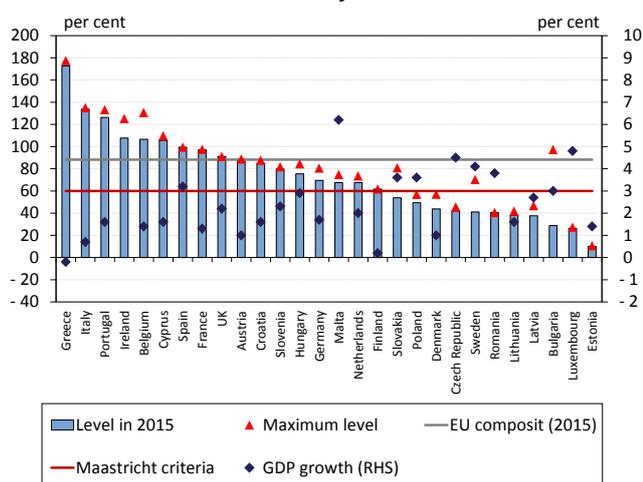
**Monetary policy measures themselves are not sufficient to**

Chart 3: Annual growth rate of the private sector's outstanding loans in the euro area



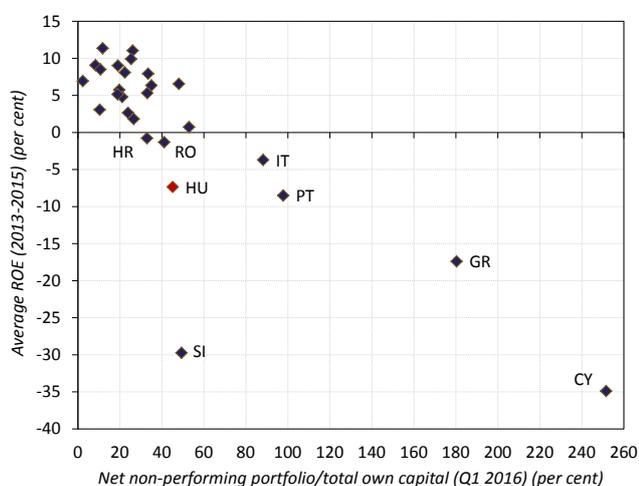
Note: The chart depicts the 25–75 percentile value of the EU member states' yearly growth rate in lending volume together with the average value of the Eurozone. Source: ECB.

Chart 4: EU countries' growth, government debt-to-GDP ratio in 2015 and the level of the historical maximum



Source: ECB, Eurostat.

Chart 5: RoE and net non-performing portfolio as a proportion of total own capital in the EU Member States



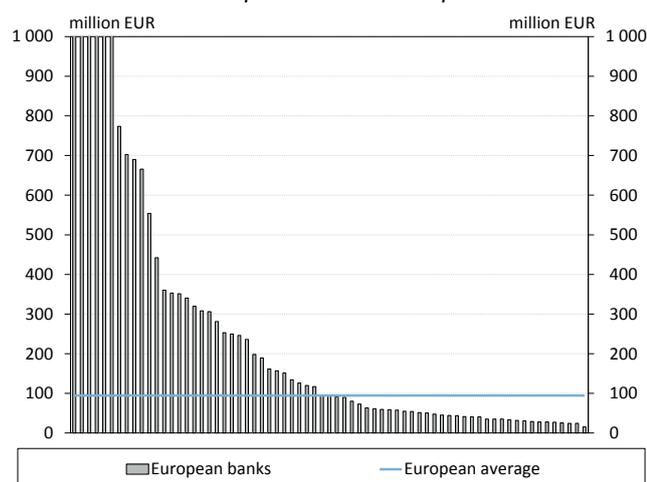
Source: ECB CBD.

trigger a turn in lending and economic growth. In spite of the historically low funding costs and the ECB's monetary easing, still no turn has been achieved in corporate lending (Chart 3). Yet without more dynamic lending the growth prospects of the euro area remain weak and fragile. This is why the ECB repeatedly called attention to the fact that stimulating the economy cannot exclusively be expected of the expansive monetary policy, but steps must be taken in order to implement reforms that improve the competitiveness of the economy.

Nevertheless, political risks have increased further within the euro area since May 2016 which may hinder the implementation of fiscal and structural reforms. Political risks might culminate in the upcoming Italian referendum that will be held on 4th of December about the implementation of a constitutional amendment. As a matter of fact, the persistently weak economic growth itself jeopardises the debt repayment ability, and the increasing political uncertainty as well as the strengthening of populist, Euro-sceptic parties may even lead to the questioning of the repayment of debts. So far, the current loose monetary policies have had a favourable impact on the financing of debt, but the subdued economic growth of recent years, weak profitability and low inflation do not help the countries concerned to reduce their outstanding debt quickly (Chart 4). Therefore, further restructuring and reforms for increased competitiveness are necessary to stimulate economic growth, because without them the income available for debt repayment will not be sufficient. In contrast, reforms in Europe make little progress, and this may result in a change in investors' behaviour, which may again result in an increase in financing costs.

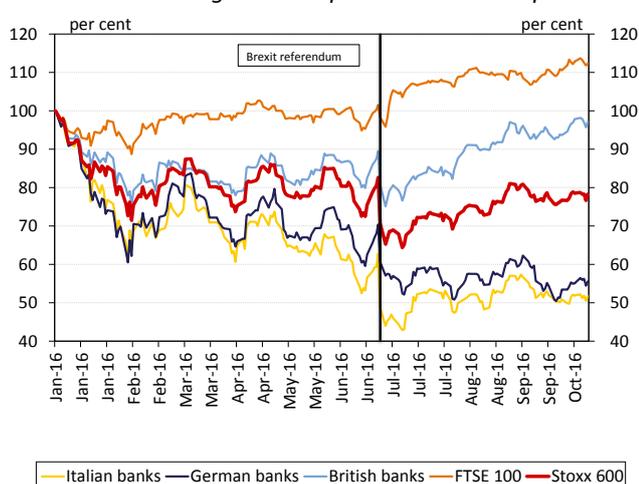
The Eurozone and its banking sector continue to be burdened by a number of unsolved problems. The European economy has been characterised by subdued economic growth, close-to-deflation state and a low interest rate environment, which imply the risk that the Japanese syndrome will reach Europe as well. The euro area banking sector continues to become weaker and more vulnerable; the main sources of the problems are the severe legacy of the financial crisis, the unfavourable state of the macroeconomy and the significant overcapacity in the banking sector. Despite the low interest rate environment, lending dynamics has been low in many EU Member States for years, coupled with a high NPL ratio and low profitability (Chart 5). In the low interest rate environment, the subdued lending dynamics does not allow the increasing of interest incomes, and at the same time the close-to-zero interest rates put off banks' portfolio cleaning. The fragmented European banking system is struggling with significant over-

Chart 6: Deposit-to-branches per bank



Notes: 46% of European banks own only 5% of European deposits. Source: IMF, ECB.

Chart 7: Changes in European banks' share prices



Note: FTSE and STOXX bank indices. 1 Jan. 2016 = 100%. Date of the Brexit referendum: 23 June 2016. Source: Datastream.

Table 1: Indicators forecasting stress in the banking sector

Country, region	Credit-to-GDP gap	Property price gap	Debt service ratio (DSR)	DSR if interest rates rise by 250 bp
USA	-9,9	4,7	-1,7	0,9
UK	-27	-0,1	-1,7	1,0
Germany	-6,1	13,3	-1,8	0,0
France	-0,6	-11,2	1,0	4,1
Italy	-13,7	-15,4	-0,1	2,0
Japan	4,1	15,6	-2,0	0,8
China	30,1	-1,9	5,4	8,7
Brasilia	4,6	-25,6	7,4	9,2
Central-Eastern Europe	-11,4	8,8	0,1	1,5
Notes	Credit/GDP gap>10 2≤Credit/GDP gaps≤10	property gap>10	DSR>6 4≤DSR≤6	DSR>6 4≤DSR≤6

Source: BIS.

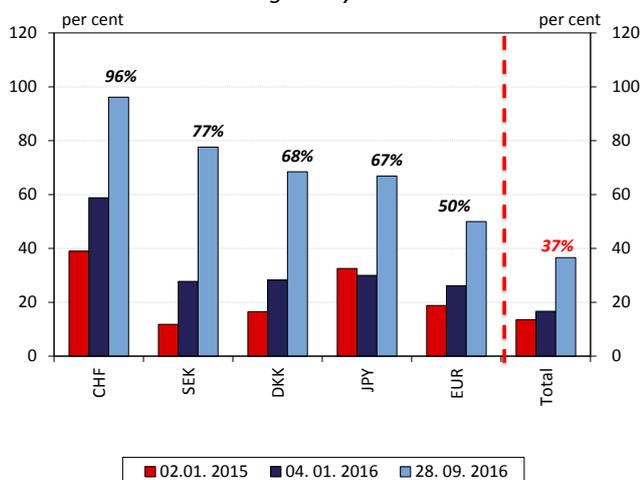
capacity (Chart 6), and without reducing that, the banking system cannot be efficient. Cost efficiency of banks can be increased by mergers and acquisitions across Europe.

**The vulnerability of the European banking system has increased and a new wave of contagion might occur.** Money markets were surprised by the result of the referendum about the United Kingdom leaving the EU (Brexit), which resulted in a temporary turbulence. The outcome of the Brexit referendum on 23 June devalued the pound, reduced the expected rate of economic growth, and had a negative impact on the profitability prospects of British banks. While they quickly recovered from the stock market downturn caused by the Brexit referendum, Italian and German banks, which had been under-performers earlier as well, departed further from the average of European banks (Chart 7). Mostly Italian (BMPS) and Greek banks are among the worst performers, which lost a major portion of their market capitalisation. In the case of banks of countries with better fundamentals, mostly the ones that have an unsustainable business model suffered significant share price declines (Deutsche Bank). According to the IMF, the bank that represents the highest risk for the global financial system was also put under market pressure by its possible capital losses stemming from its cases under dispute. Large European banks under international pressure might become sources of contagion through their subsidiaries, thus they should be monitored with focused attention (Box 1).

**Nevertheless, increasing risks to financial stability point beyond the issue of the Brexit.** Apparently, markets ran out of patience for those countries and banks where solving the problems stemming from the legacy of the crisis makes little progress. Following the referendum about the Brexit, the results of the EBA stress test put the share prices of more weakly performing banks under pressure. The deteriorated evaluation of these banks was caused by the fact that their capital position does not keep pace with the increasingly frequent and strengthening challenges. Banks' growing capital needs have been coupled with weak internal capital accumulation capacity for years. Therefore, it is to be feared that banks continue to react to the new prudential rules by deleveraging instead of raising capital. In this case the risk of the perpetuation of a negative feedback loop between the economy and the banking sector increases, which may result in a serious and protracted challenge for the future in Europe.

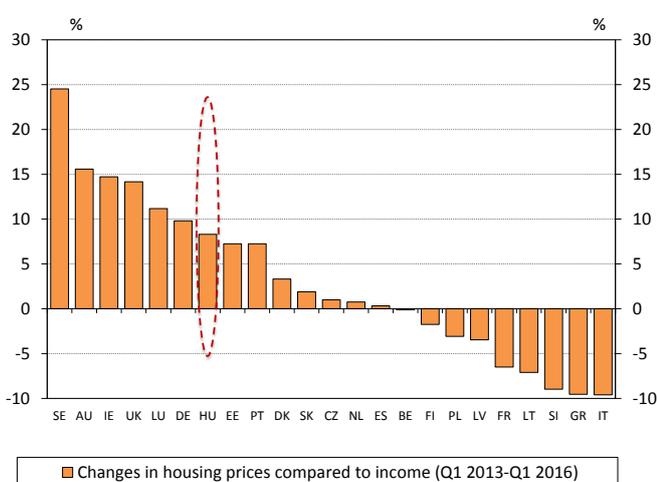
**Emerging countries' growing vulnerability increases global financial risks further.** The market turbulence at the beginning of the year started from China, and resulted in significant capital outflows from emerging countries. The capital

Chart 8: The global development of treasury bonds with negative yields



Note: Total represents other foreign currency debts with non-negative yields as well. Source: Bloomberg.

Chart 9: Housing prices in relation to income in EU



Source: OECD.

outflow and the declining export performance reduced domestic demand, and added to these countries' vulnerability. During the year, the risks related to the growth prospects of the Chinese economy also strengthened. Therefore, in order to avoid a further slowdown in the economy, Chinese banks flooded economic agents with loans. According to BIS, by 2016 Q1, the credit gap exceeded 30 per cent, while 10 per cent already qualifies as a dangerous level (Table 1). The mounting risks surrounding the Chinese economy and banking sector may seriously affect not only China, but may spread over to a number of countries in the world. However, the shaking of the Chinese economy would be contagious not only through the financial channel, but also the trade one, and would further reduce commodity prices. The heterogeneity surrounding global economic growth and the increasing political uncertainty project that money markets will be volatile in the future as well.

**In the developed markets, the ratio of negative-yield government debt securities exceeds one third.** With the 1100 various bonds with a value of some USD 25,330 billion included in it, the Bloomberg Global Developed Sovereign Bond Index represents the government securities markets of developed countries. In early 2015, the ratio of negative-yield bonds was only 13–14 per cent. By the beginning of 2016 it increased to 17 per cent, and by the end of 2016 Q3 it rose to 37 per cent (Chart 8). Almost all Swiss franc bonds are traded with negative yield in the market, while the same is observed in the case of more than two thirds of the yen-, Swedish and Danish crown-denominated securities. The yield on half of the euro-denominated debt securities is also negative. All this may incite to search for yield further which might come with exaggerated risk taking.

**The persistently low interest rate environment entails the build-up of many further risks.** As a result of the Brexit referendum, the BoE used the tool of rate cut again, and reduced its policy rate by 25 basis points in August, contributing to the maintenance of the low interest rate environment in Europe. At the same time, the persistently low interest rates may be detrimental through various channels. Firstly, they destroy the profitability of the banking sector, and they do it when capital requirements for banks are becoming stricter. Secondly, sensitivity of the propensity to consume changes with interest rates close to zero: the age group that is about to retire suddenly faces a decline in its wealth's yield, and therefore saves more in order to ensure its planned financial position. Accordingly, the correlation may become reversed: low interest rates do not increase consumption, but in the case of their persistence, propensity to save surges and consumption falls. Persistently low interest rates may generate asset price bubbles, whose

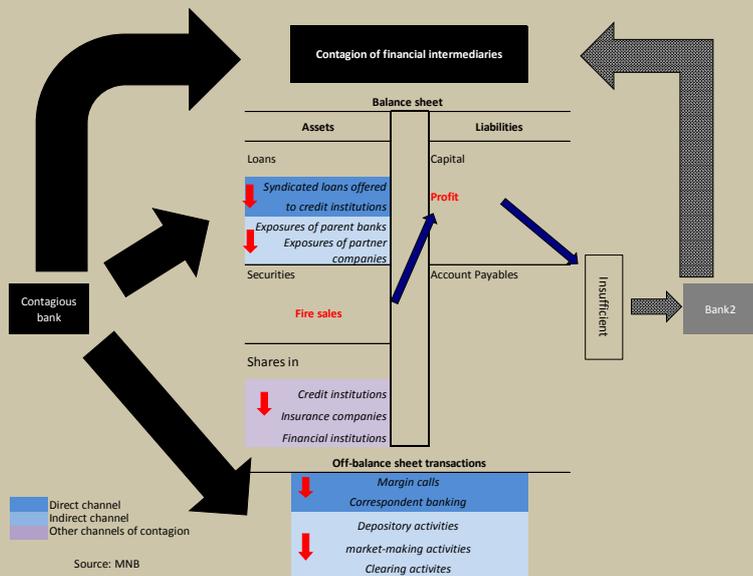
bursting may entail significant losses. Housing prices in several capitals in the EU have been rising in a higher pace than incomes for years (Chart 9), which may result in a build-up of major risks when interest rates are low.

**BOX 1: VULNERABILITY AND CHANNELS OF CONTAGION OF THE EUROPEAN BANKING SECTOR**

As a result of the high degree of integrity of the financial system, in view of possible shocks, channels of contagion should also be interpreted within the framework of proprietary and other relations within financial services as well as in terms of cross-border activities. Channels of contagion may impair financial stability from multiple directions, through direct and indirect exposures as well as through certain special financial service provision activities. Losses of a given financial service provider affect its subsidiaries, which provide various financial services. Moreover, losses also impair owners' savings position and in certain cases creditors' receivables position, and thus its profitability. In a crisis situation, the size of the given 'negative market participant' determines the size of indirect risk its operation poses to financial stability in addition to the direct exposures. In the case of certain financial service provision (correspondent banking, custodian etc.) activities the reduction of indirect risks 'can be solved relatively fast and easily', but indirect exposures and risks are very difficult to terminate due to some institutions' high degree of financial integrity.

The events of the past period revealed the weaknesses of the European banking sector; its problems originating from the past are still waiting for solutions. In the European banking sector, which has been affected by the 2008 financial crisis, the southern countries are struggling with increased non-performing loan portfolios, while in the north the heritage originating from business models that proved to be unsustainable adds to vulnerability. In the Italian banking sector, the ratio of non-performing loans is 17 per cent, representing the most important structural problem that came into limelight following the Brexit referendum. Mainly because of its weight in foreign exchange trading as well as its major

*The effect of banks' net losses on the contagion channels of financial intermediaries*



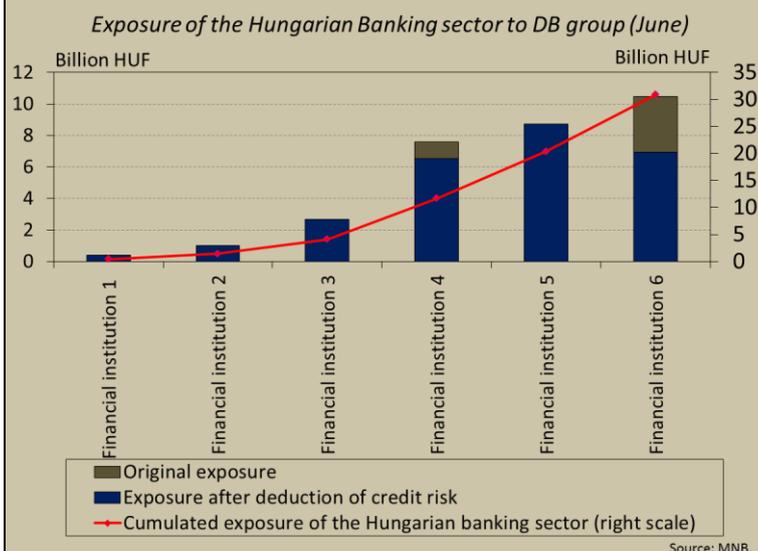
role as correspondent and clearing bank, the faltering of the largest German bank increased the uncertainty of the Euro-Atlantic financial system further. In the tense state of the global financial system, some deflection in the money and capital markets could be sufficient for the Euro-Atlantic banking system, with its strong interpenetrations, and to a greater extent for the European one, to face another crisis through channels of contagion.

**Hungary's financial integration is extremely strong; therefore, the impacts of an external crisis do not stop at the border of the country, even if the direct relationship of the given centre with Hungary is not significant or is expressly negligible.** The risk contagion channel and the financial integration contagion channel create

direct connection between Hungary and certain crisis areas that do not have any direct relationship with Hungary.<sup>1</sup> As a result of the phasing out of household FX loans and the central bank measures that reduce the banking sector's FX vulnerability, the risk of contagion appearing through the risk premium channel and resulting from the dependency on external funds declined considerably. As a result of the changes that took place in the ownership structure of the domestic banking sector, the risk of contagion through the financial integration channel also declined, but its weight continues to be significant. The hazards affecting the global and mainly the European banking sectors have not declined since 2011, and these risks – which stem from earlier structural problems – are exacerbated by political developments (Brexit, referendum in Italy, presidential election in Austria). In Hungary, Italian- and Austrian-owned banks have nearly half of the

<sup>1</sup> Central Bank of Hungary: Box 1, Financial Stability Report, November 2011

corporate loans outstanding, thus the developments in threat through direct and indirect channels should be kept track of.



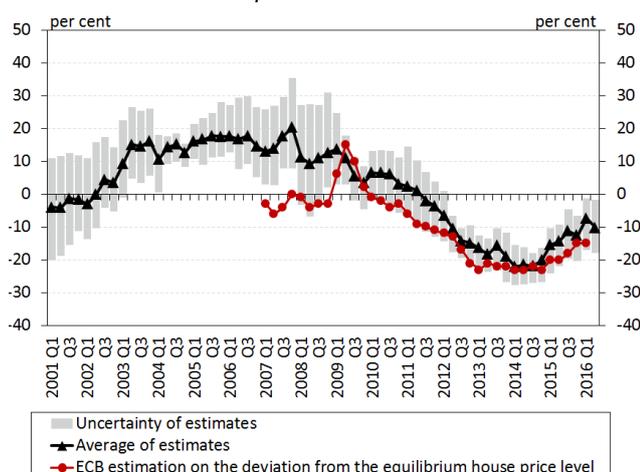
**According to a warning by the IMF, the Deutsche Bank (DB) is one of the most serious hazards as a result of its extremely significant derivative exposures.** The DB is one of the major foreign-exchange dealers in the market, entailing that its direct partners may perceive the ‘cumbersome steps of the giant’ through the increase in margin calls already in the short run. The DB’s role in the German and European economies, its exposure to the Austrian and Italian banking groups that are present in Hungary as well, its significant correspondent banking activity as well as its bilateral and multilateral clearing house function vis-à-vis European large banks all strengthen the role of indirect risks. Hungary’s direct exposure to the DB Group is low; with HUF 30 billion it amounts to

0.01 per cent of the Hungarian banking sector, divided among 6 credit institutions. However, no data are available about the size of the indirect exposure and as seen above, they may as well be the sources of more severe risk considering their size and contagion possibilities; in addition, several Hungarian banks keep their foreign currency accounts with the DB Group.

## 2. REVIVING RESIDENTIAL MARKET AND HOUSING LOANS RAISE AWARENESS

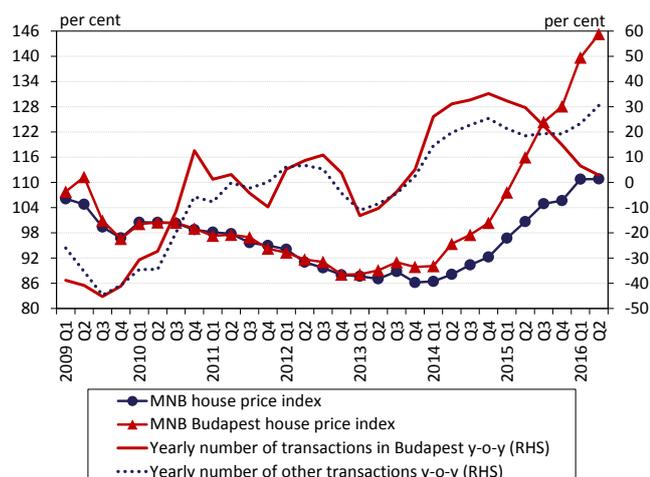
As a result of the strengthening segmentation in the housing market, strong price increase is observed in Budapest, which is however not considered to be an excessive risk. At the same time, in the less popular areas and smaller types of settlements only a significantly lower price increase is observed, and thus the voluntary selling of the collaterals of the non-performing mortgage loan portfolio is still difficult. Therefore, the wait-and-see strategy of banks may continue to hinder portfolio cleaning. The pick-up in the housing market was accompanied by a healthy upturn in housing loans, and a turning point was reached in net household lending: disbursements already exceed repayments in the second half of this year. The future interest rate risk of housing loans can be reduced by directing the clients towards fixed-rate loans, especially in the case of riskier clients.

Chart 10: Deviation of housing prices from the estimated equilibrium level



Note: The divergence of housing prices from the estimated equilibrium level is based on the average of three methods. Two model based estimates and the house price to income indicator is used. Source: ESRB, MNB.

Chart 11: House prices and housing market transactions in Budapest and in the whole country



Source: HCSO, MNB.

### 2.1. The pick-up in the housing market shows significant heterogeneity, prices are below the equilibrium level

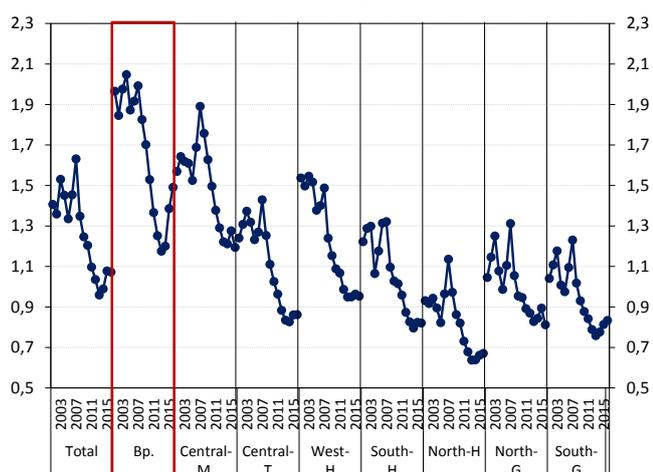
The domestic housing market has continued to pick up during 2016, although frictions are still observed, and even in spite of the dynamic increase, the current level of housing prices does not seem to be exaggerated. Housing prices continued to rise and the number of transactions carried out increased further in 2016 Q1, but the pick-up in the housing market is coupled with frictions. The expansion in market turnover is almost completely attributable to the market of pre-owned homes, which is also significantly influenced by the increased investment-purpose demand stemming from the low yield environment. However, several calculation methods suggest that the level of housing prices cannot be considered excessive, or, in other words, housing prices on average are not higher than justified by the fundamentals that determine the market. The so-called house price to income ratio seems to be suitable for the assessment of housing prices. This indicator examines the level of house prices compared to the per capita income, and in spite of the increase in housing prices, which had been observed for two years; in 2016 Q1 the ratio was below its long-term average. The results are similar when the under-/overvaluation of housing prices is examined using a model-based approach.<sup>2</sup> According to our estimation, housing prices are relatively in line with the fundamentals, which is also confirmed by the similar calculations of the European Central Bank (ECB) depicted in Chart 10.<sup>3</sup>

On a territorial basis, the domestic housing market shows significant heterogeneity: housing price increases are the highest in the capital, but cannot be considered risky for the time being. The pick-up in the domestic housing market also shows a heterogeneous picture on a territorial and settlement type basis; the upswing is the strongest in Budapest,

<sup>2</sup> For the detailed methodology see: Magyar Nemzeti Bank: Financial Stability Report, May 2014.

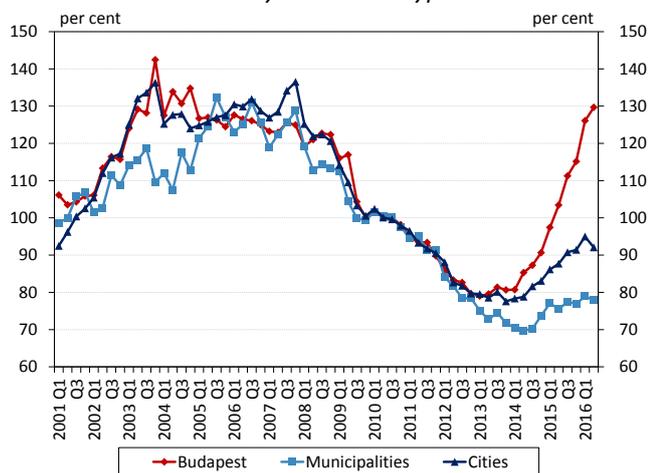
<sup>3</sup> For the description of the methodology used by the European Central Bank see: European Central Bank [2015]: Financial Stability Review, November 2015.

Chart 12: Average square meter prices to average net monthly earnings in a regional breakdown



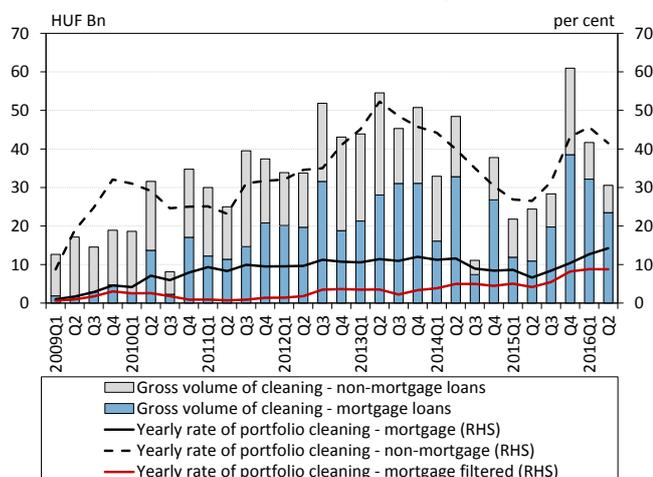
Source: HCSO, MNB.

Chart 13: The MNB's real housing price index in a breakdown by settlement type



Source: MNB.

Chart 14: Yearly development of the cleaning rate of household loans in the banking sector



Notes: The filtered time series does not include transfers within groups. Source: MNB.

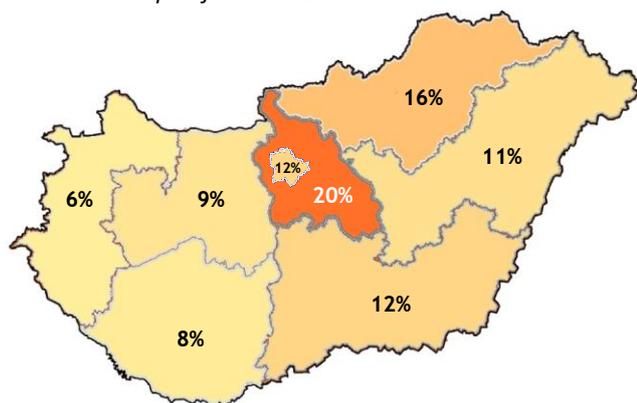
supported by favourable income, labour market and demographic developments as well as the increased investment purpose demand. Compared to end-2013, the MNB's housing price index for Budapest rose by 61.6 per cent by 2016 Q2, while the national average of the increase is only 28.6 per cent. For the cities excluding Budapest, the increase is 19.2 per cent (Chart 11). Nevertheless, a slowdown is seen in the transaction numbers in the capital following the preceding upswing. Although the average square metre prices compared to net earnings are the highest in Budapest (Chart 12), before 2008 the indicator was permanently much higher than the current level, which is greatly attributable to the steady increase in earnings in the capital. Taking into account that even based on various calculation methods, domestic housing prices are not overvalued on an aggregate basis (and the nearly 30 per cent weight of the capital significantly determines these calculations), that the Budapest real price index has just reached its 2003-2008 average level (Chart 13) and that the average square metre prices compared to average monthly earnings used to be much higher in the capital, we do not yet consider the price increase in Budapest risky.

**Although for the time being the developments in the housing market imply moderate risks, continuous monitoring of the market is essential.** The pick-up in the housing market, which is concentrated mainly in the capital, may continue together with the increase in housing prices in the near future, especially in case the investment purpose housing demand further heathens the market. Excessive rise in housing prices entails the risk of their major fall in the future. A decline in housing prices would mean a decrease in the value of the collateral behind the mortgage loans disbursed earlier, and thus an increase in banks' loss given default (LGD) in the case of the non-performance of loans. Considering all this, housing market developments require special attention to be paid in order to avoid the consequences of the overheated lending observed during the crisis, as this legacy is still inherent in banking sector balance sheets.

### 2.2. The pick-up is not sufficient for a stronger cleaning of the non-performing mortgage loan portfolio

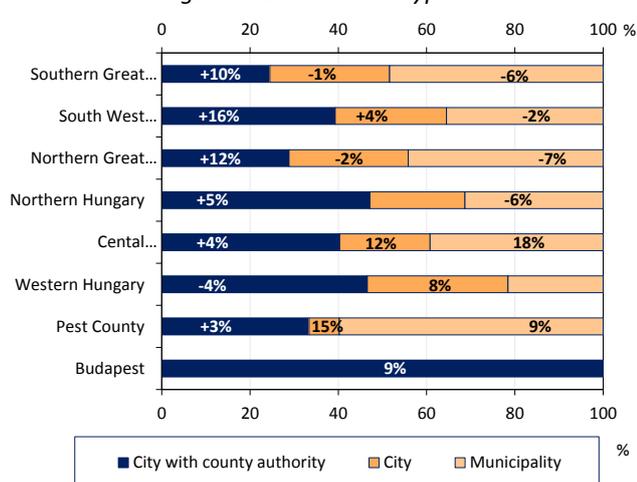
**The ratio of non-performing mortgage loans in the banking sector continues to be high in spite of the historically high cleaning ratio.** From HUF 808 billion at the end of last year, households' non-performing mortgage loans declined to HUF 752 billion – i.e. from 20 per cent to 18 per cent – by the end of 2016 Q2, but this level can still be considered problematic. In H1, the banking sector removed gross receivables covered by non-performing mortgage worth some HUF 55.6 billion in total from its balance sheet (Chart 14). Notwithstanding the historically high cleaning ratio, taking the current dynamics

Chart 15: Regional distribution of collaterals within the scope of the MNB recommendation



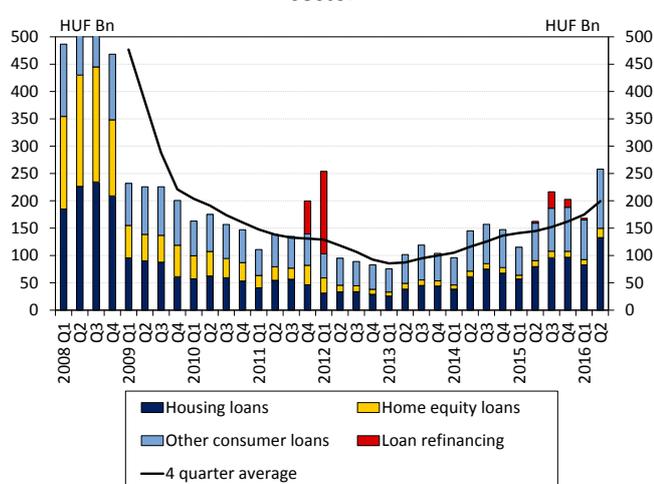
Source: MNB.

Chart 16: The change in the number of transactions and the distribution of properties serving as collateral by region and settlement type



Note: Data is calculated based upon the collaterals within the scope of the MNB recommendation. Percentage changes between 2014 and 2015 by HCSO. Source: HCSO, MNB.

Chart 17: New household loans in the credit institution sector



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

into account, a further 5–6 years would be needed to reduce the non-performing mortgage loan portfolio.

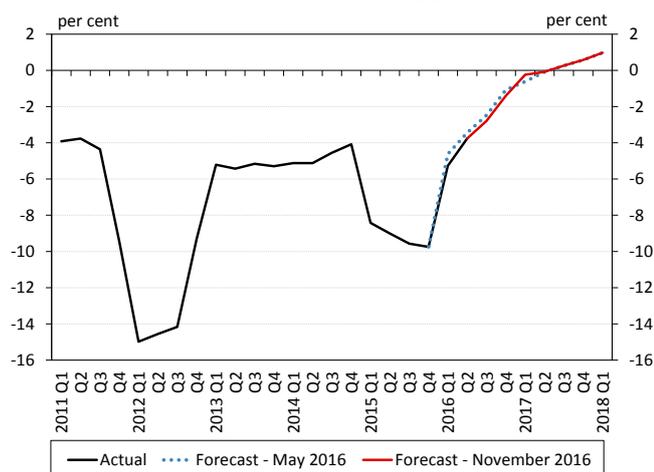
The enforcement of collateral contributed significantly to the cleaning of the mortgage loan portfolio, with a dominant role played by the transactions of the National Asset Management Agency (NET). In 2016 H1, voluntary or forced sales of nearly 4600 collateral properties worth some HUF 53 billion took place (realised purchase price during sales). Nearly 12 per cent of the properties were sold in the capital, but the number of transactions was outstanding in Pest (12 per cent), Szabolcs-Szatmár-Bereg (9 per cent), Borsod-Abaúj-Zemplén (8 per cent) and Békés (6 per cent) Counties as well – mainly as a result of the NET programme. This latter played an indispensable role in the enforcement of collateral, as two thirds of the properties offered for purchasing were bought by the Hungarian State.

Half of the properties serving as collateral are located in regions where the number of transactions hardly increased or did not increase at all. Based on end-July data, one fifth of the collateral behind the loan transactions was in Pest County and another 12 per cent in Budapest. Comparing the distribution of the properties according to regions and settlement types to the changes in the number of real estate market transactions in the past one year it can be presumed that portfolio cleaning with enforcement of collateral may continue to play a limited role in the future as well (Chart 16). In the Southern Great Plain, Southern Trans-Danubian and Northern Great Plain Regions – where one third of the collateral properties are located – the real estate market turnover of towns of county rank increased markedly. Nevertheless, slight increases or declines in turnover were observed in other settlement types. The Central Hungarian Region continues to be in an advantageous position, but it is new that the real estate market liquidity of the towns in Pest County is growing dynamically.

### 2.3. Dynamic recovery of household lending mainly due to housing loans

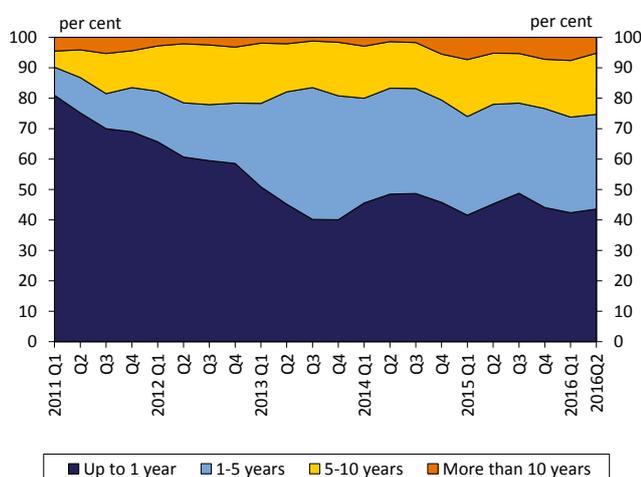
The volume of new household loans has grown considerably. The volume of new household loans of the credit institutions sector as a whole amounted to HUF 423 billion in 2016 H1, and thus the annual average increase in gross lending was 38 per cent (Chart 17). The pick-up in lending was primarily attributable to housing loans; lending in this segment increased by a total 46 per cent compared to the previous year. Home equity loans and other consumer credit were up by 31 per cent and 30 per cent, respectively. Within the latter, personal loans increased by 47 per cent. The pick-up in new loans is attributable to low interest rates, rising real wages and the postponed demand accumulated due to the

Chart 18: Household lending forecast



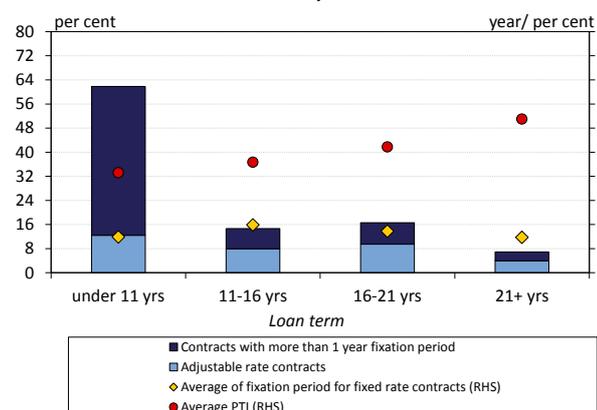
Note: Transaction based, year-on-year data per cent. Source: MNB.

Chart 19: New housing loans by interest type



Source: European Mortgage Federation.

Chart 20: New housing loans by interest type and maturity



Note: distribution based on number of transactions. Upon calculating the payment-to-income ratio, the March 2016 estimated average value was included in the table. Only the debt service originating from housing loans was taken into account, while liabilities stemming from other loans were not. The chart shows loans disbursed since 1 January 2015. Source: MNB.

crisis. A supportive role is played by the Home Purchase Subsidy (HPS) as well, while the debt cap rules prevent the development of future excessive lending in the household sector. According to the responses of banks participating in the Lending Survey, the conditions of both housing and consumption loans had remained unchanged in Q1 and eased in Q2. In parallel with that, banks reported a pick-up in demand, especially for housing loans.

**Household lending may start to increase as a result of the pick-up in demand and of the home purchase subsidies.**

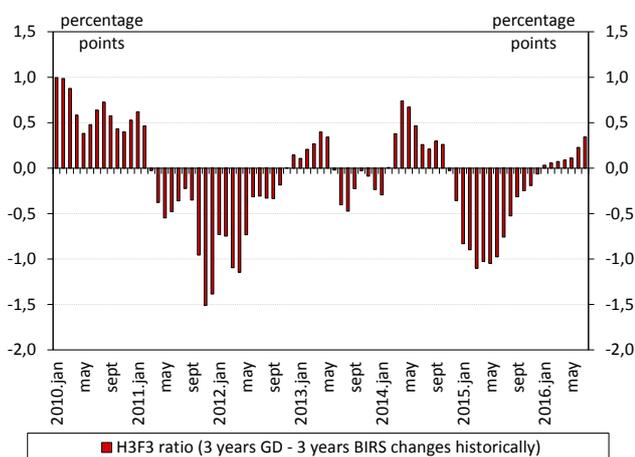
In 2016 H1, household loans of the domestic financial intermediary system declined by a total HUF 107 billion as a result of transactions, but disbursements already exceeded repayments in June. The annual dynamics of loans outstanding improved considerably as a result of the exclusion of the one-off effect of the February 2015 settlement and conversion into forints from the indicator: the value of household loans of the financial intermediary system declined by 4.5 per cent during the past one year. The observed decline was in line with our earlier expectations. Further pick-up is expected on the credit demand side in 2016 H2, while supply conditions remaining unchanged. A major role in the pick-up in demand is played by the Home Purchase Subsidy (HPS), which, looking ahead, will contribute to an increase in housing loans and the stabilisation of household loans outstanding. Accordingly, we expect a slower decline in household lending at the beginning of the forecast horizon, followed by a slight expansion at the end of it (Chart 18).

**2.4. Fixed-rate loans represent greater security in household lending**

**The share of fixed-rate loans is increasing within new housing loans, but most of the outstanding loans are variable-rate loans.** In 2016 H1, the value of new variable-rate housing loans (maximum 1 year initial rate fixation) granted and ones with rates fixed for more than 1 year amounted to HUF 93.6 billion and HUF 123.4 billion, respectively. As a result, the share of fixed-rate loans within new loans is nearly 60 per cent (Chart 19). However, most of the household loans outstanding are variable-rate loans (around 70 per cent according to our estimate). Though FX loan conversion could handle the greater FX risk, the interest rate risk has remained.

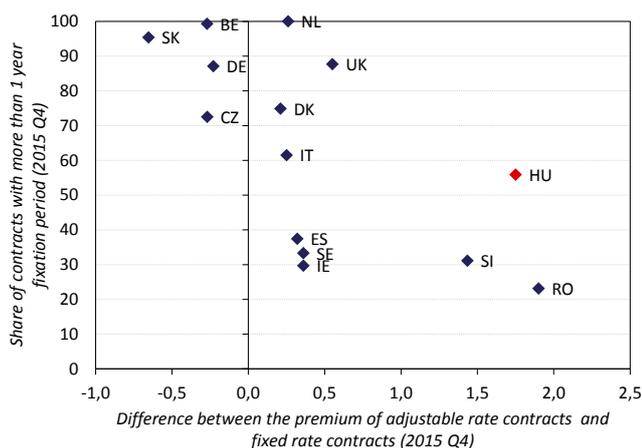
**Risks may build up in connection with the newly disbursed housing loans as well.** In the new contracts of the past one and a half years, shorter maturities are clearly dominated by fixed-rate loans, in the case of which the average length of the interest rate period is increasing steadily. However, in the case of longer-term loans the share of rate fixation is lower, and the length of the fixation period does not keep up

Chart 21: Difference between 3 year government bond yield and the 3 year BIRS-rate



Source: MNB.

Chart 22: Share of fixed rate contracts in new loans and the difference between fixed and adjustable rate premiums



Note: The premium of 1-5 year fixation was considered. Based on 2015Q4 data. Source: European Mortgage Federation.

with the increasing loan terms (Chart 20). The average payment-to-income ratio is higher at maturities of around 20 years or more. This points out that exactly that segment may be the most vulnerable in terms of income where (1) the per unit interest change causes the highest increase in debt service payments and where (2) the ratio of variable-rate loans is relatively high.

**In addition to the change in the reference rate, the interest burden on variable-rate loans may change with an increase in the interest rate spread as well.** In the case of the interest rate spread change indicator, which also comprises the liquidity premium, this premium is captured at the given maturity by the difference between the government securities reference yield and the Budapest Interest Rate Swap (BIRS). In turbulent periods, when the role of liquidity appreciates, the difference between the government securities reference yield and the BIRS also increases. In the period since January 2010, considering the three-year government securities and BIRS yields, the changes in the difference of yields taking into account the 3-year repricing ranged between -1 percentage point and 1.5 percentage points (Chart 21). It means that in the case of a 3-year repricing period this could have been the maximum degree of the decline or increase in the interest rate spreads as a result of changes in the liquidity premium.

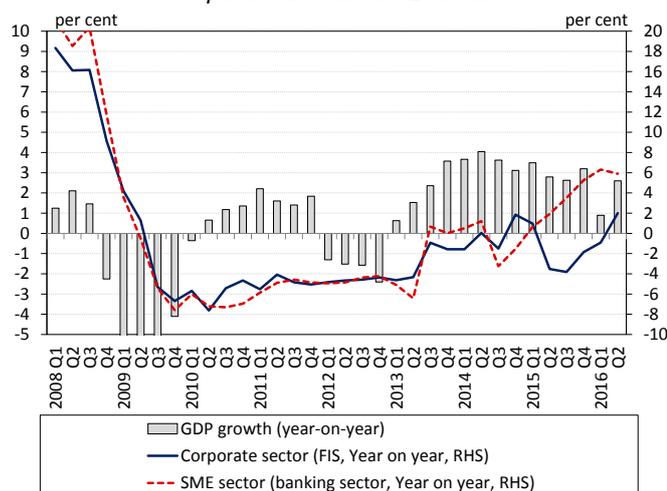
**Fixed-rate loans that reduce the interest rate risk of households are expensive in Hungary in international comparison.** In 2015 Q4, fixed-rate loans were granted with a 175 basis point premium, which is high in international comparison (Chart 22). An increase in the share of fixed-rate loans may also facilitate the reduction of households' interest rate risk. A decline in the interest rate spread between variable and fixed-rate loans may contribute to the popularity of fixed-rate loans. The reduction of spreads may be facilitated by various steps<sup>4</sup>: 1) it is extremely important to solve the problem of non-performing loans, which would have a favourable impact on operating costs as well, 2) Central Credit Information System (CCIS) based on mandatory, complete data provision through the reduction of information asymmetry, 3) developing the mortgage bond market could reduce the high spread on loans with more than one year interest rate fixation.

<sup>4</sup> Described in detail Ákos Aczél, Ádám Banai, András Borsos, Bálint Dancsik (2016): A lakáshitelek felárát meghatározó tényezők azonosítása magyar banki és ügyletszintű adatokon (Identification of factors that determine the spreads on housing loans in Hungarian bank and transaction level data). Manuscript. Under publication

### 3. SME LENDING DYNAMICS HAS REACHED ITS GROWTH SUPPORTING LEVEL THIS YEAR

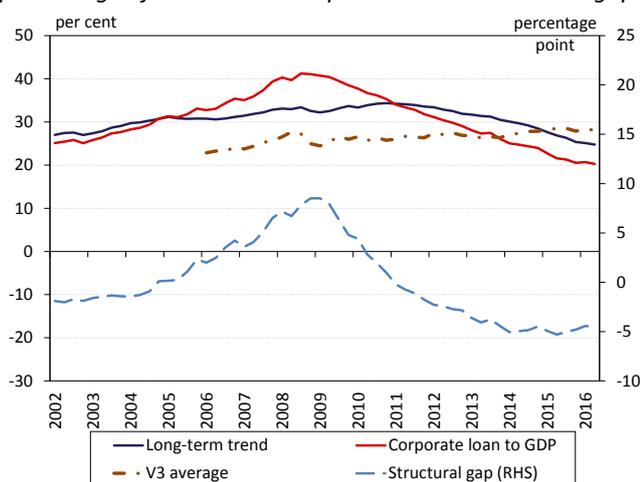
Corporate lending, and the dynamics of lending to SMEs in particular, started to pick-up in 2016 and SME loan dynamics exceeded 5 per cent year-on-year. In this result the central bank programmes (Funding for Growth Scheme, Market-based Lending Scheme) played a strong stimulating role. We consider the market based lending dynamics sufficient to phase out FGS without any breaks in lending. Corresponding to MLS, more than half of the banks have met the relevant commitments in pro rata terms, and in addition to the increasing volumes, an easing in credit conditions is also observed. SME surveys also report about the easing of financing conditions, along with rising demand for longer-term loans in H2.

Chart 23: Growth rate of loans outstanding of the whole corporate and the SME sector



Note: Transaction-based; from 2015 Q4 the data for the SME sector are based on new data supply. Source: HCSO, MNB.

Chart 24: Outstanding loans to the corporate sector as a percentage of GDP and developments in the structural gap



Source: ECB, MNB.

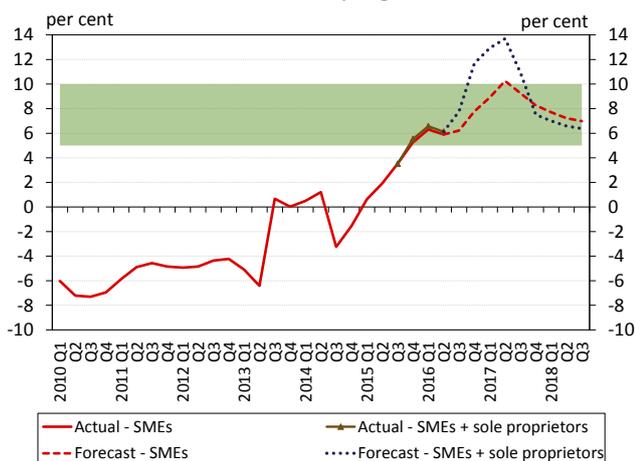
**SME lending entered the growth band between 5 and 10 per cent, which is considered to be supportive to sustainable growth.** In 2016 H1, non-financial corporations' outstanding loans vis-à-vis the domestic financial intermediary system increased by some HUF 84 billion in total on a transaction basis. As a result of positive transactions, corporate loans outstanding were up 2.1 per cent year on year (Chart 23). Since early 2015, steady increase has been observed in SME lending, close to 6 per cent by mid-2016 in annual terms. The Funding for Growth Scheme also contributed significantly to the growing dynamics of outstanding loans; it supported the expansion in total loans with the disbursements in the second phase as well. Nevertheless, similarly to previous periods, both an increase in credit demand and an easing of credit conditions were observed in the period under review. As a result, SME lending entered the 5–10 per cent growth band, which the MNB considers sustainable.

**The level of corporate indebtedness might have come to a turn in comparison with its structural trend.** In comparison with 2015, the deterioration of corporate credit in proportion to GDP slowed down substantially. It can be stated, based on the trend-cycle breakdown<sup>5</sup> with regard to structural interrelations, that the deviation of the cyclical corporate lending (structural lending) was unchanged for the first time since the crisis in contrast with 2015. Moreover, it even showed a slight recovery (Chart 24). If we examine the credit of domestic corporations in relation to the financial intermediaries in an international context, it can also be stated that the level of the credit burden of domestic corporations fell below the average of the Visegrad group. Thus, the internationally outstanding reduction of debt is presently characterised by a slight closure of a cyclical position and the potential to reach the reference level set by the Visegrad group. All these factors adumbrate the continuing closure of the negative corporate credit gap.

**Banks undertook to expand their outstanding SME loans by at least 6 per cent within the framework of the MLS.** By having recourse to the interest rate swap conditional on

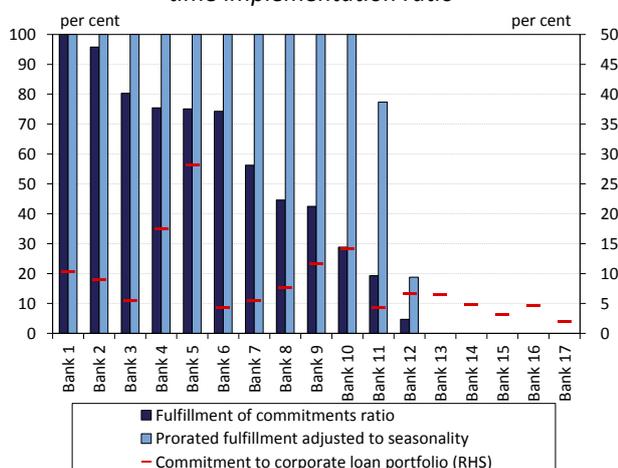
<sup>5</sup> Hosszú Zs. – Körmendi Gy. – Mériő B. (2015): Egy- és többváltozós szűrők a hitelrész alakulásának meghatározására, MNB-WP 118.

Chart 25: The forecast of SME lending taking into account the central bank programmes



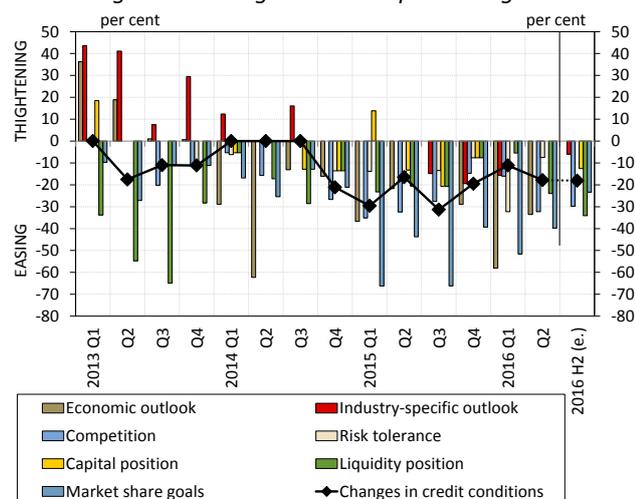
Note: Transaction-based, year-on-year data. Source: MNB.

Chart 26: Banks' implicit MLS undertakings and their half-time implementation ratio



Source: MNB.

Chart 27: Changes in credit conditions and factors contributing to the changes in the corporate segment



Note: Difference between the ratios of banks forecasting tightening and easing, weighted by market share. Source: MNB, Banks.

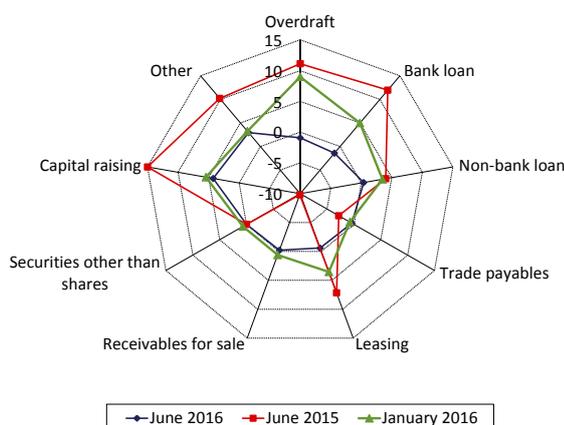
lending activity (LIRS) introduced as part of the Market-based Lending Scheme, banks undertook to lend an amount corresponding to one quarter of the allocated LIRS in order to increase the net amount of loans granted to small and medium-sized enterprises. In addition, it is possible for them to place preferential deposits up to an amount corresponding to 50 per cent of the allocated LIRS holdings. At the LIRS tenders, transactions worth a total HUF 780 billion were concluded by 17 commercial banks, thus undertaking a commitment to increase their loans to the SME sector by nearly HUF 195 billion during 2016 (Chart 25). The sizes of these obligations varied, reaching up to 30 per cent of individual banking groups' SME loans outstanding at the beginning of 2016. The 5 largest LIRS user credit institutions undertook an SME loan increase of HUF 125 billion.

**Taking account of seasonality as well, 10 out of 17 banks met their commitments in pro rata terms at end-H1.** In H1, at sector level, banks fulfilled 50 per cent of the pro rata value of their total annual commitments (Chart 26), taking into account seasonal effects as well. Based on that, an amount of HUF 110 billion increase is expected until the end of the year due to the LIRS<sup>6</sup>. In the case of 5 institutions, the amount of outstanding loans declined in H1 in spite of their commitments, which may question these actors' ability to meet their respective commitments by the end of the year. Half-time data allow the drawing of limited conclusions only; nonetheless since Market-based Lending Scheme applies different sanctions on banks that do not fulfil their commitments, it incentivizes banks to boost their lending to meet at least half of their commitments, thereby avoiding sanctions.

**Supply conditions eased again during H1, which might be followed by further easing.** Based on responses to the Lending Survey, banks eased their corporate lending conditions during both quarters in 2016 H1. They explained the easing mainly with the competition, improving economic prospects and a strengthening in their risk tolerance. In the latter case the impact of the Market-based Lending Scheme may also appear in an indirect manner through the commitments made in connection with the LIRS. On the whole, responding banks eased their price conditions in the period under review (Chart 27). During the quarter, however, around one quarter of banks according to their market shares already eased the conditions of commercial real estate loans as well, which is primarily attributable to the alleviation of the problems affecting the sector.

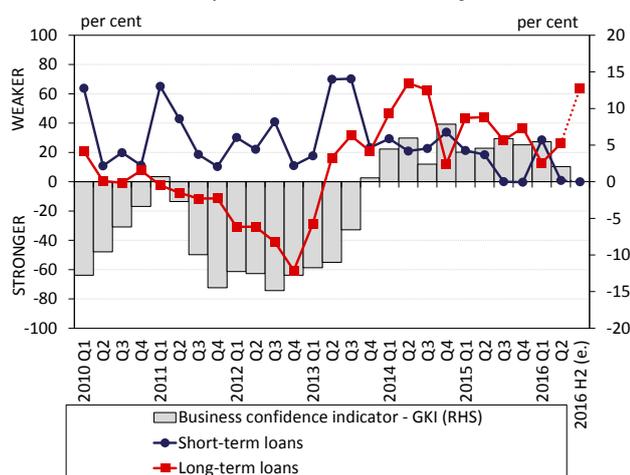
<sup>6</sup> The outstanding debt does not follow a consistent pattern this year, caused (besides other factors) by the seasonality of processes in the real economy (especially investments). Based on the empirical evidence gathered so far, H2 is characterized by a pick-up in banks' lending activity.

Chart 28: Changes in access to finance perceived by SMEs during the previous half year



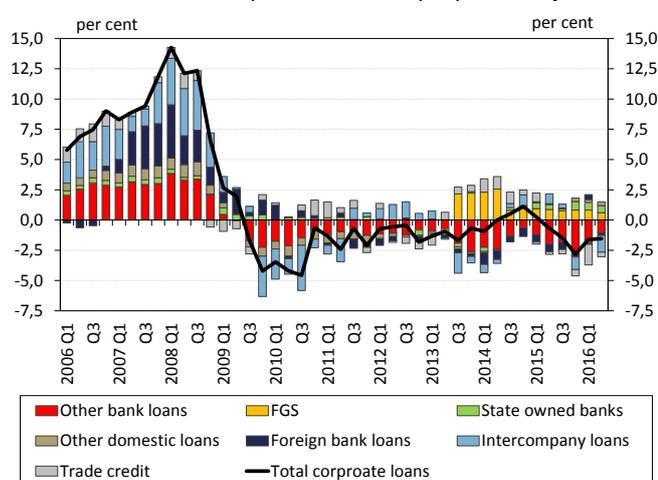
Note: Difference between the ratio of companies indicating improvement and deterioration. Based on a 1000-element random sample representative of companies by size. Source: MNB survey.

Chart 29: Changes in loan demand according to maturity and developments in business confidence



Source: MNB, based on banks' responses, and GKI Economic Research Co.

Chart 30: Total corporate loans in proportion of GDP



Note: Based on 4-quarter moving sums of transactions. Source: MNB.

**Small and medium-sized enterprises reported an improvement in finance conditions last year.** As part of its regular business activity research, by way of a questionnaire survey, the MNB was seeking an answer how companies – small and medium-sized enterprises in particular – perceived the credit supply easing that took place during last year (Chart 28). The access of SMEs to major external funds typically improved during 2015, while in 2016 H1 the enterprises participating in the survey tended to consider it generally unchanged. Regarding bank loans, the above may also be related to the fact that during 2015 banks typically eased the maximum maturity and the maximum size of loan/credit line, which are more apparent for loan applicants, whereas easing in price conditions was more typical this year. Nevertheless, the findings of the questionnaire confirm that there has been an overall improvement in the financing situation of the SME sector in recent years.

**Following short-term loans, the demand for long-term ones may increase in H2.** Based on banks' responses to the Lending Survey, demand was determined by increased demand for short-term loans. However, according to the majority of respondents, in the coming half year the expansion in demand may take place in long-term loans, driven by an increase in borrowers' investment into tangible assets (Chart 29). According to interviews with bank managers, this may also be attributable to the fact that many clients had adjusted their respective investment to the announcements of relevant EU applications, and then waited. Therefore, the demand for long-term loans picked up more slowly. Although most of the projects to be implemented using EU funds are expected to materialise as of 2017, the increase in the ratio of private investment and the capacity increasing investment in sectors producing for the domestic market may have an impact on the upswing in credit demand in the near future. All this indicates that banks' corporate lending activity may increase further in H2, thus facilitating the closing of the negative credit-to-GDP gap.

**Slower corporate loan deleveraging can be observed also beyond bank loans.** In 2016 the processes of corporate financing continued as they were experienced previously (Chart 30). Domestic HUF bank lending increased in the first half of the year, partly due to FGS, but FX-funding continued to deteriorate, although in a slower manner. Taken into account the cross-border financing, overall a slower rate of deleveraging of credit-type financing can be observed in the corporate sector. However cross-border financing is typically available only to larger or foreign-owned companies.

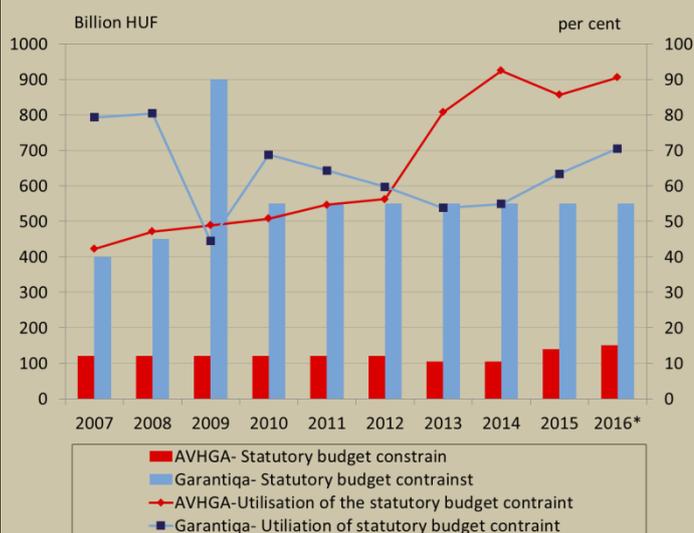
## BOX 2: GUARANTEE INSTITUTIONS MAY GREATLY CONTRIBUTE TO THE IMPLEMENTATION OF PRODUCTIVE INVESTMENT

**SME's access to finance, which plays a determining role in terms of economic activity and employment, is of primary importance, and it requires a further easing of credit supply constraints.** Based on international experience, institutional guarantee plays a major role in smaller and riskier enterprises' access to finance. The role of guarantee in promoting lending is also important because the favourable possibilities of access to financing currently available for SMEs, the financing available through the Funding for Growth Scheme (FGS), then the direct EU funds and financial instruments (venture and own capital, guarantee, interest rate subsidy) available in other EU programmes will gradually halt. The MNB's SME credit information system<sup>7</sup> may also facilitate the increase in guarantee institutions' willingness to take risks.

**Financing that supports SMEs' competitiveness needs to be provided following the gradually discontinued central bank programmes and the depleting EU funds as well.** Having reached its targets related to lending to SMEs, the FGS will be gradually phased out. Therefore, in the longer run, other sources and institutions will also have to play an increased role in supplying SMEs with adequate funding. In terms of efficiency, significant backwardness of Hungarian micro and small enterprises is observed in international comparison: their productivity level is about one third or one quarter of large companies' productivity. In contrast, much smaller differences in productivity are observed between larger and smaller enterprises in Western Europe. Willingness to lend may increase with the undertaking of institutional guarantees, allowing the implementation of investment that improves the productivity of micro and small enterprises in the sector. Accordingly, the increase of the volume of the guarantee portfolio would have a favourable impact on SMEs' competitiveness, GDP growth and expansion in employment as well.

**There are adequate capacities available for providing financing for an even wider range of smaller, viable enterprises with the help of guarantees.** An advantage of the introduction of the portfolio guarantee scheme, which has spread in international practice, would be that the process of utilisation of guarantee would become more efficient, as it would not require the preliminary approval of each transaction. With the improvement of the efficiency of guarantee organisations it may be necessary to increase the budgetary appropriation in order to expand the volume of guarantee that may be undertaken with state counter-guarantee. The higher amount of appropriation would probably not entail any significant additional expenditure in the budget anyway, because the annual amount of cashing is insignificant compared to the amount of guarantee limits. Moreover, the additional economic growth and employment coupled with the increase in lending may also result in additional revenues for the national budget.

Utilisation of statutory budget constraint of guarantee institutions



Source: AVHGA, Garantiqa.

**Increasing the utilisation of state guarantee institutions may contribute to the implementation of investment that aims at the productivity of the domestic SME sector.** In terms of the domestic SME sector's becoming more competitive, investment related to technological development and necessary for reaching the economies of scale is of key importance. Following the phasing out of the Central Bank's lending incentives and in parallel with the gradual depletion of EU funds, institutional guarantee schemes should be given an increasing role. In our opinion, compared to last year, there is greater fiscal room and even greater need for increasing the appropriation for credit guarantee schemes.

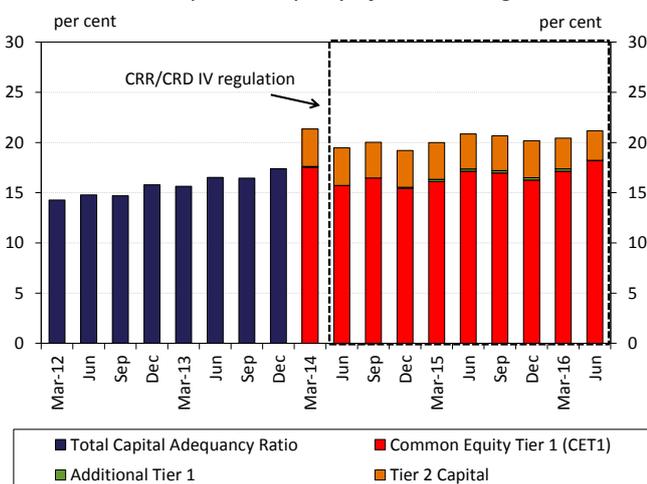
<sup>7</sup> <https://www.mnb.hu/letoltes/mnb-tanulmanyok-123.pdf>. The system is available among services of BISZ Zrt. who is responsible also for the Central Credit Information System.

#### 4. RESILIENCE TO SHOCKS: WITH SOLID CAPITAL AND LIQUIDITY POSITIONS THERE IS AMPLE ROOM FOR INTENSIVE PORTFOLIO CLEANING AND INCREASING LENDING ACTIVITY

The capital adequacy of the Hungarian banking sector continues to be historically high (more than 20 per cent); most of the regulatory capital primarily consists of Tier1 capital elements. The liquidity position of the banking sector is also exemplary; banks' liquidity coverage ratio is nearly 200 per cent; banks offset the liquidity reducing effect of the restructuring of the central bank instruments by purchasing government securities. As a result of prudent lending in the past five years as well as of the conversion into forints and the decline in the portfolio, favourable levels are being reached in loan loss forecasting as well. The historically robust shock absorbing capacity of the banking sector allows the working off of the legacy of the pre-crisis overheated lending and the cleaning of the non-performing loan portfolio in a decisive manner, undertaking temporary costs as well. In addition, sufficient room is available for a healthy expansion of lending as well, which would consolidate interest income and ensure medium-term size-efficient operation.

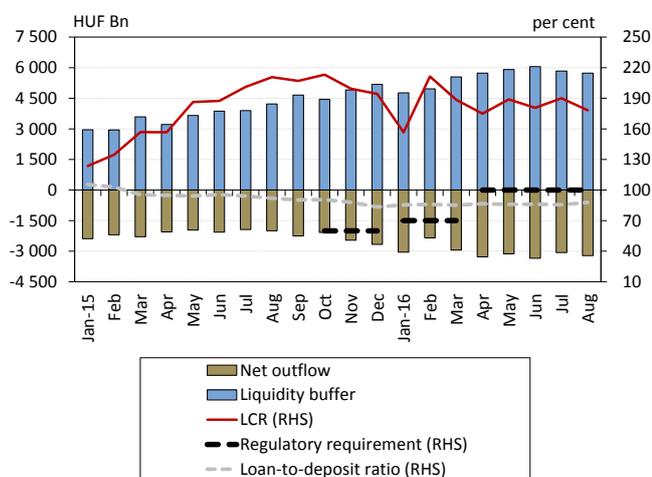
All this is supported by the fact that based on our credit risk stress test banks' capital adequacy is sufficiently high to satisfy regulatory capital requirements in the next two years, even in the case of significant and lasting stress. The liquidity stress tolerance improved during the last half year in the case of the examined institutions. Banks which used to have weaker results are now much less below the regulatory minimum.

Chart 31: Capital adequacy of the banking sector



Source: MNB.

Chart 32: Liquidity position of the banking system



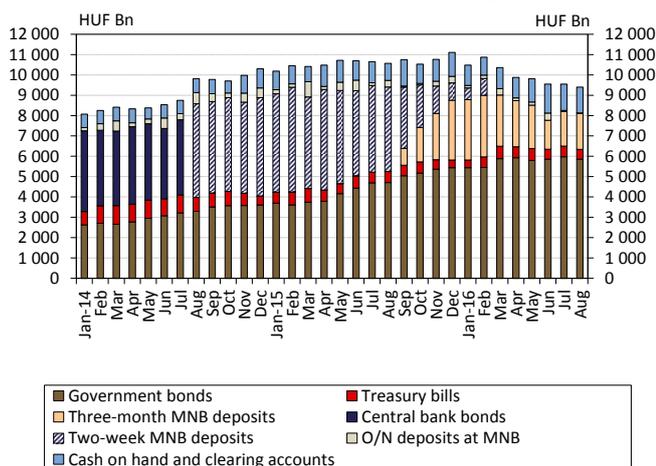
Note: assuming that the whole two-week deposit portfolio will be placed in three-month deposits. Source: MNB.

#### 4.1. Both the capital and liquidity positions of the banking sector have strengthened since the spring Financial Stability Report

The banking sector's non-consolidated capital adequacy continues to be outstanding: 21.2 per cent at end-June 2016. Most of the banking sector's regulatory capital continues to consist of best-quality Tier1 capital elements in line with the relevant regulation (Chart 31). At the end of H1, each bank met the regulatory minimum capital requirements, including the requirement to build capital conservation buffers, which is mandatory as of 2016, amounting to 0.625 per cent this year. At system level, capital adequacy is still considered extremely favourable; the size of the capital buffer at banking sector level was HUF 1124 billion at end-June, taking account of the capital conservation buffer, which is valid for the first time this year, and the SREP requirements as well. The distribution of the capital buffer in excess of the regulatory requirements continues to be asymmetrical; of the banking sector's regulatory capital surplus, the share of the three large banks that have the largest buffers was 71 per cent at the end of H1.

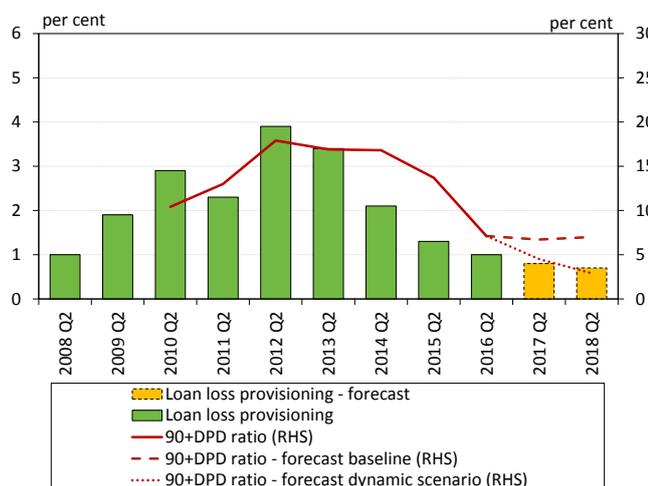
The liquidity of the banking sector continues to be strong. The holdings of liquid assets had not changed since May; banks' liquidity coverage ratio (LCR) was nearly 190 per cent, significantly exceeding the 100 per cent regulatory requirement (Chart 30). Banks' loan-to-deposit ratio remained at a low level. In terms of financing, it is favourable that the ratio has been below the 100 per cent level for one and a half years, as the loan portfolio is backed entirely by client deposits. Between May and August 2016, the indicator rose by 2 per cent as a result of improving lending

Chart 33: Liquid assets in the banking sector



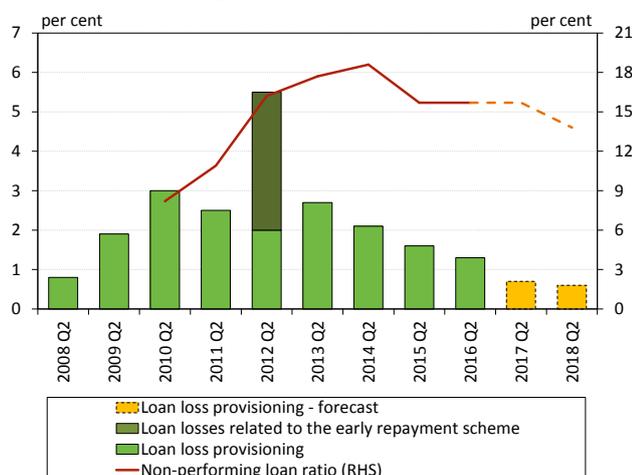
Source: MNB.

Chart 34: Ratio of non-performing loans and loan loss provisioning in the corporate segment



Source: MNB.

Chart 35: Ratio of non-performing loans and loan loss provisioning in the household segment



Source: MNB.

activity. Between April and August 2016, the portfolio of short-term external liabilities increased slightly, by HUF 113 billion to HUF 1730 billion, which, for the time being, does not entail significant risks.

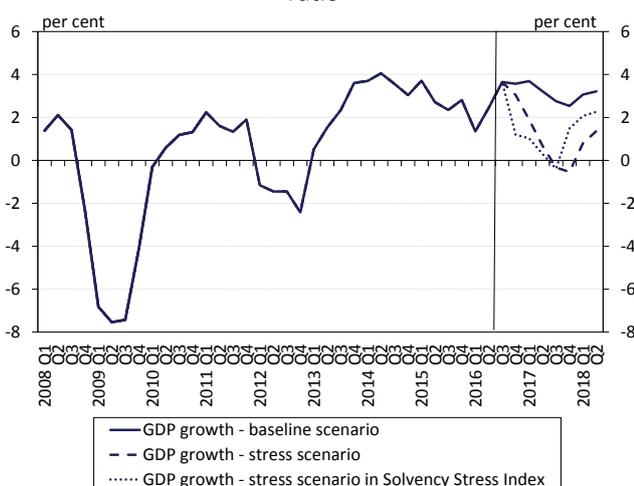
**Banks offset the liquidity reducing effect of the restructuring of central bank instruments by purchasing government securities.** Starting from the announcement of the MNB's self-financing programme in April 2014 until the end of August 2016 banks' government securities holdings increased by some HUF 2641 billion (Chart 33). As a result of the restructuring of central bank instruments in September 2016, further rearrangement is taking place within the banking sector's liquid assets due to the decline in the holdings of central bank instruments. On the other hand, the total stock of liquid assets is expected to decrease. The prime achievement of the Self-financing Programme is the mitigation of Hungary's vulnerability towards external threats.

#### 4.2. The loan loss forecasts standing at pre-crisis levels allow stronger portfolio cleaning

**Corporate loan loss provisioning will achieve pre-crisis levels according to our forecast; there is room for normalizing risk appetite.** As a result of the low willingness to take risks, the risk of corporate loans issued after the crisis is much lower than that of previous ones, and thus the shock-absorbing capacity of the whole portfolio improved. We see room for the normalisation of the risk appetite that plummeted after the crisis. The forecast stagnates on the basic trajectory regarding the share of corporate loans exceeding 90 days of delinquency. Meanwhile, expecting the cleaning of whole portfolios in the next two years, we arrived at a significantly better share of non-performers at the end of the period (Chart 34). It is important to state that a substantial share of project loans is included in the non-performing instead of delinquency category. Therefore, the corporate NPL ratio is still approximately 15 per cent, which can reach the 5 per cent level based on the market catalyser role of MARK Ltd.

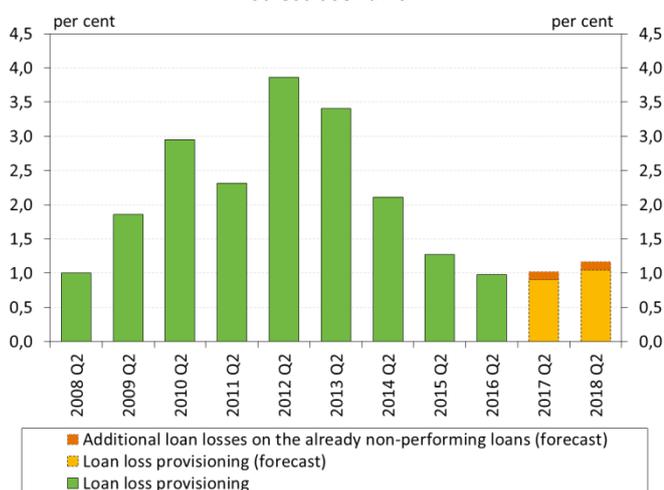
**The proportion of household loan loss is expected to decrease next year under pre-crisis levels, giving room for intensified portfolio cleaning.** In 2015, in the household portfolio, the conversion of FX loans into forints combined with the low interest rate level considerably reduced the parameters of credit risk. The size of the household portfolio decreased in H1, but due to the turn in lending that followed, we expect that the share of household loans with over 90 days of delinquency will decrease to levels close to 13 per cent (Chart 35). Following more difficult years of the past decade, the banking sector's loan loss forecast figures

Chart 36: Changes in the distribution of the loan-to-deposit ratio



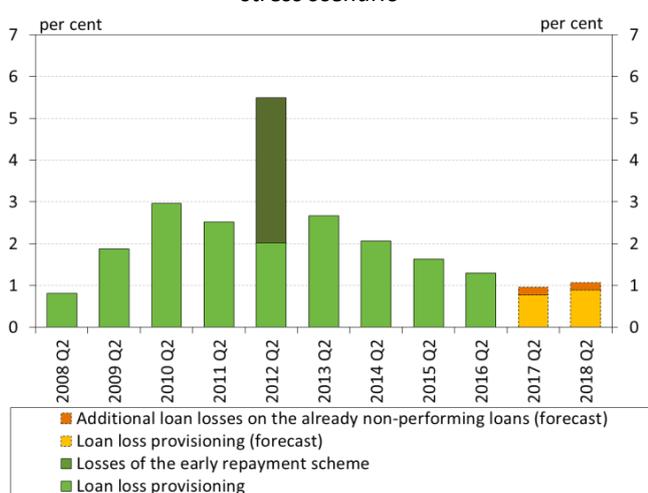
Source: MNB.

Chart 37: Loan loss rate for the corporate portfolio in the stress scenario



Source: MNB.

Chart 38: Loan loss rate for the household portfolio in the stress scenario



Source: MNB.

are also adequate for a strong cleaning of the non-performing exposures accumulated after the crisis, even if temporary costs and write-offs have to be undertaken.

### 4.3. Reassuring stress test results regarding our views on shock-resilience

**In our solvency stress test, we examined the impact of significant economic slowdown, weaker exchange rate and higher interest rate level occurring as a joint result of various unfavourable shocks on banks' capital adequacy.**

Our stress scenario was formulated considering the forecast published in the September Inflation Report as the baseline scenario and assuming the simultaneous occurrence of various unfavourable shocks. In this scenario, the slowdown in emerging economies and the strengthening of the second-round effects of the Brexit have a negative impact on the economies of Hungary's main trading partners, restraining the demand for Hungarian exports, and thus reducing the growth of the Hungarian economy. In addition, we assumed that the worsening of emerging market economies' growth prospects, the exacerbation of the geopolitical conflicts in the Middle East and the escalation of the Italian bank crisis result in turbulences in the money and capital markets. In parallel with a sudden, significant rise in risk indices, the Hungarian yield level and risk premium also increase, coupled with the weakening of the forint. All these have unfavourable impacts on the developments in consumption and investment, which also restrains economic growth. In addition to the presented external shocks, the stress scenario also takes account of a major decline in the inflows of EU funds, resulting in a drop in public investment that cannot be offset by private investment. This reduces domestic demand further, resulting in an increased slowdown in economic growth (Chart 36). Following the first year's gradual exchange rate depreciation and interest rate increase, compared to the baseline scenario, we assumed a 12.2 per cent weaker exchange rate and 206 basis points higher interest rate level on average in the second year.

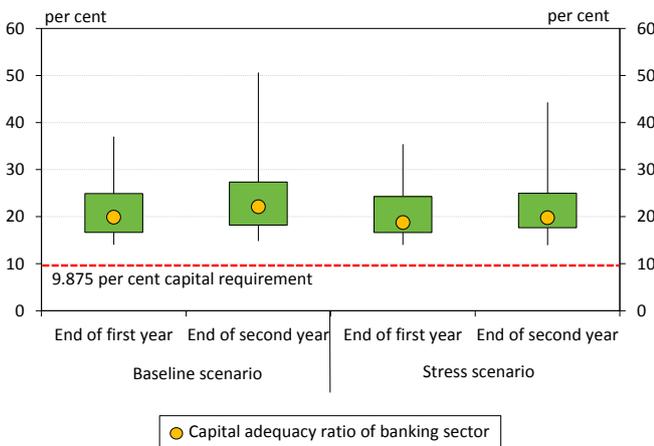
**Due to the low willingness to take risks, we continue to expect very favourable risk parameters in the case of the corporate loan portfolio.** As a result of the low willingness to take risks, the risk of corporate loans issued after the crisis is much lower than that of previous ones, and thus the shock-absorbing capacity of the whole portfolio improved. Consequently, the cost of provisioning is relatively low even in a stress situation. While further decline in loan losses is expected over the forecast horizon in the baseline scenario, the ratios expected in the stress scenario are similar to the ones experienced in the past two years (Chart

Table 2: Stress test results with 8 and 9,875 per cent capital requirement

		Baseline scenario		Stress scenario	
		End of first year	End of second year	End of first year	End of second year
8% capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	1 892	2 251	1 755	1 927
9,875% capital requirements	Capital need of banks (HUF Bn)	0	0	0	0
	Capital buffer of banks above requirement (HUF Bn)	1 592	1 952	1 448	1 619

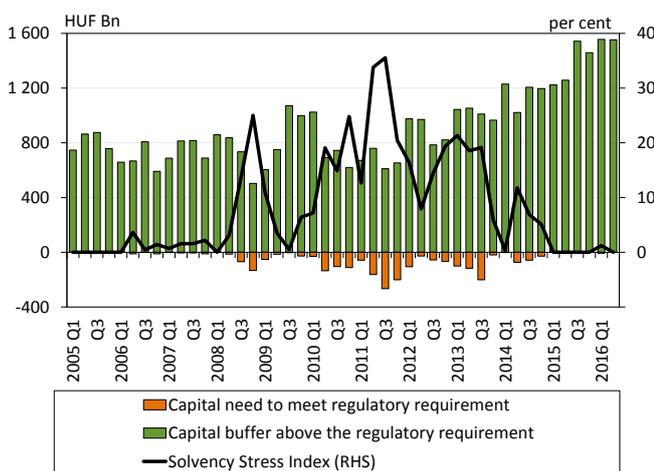
Source: MNB.

Chart 39: Distribution of the capital adequacy ratio based on number of banks



Note: Vertical line: 10-90 per cent range, rectangle: 25-75 per cent range. Source: MNB.

Chart 40: Solvency Stress Index



Note: The indicator is the sum of normalised capital shortages relative to the regulatory minimum level, weighted by the capital requirement in a common stress scenario calculated with fixed shock. The higher the value of the index, the higher the solvency risk. Source: MNB.

37).

Due to the further decreasing loan portfolio and the conversion into forints the expected loss on the household loan portfolio continues to be moderate over the time horizon of the stress test. On the household portfolio, the conversion of FX loans into HUF and the low interest rate level resulted in a major decline in credit risk parameters. In addition, the size of the household portfolio also declined further in the past period. Therefore, similarly to our stress test of half a year ago, we again assumed a relatively low loan loss, which is below the levels observed since the crisis even in the stress scenario (Chart 38).

Improvement in bank profitability is expected in the baseline scenario, supported by the further reduction of the bank levy and the cancellation of the credit institutions' contribution. A slight increase in banks' earnings before loan losses and the bank levy is expected in the baseline scenario, while only 82 per cent of the earnings in the baseline scenario was taken into account in the stress scenario. As one-off items, further reduction of the bank levy and the cancellation of the credit institutions' contribution improve banks' profitability.

The importance of the profit/loss stemming from market risk is low at systemic level, but in the case of the interest rate shock there may be major impacts at the level of individual institutions. The impact of the exchange rate shock is negligible both at institutional and systemic levels, since the exchange rate position of the banking sector – excluding the strategic open positions – is almost completely closed. Although the profit impact of the interest rate shock is also moderate at systemic level, when examining it by institutions, we find some banks that realise material profits, while others suffer considerable losses.

All banks meet the regulatory requirement both in the baseline and stress scenarios, but the significant heterogeneity observed in the sizes of capital buffers remains. Banks' high initial capital levels prove to be sufficient both in the baseline and stress scenarios for all banks to be above not only the 8 per cent but also the examined 9.875 per cent<sup>8</sup> capital adequacy level at the end of the time horizon in spite of the losses that arise continuously during the two years (Table 2). Even at the end of the stress scenario, the banking sector is characterised by a high, 19.7 per cent average capital adequacy (Chart 39). However,

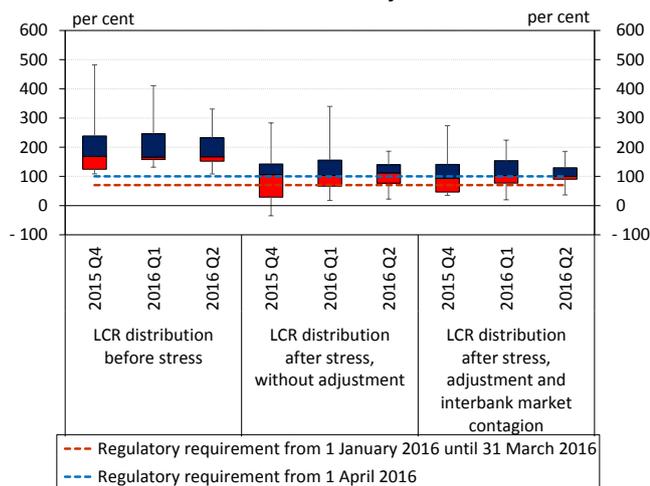
<sup>8</sup> At the end of our horizon, in 2018 Q2, a 9.875 per cent capital requirement was taken into account due to tightening of the regulation. In order to separately see the impacts of the increase in requirements and of the stress paths, the results at the 8 per cent level are also shown.

Table 3: 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			

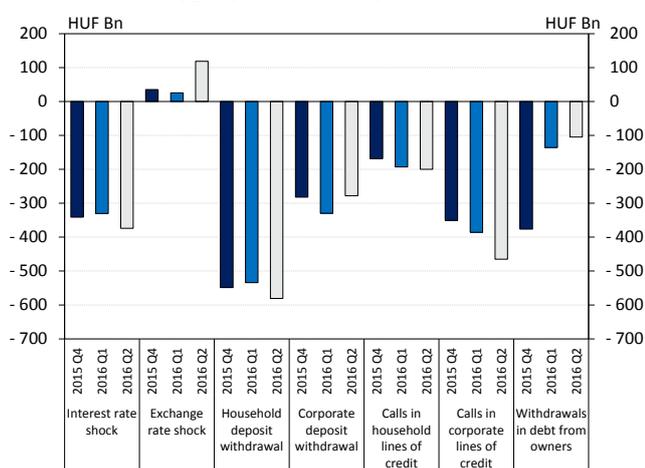
Source: MNB.

Chart 41: Distribution of the LCR before and after stress, based on number of banks



Note: The edges of the box of the box plot mean the lower and upper quartile of the distribution; the horizontal line in the box means its median. Source: MNB.

Chart 42: Aggregate impact of stress components



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

this is greatly attributable to the institutions that remain profitable even if the unfavourable scenario does take place, and thus they accumulate additional capital buffers.<sup>9</sup> However, as there are loss-making institutions along the stress scenario, the significant heterogeneity of capital buffers across institutions continues to exist.

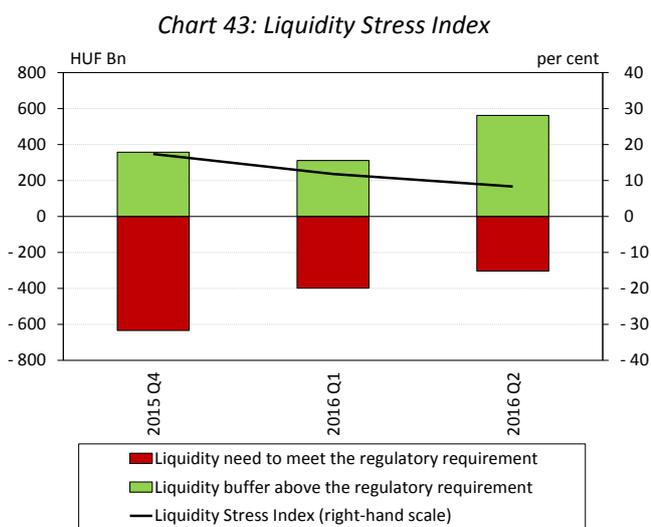
**Based on the Solvency Stress Index, the shock-absorbing capacity of the banking sector is very strong.** Even if increasing capital requirements are taken into account, the value of the Solvency Stress Index is very low, currently standing at its theoretical minimum once again (Chart 40). The fluctuation observed in the value of the index in the previous quarter is minimal; the shown capital need is mostly attributable to the raising of the regulatory requirements. Although in the last period the index again does not indicate a capital need, not even with the already raised capital requirements, this slight fluctuation calls attention to the fact that the increase of regulatory requirements has a material impact on the result of our stress test as well.

**Based on a methodology renewed this year, our liquidity stress test now measures banks' liquidity adequacy with the LCR.** The liquidity stress test examines the impact of an assumed low-probability, simultaneous occurrence of financial market turmoil, exchange rate shock, deposit withdrawals, calls in credit lines and withdrawals of owner's funds on the LCR. In addition, upon determining the result of the stress test, banks' short-term adjustment possibilities as well as the contagion effects of the adjustment channels and of defaults on the interbank market are also taken into account. The stress measures are shown in Table 3.<sup>10</sup>

**The resilience to liquidity stress improved at the institutions under review during the past half year; the banks that reach weaker results are much less below the regulatory minimum than before.** Our stress test was conducted at a quarterly frequency, for the end-of-quarter LCR of the nine largest financial institutions, which account for 80 per cent of the banking sector (as a proportion of balance sheet total). According to the results of the stress test, the resilience to liquidity stress of the banks under review shows an improving trend. Although over the entire time horizon the pre-stress LCR of each institution under review

<sup>9</sup> No dividend disbursement is taken into account over the time horizon of our stress test; accordingly, banks' entire profits increase their capital buffers.

<sup>10</sup> For a detailed description of the methodology see Box 9 of the May 2016 Financial Stability Report. In terms of its objective, logic and applied assumptions, our stress test is fundamentally different from the liquidity stress test used in the supervisory review of the Internal Liquidity Adequacy Assessment Process (ILAAP). Therefore, our findings cannot be directly compared with that.



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

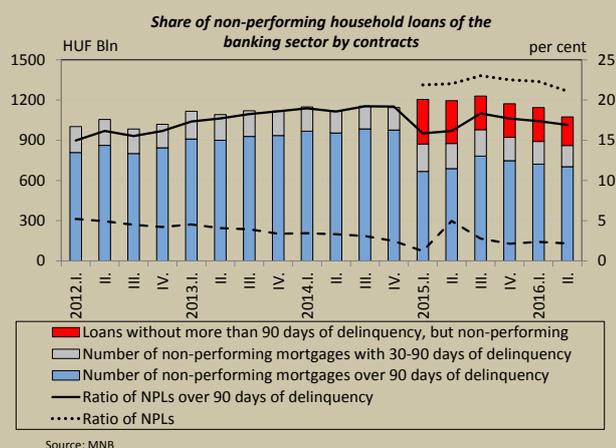
exceeded the 100 per cent regulatory minimum requirement effective as of 1 April 2016, as a result of the assumed serious negative shock, several institutions would fail to comply with this minimum (Chart 41). However, the improving trend is indicated by the fact that in the hypothetical situation when the stress scenario takes place, in 2016 H1, no bank's LCR would sink below the 0 per cent illiquidity limit, not even if the adjustment possibilities were not taken into account. In addition, the banks that attain a weaker result than the median LCR following the stress, adjustment and interbank market contagion are much less below the regulatory minimum than before.

**Of the components of the stress, the interest rate shock as well as the shocks of households' deposit withdrawals and calls in corporate credit lines have the most significant LCR-reducing impact at a systemic level.** Chart 42 presents the changes over time of the impact of the stress components, i.e. of individual risk sources, on the LCR. It is discernible that due to the dominance of positions against the forint, the exchange rate shock to banks' derivative holdings has a liquidity-improving effect. At aggregate level, the interest rate shock as well as the shocks of households' deposit withdrawals and calls in corporate credit lines can be considered the sources of risk that have the greatest impact. Over the time horizon under review, as a result of major changes in several banks' exposures, the shock of calls in corporate credit lines became more important, while the shock of withdrawals of owner's funds lost some of its importance.

**The Liquidity Stress Index showed a steady and significant decline during H1.** In order to capture the heterogeneity among institutions, an analogous version of the previous Liquidity Stress Index was formulated. This Liquidity Stress Index aggregates the after-stress percentage point liquidity shortages compared to the regulatory limit calculated at the individual bank level by considering the size of the given bank. Taking into account the size of the institutions allows the drawing of conclusions concerning the magnitude of a possible problem within the banking sector. The Liquidity Stress Index determined this way showed a steady and significant decline during the half year under review: from 17.36 per cent at end-2015 it declined to 8.33 per cent (Chart 43). At the end of 2016 H1, banks' liquidity surplus exceeding the regulatory limit amounted to HUF 562.3 billion, while their liquidity need necessary for meeting the regulatory requirement amounted to HUF 303.9 billion.

**BOX 3: THE FUNDAMENTS ARE APPROPRIATE FOR THE COST-EFFICIENT TREATMENT OF THE NPL PORTFOLIO**

**2016 has brought several important changes in the lives of creditors and debtors that also affect the supply of mortgage loan receivables.** The total share of non-performing household loans reached 21.1 per cent by the end of H1. The execution and eviction moratorium, which had been introduced for the protection of debtors in difficulty, halt this spring, and the funds of the National Asset Management Agency are expected to run out by the end of the year. Realising the potential risks represented by these changes, in March the MNB published its Recommendation 1/2016. (III.11.) on stimulating the permanent restoration of the solvency of defaulting household mortgage loan debtors and sustainable debt settlement. Within the scope of the recommendation, contact was attempted in the case of 60 thousand non-performing debtors in total by the end of September. This figure falls behind the plan worked out in the beginning of this summer by one fifth, however number of solutions in line with the recommendation is growing continuously. The implementation of the recommendation and the quality of the elaborated sustainable solutions are continuously monitored by the MNB. Following continuous analysis of the dynamics and quality of portfolio cleaning, decision may be made on the introduction of further incentives, if necessary.

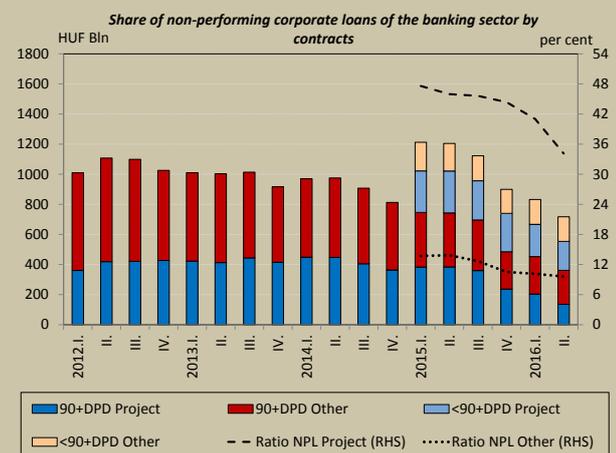


Source: MNB

**Efficient portfolio cleaning is also fostered by the strengthening market of loan receivables.**

In the persistently low interest rate environment there is a search for yield towards assets like nonperforming loan receivables. Along with this, many banks have changed strategy, going towards faster decrease of NPL stocks via portfolio sale. This is supported by the fact that loan loss provisioning for mortgages over 90 days of delinquency is 65 per cent at a systemic level. A sale to a specialist could be efficient and at the same time in line with the MNB Recommendation restructurings, without any moral hazard problem as asset management companies have no performing customers. The pick-up of the household loan receivables market might help with the decrease of the gross non-performing portfolio in a technical sense as well, because asset managers typically include loan receivables in their balance sheets at transfer price.

The cleaning of the portfolio in the corporate segment is possible primarily due to regulatory steps. The decrease of the non-performing corporate portfolio in H1 is a phenomenon that is, to a great extent, related to the systemic regulatory buffer and the resolution of MKB. Nevertheless, the problem in the corporate loan portfolio is still caused by project loans, for which the default rate was 34 per cent at the end of H1 after the inclusion of non-performing non-delinquent loans, vis-à-vis the 10 per cent default rate of other corporate loans. There is an increasing demand towards the CRE receivables, while banks' propensity to sell also increased supported by the loan loss coverage of 90+ of already 77 per cent. The continued cleaning of project loans can be supported in parallel with the pick-up in the market by MARK Zrt., in which 23 financial institutions have already registered with more than HUF 300 billion volume.



Source: MNB

The cleaning of project loans can be supported in parallel with the pick-up in the market by MARK Zrt., in which 23 financial institutions have already registered with more than HUF 300 billion volume.

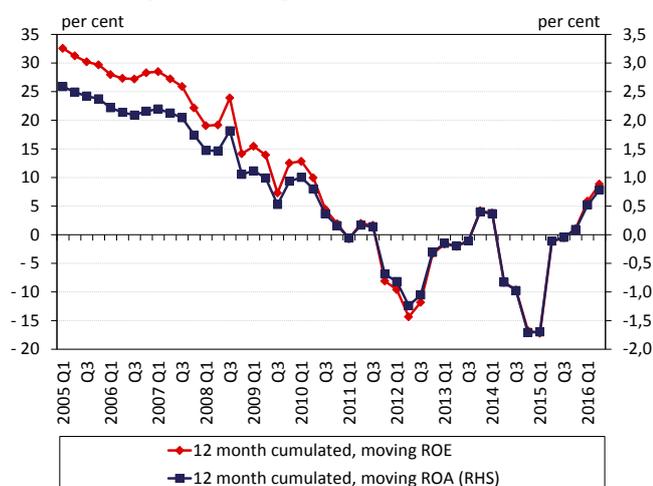
**The robust capital position of the banking sector, its improving income status and the continually rising coverage of its non-performing portfolio, in addition to the pick-up in the housing market, support a stronger cleaning of the portfolio.**

The timely and efficient cleaning of the non-performing portfolio, which is combined with the profitability challenges caused by the low interest rate environment, rises in importance, because, banks need to improve their cost-efficiency, in which the cleaning of non-performing loans has a crucial role. The medium-term vision is a banking sector that is profitable and contributes to the economic growth in a sustainable manner.

## 5. BANK PROFITABILITY IS EXPOSED TO CHALLENGES FROM VARIOUS SIDES: BOTH THE LOW INTEREST RATE ENVIRONMENT AND LOW COST EFFICIENCY EXERT PRESSURE ON EARNINGS

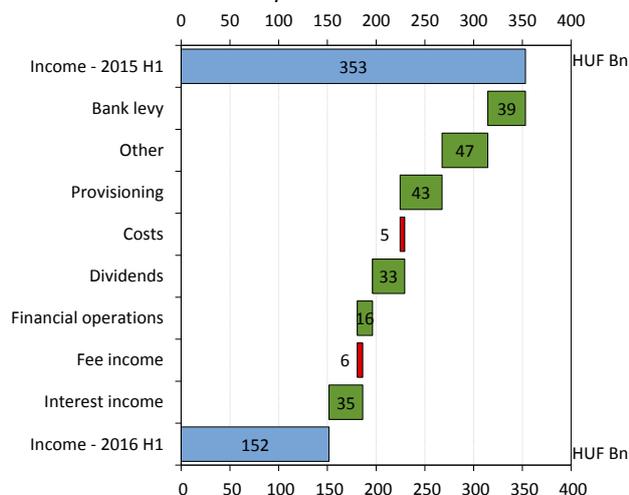
The outstanding profit of the Hungarian banking sector in H1 is a result of several individual effects; highly volatile and cyclical profit items cannot be considered long-term and sustainable sources of profit. In the persistently low interest rate environment, structural profitability may be impaired as a result of the narrowing of margins due to the adjustment limitation on the deposit side. Due to the weakening capital accumulation capacity and profit prospects it is increasingly more difficult to meet their capital adequacy requirements. The persistence of low interest rates may urge banks to improve their profitability by a further reduction of their operational costs, but also to strive to attain higher spreads by making their respective portfolios riskier. Improving cost effectiveness is essential and can be attained by mergers of banks and portfolio sales or by reducing the non-performing portfolio, but there is still sufficient room for moving towards a riskier portfolio as well through a sound expansion in lending and competition.

Chart 44: Aggregate 12-month moving ROE and ROA indexes of the banking sector and the branches



Source: MNB.

Chart 45: Difference in before taxation profit of the banking sector and branches between 2015 Q1 and 2016 Q1 by components



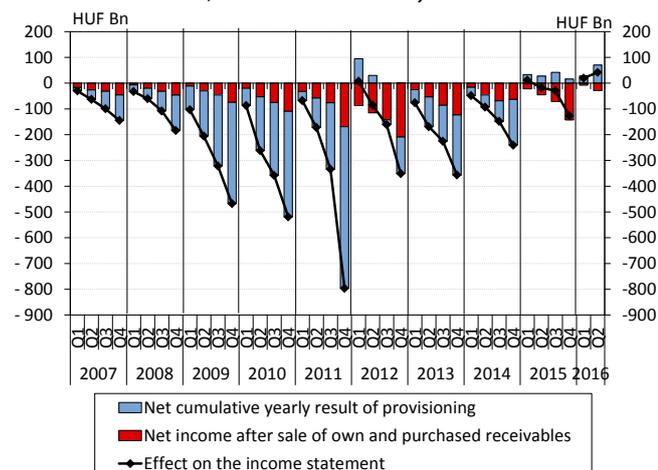
Source: MNB.

### 5.1. As a result of one-off impacts, the banking sector's profitability is outstanding in H1

The banking sector and the branches closed H1 with significant profits, resulting in a material improvement in annual profitability as well. The banking sector and the branches closed 2016 H1 with a pre-tax profit of HUF 353 billion and reached historical highs. As a result, the sector's previous 12 months' moving return on equity and return on assets rose to 8.8 per cent and 0.8 per cent, respectively (Chart 44). After-tax profit amounted to HUF 334 billion in H1. Although the distribution of profits was concentrated among a few banks, it is still a positive development that the vast majority of banks closed the period with profits. According to the Hungarian accounting standards, it was reported that only 7 institutions made losses in H1, and these banks account for a mere 5.4 per cent of the total banking sector's balance sheet total. Their total pre-tax loss was HUF 5.6 billion.

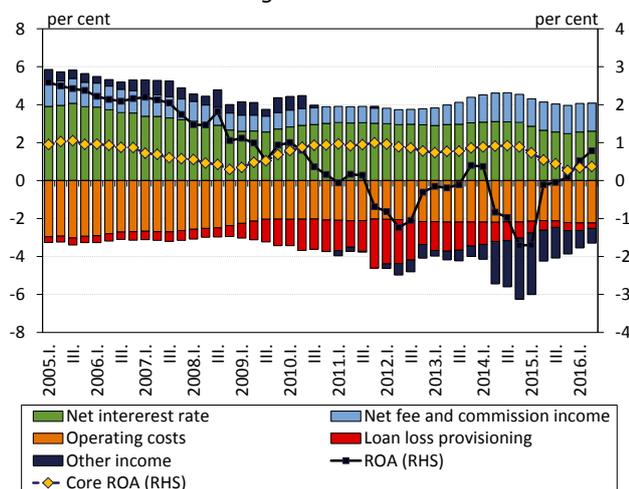
The improvement in profitability was mainly attributable to higher-volatility and cyclical profit items. The 2016 H1 profit significantly – by some HUF 200 billion – exceeds the pre-tax profit of HUF 152 billion recorded in 2015 H1. The positive difference between the two periods is mainly explained by the decline in net loan losses and in the reduction of the bank levy (by HUF 43 billion and HUF 39 billion, respectively). Other, typically volatile profit items also contributed to the improvement in profits. They included the increasing amount of dividends received compared to the previous year and the profit on financial transactions, which was also attributable to the sale of the European organisation of VISA. Interest incomes improved due to base effects: in 2015 Q1, several one-off items that add to interest expenditures had a negative impact on the profit from interest. Profits from fees and commissions as well as operating costs slightly worsened compared to the same period of the previous year (Chart 45).

Chart 46: Credit loss of the banking system and the branches, cumulated within years



Source: MNB.

Chart 47: Aggregate 12-month main moving profit items of the banking sector and branches as a proportion of the 12-month average balance sheet total



Note: Core ROA means the difference between net interest income and operating cost as a ratio of assets. Source: MNB.

The reversal of provisioning previous losses accounted for a significantly improved net profit, although it should be noted that this source of the profit cannot be sustained for a long period of time. In H1, declining loan losses improved profits to the greatest extent. In H1, banks reversed their previously settled losses to a greater extent than the new loan losses were provisioned; as a result, in a unique manner, this profit item had an increasing effect on bank profits (Chart 46). The net reversal of loan losses minus the loss suffered on sold receivables improved profits by some HUF 43 billion in total during H1. It needs to be emphasised, however, that the reversal of loan losses is a process that cannot be maintained over the long term; consequently, its positive impact on profits can only be temporary.

No improvement is seen in the profit/loss rows that reflect the banking sector's profitability. While cyclical and one-off profit items increased the sector's profit significantly, no material improvement has been seen in the balance sheet earnings of the banks. The moving average of interest incomes compared to the average total of assets increased as a result of the base effect mentioned above, while profits from fees and commissions as well as operating costs remained practically unchanged (Chart 47). Improvement is also perceived when analysing the loan losses on a 12-month time series, but over this time span the negative impact of the MKB's portfolio cleaning carried out last December still prevails. Profit from interest and operating costs, which mainly determine the banking sector's profit, remained practically unchanged compared to the end of the previous year. In terms of the net interest rate income, it is a key issue how banks can adjust themselves to the challenge posed by the low interest rate environment (Box 4).

#### BOX 4: THE IMPACT OF THE LOW INTEREST RATE ENVIRONMENT (LIRE) ON BANKS' PROFITABILITY

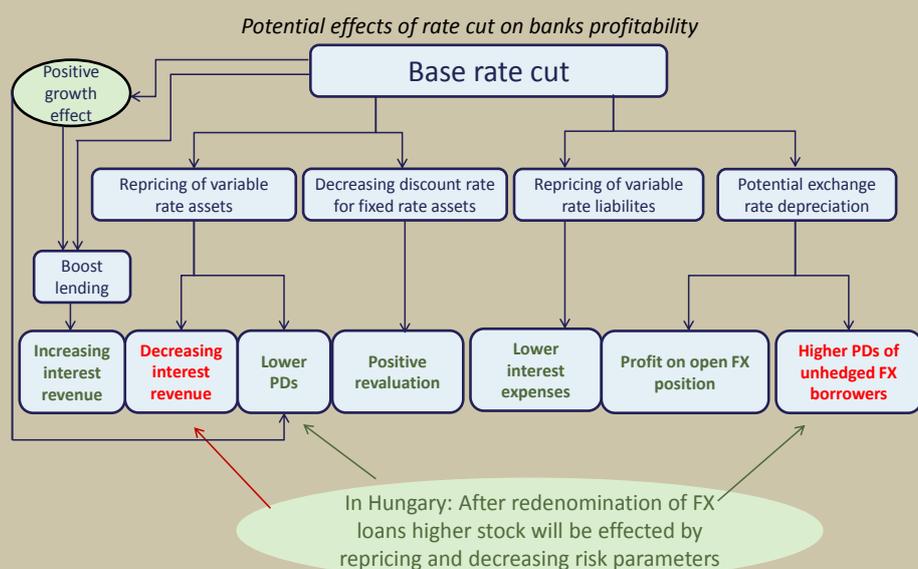
The extremely low interest rate environment of recent years raises a number of questions concerning the impact of the environment on certain economic entities, including the banking sector in particular. Traditionally, the banking sector transforms interest-bearing financial liabilities into interest-bearing financial assets; therefore, the absolute and relative levels of interest rates are key aspects during its operations. Due to the original maturity mismatch of the banking sector's balance sheet, the steepness of the yield curve also plays an important role in addition to the level of yields.

The decline in interest rates influences the developments in the banking sector's profit/loss through various channels. It has the most significant impact on the profit from interest, at least in four different ways (Borio et al., 2016):

- (1) *Through narrowing the margin on demand deposits.* Bank deposits are typically priced under the money market interest rates by banks. If the policy rate – and thus the market yield level – declines, the negative margin may also decline, provided that the deposit rate is positive (*zero lower bound*).
- (2) *Through narrowing the 'margin' that can be attained on the equity.* The equity means interest-free financing for the bank. Accordingly, a lower policy rate reduces the 'margin' attainable on the equity, resulting in a lower profit from interest. This, of course, does not mean that the equity is a cost free source for the bank, only its impact appears in the disbursed dividend and not in the profit from interest.

- (3) *Quantitative effects.* The policy rate affects not only the price of loans, but also their quantity. Due to the increase in loan demand, lower interest rates result in higher lending and thus in higher bank profits from interest through the increasing volume.
- (4) *Dynamic effects.* The repricing of assets and liabilities takes place in different times, which is also influenced by the dynamics of the competition among banks.

The decline in the policy rate has an impact on the probability of default of loans as well, in addition to banks' profits from interest. If the loan portfolio typically consists of variable-rate loans tied to a reference rate, the lower policy rate entails a decline in debt servicing, making it easier for debtors. However, one of its preconditions is that the debt should be denominated in the currency of the given country. In Hungary, however, mortgage loans, which represent the focal point of the non-performing problem, were in Swiss franc until end-2014, while corporate project loans were typically denominated in euro, thus the decline in forint interest rates since 2012 could not ease the burdens on debtors.



The decline in interest rates also affects the value of the securities held in the bank's balance sheet for investment or trading purposes, although the size of this impact significantly depends on the rules of the accounting system applied. For example, according to the rules of the Hungarian accounting system, the securities held in the balance sheet cannot be recorded at values that exceed their respective historical costs. In contrast, the International Financial Reporting

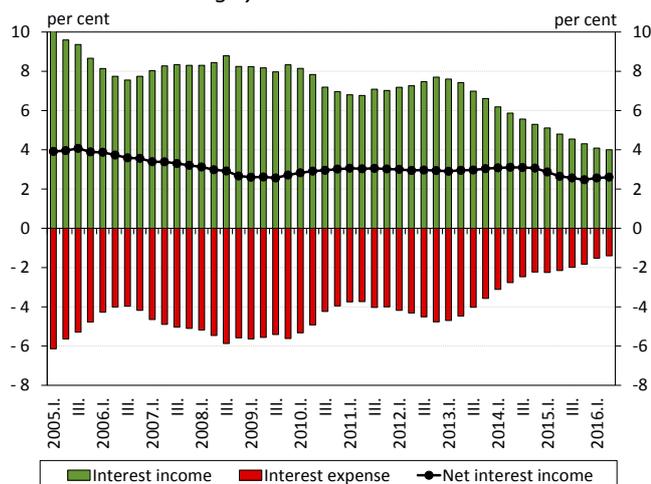
Standards (IFRS) allow the evaluation of a defined range of securities at real value, relative to the profit/loss or directly the equity. In this case the increase in market value affects the banking sector's income as well. At the same time, the lower interest rate may have a positive impact on the bank's profit from fees and commissions as well, provided that the decline in the yield environment results in a pick-up in investment services.

As shown, both negative and positive impacts of a decline in the policy rate can be identified. However, the empirical experience is that the former – primarily because of the importance of the profit from interest – exceed the latter; accordingly, a decline in the policy rate is typically an unfavourable phenomenon for banks. Examining the Hungarian banking sector, Banai et al. (2014)<sup>11</sup> found that in 2013 a 100 basis point interest rate decrease would have entailed a profit decline amounting to some HUF 28 billion over a two-year time horizon. However, a material change has taken place in the structure of the balance sheet since the findings of the study: namely, holdings sensitive to changes in the forint policy rate increased as a result of the conversion into forints, but in addition to that, the policy rate is able to have a greater favourable impact on portfolio quality as well.

In addition to the aforementioned direct impacts, the lower interest rate environment may have structural consequences as well, primarily through the increase in financial institutions' willingness to take risks (*search for yield*). Therefore, regulators have to make sure that banks – in order to increase the profits from interest – do not take excessive risks that result in a surge in their future loan losses.

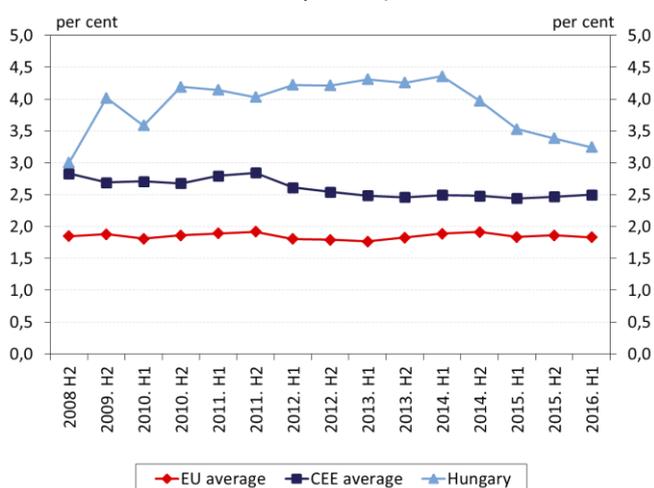
<sup>11</sup> <https://www.mnb.hu/letoltes/banai-adam-hosszu-zsuzsanna-kormendi-gyongyi-mero-bence.pdf>

Chart 48: Net interest income and its components of the banking system and the branches



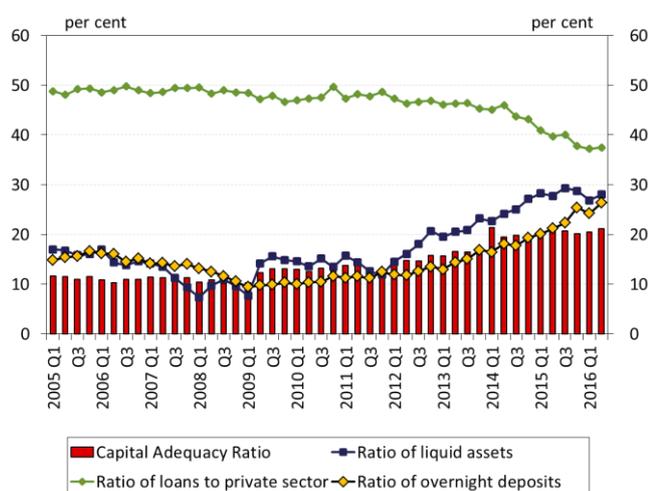
Source: MNB.

Chart 49: Net interest income to total assets (international comparison)



Note: consolidated data, including data on foreign-based subsidiaries and cooperative credit institutions as well. Source: MNB.

Chart 50: Balance sheet structure of the banking system and the branches



Note: Liquid assets: central bank and central government claims. Source: MNB.

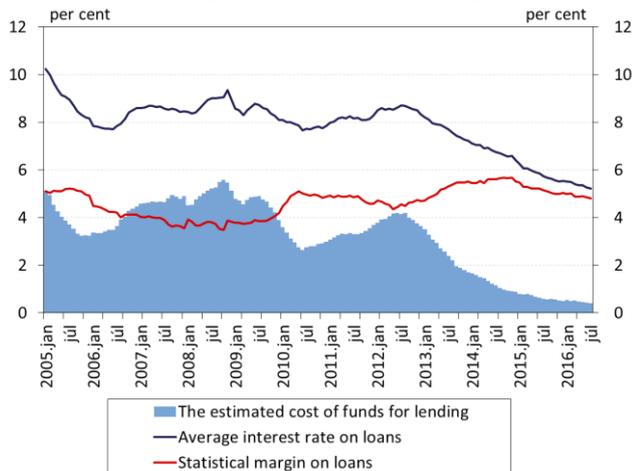
**5.2. For the time being, the impact of the low interest rate environment on net interest income is limited**

As a result of policy rate cuts, interest incomes and expenditures have declined in Hungary as well. The fall in the central bank policy rate since 2012 has reduced the volume of both interest incomes and interest expenditures of banks. However, the net profit from interest, which is the difference of the two components, did not decline until 2015 Q1 (until the FX settlement of the consumer loan contracts) (Chart 48). The FX settlement had a material impact on banks' interest rate incomes through reducing the interest-bearing holdings and the interest rate. In June 2016, the moving sum of interest income was some HUF 107 billion lower than in June 2014, of which an estimated HUF 86 billion, is explained by the negative effect of the Settlement Act. Accordingly, for the time being, net profit from interest primarily has declined as a result of government measures, while the margins, which have been decreasing due to the decline in the policy rate, have had only a slighter impact.

For the time being, the impact of the low interest rate environment is not perceived strongly in other European banking systems either. There was not a drastic decline in other European countries as a direct impact of the low interest rate environment (Chart 49). In the case of several countries this is attributable to the fact that although the decrease in interest margins would have entailed a decline in profits, increasing volumes were able to offset it. Nevertheless, it is important to mention that if the low interest rate environment proves to be persistent, it may have an increasing impact on banks' profits. The lower, 0 per cent bound of deposit rates and the buoyant competition observed in lending may reduce the attainable margins. Accordingly, both the Deutsche Bundesbank and the European Central Bank expect a considerable decline in net profits from interest in the coming years.

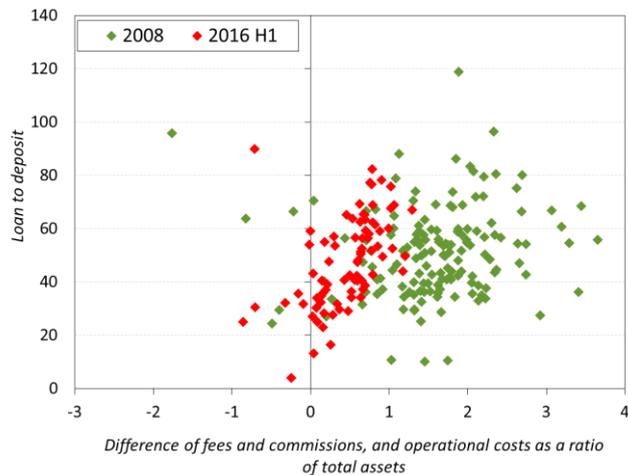
The balance sheet structure of the banking sector is partly the legacy of the crisis, and shifted towards more liquid assets partly as a result of the tightening of regulations. The ratio of liquid assets has increased considerably on the assets side of the banking sector's balance sheet since the outbreak of the crisis (Chart 50). This was necessary for strengthening banks' liquidity and capital positions, which was also motivated by regulatory changes in addition to the increase in banks' cautiousness. At the same time, the accumulation of liquid assets and the decline in loans outstanding also lead to a decrease in banks' profitability, as less risky instruments typically provide lower yields. The total picture is refined by the fact that the decline in loans

Chart 51: Average interest rate on loans, estimated cost of funds for lending and the statistical margin of loans



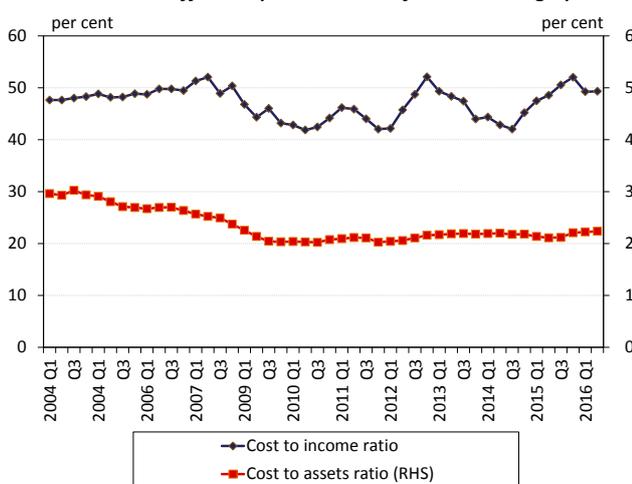
Source: MNB.

Chart 52: The difference of net interest income, fee and commission income and operating costs of cooperative credit institutions



Source: MNB.

Chart 53: Cost-efficiency indicators of the banking system



Note: based on Hungarian Accounting Standards. The cost-to-income ratio was calculated by dividing operating costs (not including tax burdens) with the sum of net interest income, fee and commission income, trading income, income from non-financial and non-investment activity and dividend income. Source: MNB.

outstanding is often related to the cleaning of non-performing portfolios that often do not produce interest incomes anyway. However, it has a positive impact that on the liabilities side the ratio of sight deposits has increased in recent years, resulting in declines in interest expenditures (replacement of more expensive sources) for banks.

**Not only the volume of loans declined, but also the margin attainable on them.** Examining the spread on the estimated cost of funds of outstanding loans, steady decline has been observed since the settlement as well. The size of the average margin on the cost of funds is estimated to have declined by 0.5 percentage point since March 2015. During this period, the average interest rate on outstanding loans was some 0.9 percentage point down, while estimated costs of funds declined by 0.4 percentage point (Chart 51).

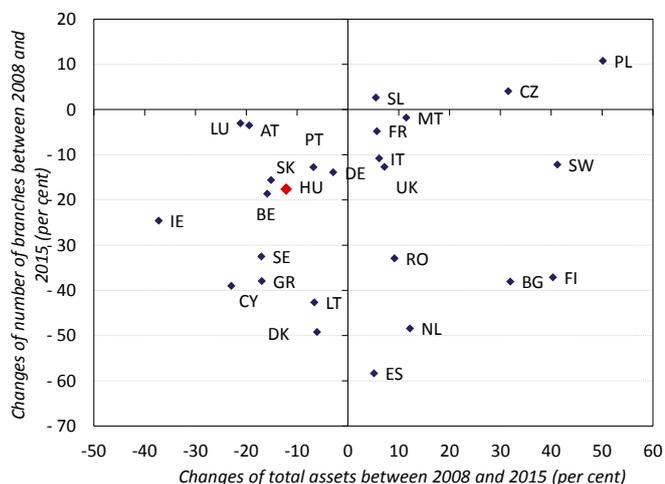
**At the same time, the Central Bank's Funding for Growth Scheme and Market-based Lending Scheme as well as the Self-financing Program have a favourable impact on banks' operation.** The low interest rate attainable through the FGS – while the 2.5 percentage point margin is given for the bank – increased banks' profits from interest through the growth in the volume disbursed. At the same time, the Self-financing Programme and the Market-based Lending Scheme have a supporting impact on banks' risk management regarding liquidity and interest rate risks as well.

**Due to the low loan-to-deposit ratio, the co-operative credit institutions sector is especially affected by the low interest rate environment.** The impact of the low interest rate environment varies by groups of institutions – reflecting the different business models. Cooperative credit institutions typically invested the ample amount of their deposit-type funds into liquid assets, i.e. they operated with a low loan-to-deposit ratio. However, in the current interest rate environment the income obtained through low-yield liquid assets is not necessarily sufficient even for covering the operating costs. While in the higher interest rate environment the majority of mutual savings banks were profitable even at a loan-to-deposit ratio similar to the current one, the viability of this strategy – and thus the margin attainable on deposits – declined considerably with the lowering of the policy rate (Chart 52).

### 5.3. Sustainable improvement in profitability is attainable through cost-efficiency and lending activity

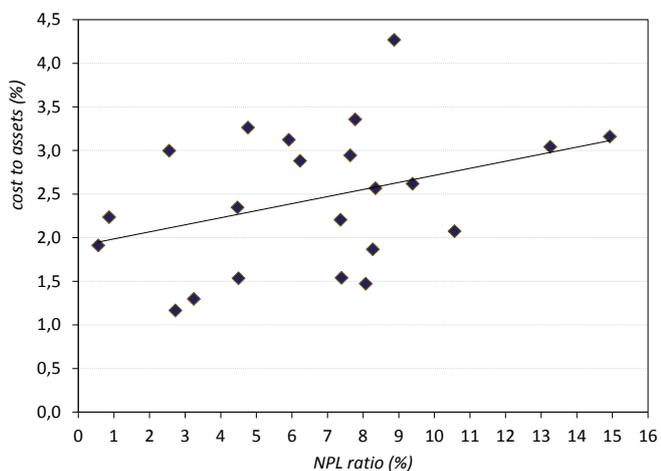
**The banking sector's operating costs as a proportion of assets continue to be stagnant.** Since end-2014, several large banks have taken cost reducing measures, including

Chart 54: The changes of total assets and number of branches in the banking system between 2008 and 2015



Source: ECB.

Chart 55: Cost-to-asset and NPL ratios of Hungarian banks



Note: The chart does not present the data of banks with a special product structure (i. e. building societies or banks specified in consumer lending). Source: MNB.

considerable reductions of the size of their respective networks of branches (sometimes by 35–40 per cent). However, its effects are still not seen in the profit and loss statement. At the end of H1, operating costs were at 2.2 per cent as a proportion of assets and slightly below 50 per cent as a proportion of income (Chart 53).

**The decline in the number of branches was general in Europe’s banking sectors.** The closing of branches as well as striving for higher efficiency and digitalisation have been typical not only in Hungary but also in the banking systems of Europe in the years since the crisis (Chart 54). However, it is worth to examine the decline in the number of branches in parallel with the change in assets. The two indicators jointly show that the number of banking systems that were able to increase the per capita assets as well was already much lower. In Hungary, the average value of assets per branch was HUF 16.7 billion prior to the crisis and already HUF 19 billion in June 2016. In the same period, assets per employee increased from HUF 0.8 billion to HUF 0.9 billion.

**The management of non-performing loans results costs and non-returning interest expenditure for banks.** The heaviest burden on the efficiency of the banking sector is the still significant non-performing loan portfolio (Chart 55). By cleaning the portfolio, the banking sector’s efficiency could increase from two aspects: firstly, the cost of the currently pursued workout activities could be saved, and secondly, the banking sector could reduce its assets that produce negative profit on interest. The spreading of sales channels that do not require personal presence (digitalisation) may also result in a decline in costs.

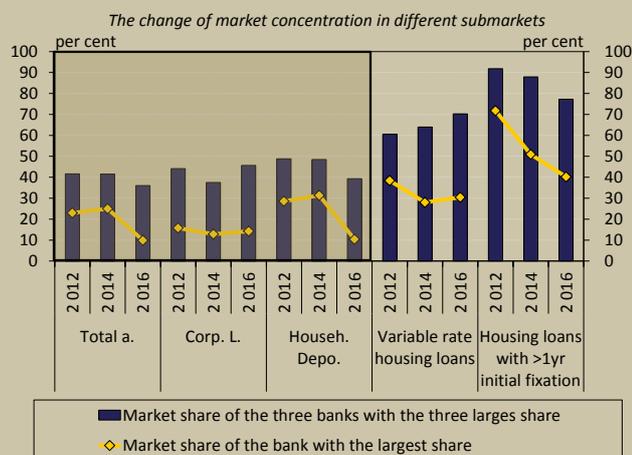
**Looking ahead, the low interest rate environment and the restructuring of central bank instruments exert further pressure on banks’ profitability.** The restructuring of central bank instruments by limiting the volume that can be placed in the three-month deposit will presumably direct significant amounts of liquidity to the interbank credit market and the government securities market. The funds appearing in the interbank market will result in a decline in interbank interest rates, which determine the pricing of a major part of the loans outstanding. Accordingly, a decline in the BUBOR will at the same time entail a fall in interest incomes, while the funds appearing in the market of the government securities will reduce the yield realisable on government securities. The available margin can be narrowed down by the fact, that assets disbursed / invested in earlier periods with a fixed interest rate expire gradually and are substituted at lower interest rates. This extends the decrease in assets’ interest rates, while the interest rates of liabilities decline only partly or not at all. In addi-

tion to steps that improve cost-effectiveness, the banking sector can offset the decline in margins by an expansion in loans outstanding, for which sufficient room is provided by the abundance of liquid assets and the capital adequacy that exceeds regulatory requirements.

**It is of utter importance that along with increasing cost-efficiency banking competition shall not experience a drop.** As demonstrated earlier, numerous banks embarked on rationalizing their branch network in order to raise efficiency. However, there is a danger in certain regions that the number of active market participants decrease overly which leads to an oligopolistic market structure. Regarding competition among banks, it shall not lessen due to cost-efficiency improving actions. In order to ensure competition, MNB sees digitalization, as a sales channel that does not require personnel and lowers administrative costs, an appropriate solution to spread. Digital customer service makes branch rationalization available without threatening customer's choice potential (Box 5).

#### BOX 5: THE MNB MONITORS THE INTENSITY OF BANK COMPETITION IN SEVERAL MARKET SEGMENTS

**Along with the pick-up in lending, more attention is being paid to the intensity of bank competition as well.** Bank competition is relevant for the Central Bank in various respects: while too weak competition may entail high interest rates and heavier than optimal burdens for customers, fierce competition may result in taking excessive bank risks. With the expansion in corporate and especially SME loans as well as the pick-up in household loan agreements, the price conditions of these agreements are of key importance.



**In its study<sup>12</sup> about the transformation of the banking system published in 2014, the MNB examined the developments in bank competition using several indicators.** The study drew the conclusion that in Hungary, following the outbreak of the crisis the intensity of the competition weakened on the whole, and some market participants' market power increased in these years. The risk of excessive dominance of certain players in the market especially arose in the area of some partial segments. Regarding lending, in the past decades the problem of low competition was typically observed in household lending. In the case of housing loans – of course in addition to the impact of other factors – this trend was reflected in the spreads, which were extremely high in international comparison as well.

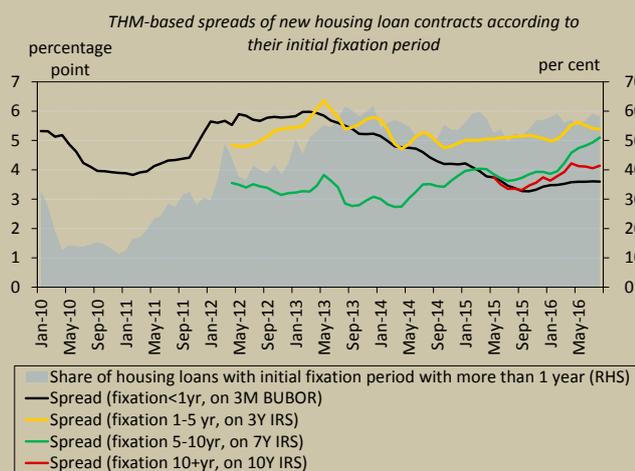
**In the period since publication of the study, only minor changes were observed in the concentration of loans outstanding.** Nevertheless, concentration continues to be relatively high in the case of newly disbursed household loans, especially as far as housing loans with initial rate fixation over one year are concerned, which gained more ground in the past four years. The evolving of average spreads, which are high in international comparison, is mainly attributable to these loans, while the spread on the average interbank rate of variable-rate housing loans is already close to the average of the region. The timeliness of this topic is also indicated by the fact that the spreads have been rising since early 2016 again. The household loan market may be more inclined to show the signs of a lower-intensity competition for several reasons.

<sup>12</sup> MNB (2014): Átalakulóban a magyar bankrendszer (Hungarian banking system in transformation). MNB Occasional Papers Special Issue, 112.

a) *Difficulties of changing banks, administrative costs.* Credit market competition can be stimulated if customers have a real chance to modify their choice even after the conclusion of the contract if they receive a more favourable offer from another bank. However, if the bank can trust that the customer will not turn to another institution after concluding the contract, it may more confidently overprice the loan product upon concluding the contract. Nevertheless, the easing of loan refinancing may have similar consequences: if changing banks and refinancing loans is relatively easy, the bank may transfer the increasing risk of prepayment to the customer, because the ‘exemption from charges’ of the prepayment has to be priced in the interest rates.

b) *Reasons stemming from financial literacy.* It may also limit competition if consumers do not gather sufficient information before making their decision. If they decide on borrowing after examining the offers of only a few banks, they do not make the players compete. Aczél et al. (2016)<sup>13</sup> found that based on their ‘taste’ (age, earlier credit history), consumers may feel attracted by a certain bank, and they take their decisions not only on the basis of financial aspects. It is also highly important whether consumers realise and utilise the offers that potentially reduce their burdens. For example, in the months following the conversion into forints, only a fraction of debtors used the opportunity of cost-free loan refinancing ensured by law, which indicates debtors’ low awareness in arranging their financial matters.

c) *Constraints arising due to personal service and bank profiles.* A consumer’s choice may also be limited by the fact that most of the retail loan administration is still based on personal service. If there are only a few banks present in the consumer’s environment, he cannot choose from many offers, especially if on the basis of his characteristics as a debtor he does not match the debtor profile of locally available banks. Accordingly, the limited availability of bank services may grant excessive market power to certain institutions, which may result in the development of an oligopolistic market structure in certain regions. According to the aforementioned study, the banks that have a higher ratio of the sector-level branch network determined higher spreads in the past years.



Source: MNB.

**In addition to competition, the size of spreads on housing loans depends on the level of operating costs as well.** Accordingly, an increase in banks’ cost effectiveness may *ceteris paribus* result in lower spreads. However, the low degree of bank competition may become an obstacle to the increasing of cost effectiveness if the banks that enjoy market dominance may make permanently high profits even without implementing adequate developments. In this case, market participants are not forced to increase their efficiency competing with the other banks (so-called ‘quiet life’ hypothesis). Reversing this statement it can be declared that a pick-up in competition may at the same time facilitate the increase in cost effectiveness, partly due to the process of digitalisation and partly due to banking sector

consolidation. At the same time, attention has to be paid to the form of the increase in efficiency. In the event that some banks’ dominance increases as a result of closure of branches and the consolidation, those who benefit from the increase in cost effectiveness may not necessarily be the consumers, but the banks that remain in the market.

**In view of the above, in the coming period the MNB will pay special attention to developments in competition in the Hungarian banking sector.** We consider it important that the increase in efficiency and possible banking sector consolidation should take place in a way that does not allow any remaining market participant’s excessive dominance. Therefore, innovative solutions are preferable that are able to result in cost saving without reducing the intensity of competition. By eliminating geographical constraints, digitalisation may be one of these solutions. However, for benefiting from its advantages, not only banks’ IT developments, but financial literacy and the relevant legislation also have to be adjusted accordingly. In the near future, the MNB will devote special attention to examining what measures may be suitable for stimulating competition in the banking sector.

<sup>13</sup> Ákos Aczél, Ádám Banai, András Borsos, Bálint Dancsik (2016): A lakáshitelek felárát meghatározó tényezők azonosítása magyar banki és üzletszintű adatokon (Identification of factors that determine the spreads on housing loans in Hungarian bank and transaction level data). Manuscript. Under publication.

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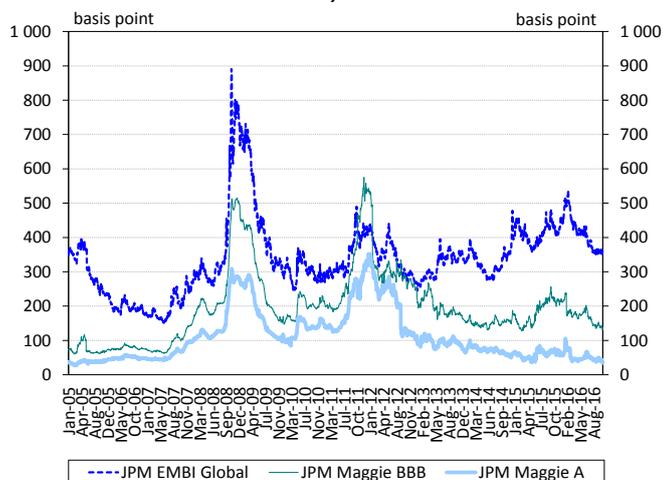
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## APPENDIX: MACROPRUDENTIAL INDICATORS

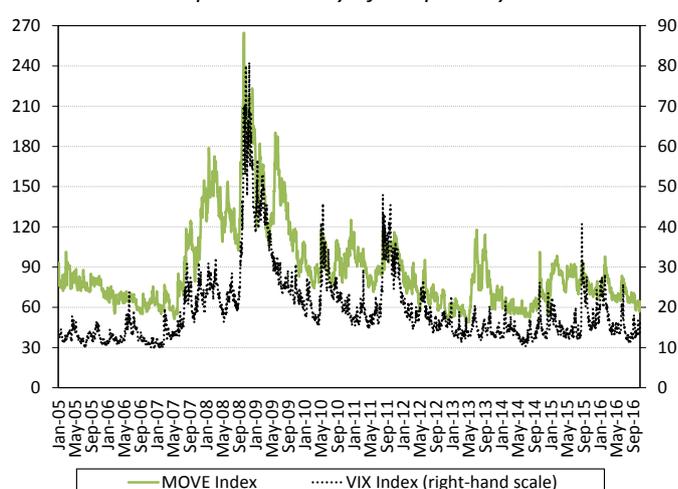
### 1. Risk appetite

Chart 1: Primary risk indicators



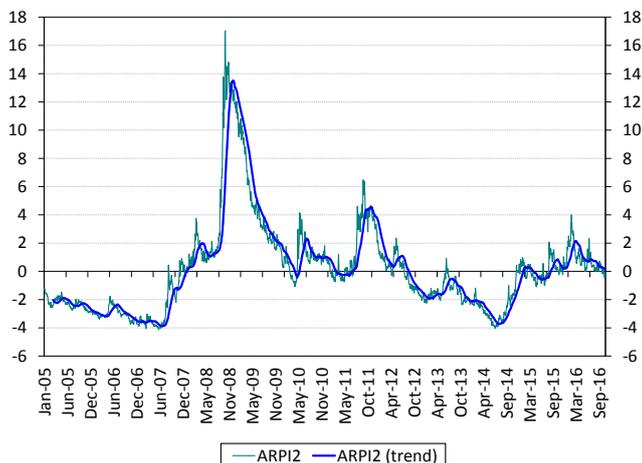
Source: Datastream.

Chart 2: Implied volatility of the primary markets



Source: Bloomberg.

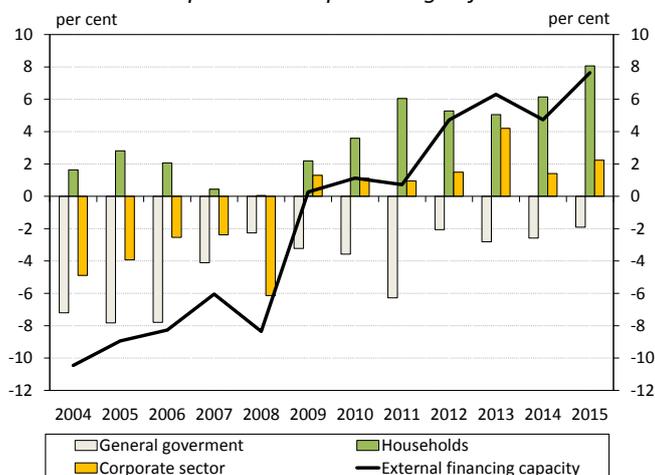
Chart 3: Dresdner Kleinwort indicator



Source: DrKW.

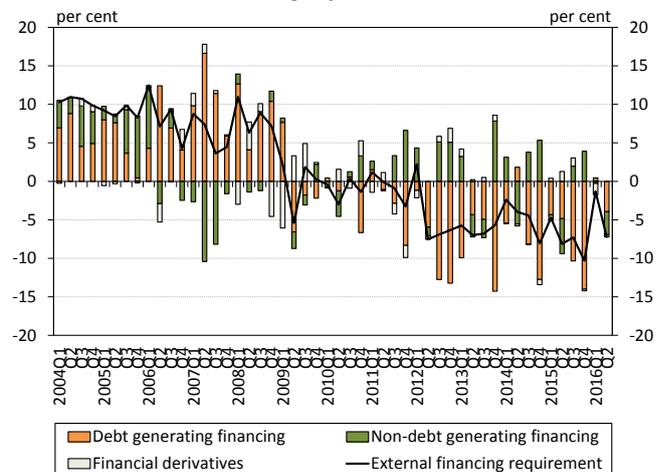
### 2. External balance and vulnerability

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



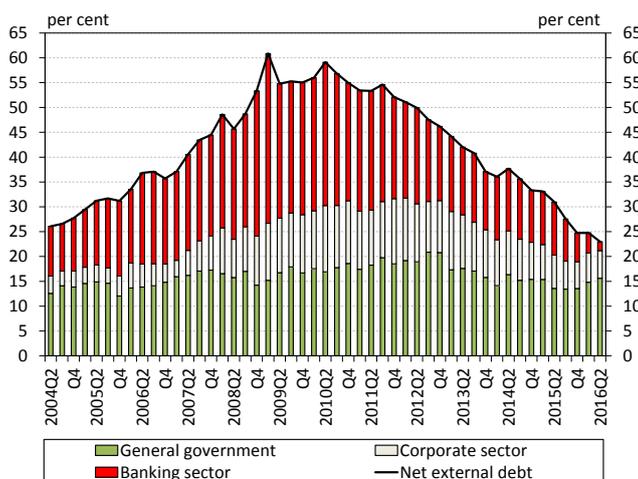
Source: MNB.

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



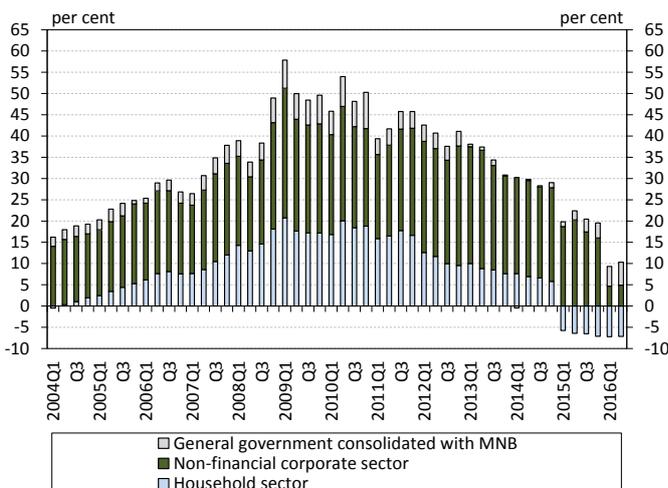
Source: MNB.

Chart 6: Net external debt as percentage of GDP



Source: MNB.

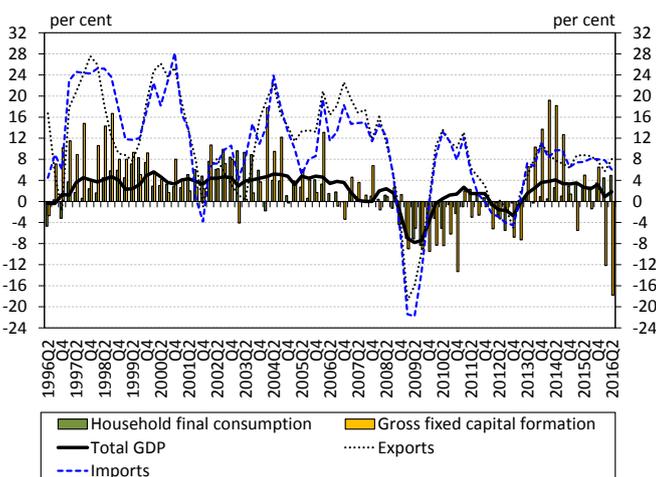
Chart 7: Open FX position of the main sectors in the balance sheet as percentage of GDP



Source: MNB.

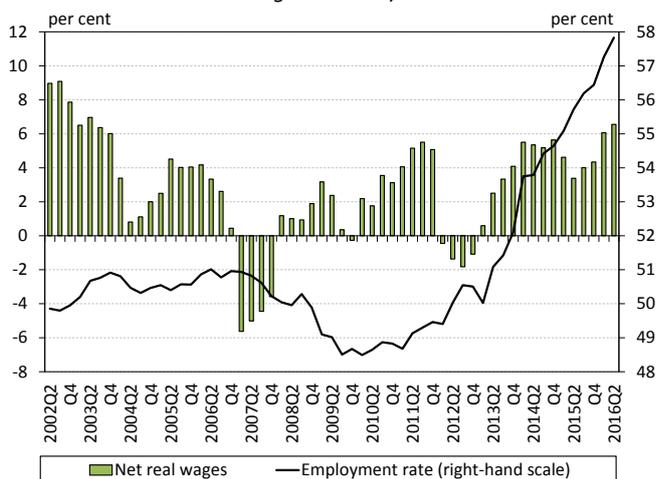
### 3. Macroeconomic performance

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



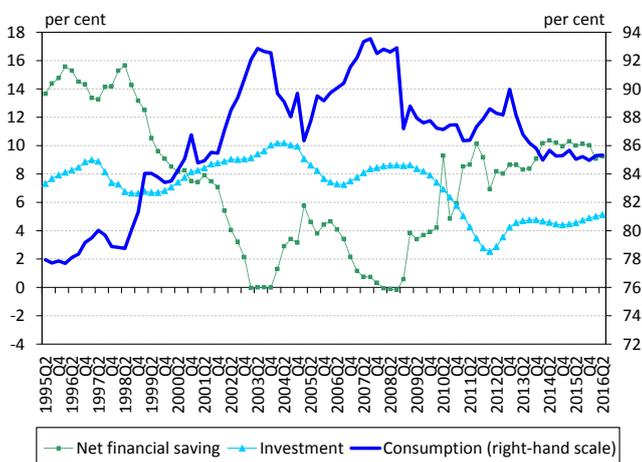
Source: KSH.

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



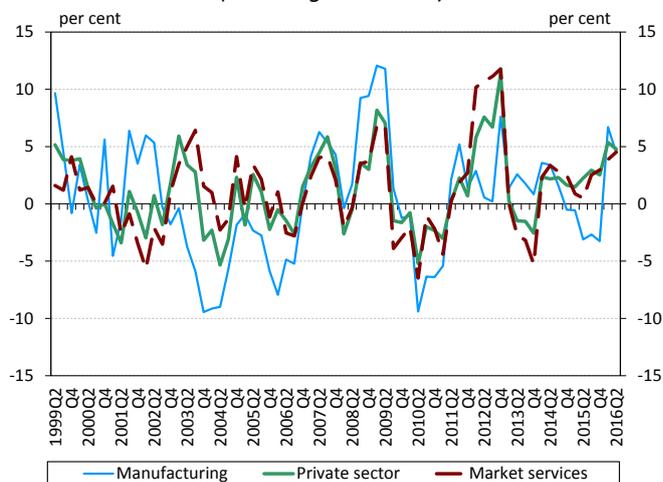
Source: KSH.

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



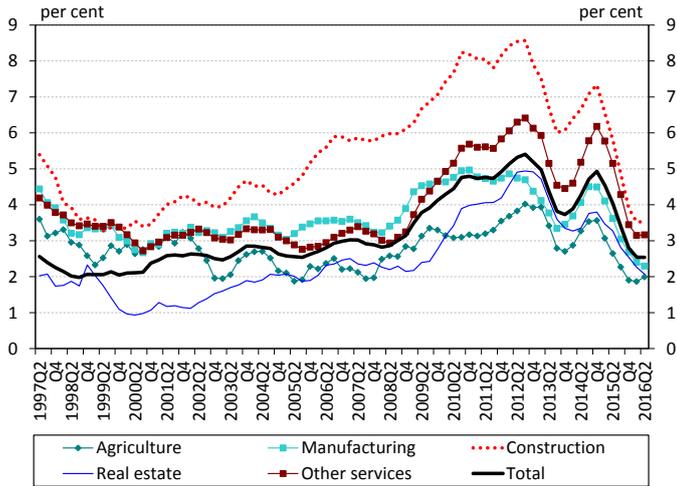
Source: KSH, MNB.

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



Source: KSH, MNB.

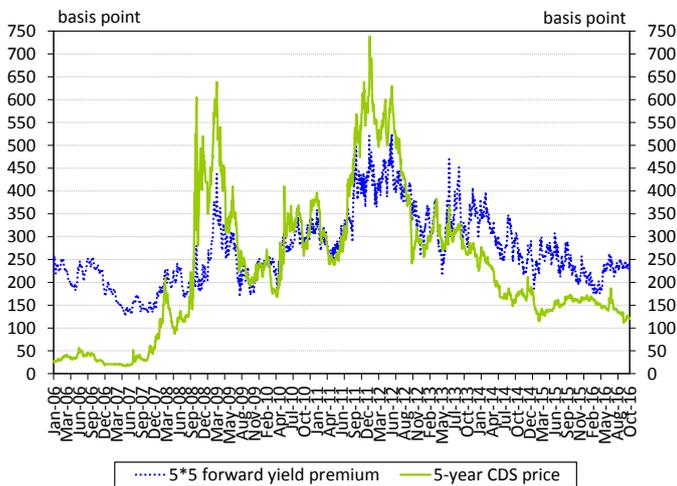
Chart 12: Sectoral bankruptcy rates



Source: Opten, KSH, MNB.

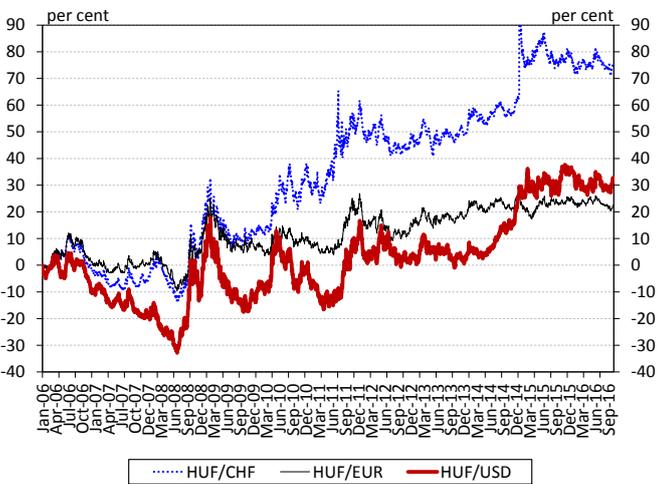
#### 4. Monetary and financial conditions

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



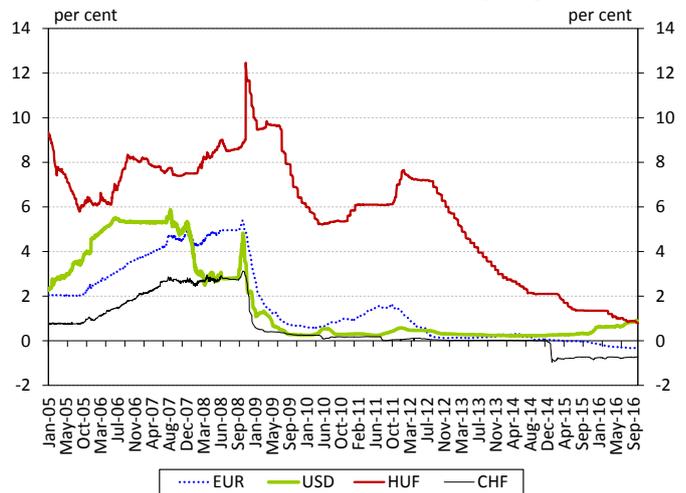
Source: Datastream, Reuters.

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



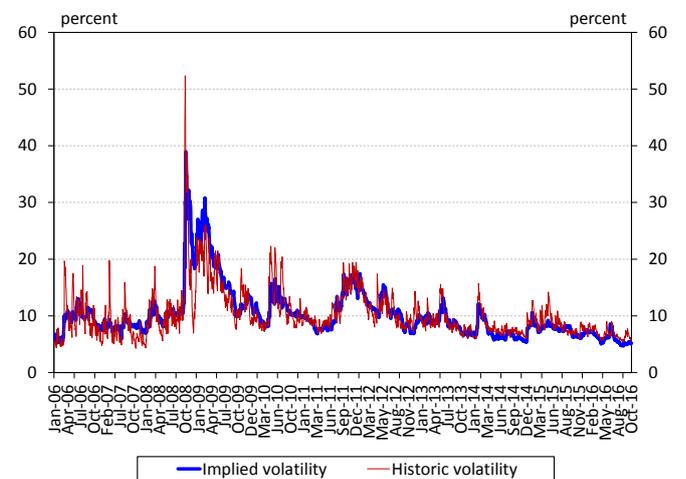
Source: Reuters.

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



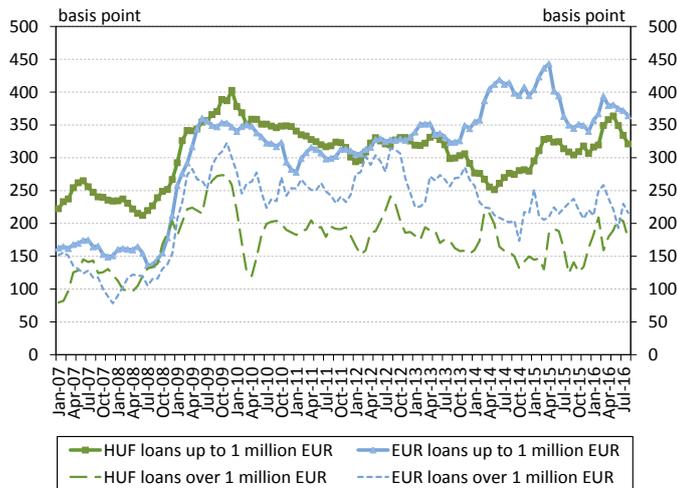
Source: Reuters.

Chart 16: Volatility of the HUF/EUR exchange rate



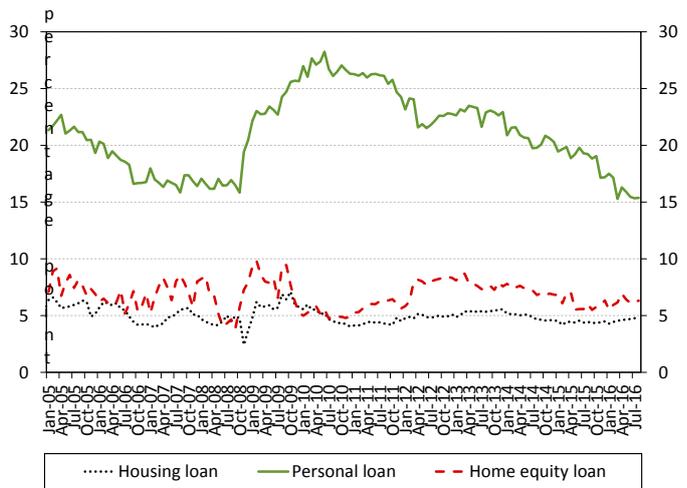
Source: Reuters, MNB.

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



Source: Euribor, MNB.

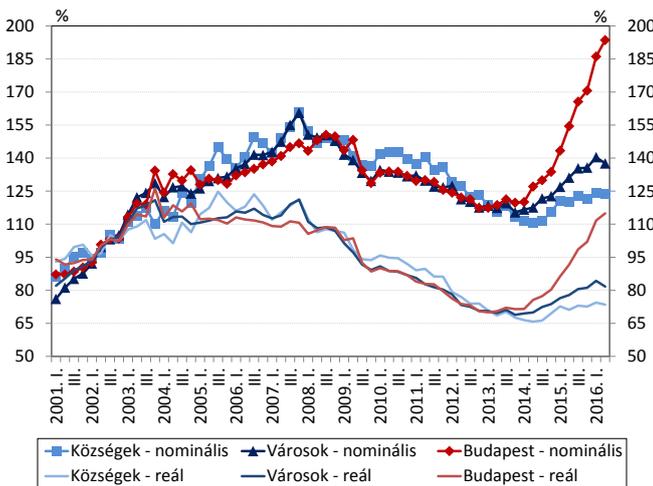
Chart 18: Interest rate premium of new HUF loans to households (over 3-month BUBOR)



Source: MNB.

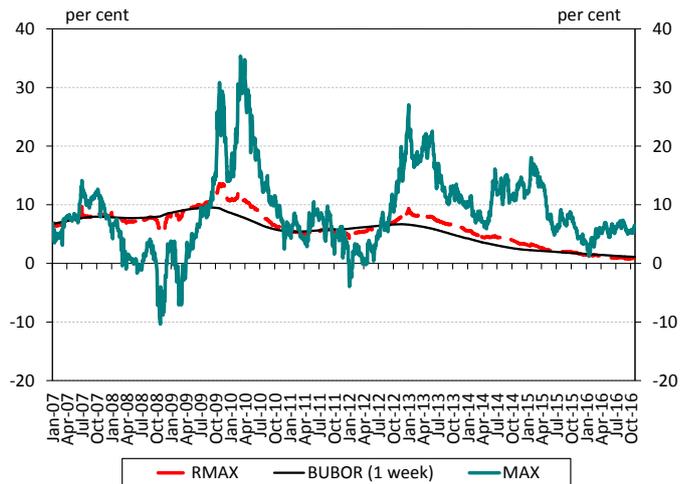
5. Prices of instruments

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



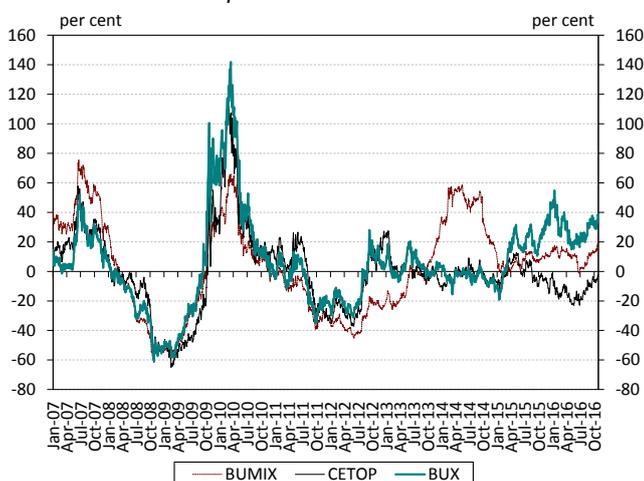
Source: MNB.

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



Source: ÁKK, MNB, portfolio.hu.

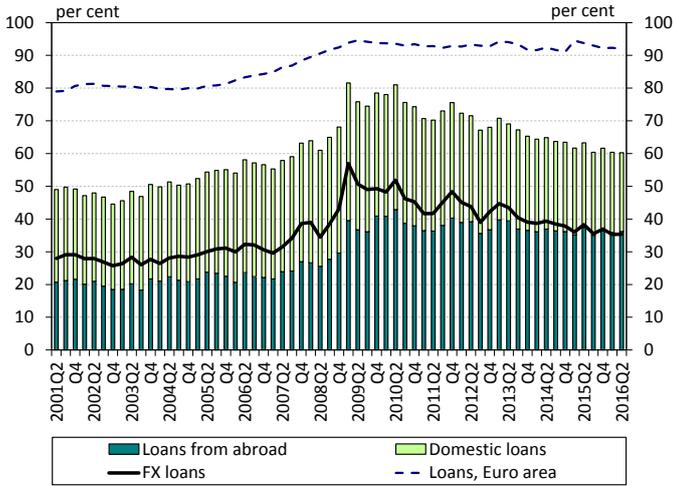
Chart 21: Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: BÉT/BSE, portfolio.hu.

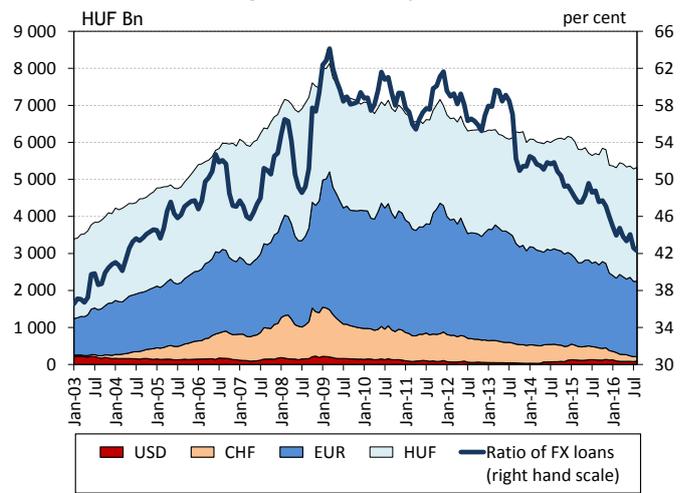
## 6. Risks of the financial intermediary system

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



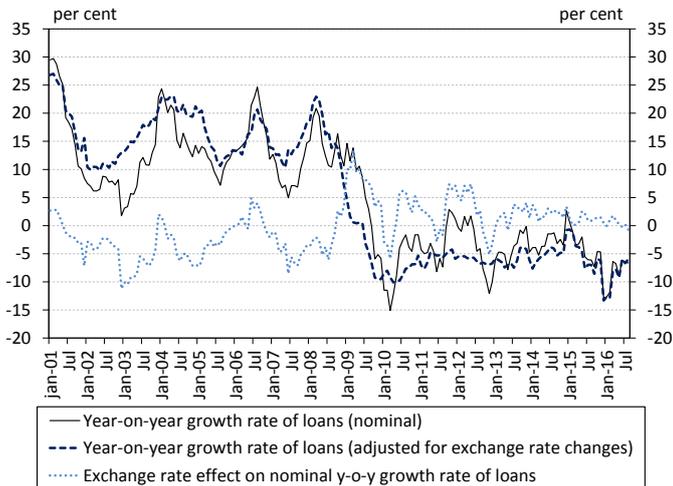
Source: Eurostat, ECB, MNB.

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



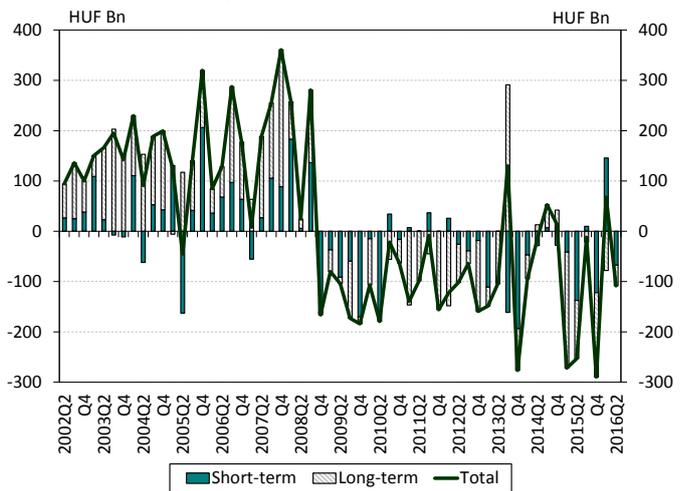
Source: MNB.

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



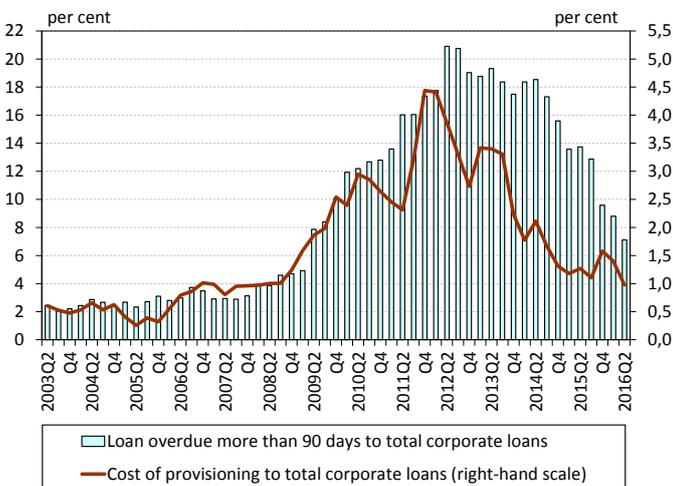
Source: MNB.

Chart 25: Net quarterly change of bank loan volumes of non-financial enterprises



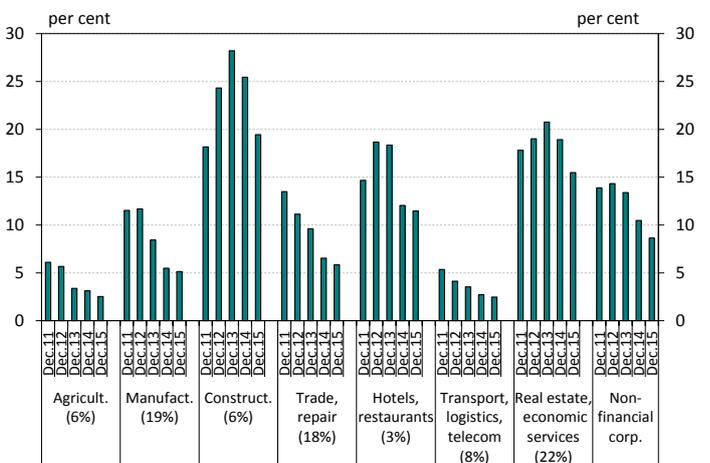
Source: MNB.

Chart 26: Quality of the corporate loan portfolio



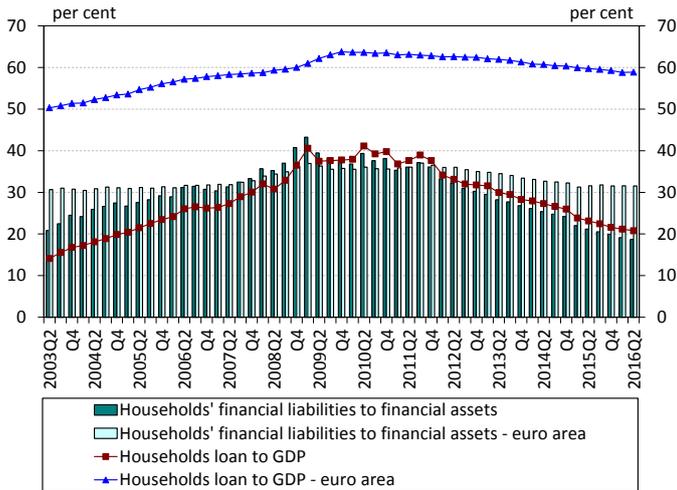
Source: MNB.

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



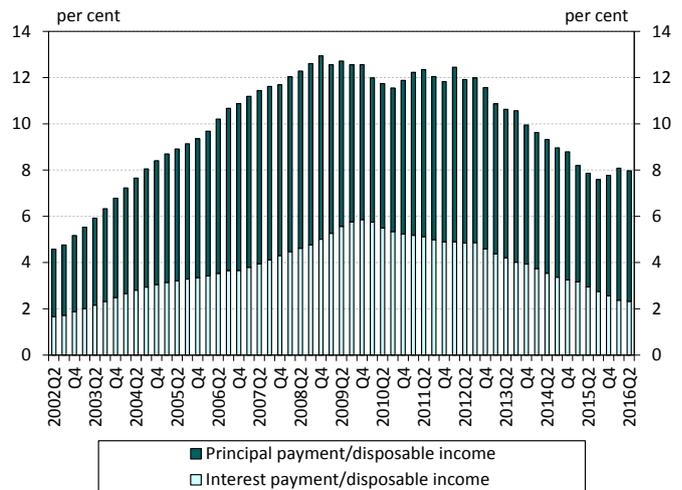
Source: MNB.

Chart 28: Indebtedness of households in international comparison



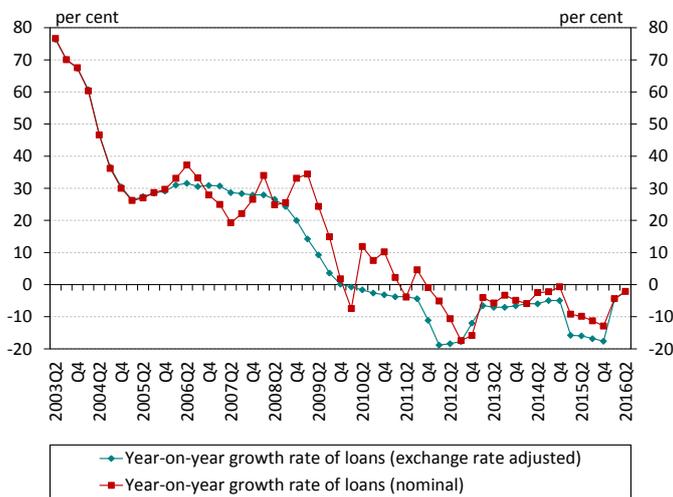
Source: MNB, ECB.

Chart 29: Debt service burden of the household sector



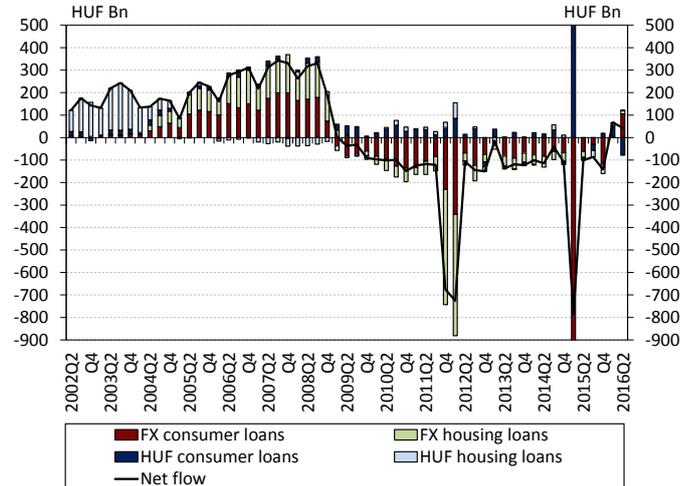
Source: MNB.

Chart 30: Annual growth rate of total household loans



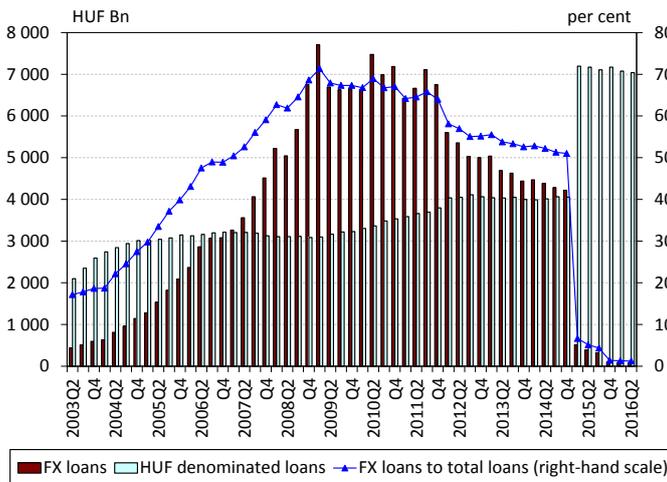
Source: MNB.

Chart 31: Net quarterly change of bank loan volumes of households by main products and currencies, adjusted for exchange rate changes



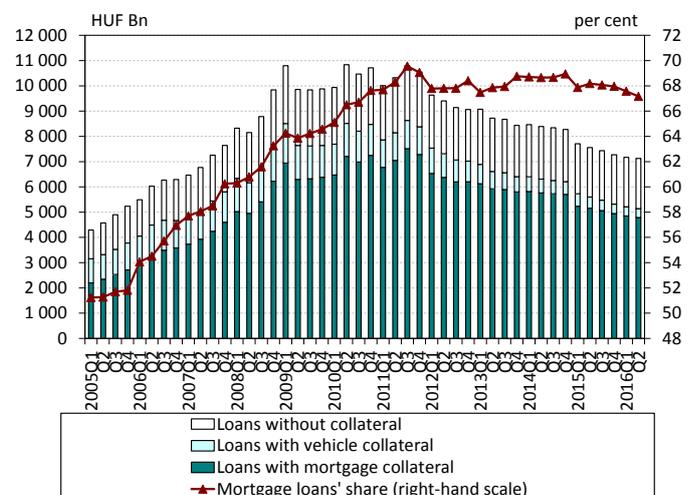
Source: MNB.

Chart 32: Household loans distribution by denomination



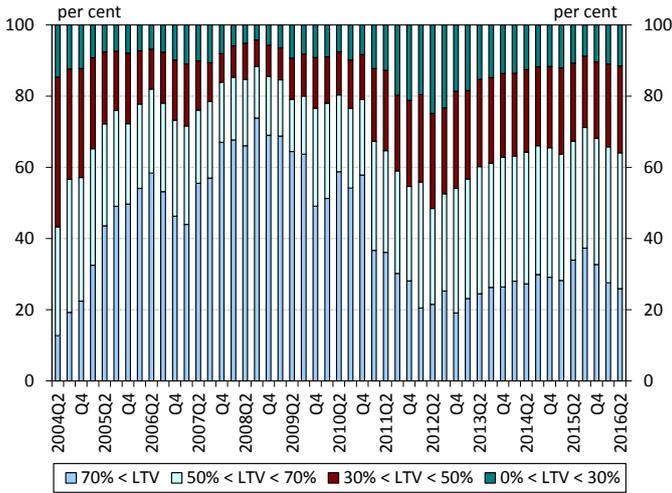
Source: MNB.

Chart 33: Household loans distribution by collateral



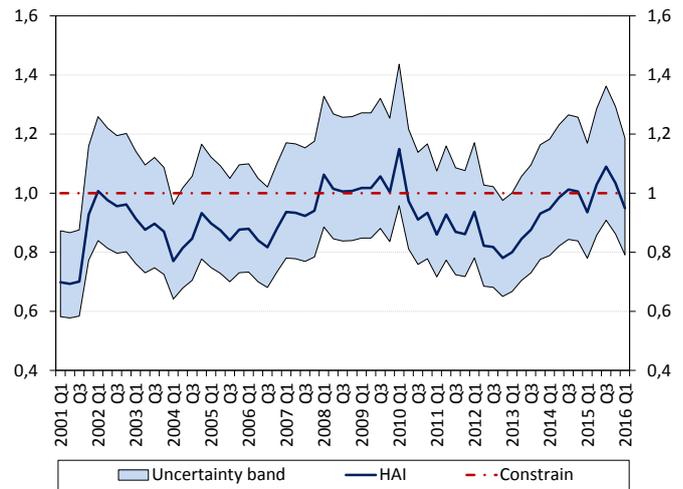
Source: MNB.

Chart 34: Distribution of new housing loans by LTV



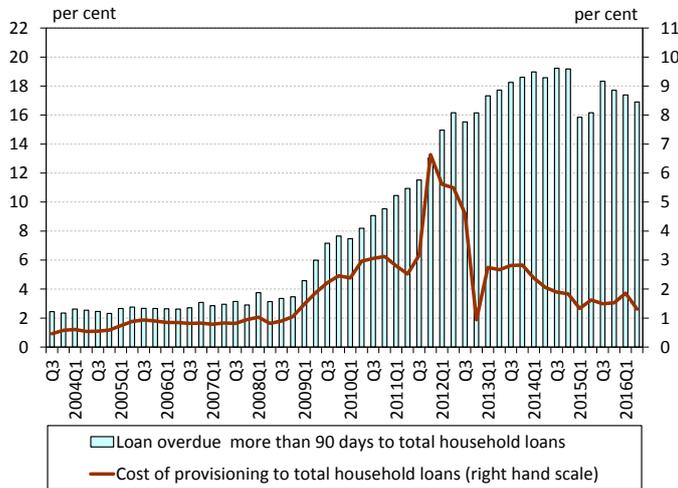
Source: MNB.

Chart 35: Housing Affordability Index



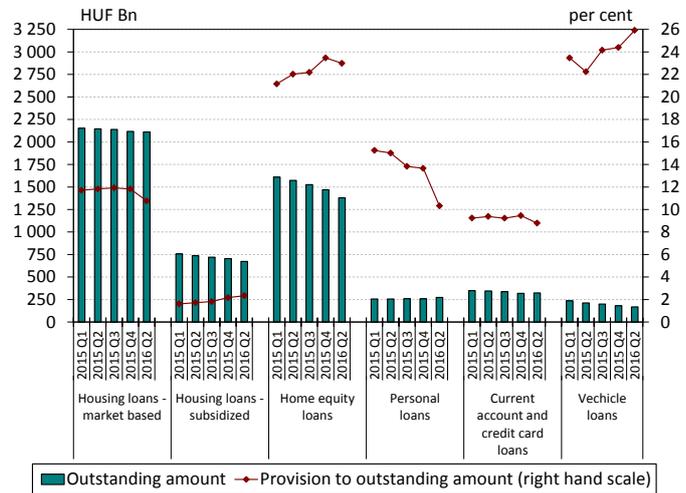
Source: MNB.

Chart 36: Quality of the household loan portfolio



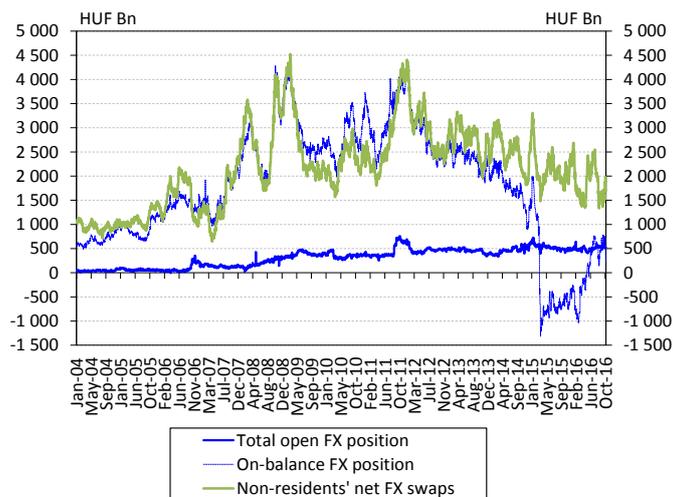
Source: MNB.

Chart 37: Provisioning on household loans



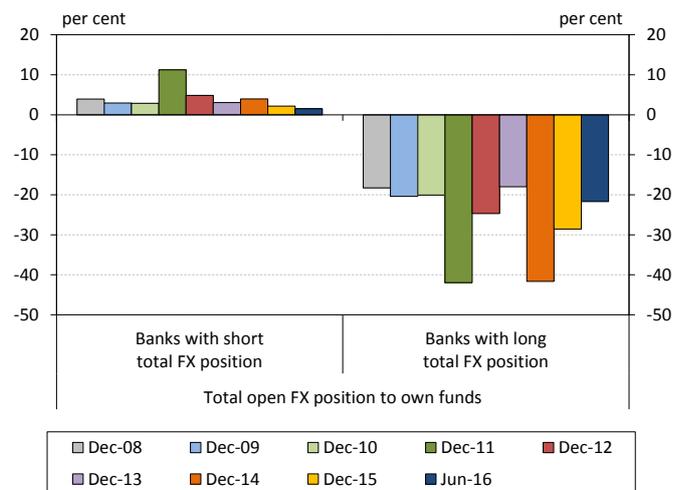
Source: MNB.

Chart 38: Open FX position of the domestic banking system



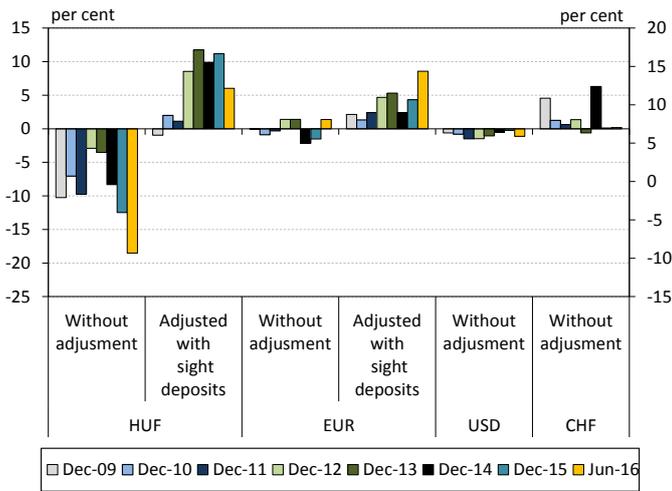
Source: MNB.

Chart 39: The exchange rate exposure of the Banking sector



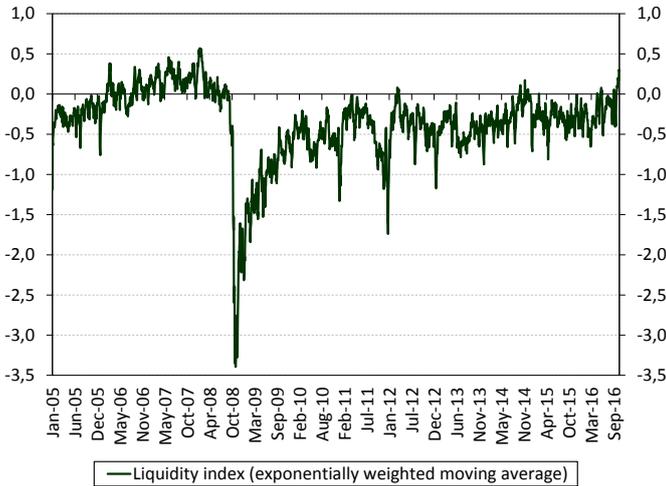
Source: MNB.

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



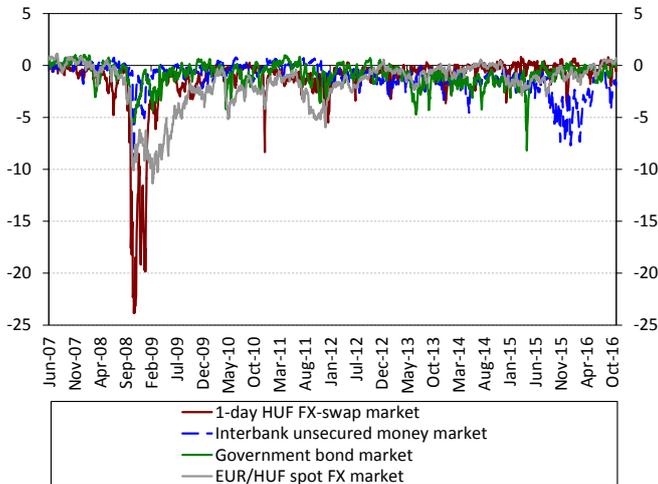
Source: MNB.

Chart 42: Liquidity index (exponentially weighted moving average)



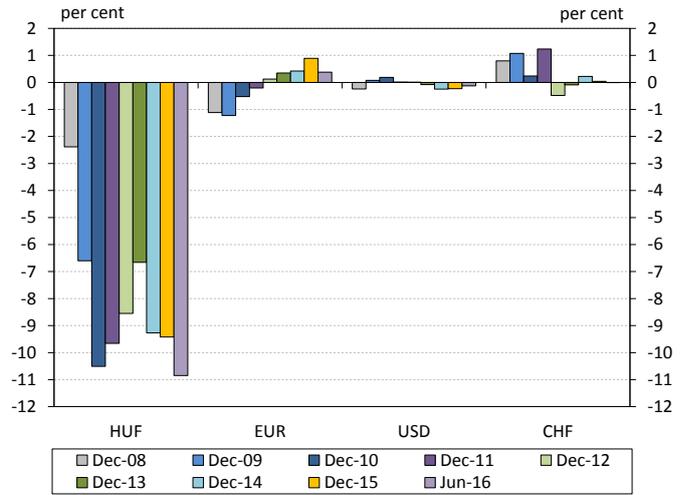
Source: MNB, KELER, Reuters, DrKW.

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



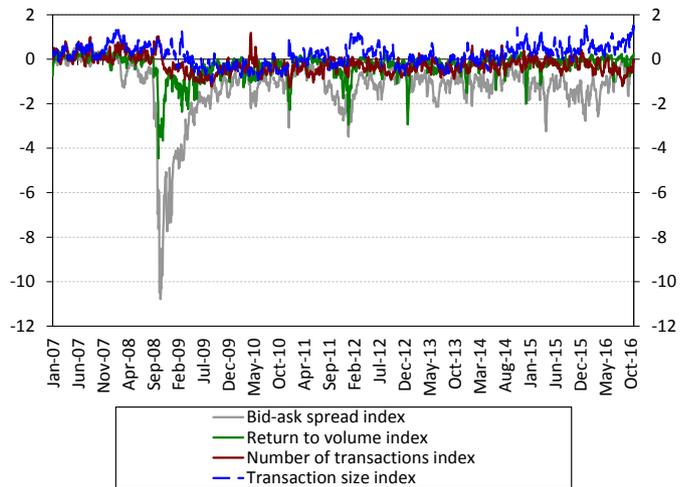
Source: MNB, KELER, Reuters, DrKW.

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



Source: MNB.

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



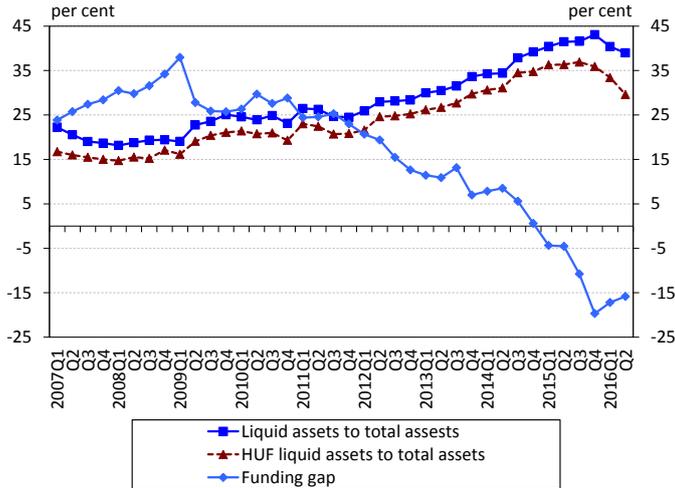
Source: MNB, KELER, Reuters, DrKW.

Chart 45: Credit to deposit ratio of the banking sector



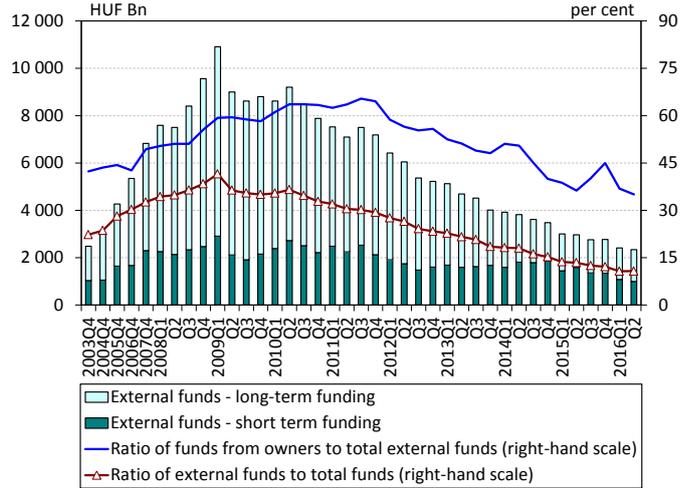
Source: MNB.

Chart 46: Liquidity ratios of the banking sector



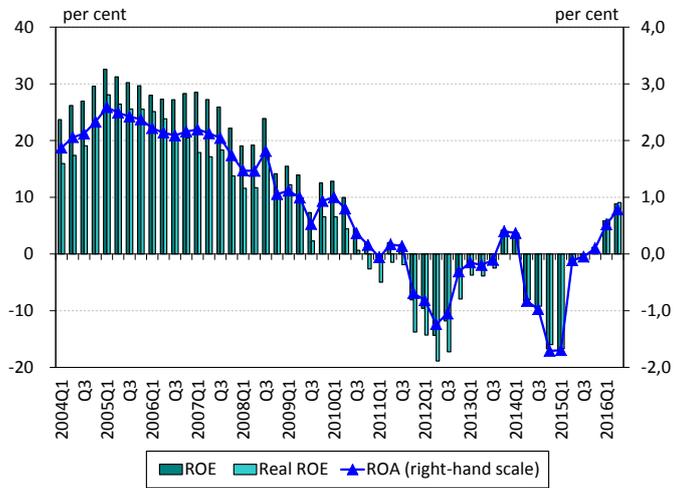
Source: MNB.

Chart 47: External funds of the banking sector



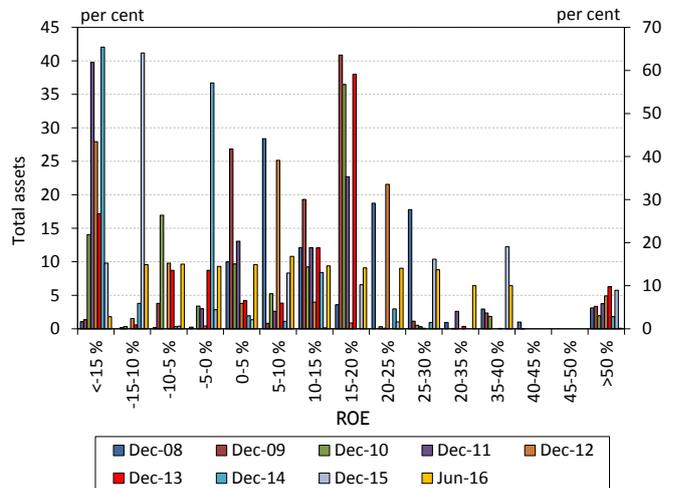
Source: MNB.

Chart 48: ROA, ROE and real ROE of the banking sector



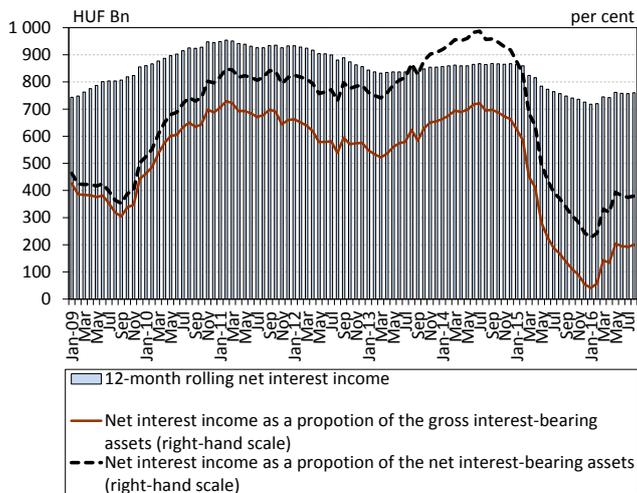
Source: MNB.

Chart 49: Dispersion of banks' total assets by ROE



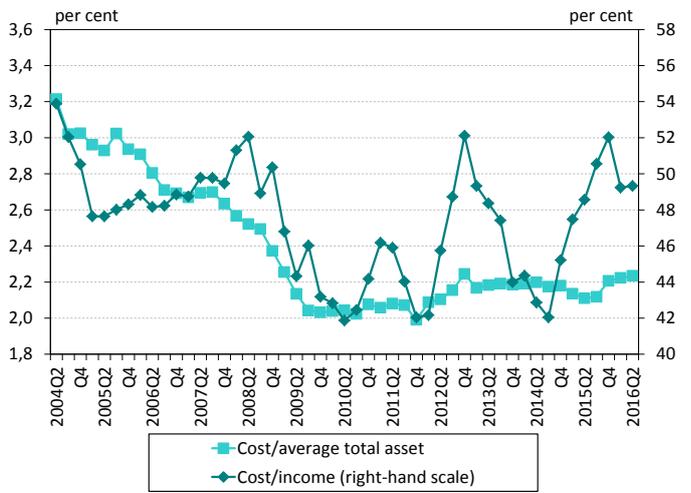
Source: MNB.

Chart 50: Net interest income as a proportion of the gross and net interest bearing assets in the banking sector



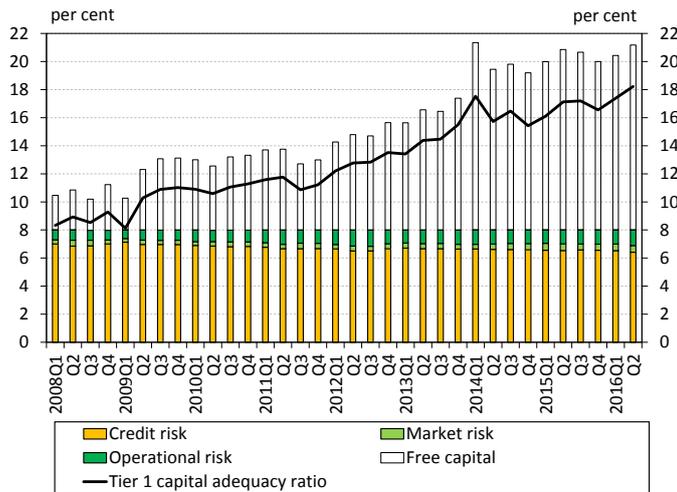
Source: MNB.

Chart 51: Operating efficiency indicators of the banking sector



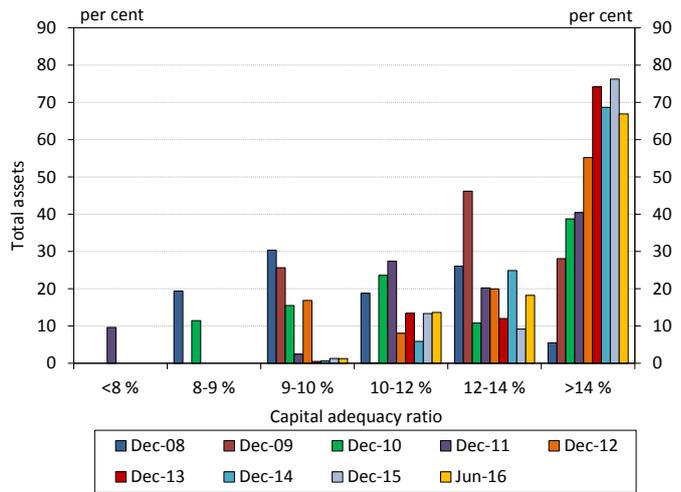
Source: MNB.

Chart 52: Banks' capital adequacy ratios



Source: MNB.

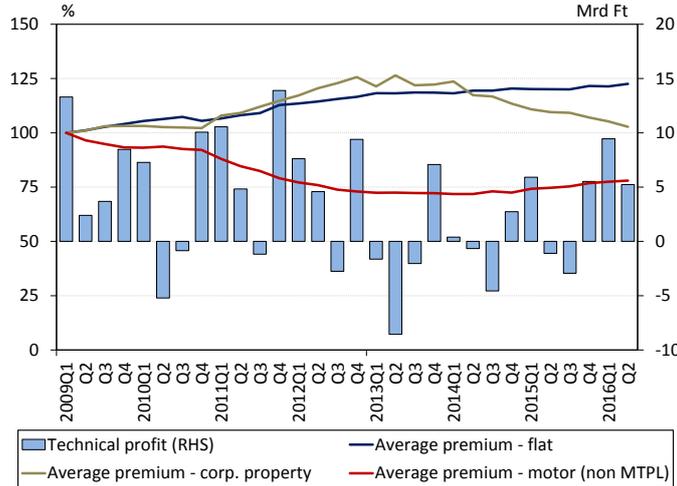
Chart 53: Dispersion of banking sector's total assets by capital adequacy ratio



Source: MNB.

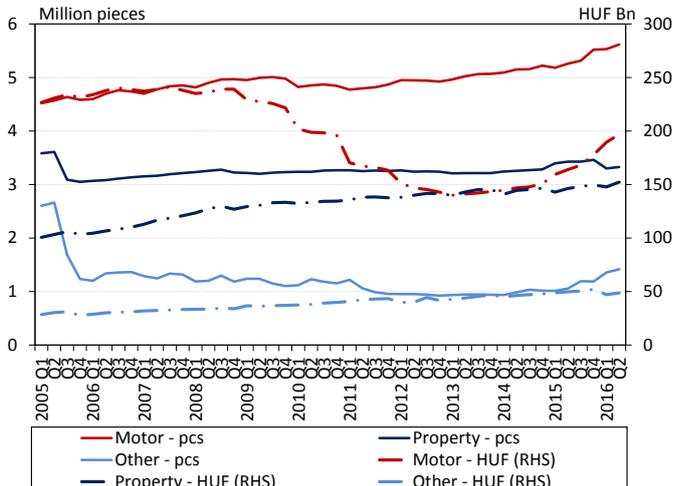
6. Institutional investors

Chart 54: Underline data of insurance tax



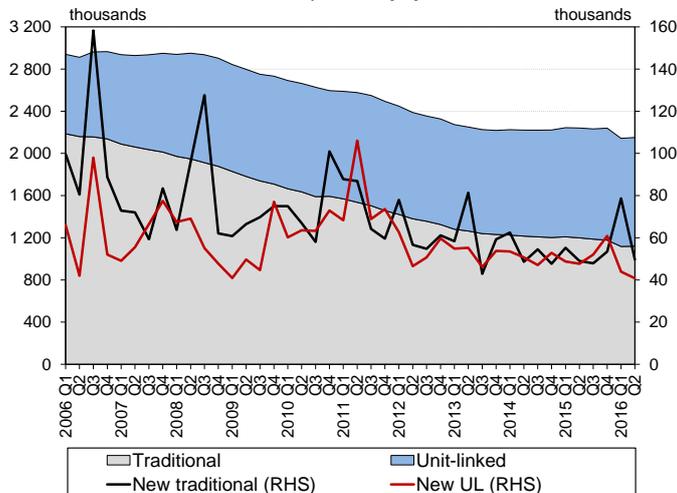
Source: MNB.

Chart 55: Development of non-life insurance



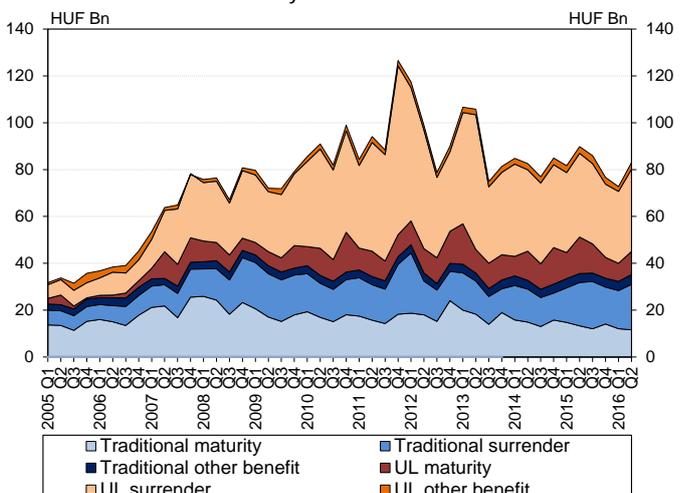
Source: MNB.

Chart 56: Development of life insurance



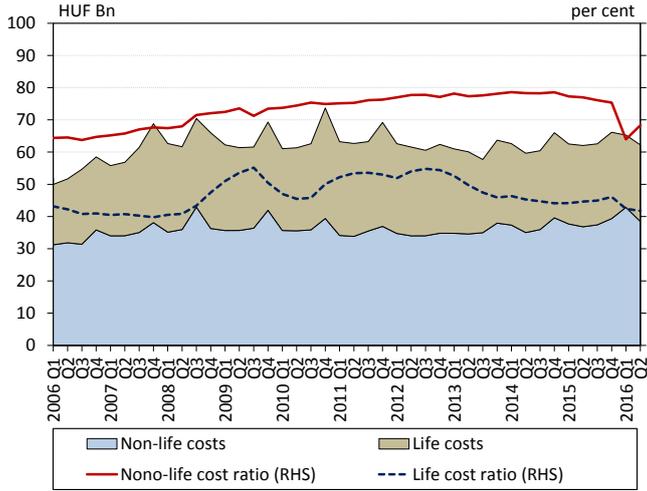
Source: MNB.

Chart 57: Life insurance services



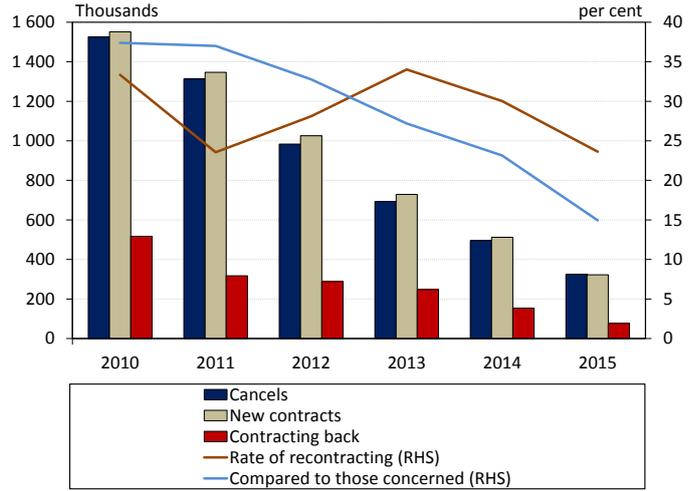
Source: MNB.

Chart 58: Costs in the insurance sector



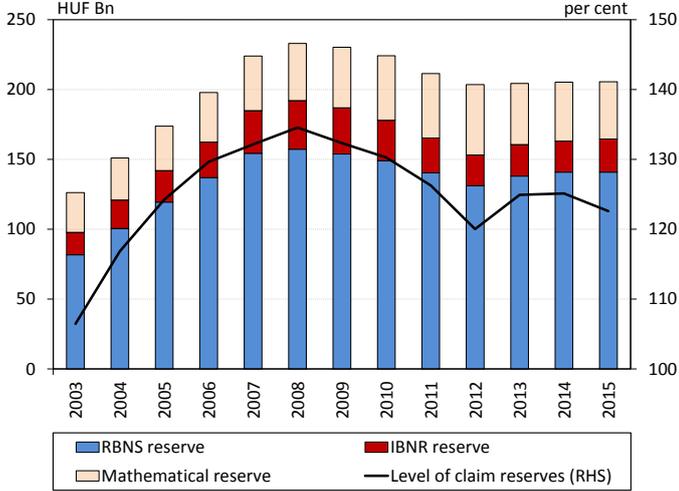
Source: MNB.

Chart 59: Development of mtpl insurance



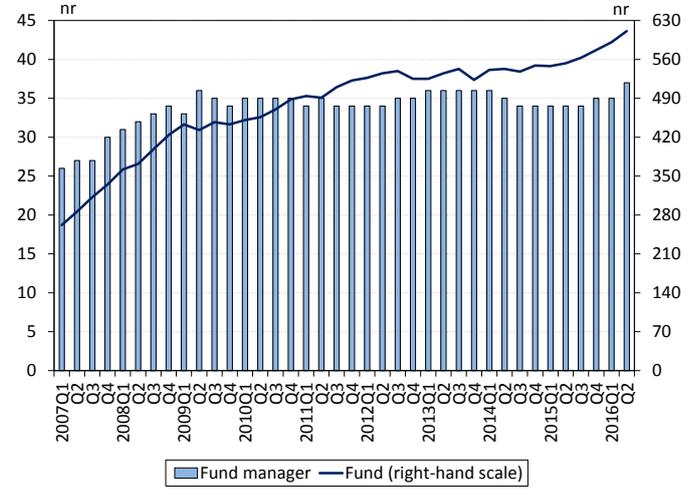
Source: MNB.

Chart 60: Development of gross mtpl reserves



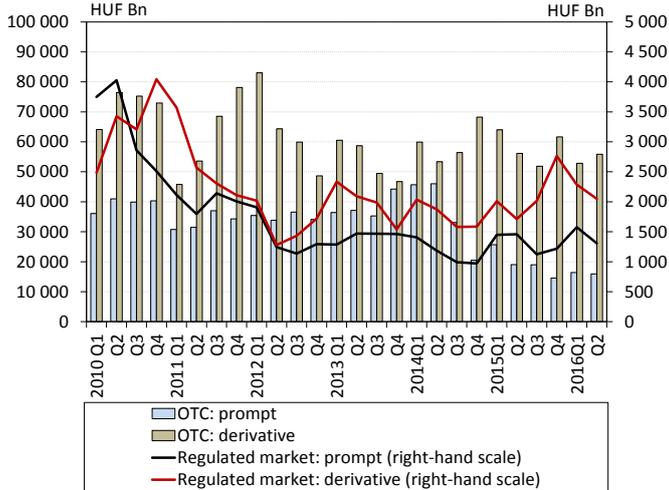
Source: MNB.

Chart 61: Assets behind life mathematical reserve



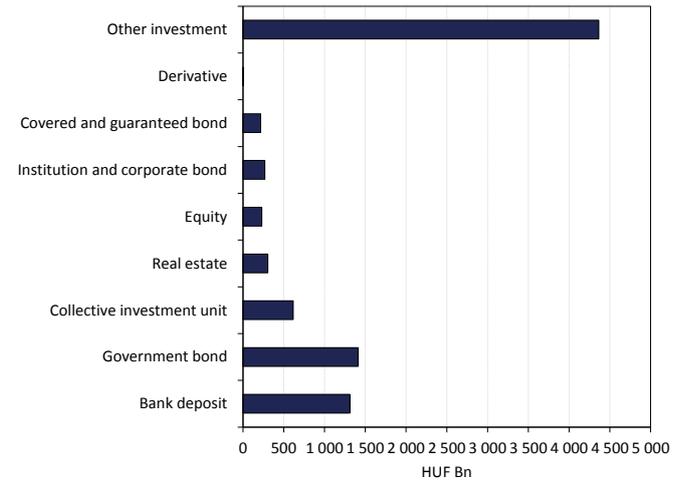
Source: MNB.

Chart 62: Capital market turnover of investment firms



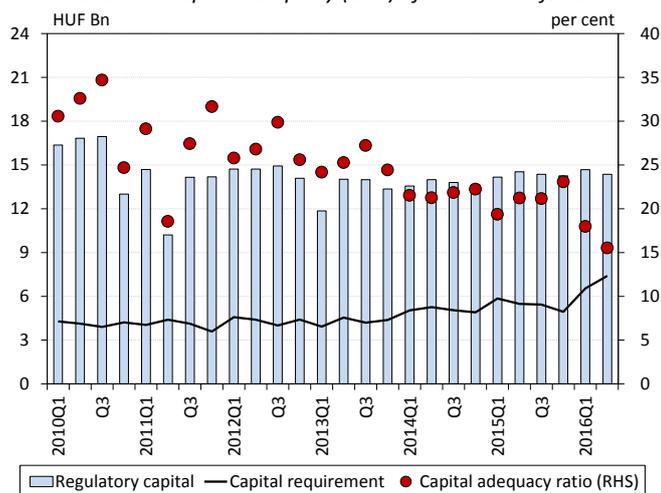
Source: MNB.

Chart 63: Asset allocation in public offered investment funds



Source: MNB.

Chart 64: Capital adequacy (CAR) of investment firms



Source: MNB.

Notes to the appendix

The chart date (e.g. 2008) means the end of the year (the 31<sup>st</sup> 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 indicates 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.

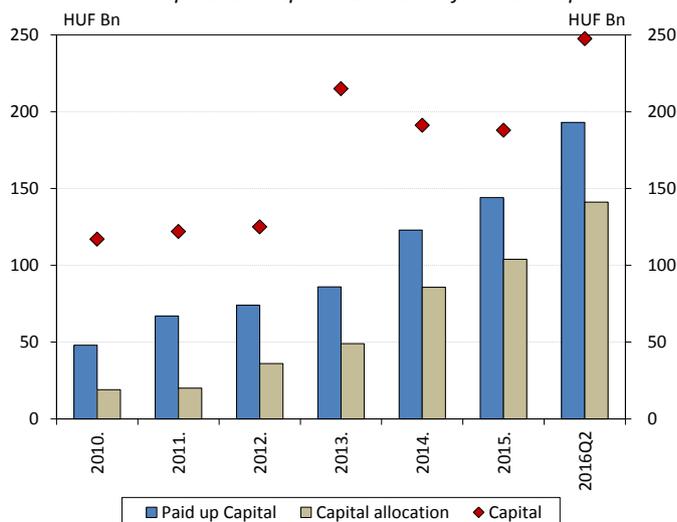
Chart 10:

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

Chart 12:

Number of bankruptcy proceedings of legal entities, summed according to the date of publication, cumulated for 4 quar-

Chart 65: Capital and capital allocation of venture capitals



Source: MNB.

ters, 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:

Note: 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 24:

FX loans, exchange rate as of end-February 2016, HUF loans adjusted by state loan refinancing in December 2002.

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:**

If the value of the HAI is 1, it shows that under a given set of credit conditions a typical household has just enough monthly income to take out the mortgage loan necessary to purchase an average flat.

If the value of the index is above 1, it indicates that a household with average income can afford to borrow for the purchase of a home.

The uncertainty band is given from the different values of the LTV.

**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 term 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 48:**

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 49:**

Pre-tax profit.

**Chart 50:**

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 51:**

Cost: previous 12 months

Income: previous 12 months

Average total asset: mean of previous 12 months

**Chart 52:**

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

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

**Chart 62:**

Sum turnover of investment firms and credit institution.

**Chart 63:**

31-Dec

# Ferenc Deák

(17 October 1803 – 28 January 1876)

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

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

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

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

**FINANCIAL STABILITY REPORT**

November 2016

Print: Prospektus–SPL consortium

H-8200 Veszprém, Tartu u. 6.

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H-1054 BUDAPEST, SZABADSÁG TÉR 9.