

REPORT ON FINANCIAL STABILITY

April 2011



MAGYAR NEMZETI BANK

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

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

The Magyar Nemzeti Bank facilitates and strengthens financial stability using all the tools at its disposal and, should the need arise, manages the impact of shocks. As part of this activity, the Magyar Nemzeti Bank undertakes a regular and comprehensive analysis of the macroeconomic environment, the operation of the financial markets, domestic financial intermediaries and the financial infrastructure, reviewing risks which pose a threat to financial stability and identifying the components and trends which increase the vulnerability of the financial system.

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

The analyses in this Report were prepared by the Financial Stability, Financial Analysis, Monetary Strategy and Economic Analysis as well as the Payments and Securities Settlements Directorates, under the general direction of Márton NAGY, Director. The project was managed by Tamás BALÁS, senior economist of Financial Stability. The Report was approved for publication by Júlia KIRÁLY, Deputy Governor.

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The Report incorporates the Monetary Council's valuable comments and suggestions following its meetings on 4 April and 18 April 2011. However, the Report reflects the views of the contributing organisational units and does not necessarily reflect those of the Monetary Council or the MNB.

This Report is based on information in the period to 1 April 2011

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Overall assessment

Key risks to the Hungarian financial system:

I. Strains from the inefficient management of non-performing loans and the windfall tax imposed on the financial sector will impair the ability and willingness of banks to lend and will act as a drag on economic recovery.

- The practice of loan restructuring can be viewed as a positive phenomenon, given its objective to restore the clients' ability to repay their loans. However, the provisioning rules currently in force provide banks with the opportunity to boost their profitability by restructuring loans several times (evergreening) and by making lower provisions than would be desired. Should banks keep problem loans by multiple restructurings in their balance sheets for a relatively longer period, refinancing them will divert funds away from new lending.
- Outstanding non-performing mortgage loans are continuing to rise, due to the upholding of the moratorium on foreclosures and evictions for quite a while. Lifting the moratorium could lead to strains in the housing market, due to the portfolio problems that have been accumulated in the past. The number of repossessed properties to be sold in the market is very large compared with housing market transactions. Therefore, the flood of repossessed properties for sale could result in a sharp fall in residential property prices.
- The bank levy is aimed at stabilising the fiscal position in the short term, while it weakens banks' balance sheets. Low profitability reduces the banking sector's ability to accumulate capital internally as well as to attract capital and funding and, ultimately, its lending capacity.

II. The contracting lending activity of the financial sector is financed by shortening foreign funding.

- Rapid shortening in the remaining maturity of external funding adds to the vulnerability stemming from the heavy reliance on external funding, with the result that rollover risks are rising fast.

Necessary policy responses to mitigate risks:

I. Removing credit supply constraints, mobilising financial resources and thereby stimulating lending is a key challenge from a financial stability perspective.

- Banks should be prepared for large volume of restructured loans to become non-performing as grace periods expire and instalments increase, and, as a result, they may incur significant loan losses. Therefore, it is desirable to review and, if necessary, tighten the existing rules for loan-loss provisioning. All this would trigger banks to clean up their portfolios, thereby strengthening their balance sheets and lending capacity.
- It is desirable to lift the moratorium as soon as possible, as the upholding of the moratorium entails higher costs for all debtors and inhibits borrowing. After full withdrawal of the moratorium market participants should follow a coordinated (or regulated) behaviour which allows portfolio cleaning as fast as possible without causing market disturbances through the sale of properties backing non-performing loans.
- Lower bank levy and efficient management of non-performing loans would help the domestic banking sector to regain its competitive edge and return to the regional leaders, thereby strengthening its ability to attract capital and funding.

II. Reducing the maturity mismatch between assets and liabilities requires macro-prudential measures.

- By shortening external funding, banks pursue profit over risk considerations; therefore, the authorities responsible for financial stability should consider the introduction of macro-prudential regulation over the maturity mismatch.

The deepening of the euro area debt crisis and the funding problems of the banking sector are interrelated

The sovereign debt crisis of several euro area periphery countries makes the roll-over of wholesale funding more difficult and costly for credit institutions. Banks' high exposures to sovereign debt are viewed as posing a systemic risk. Those institutions affected are attempting to reduce such exposures, which in turn exacerbates the sovereign debt problem and their feedback effect on the banking system. Growing distrust between banks and investors, caused by the scale of exposures and losses, has led to an increase in the banks' funding costs and the reliance on the ECB's lending facilities. Given the sharp build-up of public debts in euro area countries in the wake of the fiscal expansion of past years, governments may crowd out banks from the funding market or cause an increase in funding costs.

Investor sentiment towards Hungary beginning to improve

Hungary's risk premium began to fall in early 2011 after rising in 2010. This was due to the improving investor sentiment partly towards the CEE region and partly towards Hungary. The fiscal measures announced by the Hungarian government in early March were generally welcomed by the market. Non-residents stepped up their purchases of forint-denominated assets and the forint exchange rate appreciated. Also suggesting an improvement in market sentiment, the Hungarian state conducted a successful US dollar denominated bond issuance programme in March 2011.

Conditions in domestic key financial markets are back to normal, except in the FX swap market

Liquidity in the government securities and interbank markets, two of the most important markets for the domestic banking sector, improved significantly. By contrast, conditions in the FX swap market remained unfavourable. Rising demand by non-residents and more active new primary dealers contributed to the increase in liquidity in the government securities market. The introduction of flexible reserve requirement ratios in November 2010, designed to improve liquidity management, coupled with the MNB's weekly liquidity forecasts, may have promoted the orderly functioning of the interbank market. As a negative development, however, liquidity in the FX swap market remained below its pre-crisis levels. FX swap market spreads are now above the levels seen prior to the crisis, due to domestic banks' high risk premia and the partially restored individual counterparty limits. Considerable, but temporary turbulence in the FX swap market at the end of 2010 also suggests that market operations remain fragile.

Economic growth is expected to pick up, associated with a gradual fall in net external debt

In the MNB's March 2011 projection, Hungarian economic growth picks up this year but remains flat next year as a result of announced fiscal measures, settling around 3 per cent in both 2011 and 2012. Exports and domestic demand are expected to grow slightly in the short term. Hungary's external financing capacity is likely to remain positive, with net external debt expected to begin to fall. Concerning the external environment, the euro area debt crisis, probably associated with a renewed confidence crisis among banks, represents the most important downside risk to economic growth. As regards domestic risk factors in relation to economic growth, the banks' permanently tight credit supply constraints can be identified.

The economic recovery is not supported by bank lending either in the corporate or in the household segments

Hungarian GDP began to grow towards the end of 2009, driven by rising external demand; however, net bank lending to both the corporate and the household sector remained negative. The contraction in lending to companies mainly reflected the effects of credit supply factors. By contrast, credit demand factors play a more central role in the decline in lending to households, in addition to restraints on the credit supply. These factors add

to the risk that lending will not be able to support economic growth over the longer term. This can be viewed as a country-specific feature, as lending to the private sector in the majority of CEE countries had already started to rebound at the time of the recovery in GDP growth.

Net lending to corporations is expected to increase only at the end of 2011

Contrary to the MNB's earlier projections, lending to the corporate sector declined further in 2010. On the demand side, that reflected companies' falling investment activity. At the same time, banks reported that demand for working capital loans had increased. On the supply side, the MNB's latest lending survey suggested that after several years the tightening of credit conditions continued further. Due to low risk appetite lenders continue to narrow the range of companies considered creditworthy (credit rationing). In Q1 2011 banks cited weak profitability and the decline in capital buffers as new reasons why credit supply constraints increased. In the MNB's current projection, lending to the corporate sector begins to rise again in 2011 Q4, suggesting that the turning point in lending will come later than previously projected by the MNB.

Net lending to households is expected to rebound only in H2 2012

Adjusted for exchange rate effects, lending to households declined at an increasing pace in 2010; however, allowing exchange rate effects, the outstanding amount of loans rose sharply. The appreciation of the Swiss franc not only led to an increase in the value of total loans but also resulted in higher monthly instalments. That in turn prompted households with foreign currency loans to make even more significant balance sheet adjustments. Stronger precautionary motives and weak labour market conditions also led to weak demand for credit. On the supply side, credit availability to households declined, reflecting tighter regulation (e.g. regulation on responsible lending and the ban on foreign currency mortgage lending). In the MNB's current projection, household loans outstanding is expected to rise only in H2 2012.

Removing the ban on foreign currency mortgage lending is unlikely to result in a pick-up in lending

The potential removal of the ban on foreign currency denominated mortgage lending is unlikely to lead to a rapid increase in foreign currency lending, given that the existing responsible lending rules constrain customers' access to credit through loan-to-value limits. However, the current loan-to-value limit does not protect customers; rather it protects banks from incurring loan losses. To help protect the interests of customers and prevent excessive risk taking, it is necessary to introduce an upper limit to the payment-to-income ratio as well. The MNB's earlier proposal to implement a new regulation requiring lenders to extend new mortgage loans, either at fixed interest rates or at interest rates linked to a reference rate, with a fixed spread charged over the term of the loan, would serve to enhance price competition among banks and improve transparency.

The increase in non-performing loans as a proportion of outstanding loans in the corporate and household segments may slow down and the loan-loss provisioning may decrease

Corporate and household sector non-performing loan ratios reached 11-12 per cent by the end of 2010. The cost of provisioning as a percentage of the loan portfolio rose to 2.5-3 per cent over the same period. The deteriorating performance of commercial real estate loans and mortgage loans in the corporate and households segment respectively are potential causes for concern. The ratio of non-performing loans is expected to rise slowly, while loan-loss provisioning could already decline this year. The ratios of Non-performing corporate and household loans may reach 14-15 per cent by the end of 2011, while loan-loss provisioning may fall back to 2-2.5 per cent.

Looking forward, companies may benefit from the economic recovery, while personal income tax amendments and disbursements of real returns on private pension fund contributions may improve households' income position. However, there are strong upside risks to the projection for the household sector, due to the uncertainty about the performance of multiple restructurings on loans.

Provisioning rules for restructured loans need to be reviewed

Banks restructured loans actively in the corporate and particularly in the household segment. Loan restructuring, a method whereby banks and customers agree on lower monthly instalments on debt for a temporary period, is aimed at restoring the ability of clients to repay their obligations. However, the current practice of loan-loss provisioning may encourage banks to restructure loans expected to become non-performing before the grace period expires (i.e. to extend grace periods). All this reduces provisioning needs and boosts profitability, but carries hidden risks (an evergreening portfolio). If, following the expiry of grace periods, a large number of loans become non-performing, then there could be a surge both in the ratio of non-performing household loans and loan-loss provisioning. It would be desirable to revise the requirements for loan-loss provisioning, given that banks are unprepared for such a situation due to the current regulatory environment.

Coordinated portfolio cleaning would help reduce the negative effects on housing prices as a result of the withdrawal of the moratorium

It is very important to abolish the moratorium on foreclosures and evictions as soon as possible, as retaining it in force would lead to the build-up of even greater latent tensions. At the same time, care should be taken to ensure that, once the moratorium is withdrawn, sales of properties backing non-performing loans do not lead to a significant decline in housing prices, given that it would have a negative impact on banks' profitability and capital position. A potential drop in banks' capital buffers may adversely affect their ability to lend and, ultimately, economic growth. In addition, new mortgage lending may also fall due to a decline in the collateral value, which could lead to falling household consumption and investment. Moreover, construction industry output could fall sharply as a result of housing market recession. After full withdrawal of the moratorium, market players should follow a coordinated (or regulated) behaviour which allows portfolio cleaning as fast as possible, without causing market disturbances through the flood of repossessed properties for sale. An instrument for this would be the introduction of portfolio cleaning or foreclosure (auction) quotas.

Domestic banks' rollover risks are increasing rapidly

The short-term liquidity position of the banking sector is stable. Due to the high reliance on external funding, the domestic banking sector is facing significant funding difficulties; therefore, on longer term rising rollover risks are expected. In addition to high funding costs, the increases in the costs of long-term funding relative to short-term funding costs pose another problem. Prompted by increasing term premium, domestic banks' reliance on short-term external funding has been rising. Currently, the sector is not willing to undertake a reduction in the maturity mismatch, which could lead to stronger balance sheet adjustments later on. For this reason, it is important that banks put more emphasis on risk rather than cost considerations as soon as possible, and that they deliberately reduce the size of the assets-liabilities' maturity mismatch.

The domestic banking sector's ability to accumulate capital and attract capital and funding remains weak, due to the bank levy

The banking sector's profitability continued to fall in 2010. Pre-tax profits of about HUF 70 billion and a ROE in the range of below 3 per cent indicate an extremely weak ability to accumulate capital. However, in assessing the data it should be taken into account that the windfall tax on banks ("the bank levy"), at around HUF 120 billion, as well as the tight provisioning policy of one bank played a significant role in these results. Excluding these effects, the banking sector's pre-tax profits in 2010 would have been about the same as the year before. That suggests that banks' income-generating capacity is strong. The bank levy in 2011 and 2012 may contribute to the banking sector's low profitability, which in turn will weaken banks' ability to accumulate capital and attract capital and funding from abroad. There is an increasing risk that parent banks will reallocate funds from their Hungarian subsidiaries to other banking sectors in the region with a better profit outlook. An indication might be that external funding stagnated or increased to the neighbouring countries, as opposed to the significant outflows of external funds from the Hungarian banking sector in 2010 H2. Reallocation of funds may be a further impediment to domestic banks' capacity to lend. The bank levy serves to stabilise the government budget, but through the negative consequences on lending activity it may also entail high real economic costs.

The banking sector's solvency position and short-term liquidity position are adequate, both along the baseline and in stress scenarios

The banking sector's capital adequacy ratio (CAR) rose slightly to 13.3 per cent last year. However, the ICAAP-SREP dialogues involved higher capital requirements resulting in a capital adequacy ratio of 11.5 per cent. Based on the outcome of the integrated credit and market risk stress test, the banking sector's capital level meets the regulatory requirements, while at an individual level additional capital need remains manageable, on the two-year forecast horizon, until the end of 2012. According to the results of the short-term liquidity stress test, banks' liquidity buffers are also adequate; however, a precondition for this is that the permeability between forint and foreign currency liquidity should hold, i.e. that the FX swap market should function smoothly.

1 The operating environment of financial intermediary system

The steady deepening of the euro area's debt crisis that began in early 2010 has been a significant risk factor. Funding difficulties of certain peripheral euro area countries and their respective banking sectors are interrelated, and have potential contagion effects on other EU member states. After Greece and Ireland, it is now Portugal whose swelling funding risks are being put in the spotlight. The deepening of the euro area's debt crisis could so far be offset by the institutionalised crisis management scheme of the EU only to a small extent. All this may have a considerable negative impact on both the Hungarian economic outlook, which is heavily integrated into the euro area, and on its banking sector. The funding of domestic banks might become encumbered or more expensive, and the average maturity of funding could shorten further.

Throughout 2010 financial markets in Hungary were driven by two opposite effects. A favourable investor sentiment towards emerging markets had a positive impact on the demand for forint-denominated assets. However, country-specific factors, such as fears regarding the sustainability of public finance or downgrades by credit rating agencies, prompted foreigners to ask a higher country risk premium. From Q1 2011 onwards, as markets welcomed the government's fiscal reforms, the relative risk perception of Hungary began to improve again. This is clearly illustrated by the Hungarian state's successful issuance of US dollar denominated bonds, which is regarded as an important step towards returning to market funding.

The operations of the most important Hungarian financial markets are undisturbed. Liquidity on the government bond market has increased largely due to a rise in international risk appetite. The unsecured interbank market is characterised by an increase in volume, while the number of participants remains low. The only territory where improvements in liquidity and undisturbed operations do not apply is the FX swap market, which is of key importance for the banking system. The FX swap market continues to struggle with a low level of liquidity, and wide longer-term FX swap spreads even exceed the pre-crisis level, which greatly contributes both to hikes in the banks' funding costs and to the shortening of funding terms.

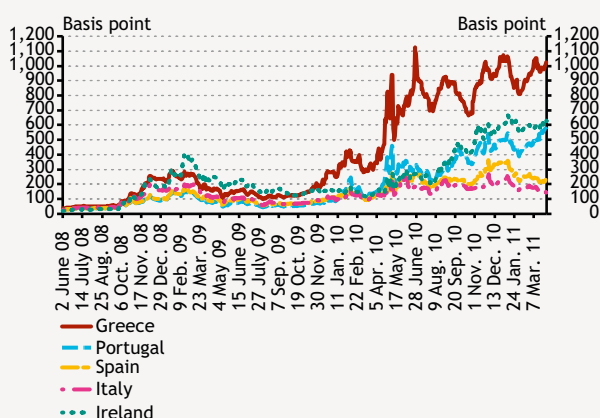
Growth of the Hungarian economy continues to be driven by exports; meanwhile household consumption and investments could only have bottomed out. In the future, we are expecting a rise in consumption and investments, albeit at a very modest rate. Over the next two years, the economy may grow at an annual level of approximately 3 per cent, with the inflation rate being below the central bank's 3 per cent target, assuming unchanged monetary conditions. The Hungarian economy's net external financing capacity, which continues to be driven by net savings of the private sector, could be sustained for the upcoming years. Owing to the high external balance surplus, the country's net external debt as a percentage of GDP has stabilised, with minor decreases expected in the future.

In recent years the exposure of the financial intermediary system to the real estate market has risen considerably. Although no housing bubble has emerged, the large number of residential properties awaiting collateral sale that have accumulated due to the moratorium on evictions and foreclosures poses a high risk as regards property prices. On the commercial real estate market, banks have become significantly more exposed to that on account of heavily financing the pre-crisis construction boom. As a result of the recession, the vacancy rate in the office segment has risen considerably and its level can be considered high in international comparison.

1.1 The sovereign debt crisis in the euro area remains a threat

Liquidity conditions in the international financial markets generally improved during 2010, although for certain instruments the risks have endured. In certain euro area countries, as their fiscal position deteriorated, the rise in sovereign risks caused temporary market turbulences. Over the past year, concerns over the sustainability of the public debt of first Greece, then Ireland and finally that of Portugal have been in the limelight of the market. Throughout these critical periods, the major contagion channel to other financial market segments was the plummeting global risk appetite. In March 2011, as reports showed that Portugal was facing an increase in their respective sovereign debt risk, worries about the euro area's stability re-emerged. The deepening of the euro area's debt crisis was only partially offset by the fact that the funds available for the EU's crisis management have been raised significantly. All these developments could have a significant adverse effect on the Hungarian economic outlook and on the funding of its banking sector.

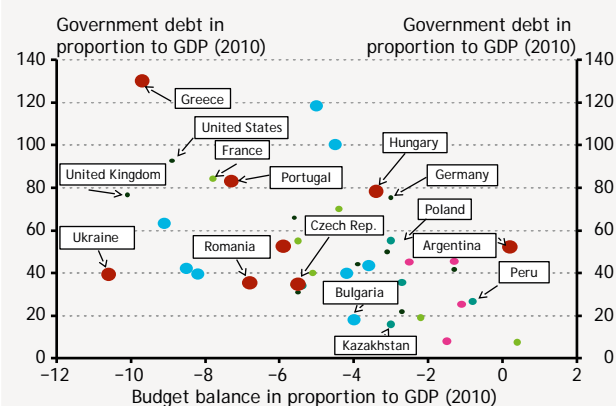
Chart 1
5 year sovereign CDS spreads of selected euro area countries



Source: Thomson Datastream.

The euro area's sovereign debt crisis has been lasting since early 2010. Countries with deteriorating fiscal positions may be separated into two well-distinguishable groups. In some countries with high public debt, sovereign risks and their risk premia required by investors have been rising since the beginning of 2010 (Chart 1). This group comprises peripheral euro area countries and certain emerging economies. As for the other category, a soaring public debt and a high budget deficit are taken as limitations on further economic stimulation, even though such constraints have not yet become effective. This group contains countries with low risk premia and notable impact on the world economy (USA, Germany, Japan) (Chart 2).

Chart 2
The relation between risk premia and fiscal position

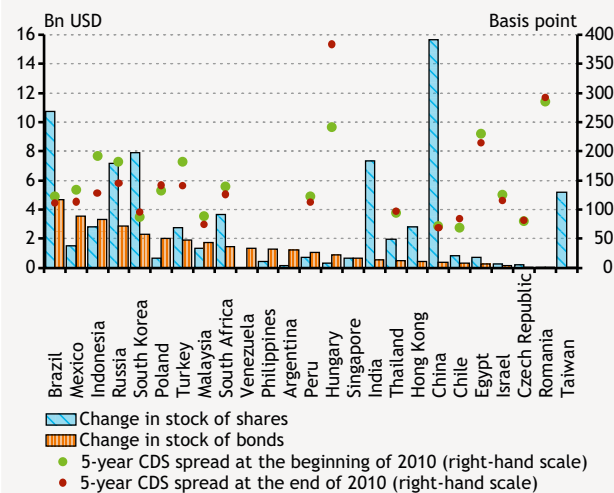


Note: Dot size corresponds to the pertaining 5-year CDS-premium level. Source: Thomson Datastream, EIU.

Uncertainties regarding the banking system and/or the fiscal sustainability of certain euro area countries have recently become more apparent. Once the debt concerns of Greece and Ireland were addressed, the third quarter of 2010 brought temporary relief to worries about the spill-over of the euro area's sovereign debt crisis. In March 2011, however, Portugal and Spain were downgraded by several rating agencies. In Portugal, sovereign risks began to rise after the Parliament voted against an austerity package and the Government resigned. As for Spain, the downgrading of its sovereign debt coincided with the downgrading of several banks, bringing the Spanish banking system's capital and funding problems back into the spotlight.

There has been a strong capital inflow in emerging markets, while investor sentiment is being affected by sovereign risks. Inflows were fuelled both by a growing risk appetite on a global scale and by high growth prospects of emerging markets. As for portfolio investment, equity purchases affected mainly those generating relatively high

Chart 3
Capital flows and risk premia in 2010

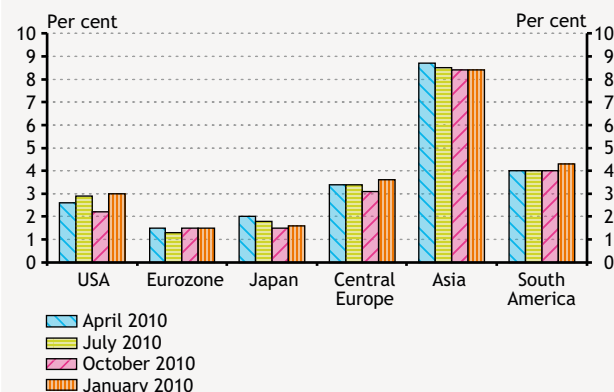


Source: EPFR, Barclays, Datastream.

levels of growth such as the region of Southeast Asia as well as commodity exporting countries. In addition to the effects of the underlying real economic developments and risk appetite, sovereign risks also play an important role in investors' portfolio decisions. Countries targeted by non-residents' purchases of debt securities also experienced a notable fall in respective risk premia (Chart 3).

The real economic impact of financial turmoil stemming from sovereign risks has remained moderate so far, while the economic outlook has been gradually improving. Over the past year, the global economy grew at a pace higher than previously expected. Such growth was observed mainly in emerging economies, whereas in developed countries, economic recovery remained sluggish. Published macroeconomic data also had a positive influence on subsequent year's expectations (Chart 4). The expansion in the euro area is fuelled by the German economy, especially its exports, even though a modest rise in domestic consumption could be observed. An optimistic sentiment continues to be echoed by European confidence indicators.

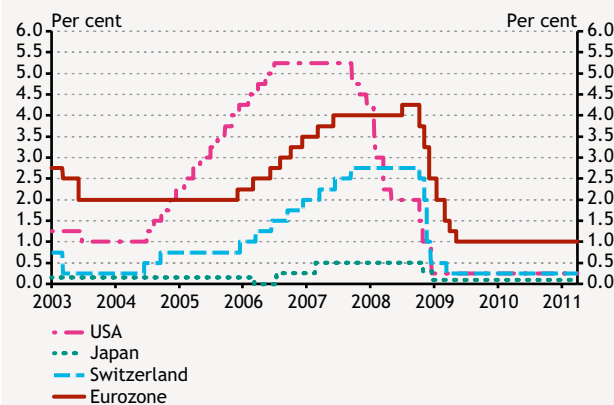
Chart 4
Development of growth forecasts for 2011 by the IMF



Source: IMF WEO.

Key central banks are predominantly engaged in expansionary monetary policies; however, authorities in emerging markets began to take on a more restrictive approach. In most cases, the shift towards a tighter monetary policy could be explained with inflationary pressures following increases in commodity prices, rather than with demand-driven inflation as a result of robust growth. As for developed markets, the shift toward tightening can only be felt at the level of expectations (Chart 5), with interest rate hikes having been implemented only in commodity exporting countries. The US Fed is still engaged in quantitative easing, the corresponding programmes in both the UK and the Eurozone have been concluded.

Chart 5
Trends in relevant policy rates

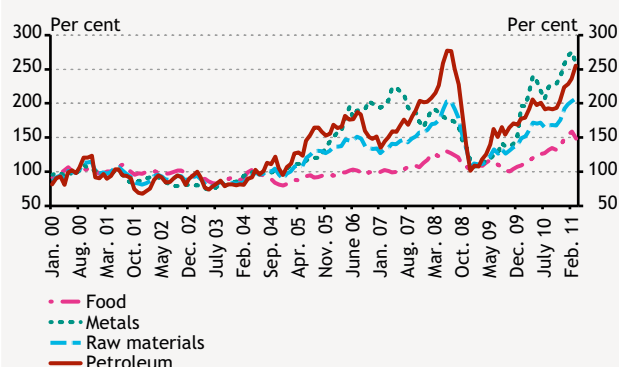


Source: Central bank websites.

Political events in the Middle East and in countries of Northern Africa represent a rising risk for the global economy. A decline in petroleum and natural gas exports by countries affected could boost the increase of energy prices (Chart 6). Should this string of events bring economic expansion to a halt, most developed countries will only be able to react to a limited extent, given the debt limits on the side of fiscal policy and the increasing inflationary pressure on the monetary policy side. A good example of the latter is the ECB's determined stance on increasing its key interest rate.

Although emerging economies have been in recent years the driving factors behind global economic growth, positive prospects in Southeast Asia are shadowed by several risks. Due to pressures of a growing inflation, the

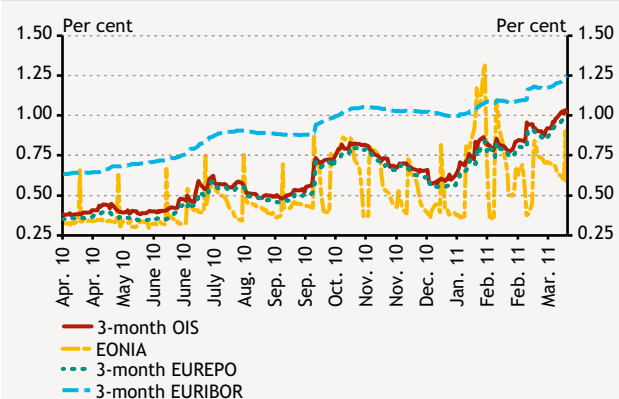
Chart 6
Trends in relevant commodity prices
(2000=100 per cent)



Source: Thomson Datastream.

Chinese central bank has taken more and more steps towards tightening monetary conditions. It is not yet possible to accurately gauge the consequences of the Japanese earthquake on the real economy and on countries in the region. In the longer term, Japanese production outages and a rise in demand due to reconstruction could rather have a more positive impact on the region's growth; however, over the short term, the impact is rather negative given the drop in risk appetite and repatriation of financial instruments by Japanese residents.

Chart 7
Short-term euro area interbank lending rates

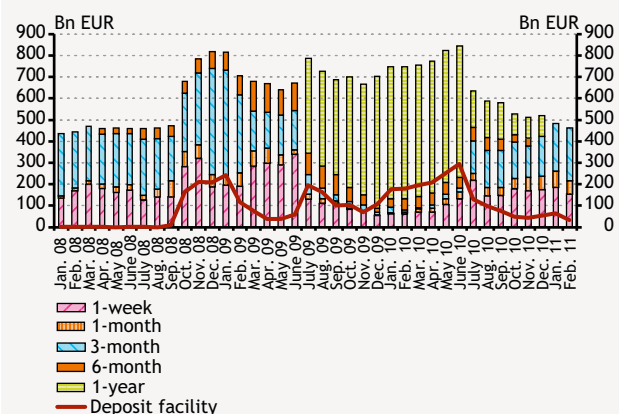


Note: OIS = Overnight Indexed Swap, EONIA = Euro Overnight Index Average.

Source: Thomson Datastream.

The escalation of the euro area sovereign debt crisis involves more risk for financial institutions as well. The stability of Europe's financial sector is affected by the sovereign crisis through multiple channels. First of all, banks' high exposure to government debt is a systemic risk. However, a reduction of such exposure would not only fail in diminishing the problem of sovereign debt, it would actually escalate the debt problem and its feedbacks to the banking system. Also, the relationship between banks and investors is characterised by deteriorating confidence as far as the extent of both exposures and losses is concerned, which could raise the funding costs and lead to increasing reliance on ECB facilities. All this has an adverse effect on the European interbank market as well. Finally, in the wake of the fiscal expansion of recent years, government debt has risen sharply, therefore its refinancing 'crowds out' private investment or could make access to market capital more costly. All these developments could have a significant adverse effect on the Hungarian economic outlook and on the funding of its banking sector due to the high level of integration.

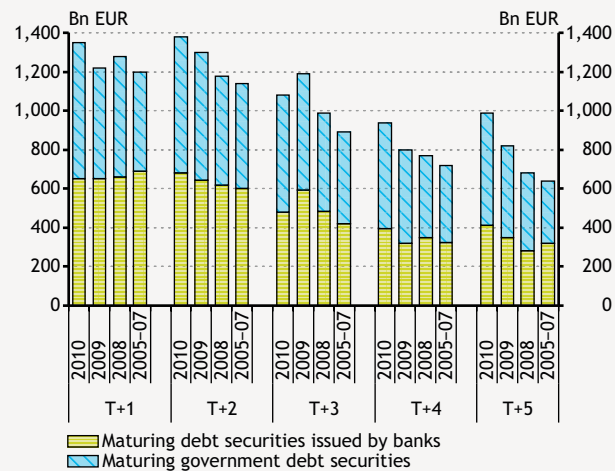
Chart 8
Monthly average recourse to the monetary policy instruments of the ECB



Source: ECB.

On the European interbank market, sovereign risks can now be detected in interest rate premia. Over the past few months, an increase in short-term yields could be observed (Chart 7), which can be explained only in part by higher expectations for policy rate hikes. Yields have also increased because certain groups of European banks can gain access to longer-term funding only with less favourable conditions, thus their swollen demand is precipitating on the short-term money market. This phenomena stems from three factors. Firstly, banks with considerable portfolios of Irish, Portuguese and Greek Government bonds could only execute repo transactions with these securities via the ECB, therefore their chances for raising euro liquidity through market repos are limited. Secondly, the risk premia of Greek, Irish and, of late, Portuguese banks have increased also because the Governments of these countries have a reduced room for satisfy any prospective bank's demand for capital injections. Thirdly, a large number of financial institutions across the euro area are affected by the gradual expiry of lending facilities

Chart 9
Maturing bank and government bonds in the euro area



Note: T+1,2, ...5 represents liabilities falling due in the years after the given year.
 Source: ECB.

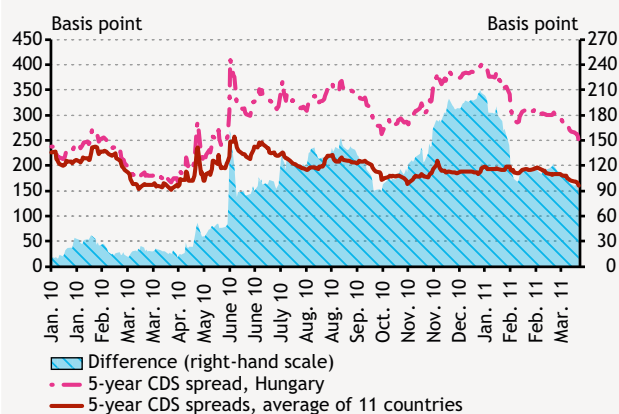
established by the ECB during the crisis, which some banks can only renew for shorter tenors. In recent months, recourse to overnight lending facilities of the ECB has also increased (Chart 8). This suggests that certain banks faced such non price-related limits that forced them to borrow from the ECB.

The high levels of demand for roll-over and the financing of budget deficits may have a negative impact on banks' ability to raise funds. Over the horizon of the next few years, euro area countries and credit institutions will be facing a considerable demand for liquidity roll-over (Chart 9). This roll-over becomes more difficult as the high levels of government debt of euro area countries also require funding. Since sovereigns possess better ratings for credit risk than banks, this could result in the crowding out of banks' debt securities. This could lead to higher funding costs and stronger deleveraging not only across the euro area banking system, but in Hungary as well.

1.2 Global market perception of Hungary has improved again

Investors' positive attitude towards emerging markets had a favourable impact on non-residents' demand for forint-denominated instruments, the Hungarian sovereign risk premia and the forint exchange rate. That notwithstanding, deteriorating sentiment owing to some country-specific factors not only offset this positive impact but, overall, pointed to worsening in 2010. Concerns over the sustainability of public finance coupled with the downgrades by credit agencies raised the sovereign risk premium of Hungary considerably. Driven by markets' favourable perception over the announcement of the government's intention to adopt necessary fiscal measures, by the first quarter of 2011 the relative risk assessment of Hungary showed signs of improvement once again, meanwhile market sentiment towards the CEE region has also improved markedly. Investors' improving perception and rising demand towards Hungarian assets was reflected in the state's successful US dollar denominated bond issuance in March 2011.

Chart 10
Relative risk assessment of Hungary

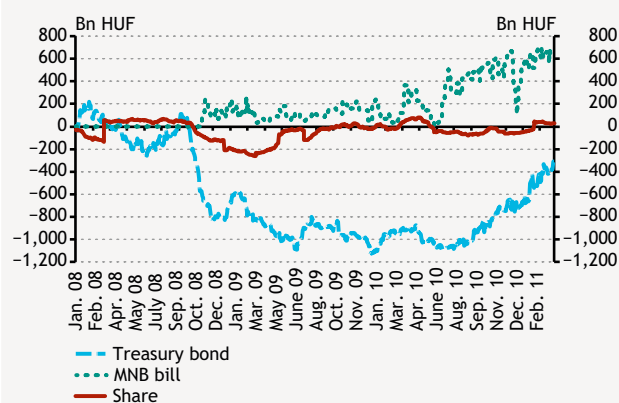


Note: 11 countries in the region: PL, CZ, SK, RO, CR, BU, SL, ES, LV, LT, RU.

Source: Thomson Datastream.

Chart 11
Forint financial assets held by non-residents

(changes in stocks from end-2007)



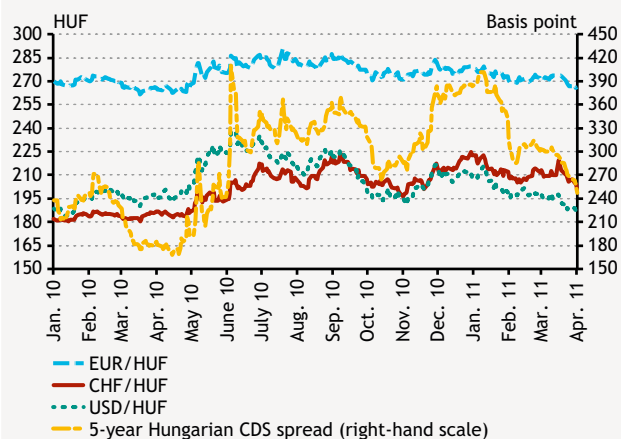
Source: MNB.

Although the external financing position of Hungary improved in 2010, non-resident investors required a higher risk premium for funding. During the first months of 2010 improving global risk appetite and investors' positive perception over the Central-Eastern European region led to a gradual decline in Hungarian risk premia (Chart 10). In the first 5 months of 2010 the 5-year CDS spread – the most reliable indicator of the sovereign credit risk premium – moved closely together with the composite index computed from the premia of neighbouring countries. The abrupt suspension of the IMF negotiations in Q3 led to a perceivable deterioration in the risk assessment of Hungary and consequently, Hungarian bond yields persistently reflected risk premium levels significantly higher than those observed in neighbouring countries. In December Hungary was downgraded by both Moody's and Fitch, and thus the sovereign foreign-currency debt rating of Hungary was lowered to the last investment-grade category (BBB-) by all three major credit rating agencies. In each case the outlook remained negative.

From the beginning of 2011 the risk assessment of the country has improved and risk premia have gradually declined. Despite last year's downgrading, risk premia have followed a favourable trend in recent months, reflecting primarily the positive expectations about Hungarian fiscal policy. At the beginning of March 2011 the government's announced its intention to adopt structural reforms, and the favourable market perception in relation to the announcement reinforced this positive trend. Finally, the successful US dollar bond issuance by the state also contributed to the decline in risk premia.

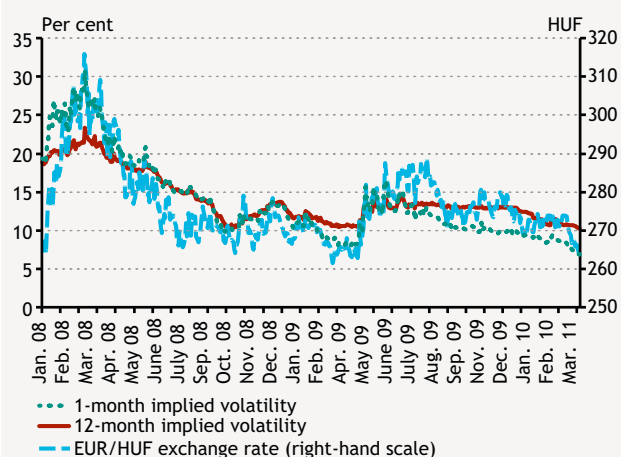
Amid great market interest, Hungary launched a successful US dollar denominated bond issuance in March 2011. As part of the programme, Hungary issued 10-year

Chart 12
HUF exchange rates and Hungarian CDS spread



Source: Thomson Datastream, MNB.

Chart 13
EUR/HUF implied volatilities



Source: MNB.

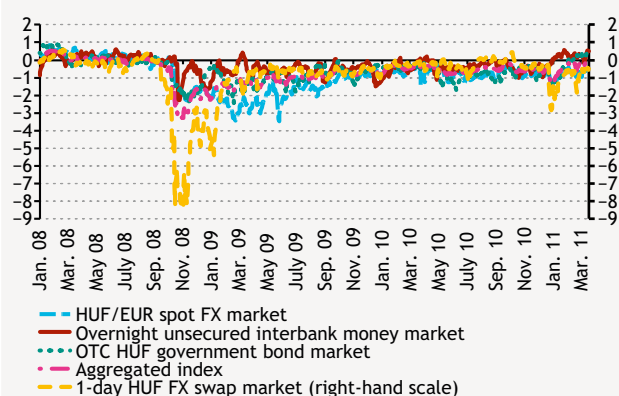
bonds and 30-year bonds priced at a spread of 310 and 330 basis points, respectively, over the comparable US government bonds. The issued amount was USD 3 billion in the case of the 10-year maturity and USD 750 million in the case of the 30-year maturity, representing a total borrowing of around EUR 2.6 billion. Given that the foreign currency denominated funding needs of Hungary amounts to EUR 4 billion, the bond issue financed nearly two-thirds of the country's needs for 2011. The affirmation of Hungary's credit rating and the healthy demand on its bond auctions may have contributed to these positive developments. From the third quarter of 2010 the holdings of forint-denominated government bonds by non-residents increased substantially, generating a continuous excess demand at auctions (Chart 11). Moreover, non-residents' holdings of central bank bills increased sharply from Q3 2010.

HUF/ CHF exchange rate is driven by the EUR/CHF cross exchange rate. The HUF/EUR exchange rate was relatively stable, while the forint exchange rate vis-à-vis the dollar and the Swiss franc was significantly more volatile than in 2009 (Chart 12 and Chart 13). As regards the exchange rate vis-à-vis the Swiss franc, the problems stemming from increased volatility were compounded by the strengthening of the Swiss franc. As investors' risk appetite declined during the more turbulent recent periods, the CHF appreciated not only vis-à-vis the forint but also against several developed currencies. This implies that financial markets may see an unusually pronounced appreciation of the Swiss franc as a safe-haven currency, should a more lasting wave of risk aversion materialise.

1.3 Apart from the FX swap market, the functioning of the Hungarian financial markets is undisturbed

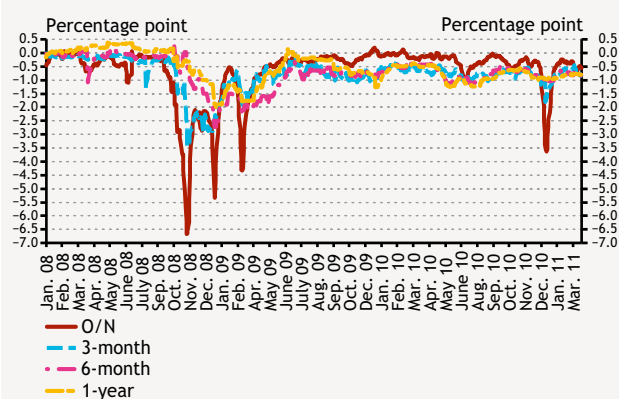
Over the past year major financial markets were not hit to such an extent as was observed at the end of 2008 or at the beginning of 2009, while their level of liquidity has approximated pre-crisis levels due to the steady improvement in Q1 2011. In the context of recovering global risk appetite and an increasing number of primary government bond dealers, the liquidity of the government security markets improved. Turnover has picked up in the unsecured interbank market; however, the number of participants remains low. The introduction of a flexible reserve requirement ratio in November 2010 and the weekly liquidity forecasts published by the central bank from September 2010 are aimed at improving liquidity in this specific market. Liquidity in the FX swap market still remains behind the pre-crisis level. Due to high risk premia of domestic banks and still tight counterparty limits, FX swap market spreads are higher than the pre-crisis level, contributing to higher funding costs for banks.

Chart 14
Aggregate liquidity index and its components
(exponential moving average)



Source: MNB.

Chart 15
Changes in the spreads on overnight, three-month, six-month and 12-month FX swap rates
(exponential moving average)



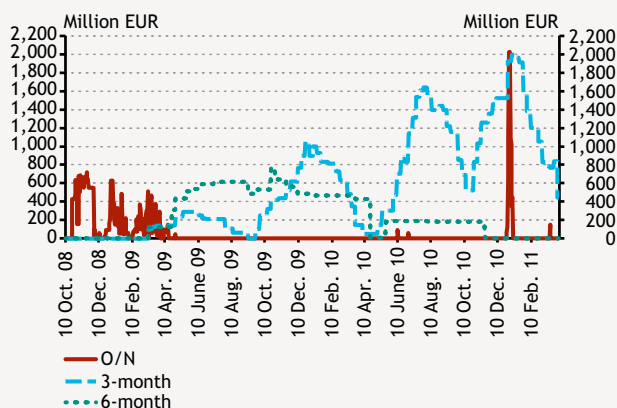
Note: Spreads show the difference between the swap implied interest rates and the forint interest rates with corresponding maturity.
Source: MNB.

The liquidity of major financial markets continued to improve slightly over the past year and approximated the pre-crisis average level. Over the past year major financial markets were not hit to such an extent as was observed at the end of 2008 or at the beginning of 2009. The average level of liquidity is already close to its pre-crisis level, as a result of significant improvement compared to the period of the crisis (Chart 14). Liquidity deteriorated on the FX swap and spot market, while there has been a significant improvement in the government securities and the interbank market.

Liquidity on the government securities market rebounded compared to its level 1-year earlier, and reached its long-term average seen prior to 2008. The most pronounced progress was observed from the beginning of 2011 in the context of increasing purchases by non-resident investors on the back of improving global sentiment. An increase in the number of primary government bond dealers with the new players' activity also had a positive contribution and strengthened the competition for investors. In addition to the liquidity index, accelerated turnover and the narrowing spreads of government securities market and interest rate swap yields all confirm the gradual recovery of liquidity. At some maturities the yield spread dropped to around 20 basis points which had been observed only prior to the crisis.

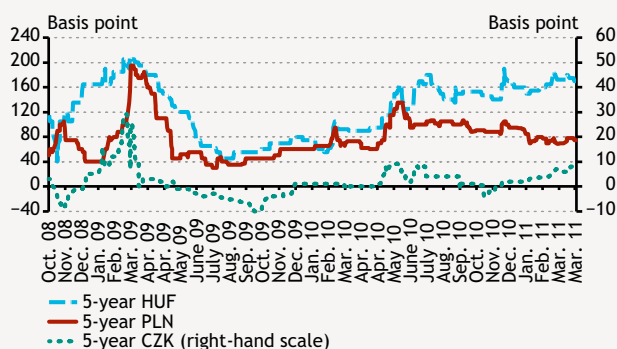
In contrast, foreign exchange swap spreads are yet to return to the pre-crisis levels. Over the past year the FX swap market implied forint yields remained considerably lower than the corresponding forint benchmark yields. Except for a brief period between the end of 2010 and the beginning of 2011 (see Box 1 for more details), this deviation was not pronounced in the overnight segment; however,

Chart 16
The central bank's portfolio of swap instruments



Source: MNB.

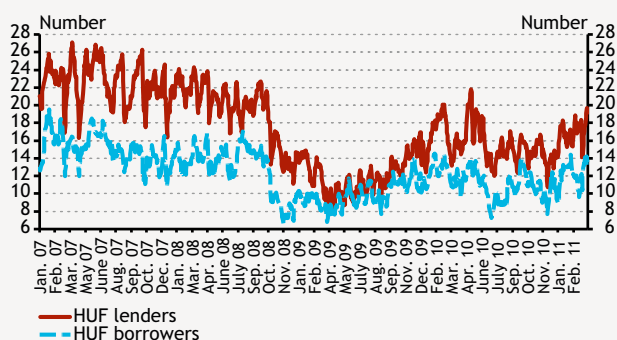
Chart 17
Spreads on Hungarian, Czech and Polish five-year FX-swaps



Source: Reuters.

Chart 18
Number of HUF sellers and buyers in the unsecured O/N interbank market on specific trading days

(exponential moving average)



Source: MNB.

moving within a range of 50-100 basis points, the spread remained above pre-crisis levels in the case of longer-term segments with a maturity of up to one year (Chart 15). Accordingly, central bank counterparties took repeated recourse to the central bank's three-month swap instrument, the outstanding amount of which was close to EUR 2 billion at the beginning of January (Chart 16). Yield spreads derived from long-term cross currency interest rate swaps remain persistently above 100 basis points and are considered high even in regional comparison (Chart 17). The spread on swap market for resident banks is primarily determined by high credit risk premia and tight partner limits. Although domestic participants in this market have access to a sufficient amount of foreign currency on long-term maturities, the associated costs are significantly higher than those prevailing before the crisis. Due to the high reliance of the domestic banking sector on the FX swap market, these developments can be considered adverse.

Turnover has picked up in the unsecured interbank market; however, the number of participants remains low. Owing to a growth in the average volume of transactions, from the end of 2010 and at the beginning of 2011, turnover in the unsecured overnight interbank market, where forint liquidity is reallocated, reached its pre-crisis long-term average in nominal terms. However, this conceals the fact that the number of participants offering liquidity in the market is only 13-16 parties on average, compared to 20-25 participants before the crisis (Chart 18). At the same time, the number of borrowers barely differs from that observed prior to the crisis. While nominal turnover is broadly consistent with its pre-crisis level, it is associated with less, albeit more active, liquidity providers. Several credit institutions continue to be particularly cautious, refraining from offering their excess liquidity on the market. As a result, recourse to the central bank's overnight deposit facility remained regular, although the volume of the recourse has declined in recent months. Regular recourse to the deposit facility continues to push the overnight interbank interest rates (HUFONIA) into the lower half of the interest rate corridor.

Changes in the central bank's instruments in the autumn of 2010 may have contributed to the increased turnover of the interbank market. Two major central bank amendments should be highlighted as measures aimed at assisting the liquidity management of market participants and at facilitating their activity in the interbank market. Firstly, as of November 2010 the central bank introduced a flexible reserve requirement ratio, allowing participants to individually decide whether to apply a ratio of 2, 3, 4 or 5 per cent. The new regime increases the efficiency of the reserve requirement system and the stability of the

interbank forint market by allowing credit institutions to select the most optimal ratio for their own liquidity management.¹ From 1 November 2010, 47 institutions from those required to hold reserves (186 institutions) selected a ratio of above 2 percent, thereby increasing the average ratio weighted by reserve required liabilities to 2.5 percent. Second major amendment is that as of September 2010 the central bank began publishing its liquidity forecast.²

Box 1

Turmoil in the foreign exchange swap market at the end of 2010

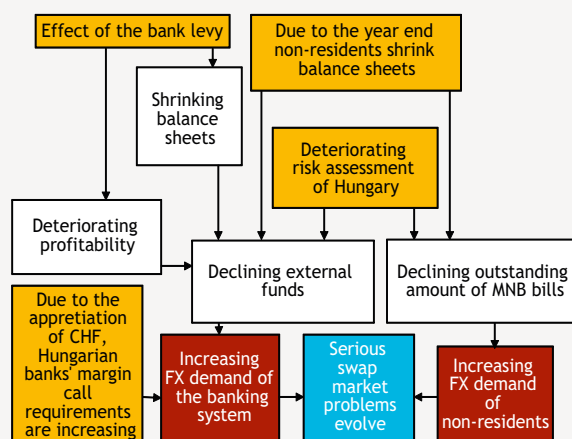
From the middle of December 2010 turbulences began to emerge in the overnight foreign exchange swap market. Market disturbances manifested themselves primarily in the one-day (O/N and T/N) maturity contracts and quotes, with declining bid-side swap point quotes entering the negative domain from the middle of the second week. Throughout these two weeks, tensions were more pronounced in the USD/HUF market; however, they also spilled over to the EUR/HUF market segment, albeit with less intensity. On 21 December the deviation of HUF-yields derived from swap contracts from the unsecured O/N interbank yield exceeded 100 basis points and, rising steadily throughout the following week, it jumped to above 500 basis points by 30 December. The last time the indicator stood at such a high level was in March 2009. The MNB-bills outstanding held by non-residents fell sharply during this period. Most of the resulting forint liquidity was converted to FX liquidity on the O/N FX swap market which, in turn, reduced the implied yield.

The swap market tensions can be directly attributed to the fact that all parties – including residents and non-residents – increased their foreign currency demand/forint supply in this segment, which tilted the market equilibrium. A combination of several factors contributed to the sharp increase in foreign currency demand.

As regards the behaviour of non-residents, two underlying reasons can be identified. On the one hand, reflecting the increased capital requirements on risky Hungarian assets, as well as an intention to reduce the tax base of the bank levy determined by the balance sheet total and “window-dressing” of the balance sheet presented in the annual reports, non-residents were trying to narrow their balance sheets in consideration of the approaching year-end. On the other hand, another contributing factor may have been the deteriorating risk assessment of Hungary, which was aggravated further by the downgrading of Hungary’s credit rating on two occasions in December. Based on the information available to the central bank, the end-of-year window-dressing of the balance sheet, in particular, the enhancement of the balance sheet structure may have been the most significant ones among these factors.

Both the deteriorating risk assessment and balance sheet shrinkage pointed to a downsizing of forint assets. The most dramatic downsize occurred in the outstanding amount of central bank bills held by non-residents. In the last three weeks of December this portfolio dropped to below HUF 200 billion from HUF 700 billion; moreover, following a one-off sale it stood at HUF 110 billion on 31 December. As regards non-residents’ forint-denominated deposits, the last days of December saw a HUF 200 billion decline in the outstanding amount.

Channels of evolving tensions



Source: MNB.

¹ For more details about the flexible reserve ratio of the MNB, see VARGA, L. (2010): “Introducing optional reserve ratios in Hungary”, *MNB Bulletin*, October 2010.

² For more details about the liquidity forecast of the MNB, see MOLNÁR, Z. (2010): “About the interbank HUF liquidity – what does the MNB’s new liquidity forecast show?”, *MNB Bulletin*, December 2010.

Non-residents traditionally obtain the liquidity required for the purchase of forint-denominated instruments through longer-term FX swaps with residents. Given that these FX swaps maturing later, after having downsized their forint deposits at the end of the year, non-residents began to roll over the forint liquidity on overnight FX swaps. They decided not to exchange their forint into foreign currency in the spot market because that would have opened their total open foreign exchange position on the one hand and, on the other hand, in the case of temporary asset downsizing intentions they would have been forced to make a reverse deal a few days later. Surging overnight swap market deals by non-residents generated an extraordinary foreign currency demand/forint supply in the FX swap market reaching HUF 600 billion, which surpassed even the levels seen in the autumn of 2008.

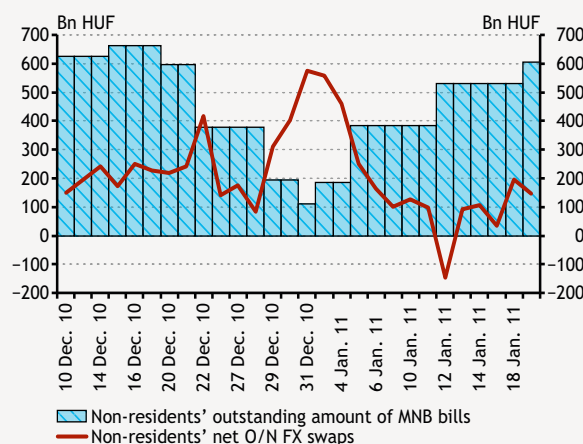
Foreign currency demand of residents also increased, as a result of a number of factors:

- Owing to the appreciation of the Swiss franc against the forint at the end of the year, the margin requirements of swaps heightened the foreign currency demand of the domestic banking sector.
- Throughout the month of December, the total external foreign currency liabilities of the domestic banking sector were declining. Between 30 November and 31 December the drop in external liabilities denominated in foreign currency exceeded HUF 800 billion. Scaling down the liquidity buffers, as well as the reallocation of parent bank funds to subsidiaries located in other countries within the region may have also contributed to the process.
- Domestic participants may also have been encouraged to downsize their end-of-year balance sheets in view of a longer-than-planned upholding of bank levy.

As overnight spreads widened, the overnight central bank EUR/HUF standing facility became increasingly attractive, and the facility was used steadily between 27 December and 6 January. The demand peaked on 31 December (at around EUR 2 billion). Since non-residents' forint supply dominated the overnight swap market during the period of turbulence, they were to suffer the biggest losses from the widening of the spreads.

After having gradually moderated from the beginning of January, the spread returned to the levels observed in previous months and moved within the range of 0-50 basis points. Following the accounting day at the end of the year, in the first days of January the non-residents restored their MNB-bill portfolio, and at the same time appeared in the FX swap market with a foreign currency supply. Accordingly, the implied yields returned to their normal levels and the tensions disappeared.

MNB-bills outstanding and net O/N FX swaps of non-residents



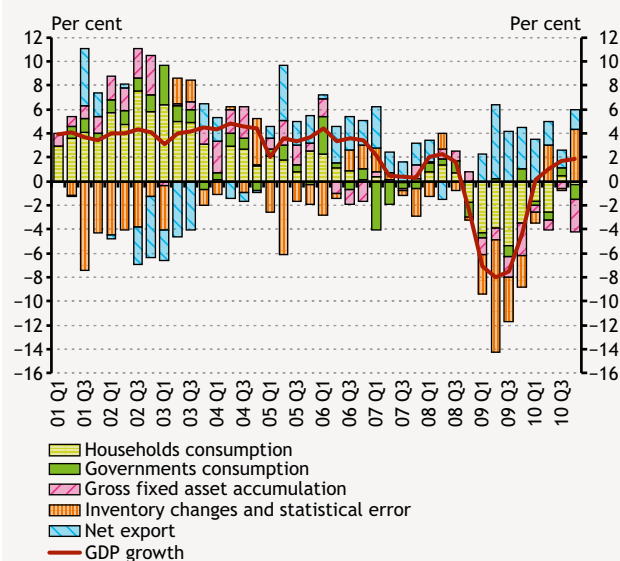
Source: MNB.

1.4 Over the short term, economic growth may pick up in Hungary with the high external debt level declining slowly

The recovery of the Hungarian economy has continued in recent quarters. Growth is driven by exports, while household consumption and investment could only have bottomed out. As the improvement in labour market conditions follows the developments in economic activity with a lag, only a slight pick-up is expected in domestic demand. Economic growth may reach 3 per cent both in 2011 and 2012. Assuming unchanged monetary conditions, inflation will be around the 3 per cent central bank target by the end of the two-year forecast horizon. Driven by the net savings accumulated in the private sector, Hungary may retain its external financing capacity in the coming years. While income levels may increase considerably, domestic demand may revive slowly and investment activity may remain subdued. Owing to a substantial external balance surplus, Hungary's net external debt to the GDP has stabilised and may begin to decline slowly.

Chart 19

Decomposition of the annual change in GDP

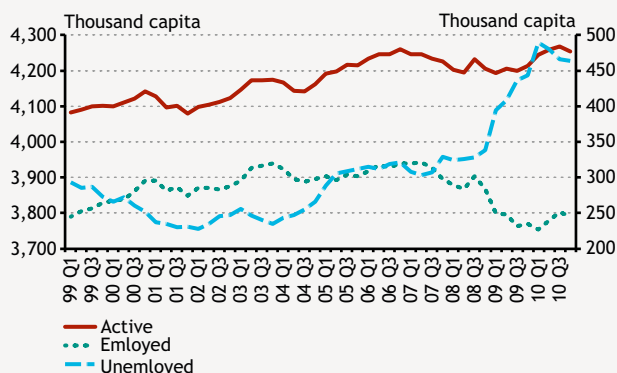


Source: CSO and MNB.

In 2010 the Hungarian economy recovered from the recession. Although the economy returned to a growth path in 2010, the outlook remains heterogeneous and fragile. The growth is driven by exports taking advantage of favourable external conditions, while domestic demand continues to be subdued (Chart 19). Although in the first half of 2010 households' consumption demand appeared to improve, reflecting a moderation in inflation and stabilisation in the labour market, it faltered at the end of the year on the back of a temporary decline in households' real income. In 2011 a substantial increase is expected in disposable income. However, given the higher inclination to save this will not boost consumption considerably. In the context of tight credit conditions and weak demand, investment by firms declined further throughout 2010, except for a few major investment projects in the industrial sector. Since firms may increase their capacity utilisation further in 2011, they may not need to expand their production capacities significantly. This translates into a subdued acceleration in investment this year.

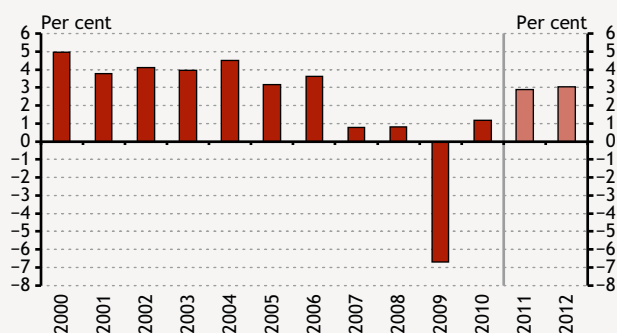
Disposable income of households may increase perceptibly in 2011. At the end of 2010 the real income of households was dampened by a temporary deceleration in employment growth. As a result of amendments in personal income taxation, firms postponed the disbursement of year-end bonuses, while the pass-through of global commodity prices accelerated inflation. In 2011 employment may expand gradually; however, the growth observed in the activity rate in recent years is also expected to continue, resulting in persistently high unemployment rate. In the context of a persistently slack labour market environment (Chart 20), gross wages may grow at a moderate rate, which in turn may contribute to the revival of the corporate

Chart 20
Main labour market indicators



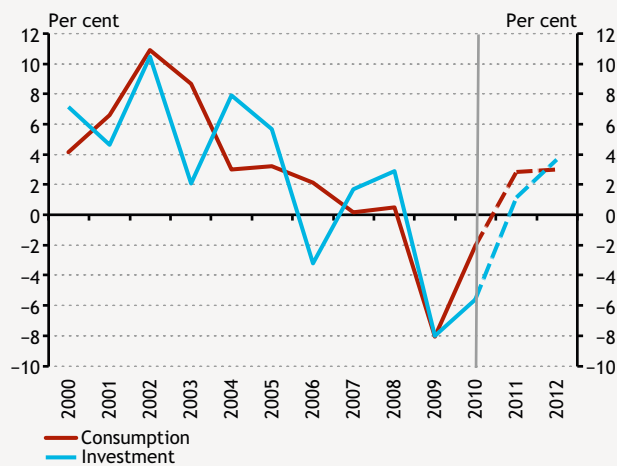
Source: CSO and MNB.

Chart 21
Projected annual changes in GDP



Source: CSO and MNB.

Chart 22
Consumption and investment forecast



Source: CSO and MNB.

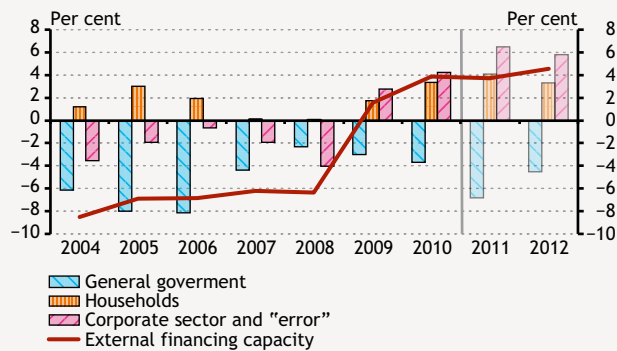
sector's profitability. The restrained increase in gross wages is supported by the reduction of personal income taxes in 2011 and accordingly, compensation-type wage increases are expected only in relation to employees adversely affected by the tax changes, i.e. those in the lower wage brackets, while the wage increases will be rather moderate for those in higher wage brackets. The disbursement of the real returns on mandatory private pension fund also points to an increase in disposable income.

Growth is expected to be more vigorous over the short term. According to the March forecast of the central bank, GDP growth will be dynamic throughout the year; however, the adopted government measures will put a halt to this accelerated growth in 2012 and a growth of around 3 per cent is expected for both years (Chart 21). Over the short term, both exports and internal demand may be stronger than expected, while household consumption in 2012 will be inhibited by the expected cutbacks in welfare benefits and government expenditures (Chart 22). The most important external factor posing risk to the economic growth is the debt crisis of the euro area, which could also be accompanied by the renewal of the interbank confidence crisis. In addition, domestic banks' tight credit supply constraints should be pointed out as the main internal risk factors. (For more detail, see Chapter 2.1 and Chapter 2.6).

Inflation trends exhibit a duality. The duality observed in inflation trends at the end of 2010 is expected to persist. Rising global oil and food prices exert a strong inflationary pressure, reflected in the prices of items outside of core inflation in the first round; however, they may subsequently pass through to core inflation. In contrast, persistently slack labour market conditions and weak internal demand put a downward pressure on inflation. As a net result, we expect inflation to rise in the short term; however, assuming unchanged monetary conditions, the consumer price index may meet the central bank's inflation target of 3 per cent by the end of 2012.

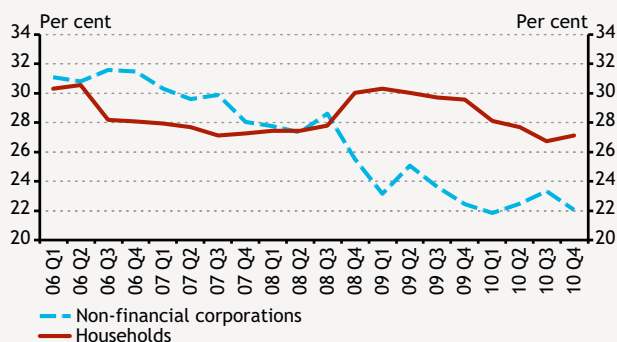
In 2010 the external financing capacity of the economy continued to grow at a higher-than-expected rate. After having achieved a surplus in 2009, the external financing position remained stable throughout 2010. As for the whole year, the net savings of the economy increased further and reached 3.9 per cent of GDP (Chart 23). The improvement in the external financing position can be primarily attributed to fundamental factors. Indeed, the favourable external environment generated a dynamic upswing in exports, which surpassed the growth in imports. Moreover, sector specific windfall taxes imposed in the middle of the year also contributed to the increased savings of the economy. In particular, while these taxes improved the general

Chart 23
Selected sectors' net financing capacity to GDP



Note: The external financing capacity is the sum of the current account balance and the capital account balance.
Source: MNB.

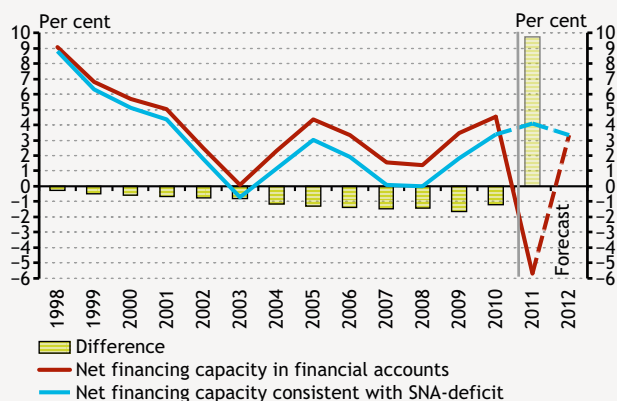
Chart 24
Ratio of individual sectors' bank deposits to total financial assets



Source: MNB.

Chart 25
Household savings excluding official and pension fund transactions (SNA-consistent)

(as a percentage of GDP)



Source: MNB.

government balance, they deteriorated the income position of non-residents, given the high share of foreign ownership. At the same time, EU transfers improved the financial position of domestic agents even further.

The expansion observed in the net savings of the economy was fuelled primarily by the net loan repayments of the private sector. In 2010 the borrowing of households and firms continued to decline with net borrowing increasingly determined by loan payments (net loan payments by these sectors amounted to 1.1 per cent and 3.6 per cent of GDP, respectively). (For further details about local government indebtedness see Box 2).

The share of bank deposits decreased in the total financial assets of households and increased in the portfolio of firms. In 2010 the financial assets of households grew by 3.3 per cent of GDP. While this figure falls behind the levels observed prior to the crisis, it did not result in further moderation compared to 2009. As regards the portfolio structure of households, it reflects shifts from bank deposits to riskier mutual fund shares and, to a lesser degree, equities (Chart 24). Thus the general shift to bank deposits observed in the initial phase of the crisis reversed. It should be stressed that changes in the pension fund system resulted in a HUF 90 billion shortfall in households' savings in the fourth quarter of 2010. Looking ahead, the accounting implications of this measure will continue to have a significant impact on households' savings figures. The accumulation of firms' financial assets declined further relative to 2009; however, the share of bank savings increased in their portfolio.

As a result of amendments in the private pension scheme, the net financing capacity of households declines. Households' savings are being depleted by the transfer of pension wealth amounting to HUF 2,800 billion – nearly 10 per cent of GDP – by those returning from private pension funds to the state system (first pillar) and at the same time, the general government balance is improving (Chart 25). Consequently, the net financing capacity of households will turn markedly negative in Q1 2011 in the financial accounts and, owing to lost transactions, this figure may remain below its previous levels even in the coming quarters (for further details about the subject, see Box 5-1 in the March issue of the Report on Inflation).

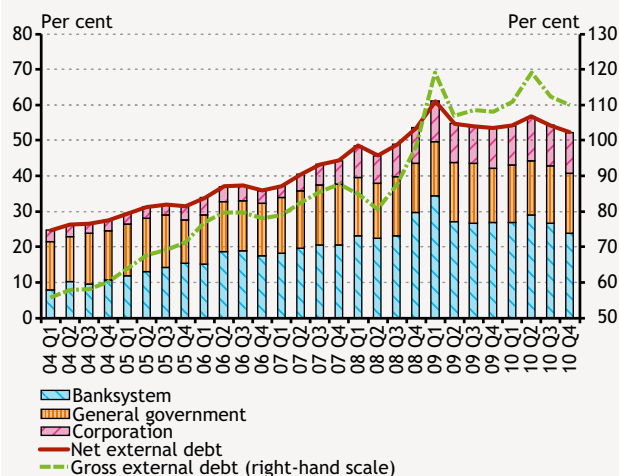
Amid slowly recovering domestic demand and a consistently favourable external environment, the economy may retain the external financial surplus in the coming years. The simultaneously expanding imports and exports may result in persistently high net export levels, in which the likely improvement in the performance of car exports may also be reflected. The economic recovery will

Table 1
External financing capacity as a per centage of GDP

	2007	2008	2009	2010	2011	2012
	Fact/Preliminary fact				Forecast	
1. Balance of goods and services	0.9	0.4	5.1	7.2	7.3	8.1
2. Balance of income	-7.3	-7.1	-5.1	-5.5	-6.1	-6.5
3. Balance of current transfers	-0.5	-0.6	0.4	0.4	0.2	0.4
<i>I. Current account (1+2+3)</i>	-6.9	-7.3	0.4	2.1	1.4	2.0
<i>Current account in bn EUR</i>	-7.0	-7.8	0.3	2.0	1.5	2.3
<i>II. Capital account</i>	0.7	1.0	1.2	1.8	2.3	2.5
External financing capacity (I+II)	-6.2	-6.4	1.6	3.9	3.7	4.6

Source: MNB.

Chart 26
External debt indicators
(as a percentage of GDP)



Source: MNB.

increase income outflows and moderate the external position. Indeed, the profit outflow of firms in foreign ownership may begin to hike as early as this year (Table 1). As was the case in 2010, baseline economic developments may result in substantial private sector savings. While the disposable income of households is expected to increase sharply, precautionary considerations may also elevate savings rates. Turning to the corporate sector, in spite of improving profitability and a persistently high inflow of EU transfers, investment activity is likely to remain subdued.

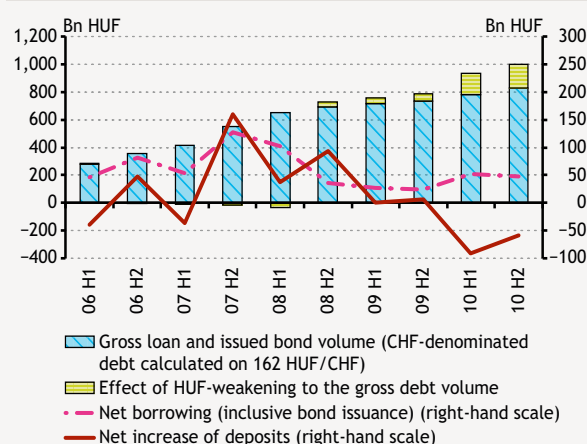
So far, the outflow of external funds has not been reflected in external debt developments. The outflow of funds observed parallel to the external financing capacity was primarily reflected in the decline of debt liabilities, in particular banks' liabilities. However, debt rates have not been able to decline materially in the period since the onset of the crisis. This is because the impact of the outflow of funds on the debt level was offset by the depreciation of the forint exchange rate. As regards the foreign currency composition of net external debt, 80 per cent of the debt is composed of currencies other than the forint, the majority of which is denominated in euro. At the end of the fourth quarter of 2010 the gross external debt of Hungary amounted to 110 per cent of GDP, while net external debt stood at around 52 per cent (Chart 26). These values are still high in international comparison. In line with the expected endurance of the external financing capacity, external debt is expected to decline slowly.

Box 2
The Indebtedness of local governments

In 2010 the expected cash deficit of the local government system reached 0.9 per cent of GDP as opposed to the expected 0.6-0.7 per cent, which contributed to the deviation of the general government deficit from the 3.8 per cent target. On the one hand, the higher-than-expected deficit of the municipality sector stemmed from a decline in budget transfers to local governments, and, on the other, it can be attributed to the fact that in 2010 local governments depleted their bank deposits that they accumulated during the bond

issue boom in 2007–08. In the second half of 2007 and the first quarter of 2008 local governments issued a substantial amount of CHF denominated bonds amounting to HUF 200 billion. This indebtedness was mainly in the form of bonds due to technical reasons (public procurement procedures could be thus circumvented), and in most cases these bonds were underwritten by the banks organising the issuance. Typically, the bonds issued were denominated in Swiss franc. As opposed to the private sector, local government borrowing did not come to a halt after the outbreak of the crisis, and the outstanding amount of bonds and loans of local governments denominated in foreign currency increased further by HUF 65 billion and HUF 120 billion, respectively, since October 2008 (adjusted for exchange rate effects). By the end of 2010 banks' exposure to municipalities exceeded HUF 1,000 billion, accounting for 5 per cent of total bank loans.

Local governments' debt and deposits in the banking system



Source: MNB.

In the local government system a substantial unhedged CHF position had built up: at the end of 2010 60 per cent of municipalities' indebtedness vis-à-vis the banking sector (loans and bonds) was denominated in foreign currency. As a result of the strengthening of the Alpine currency, the total indebtedness of the sector had increased by over HUF 100 billion since the beginning of 2009. It should be stressed, however, that, contrary to the unilaterally changeable interest rates on loans to households, the interest rates on local government bonds are pegged to the CHF-LIBOR rate, and thus the reduction of the Swiss policy rate at the end of 2008 partly offset the negative impact of the appreciation of CHF on the monthly instalments of municipalities.

Municipalities did not spend a considerable share from the 2007–08 bond issue boom immediately, but deposited the funds to HUF denominated bank accounts. They withdrew the funds from these deposits in 2010 due to increased expenditures. The higher spending of local governments increased the current government deficit by around 0.2-0.4 per cent of GDP in itself.

The sustainability of municipality debt has recently come to the forefront again. Indeed, the credit quality of municipality exposure (loans and bonds) to the banking sector deteriorated in 2010: at the end of the year, the loss provisions to the total portfolio reached 0.7 per cent, compared to practically zero at the end of 2009 and the preceding years (although this portfolio deterioration is significantly slighter in magnitude than that observed in the case of household and corporate loans). Provisioning had to be stepped up because of the impaired solvency of some local governments. Credit risks are further aggravated by the fact that a large portion of municipality bonds were issued with a few years grace period, during which the borrower pays interest only, without servicing the principal. Once the grace periods expire, monthly instalment burdens increase which, according to our estimates, may increase the expenditures of local governments by up to HUF 25-30 billion at the system level in the coming years.

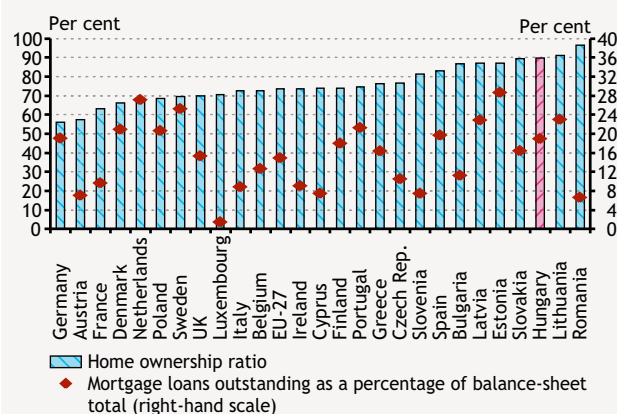
As such, the indebtedness of the municipality system continues to represent an upside risk both to the general government balance and to the portfolio quality of banks. In the near future, therefore, the sustainability of municipalities' indebtedness should be analysed in depth. To this end, conducting a systemic data collection of the contingent liabilities of local governments (e.g. PPP investment projects) would be essential, given that these financing schemes are practically equivalent to borrowing and imply a great deal of financial burden for some local governments. That notwithstanding, data about these liabilities are not available at the system level. Moreover, as the current regulations are ineffective and allow for substantially higher indebtedness than nowadays, the statutory limits of municipality indebtedness may have to be reconsidered as well.³

³ It was in September 2008 that the authors of the MNB addressed the sustainability of local government indebtedness (to banks) in a published analysis for the last time. The majority of the statements in that article fundamentally hold true even today. HOMOLYA, D. AND G. SZIGEL (2008): "Lending to local governments: risks and behaviour of Hungarian banks", *MNB Bulletin*, September 2008.

1.5 The domestic housing market is characterized by low transaction volume, the commercial real estate market by a high vacancy rate

As regards residential property, both the pre-crisis surge and the post-crisis drop in prices can be considered moderate in international comparison. This is primarily due to the fact that no real estate price bubble had developed in Hungary prior to the crisis. At the same time, significant risks built up in housing prices in relation to the accumulating stock of residential properties awaiting collateral enforcement on the back of the foreclosure and eviction moratorium. In the commercial real estate market the funding of the pre-crisis construction boom increased banks' exposure significantly to this segment. As a result of the economic downturn, the number of vacant office buildings has surged, resulting in a high vacancy rate in terms of both level and growth in international comparison. Banks strive to either postpone writing off the losses or minimise write-offs via restructuring. Unless the commercial real estate market improves significantly parallel to a marked rebound in economic growth, banks will face severe losses.

Chart 27
Home ownership ratio and mortgage loans as a percentage of balance-sheet total in international comparison

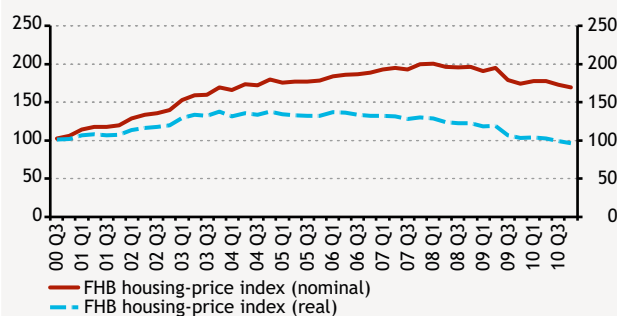


Source: Eurostat, ECB, European Mortgage Federation, CSO.

Moderately declining housing prices; sharply falling transaction volume

The banking sector has accumulated a substantial residential property exposure through mortgage lending. The home ownership in Hungary amounts to 90 per cent of the total stock of residential property; one of the highest figures in Europe (Chart 27), which contributed to the fact that the surge in households' lending was dominated by mortgage lending. In the domestic banking sector the ratio of mortgage loans to total private sector loans has grown to 45 per cent by the end of 2010, compared to 4 per cent at the beginning of the 2000s. Consequently, the banking sector has accumulated considerable indirect exposure to the housing market. Through the devaluation of collateral, the decline in housing prices may increase loan losses and at the same time, may reduce potential new mortgage loan disbursements through lower collateral values.

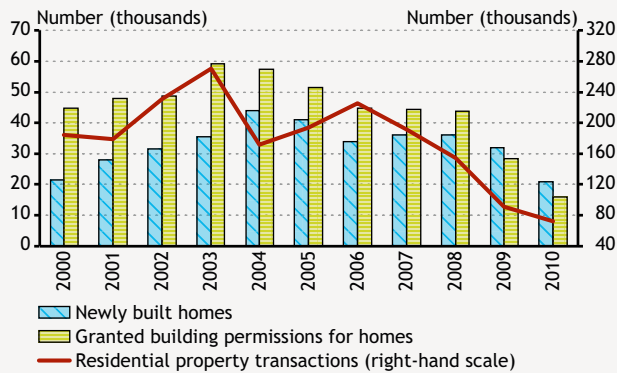
Chart 28
The FHB housing price index
(2000=100)



Source: FHB.

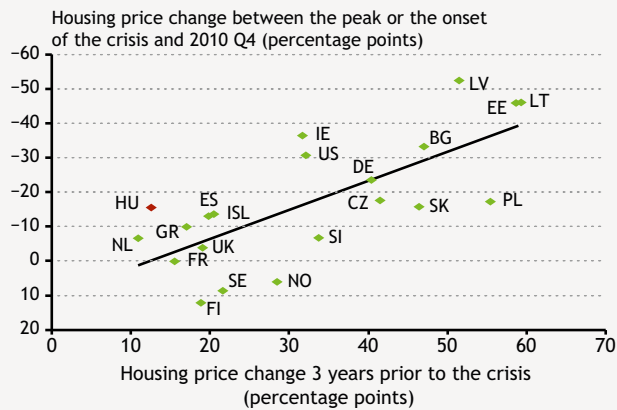
Housing prices have declined steadily since the onset of the crisis. Housing prices rose steadily from the 2000s until the beginning of the crisis, but there was no real estate bubble in Hungary. This primarily reflected the fact that the surge in foreign currency dominated mortgage lending mainly financed a consumption boom. As the crisis set in, housing prices started to plummet as well, falling by 11 per cent in 2009 and 3 per cent in 2010 (Chart 28). However, in real terms - deflating the housing price index by the consumer price index -, housing prices have stagnated since 2003 and declined since 2007. Although, real estate bubble did not develop in Hungary before 2008, the decline in real estate prices may accelerate in future, as significant tensions have built up in relation to the accumulating stock of real estate awaiting collateral enforcement on the back

Chart 29
Relevant residential property market indicators in Hungary



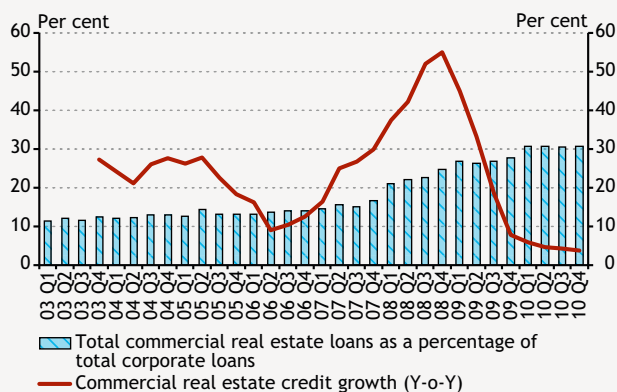
Source: CSO, FHB.

Chart 30
Changes in nominal real estate prices in international comparison



Source: BIS, FHB.

Chart 31
Developments in commercial real estate lending



Note: Credit growth is adjusted for exchange rate effects; four-quarter moving averages.

Source: MNB.

of the foreclosure and eviction moratorium. Housing prices may decrease significantly by a flood of repossessed residential properties and the resultant substantial excess supply. (For more details, see Box 7).

Amid a moderate drop in prices there is a sharp decline in transaction volume and constructions. The number of residential property transactions and home constructions has fallen sharply since the outbreak of the crisis. Last year the number of residential property transactions barely passed 70,000, i.e. half the number of transactions in the year preceding the crisis (2008).⁴ The plummet in transaction volumes was broadly the same size in different segments, thus settlement types, regions and price categories were almost equally affected. The drop in prices in specific regions did not necessarily correlate with the fall in transaction volume, but rather with the depth of the market (number of transactions/total number of homes). The number of new homes completed in 2010 dropped to its lowest level since 2000 and totalled 20,000 compared to 30-40,000 recorded for the remaining years in the decade (Chart 29). The situation was even worse in the case of the number of building permits issued. In 2010 16,000 building permits were issued; barely half of those issued in 2009.

The fall in Hungarian housing prices is moderate in international comparison. In many cases financial crises were accompanied by bursts in the real estate market, resulting in a significantly more severe and protracted economic downturn and a slower recovery process. In the past, one fourth of all recessions were combined with a property market burst, bringing about a 30 per cent decline in real estate prices on average and lasting for an average of four years.⁵ Although the current global crisis originated from the subprime mortgage market of the United States, the economic recession spilled over to other economies leading to a sharp fall in housing prices there (Chart 30). At the same time, Hungarian housing prices have dropped by only 13 per cent in nominal terms, which is considered moderate in international comparison. In general, price adjustments were generally stronger in the countries which had seen a steep rise in prices preceding the crisis, i.e. where a price bubble had developed.

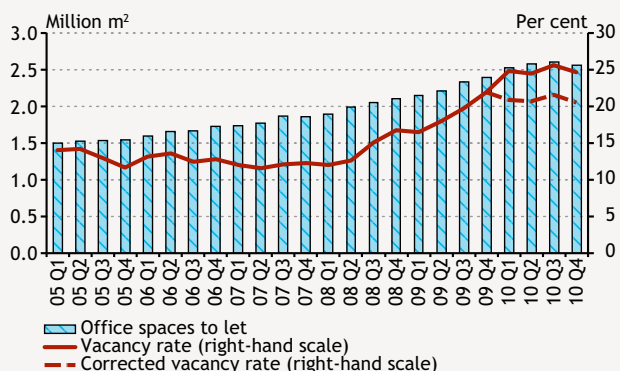
High vacancy rate in the commercial real estate segment

Prior to the crisis Hungary saw a boom in commercial real estate investment, particularly in the office segment. In the office segment, office space to lease has doubled

⁴ In 2010 the total transaction volume of the housing market was around HUF 750 billion.

⁵ CLAESSENS, S., M. A. KOSE AND M. E. TERRONES (2007): "What Happens During Recessions, Crunches and Busts?", *IMF Working Paper*, No. 274.

Chart 32
Vacancy rate and office space to let

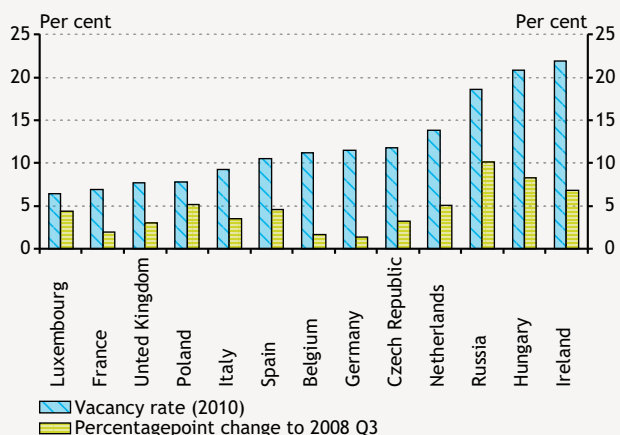


Note: The adjusted vacancy rate includes modern buildings owned by occupants.
Source: CB Richard Ellis.

since 2003, meanwhile banks' exposure has increased significantly as well. The ratio of commercial real estate loans to the non-financial corporations rose to 30 per cent from 10 per cent, half of which is related to office buildings (Chart 31). Credit growth surged to 40-50 per cent just before the crisis. During the recession followed by the financial crisis, demand for office buildings plummeted sharply. As a result, the vacancy rate rose to above 20 per cent from 12 per cent. Looking at only properties to let, i.e. excluding the "built-to-suit" buildings owned by occupants, this percentage is 25 per cent (Chart 32).

Soaring vacancy rates notwithstanding, the decline in capital value and rents is not significant. The vacancy rate can be considered high in international comparison. It should be noted that the natural vacancy rates in the commercial real estate segment are very different from country to country; however, the percentage point change observed in Hungary since the outbreak of the crisis is one of the highest in Europe (Chart 33). This notwithstanding (in the case of prime and non-prime office buildings), the 10-12 per cent decline in rents is fairly average, and even the 23 per cent drop in the capital value of prime office buildings cannot be considered outlier.

Chart 33
Vacancy rate in the office segment



Source: Jones Lang LaSalle.

2 Stability of domestic financial intermediary system

As opposed to our previous expectations, both corporate and household lending fell sharply in 2010. The contraction in corporate lending can be mainly attributed to credit supply constraints. Banks' strong pro-cyclical behaviour and signs of credit rationing pose a problem especially for small and medium-sized companies as they lack alternative funding sources. Banks' low risk appetite could be offset efficiently by the government's guarantee programmes in the short run. In the long term, however, the banks' balance sheets and thereby their willingness to lend should be strengthened.

In addition to the strict supply side regulation, demand constraints are also pronounced in the household segment. Subdued household credit demand can be attributed to unfavourable labour market conditions, the increased debt service burden due to the strong Swiss franc and high indebtedness. In 2011 tax reductions and the disbursement of the real returns on the private pension fund savings will boost the disposable income of households. However, households are not expected to increase markedly their credit demand due to their precautionary considerations. Overall, this may suggest that lending may only reach its turning point in 2012 in this segment, even later than in the corporate sector.

Owing predominantly to restructurings and write-offs, the deterioration in the portfolio quality of the banking system decelerated in the course of 2010. The cost of provisioning in the corporate sector did not change materially in 2010, while in the household sector it increased slightly. Our baseline scenario points to further deceleration in the portfolio quality deterioration, which should bring about a decline in costs of credit risk. Upside risks are posed by the portfolio quality of commercial real estate financing in the corporate segment and by the performance of restructured loans in the household segment. If macroeconomic and financial market conditions do not improve significantly, banks may face severe losses after the grace periods expire. Restructured loans may become defaulted on a mass scale, and there may be a rise in the ratio of non-performing household loans and in loan losses. As banks currently are unprepared for such a scenario, provisioning practices on restructured loans should be reviewed and tightened if necessary.

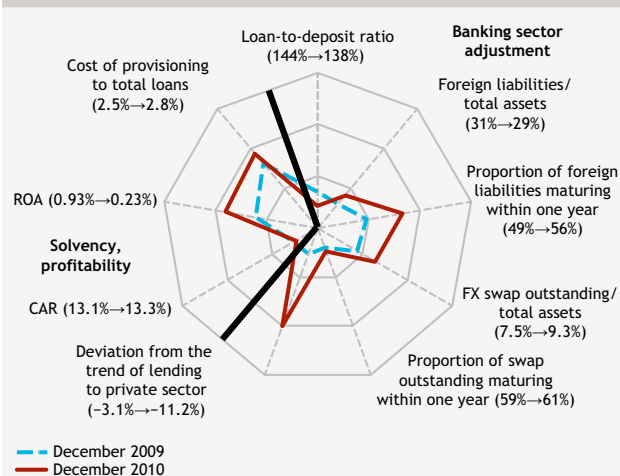
Another challenge is how to address the moratorium on foreclosures and evictions. If upheld in the long run, the moratorium will escalate hidden risks as the number of residential properties backing non-performing loans increases. Moreover, the moratorium caused uncertainty regarding the legal enforceability of the real estate collateral behind mortgage loans, thereby reducing the value of mortgage loan collaterals. In addition, the moratorium had an adverse impact on debtors' willingness to pay. The moratorium should be lifted completely as soon as possible; otherwise the accumulation of tensions would escalate further. At the same time, it is clear that lifting the moratorium could also trigger undesirable market reactions. After the moratorium has been lifted, the flood of repossessed properties backing non-performing loans for sale and the resultant fall in housing prices may increase risks to financial stability and entail a weaker economic outlook. Thus MNB welcomes any coordinated measures aimed at the gradual cleanup of the portfolio and the prevention of real estate market shocks.

The short-term liquidity position of the banking system is stable. However, in respect of the long-term liquidity situation, a significant increase in risks can be observed. Parallel to the deleveraging of the banking system, 2010 saw substantial outflows of external funds. That notwithstanding, the reliance of the financial intermediary system on external funds remains high in international comparison. Vulnerability is exacerbated by the fact that the shortening of remaining maturities of external debt is the fastest in the region. The shortening is fundamentally driven by cost minimising considerations; in other words, by the relative costliness of borrowing at longer maturities. The banking system currently is not inclined to narrow the maturity mismatch, which may eventually necessitate stronger balance sheet adjustment in the future. For this reason, banks should place emphasis on risk considerations over cost minimization.

In 2010 the profitability of the banking system deteriorated significantly, while the previously observed asymmetry among banks grew further. At the same time, the worsening is fundamentally attributable to the bank levy. In order to maintain the profitability of banking operations, banks partly passed on the increase in loan-loss provisioning and funding costs to their well-performing clients. Windfall taxes imposed on the banking system weaken internal capital accumulation and consequently reduce their ability to attract additional capital and funds which, in turn, may restrict banks' willingness and ability to lend.

The capital adequacy of the banking sector is sufficient. Owing to the decline in lending activity and the capital injections, the capital adequacy ratio (CAR) increased. At the same time, the intensified ICAAP-SREP dialogues concluded with significantly higher minimum capital requirements. Combined credit and market risk stress tests, as well as the short-term liquidity stress test, indicate the sufficient shock-absorbing capacity of the banking system. In the event that an extreme macroeconomic and financial market scenario materialises, there would be a need to raise additional capital in the amount of HUF 83 billion. This could be sufficiently covered by parent bank commitments and the HUF 300 billion capital enhancement fund earmarked by the government.

Chart 34
Evolution of key risk indicators between December 2009 and December 2010



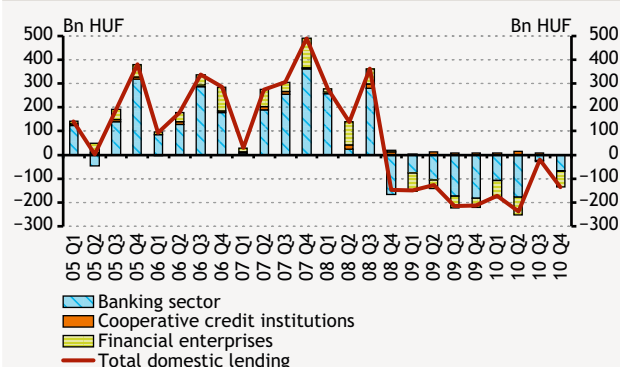
Note: Sizes scaled between the range of 0 and 1, the minimum and maximum values between early 2005 and December 2009. In terms of the specific risk indicators on the chart, points closer to the centre of the chart indicate lower risk. The credit gap is the deviation of the private sector's domestic loan portfolio from the HP trend, divided by the current loan portfolio. This indicator describes the cyclicity of the loan portfolio. The centre of the web chart indicates zero deviation from the trend. The higher the positive or negative credit gap, the bigger the risk.

Source: MNB.

2.1 Developments in the private sector lending do not show a turnaround

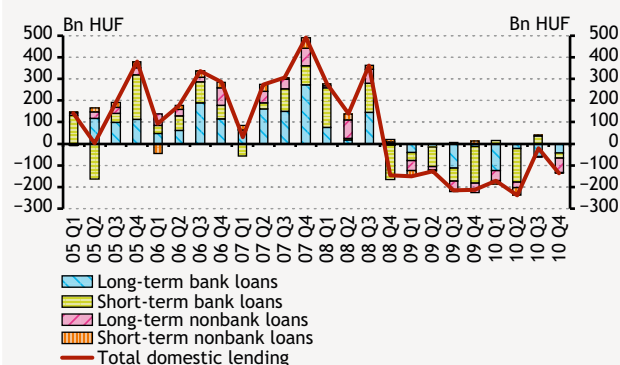
Lending to the private sector did not show signs of recovery in 2010. Although the economy recorded positive growth thanks to the rebound in export-oriented sectors, corporate lending continued to decline. While the demand for investment loans remains weak, there is strong demand for working capital loans on the part of SMEs. As regards credit supply, due to the low risk tolerance banks tightened credit scoring criteria and are financing only more creditworthy clients (credit rationing). The financing conditions of small and medium-sized enterprises facing tight credit supply can be improved by government guarantees in the short term. In the household segment, in addition to the supply constraints induced by the existing regulations, demand constraints are far more pronounced. Subdued household credit demand can be attributed to the still high unemployment and to adjustment of households' balance sheets as a result of excessive indebtedness and the high monthly instalments resulting from the strong Swiss franc. Looking ahead, the recovery in lending is expected to be delayed in both the corporate and the household segment. While corporate loans outstanding may start to expand from the end of 2011, household loans are not expected to improve before 2012. This implies an increased probability of a "creditless economic recovery".

Chart 35
Net change in loans outstanding to non-financial corporations from domestic financial intermediaries



Source: MNB.

Chart 36
Net increase of loans to non-financial corporations broken down by maturities



Source: MNB.

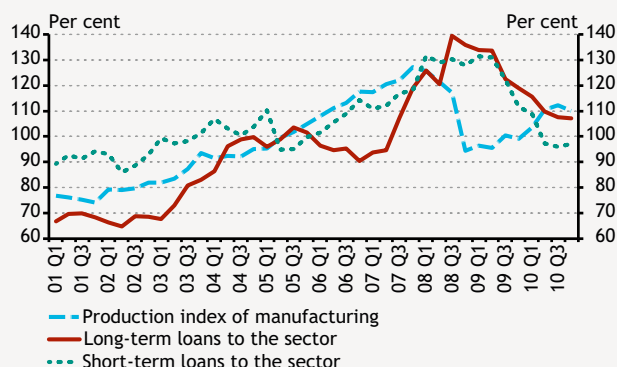
Credit supply constraints hamper turnaround in corporate lending

As opposed to our previous expectations, the turnaround in corporate lending is delayed further. Despite the turning point reached by the economy, lending to the corporate sector continued to decline in 2010 (Chart 35). The decline, which amounted to nearly 6 per cent, predominantly related to the banking sector and financial enterprises. Co-operative credit institutions were able to increase their corporate loan portfolios, albeit only in a slight degree. The total borrowing of firms from non-residents also declined in 2010, meaning that firms did not substitute diminishing funds from domestic sectors by external funding. This may imply that large corporations increasingly resorted to internal cash-flow financing. This can be explained by two factors. On the one hand, firms were engaged in systematic deleveraging; on the other hand, the boost in exports contributed to the improving performance of the Hungarian economy and to increasing revenues.

The decline in short-term loans points to credit supply constraints. The contraction primarily affected foreign currency loans, while two-thirds of the decline was related to long-term loans (Chart 36). The downturn in long-term lending primarily reflects the reduced investment activity of firms. It is surprising, however, that the outstanding amount of short-term loans is contracting as well. Typically these loans are for working capital and tracking the production cycles more closely. Thus the contraction in short-term loans points to the existence of credit supply constraints. This phenomenon makes financing difficult for

Chart 37
Changes in the production and loans outstanding of the manufacturing sector

(2005=100 per cent)



Source: CSO and MNB.

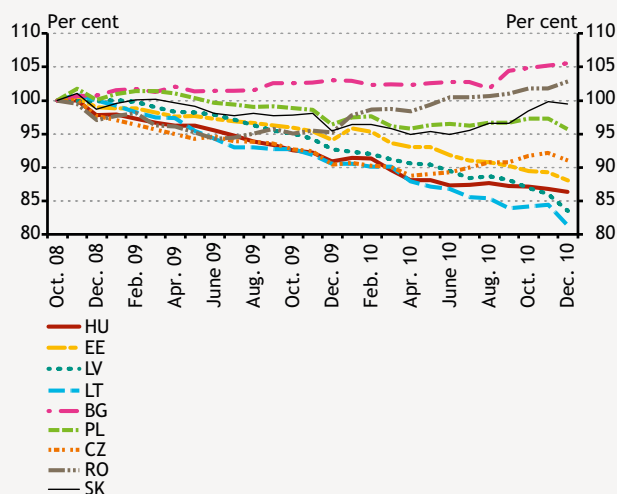
SMEs since the lack of internal funds, they are largely reliant on the working capital loans of domestic banks.

Demand for investment loans may pick up in the manufacturing sector. While production accelerated fairly significantly in the manufacturing sector in 2010, lending declined further, albeit at slower pace (Chart 37). In 2010 firms did not expand considerably their otherwise unutilised capacities; however, parallel to the upturn in economic growth, demand for investment loans may pick up. In addition to reduced activities in the construction, agricultural and trade sectors, the loans outstanding to them contracted as well.

The substantial decline in lending of the domestic banking sector is similar in size to that observed in the Baltic countries. Lending started to increase in the first or second quarter of 2010 in several countries in the region. In contrast, the decline observed in Hungary in corporate lending is similar to that seen in the Baltic countries, where the economic downturn was more severe (Chart 38). Only Latvia and Lithuania experienced a larger contraction than Hungary.

Chart 38
Corporate lending in the CEE region

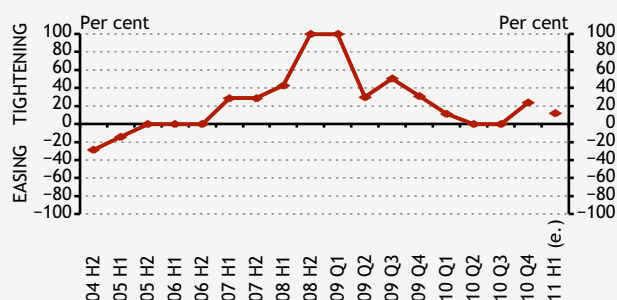
(October 2008=100 per cent; adjusted for exchange rate effects)



Source: Statistics of national central banks.

Persistently tight non-price credit conditions restrict the upswing in lending. According to the MNB's Lending Survey, in net terms, banks tightened credit conditions further for the corporate sector in the last quarter of 2010 (for further details about the role of credit supply and credit demand, see Box 3). Banks cited change in their risk tolerance and their deteriorating profitability as contributing factors for tightening. Banks in net terms expect further tightening for the entire corporate segment in the first half of 2011 (Chart 39). Nevertheless, as a further sign of improving economic outlook, responding banks perceived growing demand for their credit products. Shrinking credit supply increases the risk that the banking sector will not be able to meet the growing credit demand completely, not supporting effectively the economic growth (for more details see Box 5).

Chart 39
Credit conditions in the corporate sector

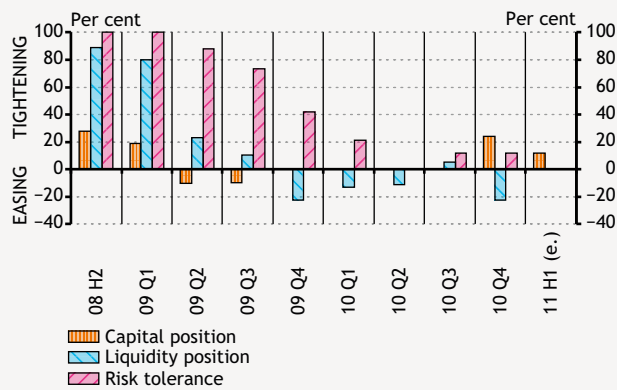


Source: MNB.

Domestic banks' lending to non-financial corporations is restrained by low risk appetite and a weakening capital position. According to the lending survey, banks' low risk tolerance has continuously contributed to tight credit conditions in the past four years. In the last quarter of 2010 low profitability came into view as another factor pointing to stricter credit supply (Chart 40). Low profitability weakens banks' ability to accumulate and attract capital and thus, their ability to lend.

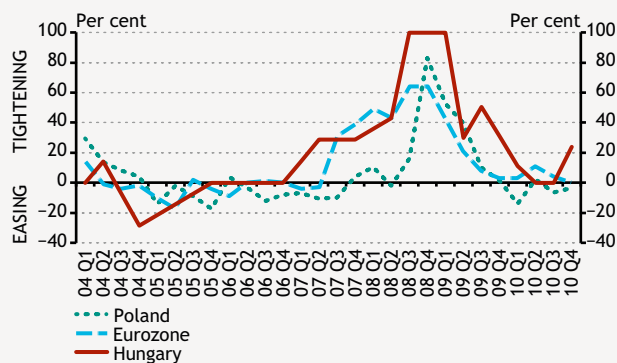
The tightening cycle has already come to an end in other countries. The credit conditions applied to corporate loans are considerably different in international comparison.

Chart 40
Factors contributing to changes in credit conditions in the corporate segment



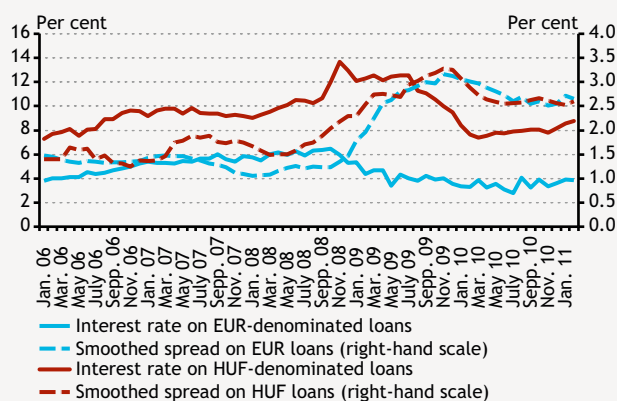
Source: MNB.

Chart 41
Credit conditions applied to the corporate segment in international comparison



Source: Statistics of national central banks.

Chart 42
Interest rates and spreads on corporate loans



Source: MNB.

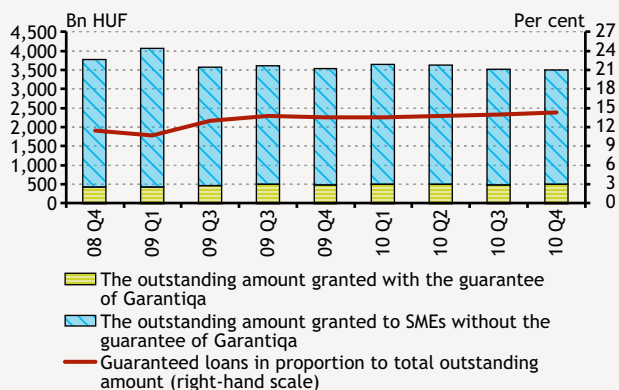
According to the lending survey, a moderate easing cycle began in 2010 for the corporate segment in Poland (Chart 41), to which the improving economic outlook and market competition were key contributors. As the behaviour of banks in the euro area was overshadowed by the sovereign debt crisis, the beginning of the easing cycle is delayed in these countries. However, euro area banks in net terms stopped tightening credit conditions in the fourth quarter of 2010, while in Hungary there was a further tightening.

The declining spreads on newly disbursed corporate loans are due to the increased competition for the more creditworthy clients. Nominal interest rates on HUF and foreign currency corporate loans did not change considerably in 2010. As of December 2010, parallel with the central bank's policy rate hiking, HUF interest rates started to increase. At the same time, spreads on interbank interest rates decreased on the whole in 2010 (Chart 42). This can be traced back to two reasons. On the one hand, although the economic crisis reduced the number of creditworthy firms in any case, banks implement credit rationing, i.e. reduce the number of clients to which they are willing to lend. Accordingly, currently only the more creditworthy clients gain access to loans, and the spreads and thus the interest rates on the loans of such clients are lower (spread reduction driven by composition effects). On the other hand, increasing price competition in acquiring creditworthy clients also reduces spreads.

Lending to small and medium-sized enterprises may be supported by government backed lending schemes. As of the third quarter of 2010 two new elements were added to the state-backed lending scheme: the existing overdraft programme (Széchenyi card) was supplemented by a working capital loan programme and an investment loan programme, both with subsidised interest rates and state guarantees (with the participation of Garantiqa Zrt.). While the subsidised interest rates encourage borrowing on the demand side, the guarantee provided by the state improves banks' willingness to lend. The efficiency of the programme can be measured by the fact that currently more than 14 per cent of the SME loan portfolio is covered by the guarantee of Garantiqa Zrt. and respectively the counter-guarantee of the state (Chart 43). This implies that the decline in lending would be more pronounced without the guarantee schemes. Although guarantee programmes need considerable public sources, reallocation to such targets need to be taken into account, because substantial stimulation of economic growth can be achieved through such programmes.

Chart 43

Loans outstanding to the SME sector backed the guarantee of Garantiqa Zrt.



Source: Garantiqa Zrt.

Box 3

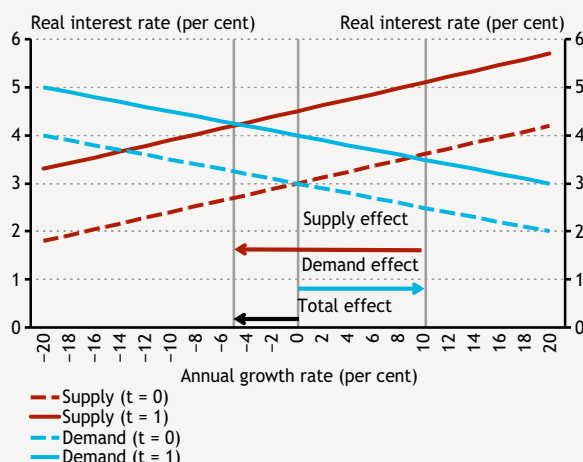
Decomposition of the demand and supply factors of corporate lending by means of an equilibrium model

A much debated question in the discussions about the downturn in corporate lending involves the extent to which the decline in credit demand and credit supply contributed to the steady contraction in corporate loans outstanding observed since the end of 2008. We attempted to separate credit demand and credit supply by way of a simultaneous econometric model, which consists of two behavioural equations (demand and supply) and an equilibrium condition. As such, this is an equilibrium approach, in which it is assumed that the observed interest rate is market-clearing and the demanded and supplied volume are identical. We performed the estimation on a panel database, which contains the data of 6 major banks in Hungary pertaining to the period between the first quarter of 2003 and the last quarter of 2010. A disadvantage of the model is its inability to address the phenomenon of credit rationing, i.e. the non-equilibrium state. The supply of banks is predominantly defined by banks' lending ability and willingness to lend. While the former reflects the capital, liquidity and financing position of the credit institutions, the latter is related to banks' risk tolerance. However, the situation is complicated by the asymmetric information between the creditor and the borrower, given that the creditor bank has limited information about the debt servicing ability of the borrower company. The problem is that the bank is unable to screen firms through the application of interest rates; indeed, riskier clients are more inclined to pay higher interest rates (adverse selection). The phenomenon has two key consequences in respect of credit supply: firstly, the interest rate may not necessarily clear the market, giving rise to the phenomenon of credit rationing; and secondly, credit allocation is (partly) based on non-price conditions.

Non-price conditions affect credit supply through two channels: through creditors' risk tolerance on the one hand, and borrowers' creditworthiness on the other. We capture the first effect in the supply specification by the responses given to questions about credit conditions in the Lending Survey, i.e. a tightening of credit conditions lead to a decline in supply. The second effect is more difficult to account for, because companies are highly heterogeneous in respect of creditworthiness. In the model we approximate the general level of creditworthiness by the default rate, as this indicator is viewed as a proxy for credit risk. As such, a decreasing default rate boosts credit supply through improving creditworthiness.

The literature usually links credit demand to variables describing the economic activity and to expectations about the future. Accordingly, the specification of the demand equation contains indicators describing external demand and investment. Moreover,

Illustration for decomposition of demand and supply

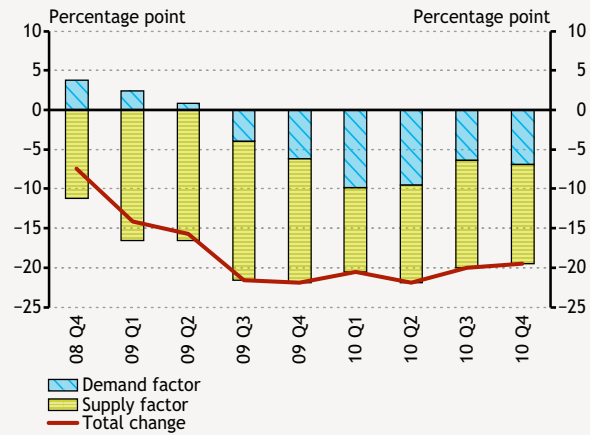


Source: MNB.

as the Lending Survey asks explicitly how senior loan officers perceived changes in the demand for their loans, this indicator is also included in the variables describing the demand equation.

The purpose of the estimation is to determine the price elasticity of the demand and supply curves, since changes in demand and supply can be derived from the price and quantity data observed. The dependent variable of demand and supply – the quantity-type variable – is the annual growth rate of corporate loans outstanding (adjusted for exchange rate effects); the price-type variable is the volume-weighted average of forint and euro contemporaneous real interest rates. Together with the price elasticity values, the observed price-quantity combinations can uniquely define the demand and supply curves at the two dates under review, making it possible to decompose the decline in the quantity variable. In the case of the example shown in the chart, supply declined in a period of growing demand, i.e. the decline in lending (total effect) was the net result of a positive demand component and a negative supply component.

Change in annual growth of non-financial corporations' credit since Q3 2008, and its decomposition to demand and supply factors



Source: MNB.

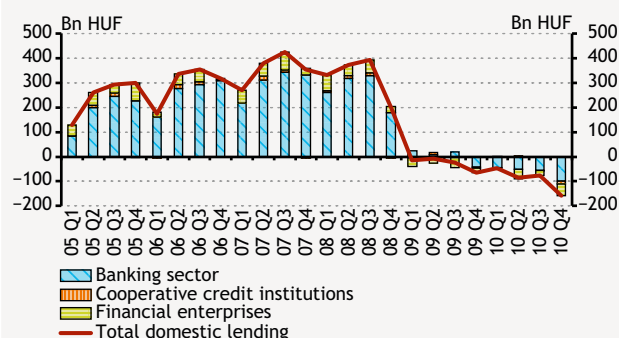
In evaluating the estimate, the point of reference is the last “standstill period” before the outbreak of the crisis, i.e. the third quarter of 2008; in the chart the total effect indicates the percentage point changes in the annual growth rate of corporate loans outstanding relative to this period.

In the last quarter of 2008 the banking sector tightened credit supply markedly, leading to a substantial decline in lending. The credit crunch lasted until the third quarter of 2009; by then the supply may have bottomed out. The supply adjustment is reflected in rising interest rate spreads, declining credit availability and the tightening of non-price conditions. The latter is due to the deteriorated economic outlook, risk considerations and sector-specific problems. A slight turnaround took place in credit supply at the end of 2009, when banks’ willingness to lend started to improve and their liquidity position would have allowed for the easing of credit conditions. However, the turnaround did not last long, and in the middle of 2010 access to loans became scarce once again. The bank levy and the debt crisis of the euro area may have contributed to this development, as they pointed out the vulnerability of the recovery.

As opposed to supply, credit demand may have even increased following the outbreak of the crisis, i.e. in the fourth quarter of 2008. This phenomenon, which has been observed in other countries as well, can be explained by the fact that escalating uncertainty and the unexpectedly abrupt liquidity shortage may have prompted firms to draw down all of their remaining available credit lines. In the course of 2009, however, parallel to the economic downturn, credit demand started to recede. Owing to the weak economic outlook, this period saw a natural moderation in the credit demand. Low production volumes, excess capacities and uncertain prospects slackened the demand mainly for long-term investment loans. Interestingly, during this period the decline in loans outstanding was more pronounced across the shorter maturities, which demonstrates the strength of supply constraints. At the same time, this could be a technical effect as well, considering that both banks and firms can carry out balance sheet adjustments faster across the shorter maturities. Against the backdrop of a slow return to growth, credit demand reached a turnaround during the second and third quarters of 2010. However, the pickup in demand remains fragile and falls short of its pre-crisis level.

Overall, we may conclude that the period under review was not homogeneous in respect of the outcome of demand and supply changes. Following the outbreak of the crisis supply effects prevailed primarily and the downturn in demand lagged behind. By the first half of 2010 the two effects were similar in magnitude; however, lending did not reach a turning point, and despite a modest recovery in demand, supply began to tighten once again. At the end of 2010 we may conclude that the decline in supply and demand accounted for the drop in corporate lending in a ratio of around 2/3–1/3, respectively.

Chart 44
Net change of loans outstanding to households from domestic financial intermediaries

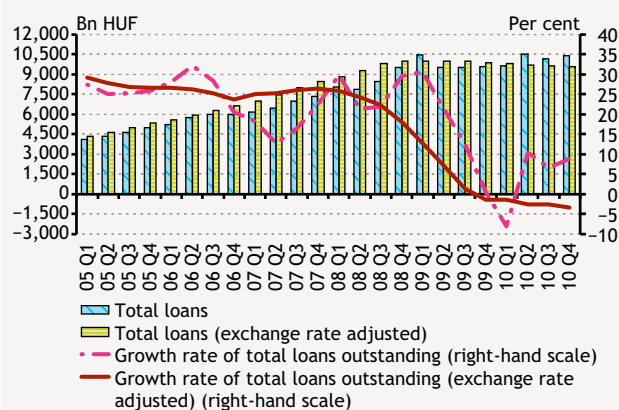


Source: MNB.

Protracted balance sheet adjustment restrains households' credit demand

Despite negative net credit flow, the outstanding amount of loans to households increased. In 2010 the lending to households decreased by 3.3 per cent excluding exchange rate effects. 60 per cent of the decline affected housing loans. All sub-segments of the financial intermediaries recorded increasing negative net flows (Chart 44). However, including exchange rate effects, the outstanding amount of loans to households increased by 8 per cent (Chart 45), which implies that households need stronger adjustment to reduce their debt burden denominated in forint.

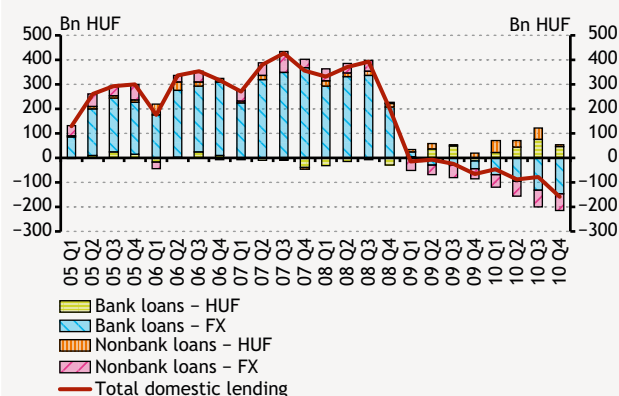
Chart 45
Outstanding amounts and annual growth rates of loans granted to households



Source: MNB.

Net forint credit flow is positive. As foreign currency denominated lending gradually decreased, new disbursements and even net borrowing denominated in forint appeared to increase (Chart 46). In 2010 lending denominated in forint increased by 10 per cent in the household segment, with consumer loans accounting for the majority of the growth. The increase in forint lending may be mainly attributed to the substitution effect arising from the disappearance of foreign currency denominated loans. Nevertheless, the increase in forint lending is not even close to the average level of total pre-crisis net flows, and it cannot even offset the contraction in foreign currency lending. This is mainly due to the steady balance sheet adjustment of households; in other words, households in aggregate still service more debt than take on new loans. Moreover, the interest rates on foreign currency denominated loans are typically lower, and as these loans faded away clients had to resort to forint-denominated loans with higher interest rates.

Chart 46
Net change of loans outstanding to households by currency breakdown

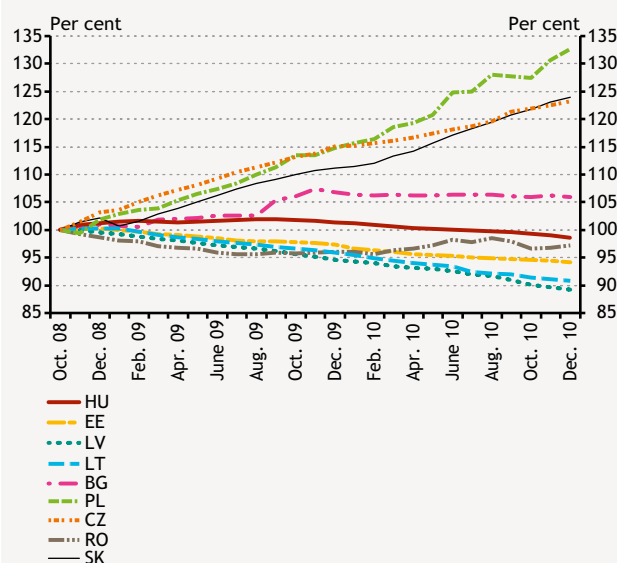


Source: MNB.

The contraction in the loan portfolio of households (adjusted for exchange rate effects) is in the middle range in regional comparison. As is the case in the Baltic countries, the household loan portfolio has been on the decline since the beginning of the crisis (Chart 47). Other countries experience stagnation (Bulgaria) or increase. Before the crisis, households in the latter countries were less indebted and had a smaller share of foreign currency denominated loans.

In addition to the regulatory tightening, contraction in household lending can be attributed to demand factors as well. Regulations on lending coming into force in 2010 resulted in a substantial decrease in new loan disbursements. The prohibition of hypothecation in foreign currencies restrains foreign currency denominated mortgage lending effectively. Furthermore, the Decree on prudent lending limits the loan-to-value ratio, i.e. it prescribes a minimum down payment in the case of car purchase loans and forint denominated mortgage loans. This is clearly reflected in

Chart 47
Developments in household lending in the CEE region
 (October 2008=100 per cent; adjusted for exchange rate effects)

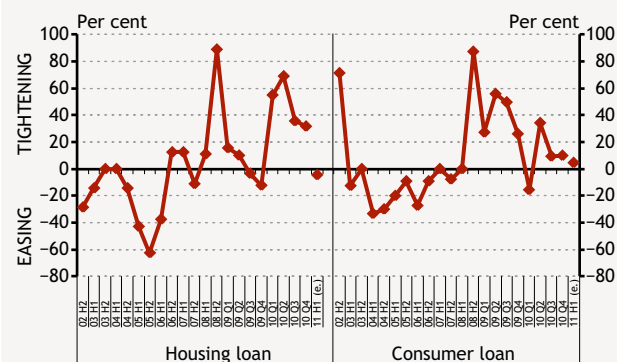


Source: Statistics of national central banks.

banks' credit conditions for housing and consumer loans (Chart 48). In addition to the tight supply side factors, credit demand was also restrained. A high debt servicing burden due to the appreciation of the Swiss franc, high household indebtedness and weak labour market conditions could be observed. The steady balance sheet adjustment of households indebted in foreign currency and their increasing caution resulted in a persistently weak credit demand.

The abolition of the ban on foreign currency hypothecation may not lead to a quick rebound in foreign currency lending. The re-introduction of euro-denominated mortgage lending is on the agenda. However, a quick rebound in foreign currency denominated lending may not be expected by this modification of the hypothecation regulation, because the barriers of the Decree on prudent lending are still effective. In order to prevent risks stemming from foreign currency denominated lending and to protect clients from these risks, a tightening of the regulation should be considered (for more details see Box 4).

Chart 48
Credit conditions in the household sector



Source: MNB.

Box 4

How can we mitigate the risk of an upsurge in foreign currency denominated loans following the repeal of the ban?

In August 2010 the Hungarian Parliament adopted an Act⁶ prohibiting foreign currency denominated (FX) mortgage lending. The Act prohibits registering a mortgage on a real estate in the Land Register if it is based on a mortgage loan contract in foreign currency by natural persons. Although the prohibition does not apply to foreign currency denominated home lease options, the measure essentially eradicated foreign currency denominated lending in Hungary. Recently however, according to number of statements, the Ministry of National Economy was considering lifting the prohibition (at least in the case of euro-denominated loans).

The possible repeal of the prohibition would nevertheless not mean an automatic return to the unbridled foreign currency denominated lending of the pre-crisis era. This is because the Government Decree on Prudent Lending⁷ – issued in late 2009 upon the initiative of

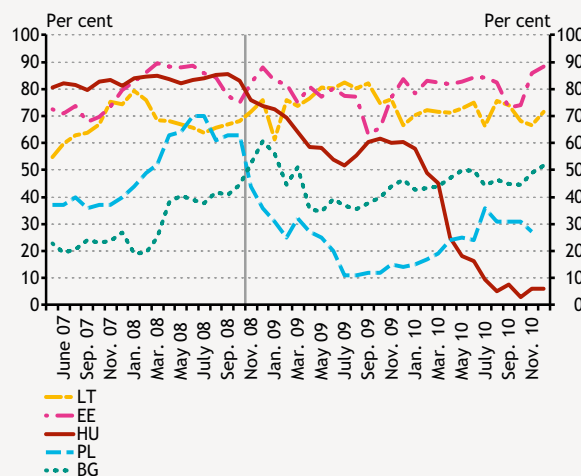
⁶ Act XC of 2010 on the creation and amendment of certain laws on economic and financial issues.

⁷ Government Decree 361/2009 on the conditions of prudent retail lending and creditworthiness examination.

the MNB – substantially restricted foreign currency denominated lending in Hungary. The Decree, which is still in effect:

- on the one hand, sets an upper limit on the loan-to-value ratios for retail mortgage and vehicle financing loans: the maximum LTV ratio for forint mortgage loans is 75 per cent, while it is 60 per cent and 45 per cent for mortgage loans denominated in euro and other foreign currencies, respectively;
- on the other hand, effectively puts a ban on purely collateral-based lending. The regulation requires banks to set up creditworthiness limits for all individual loan applicants defined in proportion to monthly income. The limit for euro-denominated loans is 80 per cent, and 60 per cent of the creditworthiness limits of HUF-denominated loans for loans extended in other foreign currencies. However, as there is no specification on the level of creditworthiness limits, the rule ensure tremendous space for interpretations by banks.

Share of FX loans in new retail loan origination



Note: For Poland only housing loans.
Source: National central banks.

This Decree had been effective in restraining foreign currency denominated lending even before the full ban, primarily through the LTV limitations. By the summer of 2010, less than 20 per cent of newly extended retail loans were denominated in foreign currency. In contrast, in other countries in the Central and East European region – where no such limitations apply – foreign currency denominated lending is still thriving. This also holds true for countries with floating exchange rate regimes (Poland, Romania) where the exchange rate risk of foreign currency denominated loans became apparent after the onset of the crisis.

Limiting foreign currency denominated mortgage lending is therefore necessary, and a return to the excessive build-up of the resulting risks in the event of a repeal of the ban can only be avoided if the Government Decree on Prudent Lending is reinforced and supplemented with two additional points.

The first addition proposed by the MNB would be the introduction of payment-to-income (PTI) limits in order to ensure that only debtors capable of forbearing even substantial exchange rate shocks are granted foreign currency denominated loans. (This would be in line with the MNB's original proposal made in September 2009, preceding the adoption of the Government Decree.⁸ The current LTV limit primarily protects banks, rather than customers, from loan losses. It is important, however, to ensure that income is the first "buffer" forming the basis of loan repayment, even in the case of mortgage loans. Accordingly, the PTI limit would protect debtors from excessive risk exposure, improving the chances of loan repayment even if instalments increase, thereby avoiding foreclosures. Similarly to the principle of LTV restrictions, stricter PTI limits would be required for foreign currency denominated mortgage loans than for their HUF-denominated equivalents.

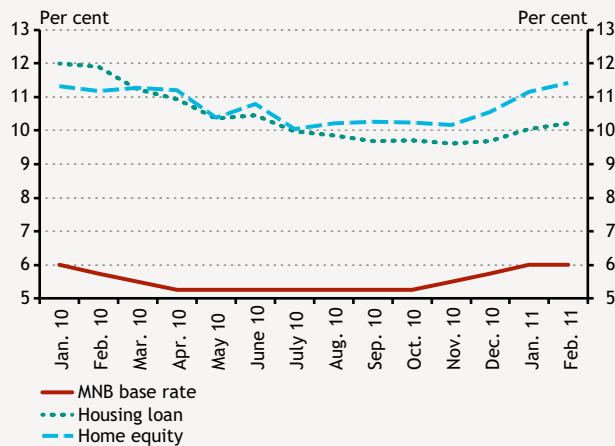
Our other recommendation – based on the MNB's earlier proposal made in September 2010⁹ – is aimed at increasing the transparency of pricing of loans. Interest rates on retail loans that can be unilaterally modified by banks – and the related abuse of banks' dominant position were in the focus of media attention in the course of 2010. Meanwhile, the government measures implemented to address the issue did not yield the desired results from all aspects. Moreover, the new requirements do not contribute to healthy price competition, as the measures did not improve the comparability of lending rates. Therefore, in line with our earlier proposal, legislation should be adopted to limit consumers' options to two types of loan products. The first type would involve products with a fixed premium above a benchmark interest rate, and the other type would feature products with an interest rate fixed for a longer interest period (measured in years). This would be especially important in the case of euro-denominated mortgage loans, which have always been subject to unilateral changes of interest rates in Hungary. In contrast, euro-denominated mortgage loans in Poland, Latvia, Lithuania and Romania remain tied to the interbank interest rate.

⁸ http://english.mnb.hu/Sajtoszoba/online/mnben_pressreleases/mnben_pressreleases_2009/mnben_kozlemeny_20091005.

⁹ http://english.mnb.hu/Sajtoszoba/online/mnben_pressreleases/mnben_pressreleases_2010/mnben_kozlemeny_20100920.

With these two additions the effective Government Decree on Prudent Lending would effectively mitigate the risk stemming from the upsurge in newly extended foreign currency denominated loans, and repealing the full ban would not entail a return to the former unbridled foreign currency denominated lending in Hungary.

Chart 49
Pricing of mortgage loans based on APR

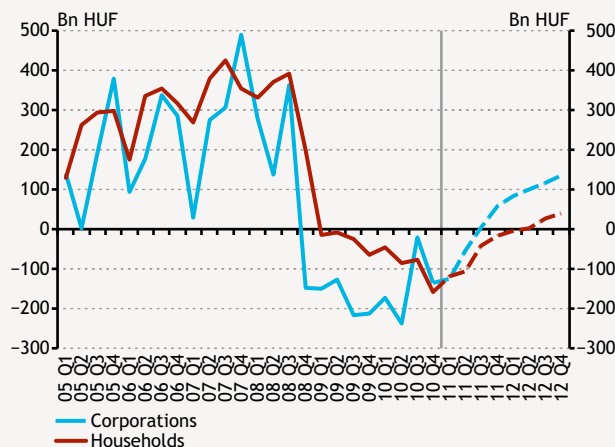


Source: MNB.

Interest rates on mortgage loans stopped to decline with the central bank’s policy rate hiking. Interest rates on forint mortgage loans declined gradually in 2010. Due to the central bank’s policy rate hiking, however, this gradual decline came to a turn. While the APR of the forint housing loans increased by 60 basis point on average from November 2010 to February 2011, the APR on forint home equity loans increased by more than 100 basis point in the same period (Chart 49). However, forint-denominated loans are still more expensive relative to the pre-crisis APR levels of foreign currency denominated loans. Compared to levels in the range of 6-7 per cent at the end of 2008, current interest rates on forint-denominated mortgage loans imply an excess burden of 3-4 percentage point.

The turnaround in lending is expected to be delayed

Chart 50
Forecast for net domestic lending

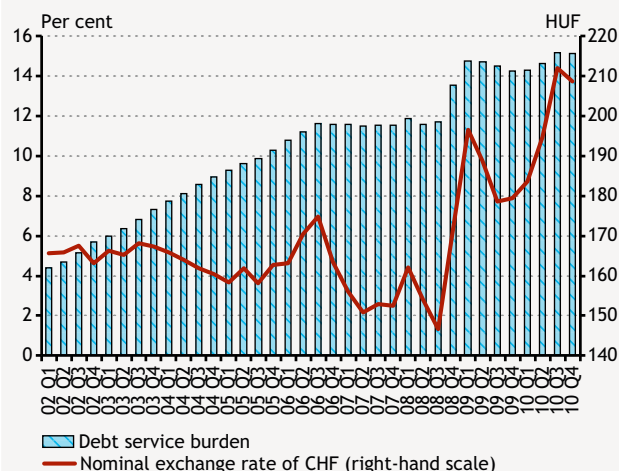


Source: MNB.

The delayed turnaround in corporate lending can be mainly attributed to credit supply constraints. In our forecast in November 2010 we anticipated a turnaround in corporate lending in the first quarter of 2011, with significant downside risks. According to our updated lending forecast, an upturn (i.e. a net increase in the outstanding amount) in corporate lending may be expected only around the third to fourth quarter of 2011 (Chart 50). Given that the capacity utilisation of firms may reach its historic average in the first quarter of 2011, a further expansion on firms’ export markets or a possible upswing in internal demand may lead to an increase in the demand for investment loans. The demand of the SME sector for working capital loans may also increase. There is a risk that the aforementioned duality in the corporate segment will remain persistently. Owing to tight credit supply constraints, only a part of credit demand is expected to be met, which may cause costs to the real economy.

Due to the protracted adjustment, household lending may start to recover even later. In our last forecast we indicated that household lending may reach a turning point in 2011; however, no material increase in lending can be expected until the second half of 2012 (Chart 50). Weak credit demand is a key contributor to the delayed upturn in the household segment (Chart 51). Although in 2011 the increased income resulting from the tax reduction and the disbursement of real returns from private pension funds

Chart 51
Households' debt service burden in proportion to disposable income and changes in the exchange rate of the Swiss franc



Source: MNB.

may raise the disposable income of households significantly, owing to the intensification of cautionary considerations during the crisis higher income may rather increase savings (Chart 23). Potential changes in regulation also encompass uncertainty. Allowing the re-introduction of euro-denominated mortgage lending may result in a positive supply shock, because of the lower interest rates of these products. Nevertheless, the degree of this shock and its actual effect on lending might be moderate due to the barriers of the Decree on Prudent Lending.

Box 5

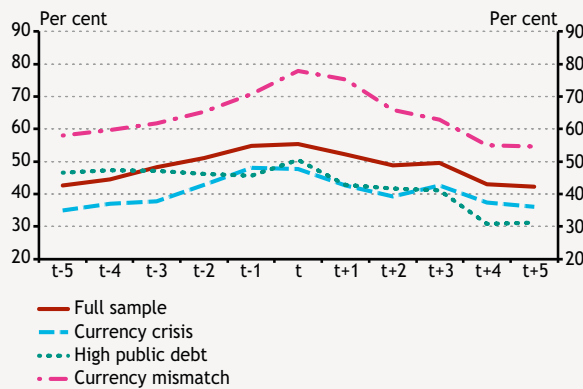
What are the chances of a creditless economic recovery in Hungary?

Parallel to the sharp slowdown in economic growth in the wake of the crisis, a severe contraction took place in lending. Owing to external demand, GDP embarked on a growth path as early as the end of 2009; however, net lending remains negative, thus loans outstanding to the private sector has been declining, and there is no turning point in sight. To properly evaluate the ongoing developments, it is worth examining the lessons drawn from previous crises, with particular focus on the question as to when lending can start supporting the economic recovery.

The literature includes numerous empirical studies about lending during the periods following recessions. Researchers have attempted to figure out the average time elapsing before lending may rebound again, as well as under what circumstances, and have also looked for possible instances – and the precise cases – when the upswing in real economic activities was not followed by a recovery in lending for years.

We can use a number of indicators to evaluate developments in lending: the loan to GDP ratio, gross (new) and net (new disbursements less repayments) lending, as well as outstanding loans. According to Felcser and Körmendi (2010)¹⁰, following past crises the loan to GDP ratio may continue to decline for years. This implies, however, that loans outstanding may start to expand earlier, but its growth rate may fall behind that of GDP for years. At the same time, a more subdued credit growth may result equally from post-crisis low capacity utilisation and from the adjustment of the credit boom preceding the recession.

Loans to the private sector as a percentage of GDP



Note: Year *t* denotes the year in which the crisis occurred according to the IMF database.
Source: IFS.

¹⁰ FELCSER, D. AND GY. KÖRMENDI (2010): "International experiences of banking crises: management tools and macroeconomic consequences", *MNB Bulletin*, June 2010.

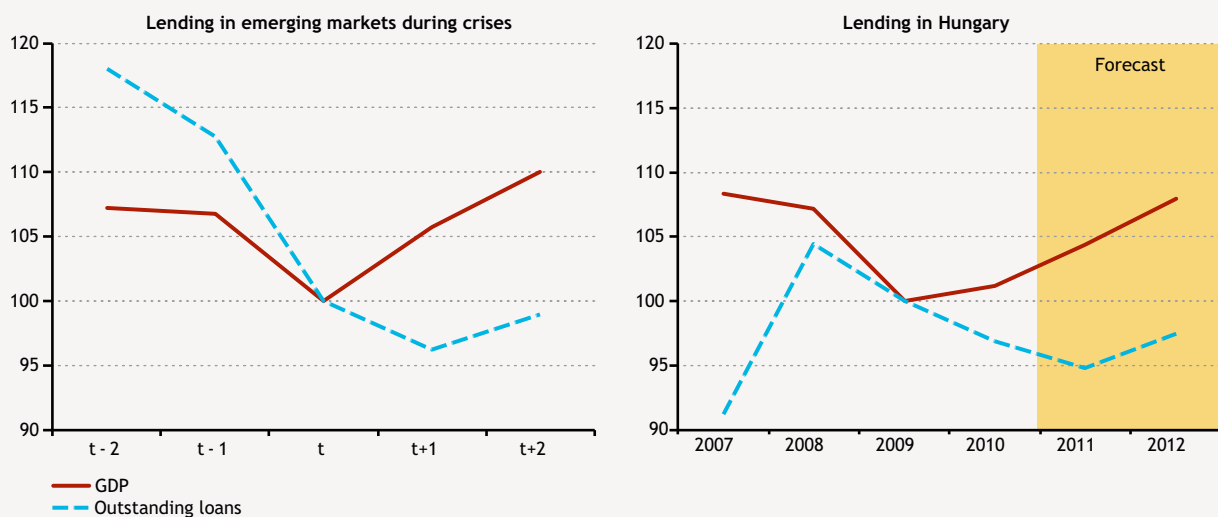
To identify the relationship between the rebound in lending and output, Biggs et al. (2009)¹¹ examined changes in loans outstanding, i.e. net lending. They found that this indicator moved closer together with economic performance. They looked at a number of emerging countries closely integrated into global capital markets, who had had to face a sudden stop of capital inflows during turmoil in the global capital markets. Based on the average of their sample, GDP accelerated significantly in the year following the bottoming out of the crisis, to be followed by a turnaround in lending, i.e. increase in loans outstanding, in the following year.

However, Calvo et al. (2006)¹² pointed out that – compared to the average – the start of a recovery in lending was delayed significantly in numerous cases. Although economic activity recovered relatively soon in these countries, it was accompanied by rather weak investment with virtually no expansion in lending for a long time to come. The authors call this phenomenon a creditless recovery.

The study of Calvo, Izquierdo and Talvi raises the question as to what circumstances may increase the probability of a recession period being followed by a creditless economic recovery. Accordingly, in their paper Abiad et al. (2011)¹³ examined not only downturns stemming from the sudden stop of capital inflows, but from the recessions of real business cycles. They identified creditless recoveries in nearly 20 per cent of the episodes; however, this frequency reached 50 per cent once they narrowed their sample to recessions following banking crises. If the banking crisis was preceded by a credit boom, 80 per cent of the recoveries took place in the absence of credit growth.

Turning to Hungarian data we can see that, in line with the experiences presented, in the third quarter of 2009 – the year following the bottoming out of the crisis – output began to grow; however, loans outstanding is not expected to follow suit in 2011 (second Chart). This implies that the turning point in lending will be more delayed than international experiences would suggest. On the one hand, this can be attributed to banks' low risk appetite, while on the other the capital buffer is depleted by the deterioration of the portfolio and the bank levy, resulting in weaker lending capacity. As regards the contribution of the demand side, due to foreign currency denominated lending household deleveraging, i.e. the debt consolidation, is stronger than usual. According to our forecast, loans outstanding to the private sector may begin to grow in 2012. This would mean that in Hungary the recovery of lending would follow the economic recovery 8 or 9 quarters – i.e. more than 2 years – later.

Outstanding loans of private sector in proportion to GDP



Note: GDP and outstanding loans are expressed as a percentage of data in period t, where t denotes the trough of the respective sudden stop episode. The left panel shows the average of GDP in case of the observed sudden stop episodes, on the right panel, the Hungarian GDP data at prices of 2000 is seasonally adjusted and adjusted data by working days.
Source: Calvo, MNB.

¹¹ BIGGS, M., T. MAYER AND A. PICK (2009): "Credit and Economic Recovery: Demystifying Phoenix Miracles", *DNB Working Paper*, No. 218, July 2009.
¹² CALVO, G.A., A. IZQUIERDO AND E. TALVI (2006): "Sudden Stops and Phoenix Miracles in Emerging Markets", *American Economic Review Papers and Proceedings*, Vol. 96, No.2, pp. 405-410.
¹³ ABIAD, A., G. DELL'ARICCIA AND B. LI (2011): "Creditless Recoveries". *IMF Working Paper*, No. 11/58.

Loans to private sector following the crisis in international comparison

	Pick-up of GDP growth	Number of quarters after the GDP pick-up from which net credit flow became positive		
		Corporates	Households	Private sector
Bulgaria	2009 Q1	0	0	0
Czech Republic	2009 Q2	4	0	0
Estonia	2009 Q3	not yet	not yet	not yet
Poland	2008 Q4	not yet	0	0
Latvia	2009 Q3	not yet	not yet	not yet
Lithuania	2009 Q4	not yet	not yet	not yet
Hungary	2009 Q3	not yet	not yet	not yet
Romania	2009 Q2	0	0	0
Slovakia	2009 Q1	3	0	0
Euro 16	2009 Q2	not yet	0	2

Source: Eurostat, national central banks statistics.

Data collected from other countries in the region suggest that only the Baltic states have not seen a turning point so far in private sector lending, as is the case in Hungary. All other countries recorded credit growth as soon as GDP reached a turning point. The primary contributor to credit growth was household lending, owing to high growth potential in the context of relatively lower indebtedness. However, corporate lending has not started to recover substantially in several countries.

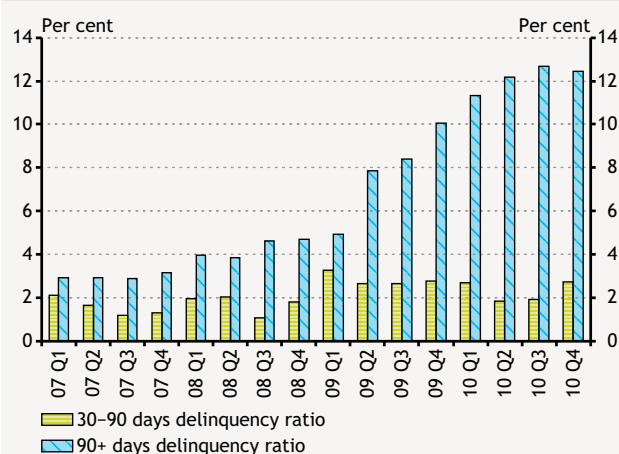
Taken as a whole, Hungary faces a high risk of a creditless economic recovery. Based on our forecast, the increase in corporate and household loans outstanding will follow the recovery of GDP 8 and 10-11 quarters later, in late 2011 and in the second half of 2012, respectively. The absence of credit growth, or lagged rebound in lending result in weaker economic growth, moreover, it induces fragile economic recovery.

2.2 The provisioning needs related to the moratorium and restructuring pose risks

Portfolio quality deterioration slowed down in 2010. However, this seemingly favourable trend was attributable, to a large extent, to increased restructuring, write-offs and sales of claims in both the household and the corporate segment. Restructuring occurred mainly in commercial property lending within the corporate segment and in mortgage lending within the household segment. Loan losses (cost of provisioning to total outstanding loans) did not change materially in the corporate sector in 2010. By contrast, after dynamic growth in the first half year, loan losses of the household portfolio increased slightly in the remaining part of the year. It should, however, be emphasized that material restructuring slowed down not only the growth of non-performing loans, but loan losses as well at the end of 2010. This year, with an improving economic outlook and higher household incomes, we expect a further slow-down in the growth of non-performing loans in both the corporate and the household segment, which should entail lower costs of risk. However, the fact that an increasing number of restructured loans might become non-performing again carries upside risk in the household segment. If, after a grace period, the already restructured loans become defaulted on a mass scale, this will trigger a rise in the ratio of non-performing household loans and in loan losses. Currently banks are unprepared for such a scenario; therefore, provisioning practices on restructured loans should be reviewed. Other challenges for banks are the abolition of the moratorium on foreclosures and evictions and the timing at which repossessed residential properties can be sold. The turbulences in housing market can be mitigated by a co-ordinated and gradual portfolio cleaning.

In the corporate segment the main difficulty is the poor performance of the commercial real estate loan portfolio

Chart 52
Delinquent loans to the total outstanding amount of corporate loans

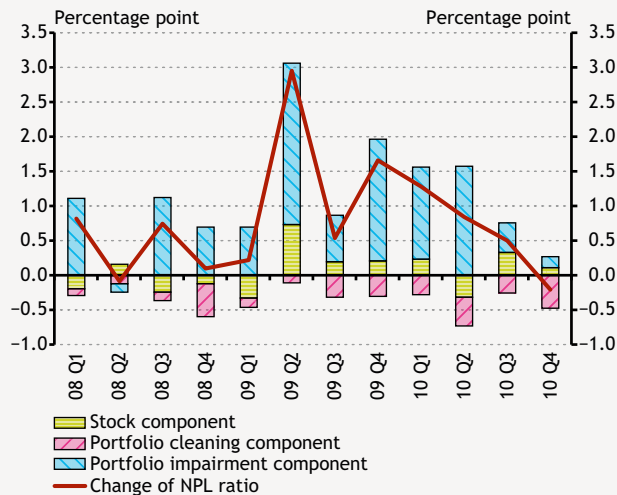


Source: MNB.

Although the ratio of non-performing loans declined in 2010 Q4, this was attributable partly to increasing portfolio cleaning. The ratio of loans past due for over 90 days in the portfolio rose in 2010 and stood at 12.5 per cent at the end of the year. In the last quarter there was a 0.2 per cent decline, i.e. the previously noted deterioration seems to have reversed. At the same time, the ratio of 30 to 90 days past due loans increased somewhat, which increases the probability of future portfolio deterioration (Chart 52). Analysing separately the factors influencing the ratio of non-performing loans, we find that both contraction in the outstanding amount of loans and portfolio deterioration should have led to a rise in the ratio of loans past due for over 90 days. The decrease of the non-performing loan portfolio was smaller than it should have been due to sales and write-off of loans (Chart 53). Therefore, intense portfolio cleaning must have played a major role in shrinkage at a systemic level. Market intelligence reveals that salient portfolio cleaning by several banks was a one-off factor.

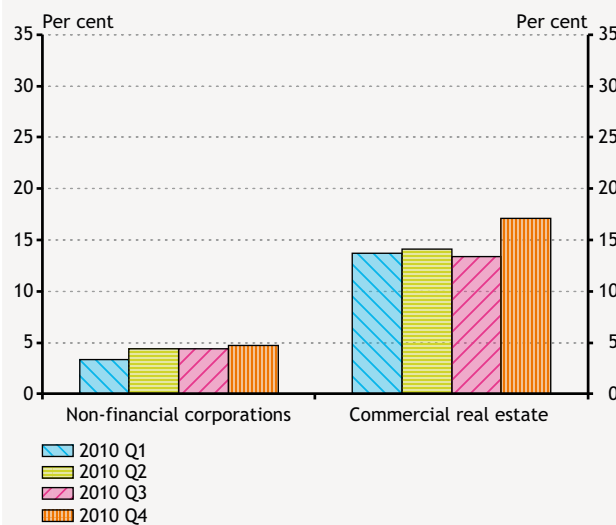
The overall picture is further nuanced due to an increase in loan restructuring. One of the reasons for the decrease in the ratio of non-performing loans was that banks' restructuring activity accelerated predominantly in the case of commercial property loans in Q4 2010. The share of

Chart 53
Change of the NPL ratio in the corporate portfolio



Source: MNB.

Chart 54
Ratio of restructured loans to the commercial real estate loans and other corporate loans

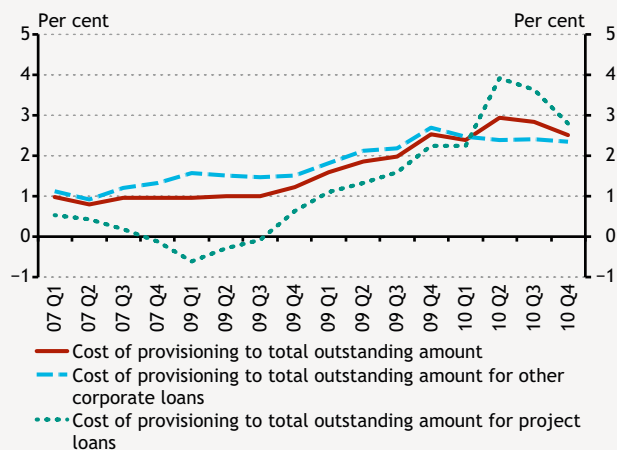


Source: MNB.

re-negotiated loans in the commercial real estate portfolio rose from below 14 per cent to over 17 per cent. (Chart 54). This also casts doubts on whether the current decrease means a real turning point in the corporate loan portfolio. It is highly likely that even if the share of non-performing loans in the portfolio would not have decreased without portfolio cleaning and restructuring, the previous surge would have slowed down anyway.

Chart 55
Cost of provisioning to total outstanding amount for corporate loans

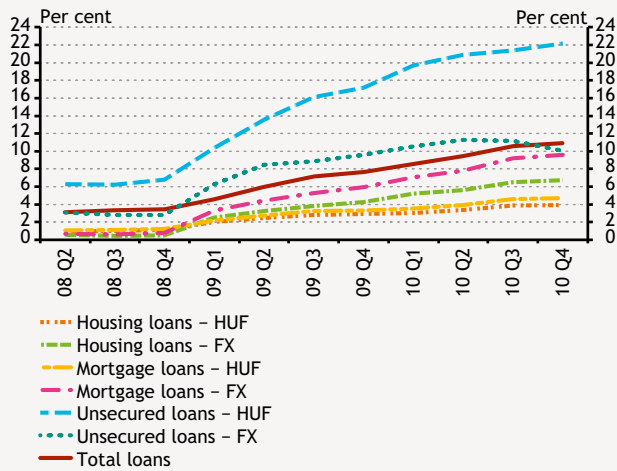
(12-month moving average)



Source: MNB.

Cost of provisioning to the total outstanding loans peaked in the middle of the year and declined to the level of 2009 at the end of the year. Loan losses decreased from 2.84 per cent in September to 2.5 per cent by the end of 2010, and was similar to the level seen in 2009. Shrinkage in provisioning was mainly attributable to both the deceleration in portfolio deterioration and the acceleration in restructuring. Loan losses to the portfolio were almost identical to those at the end of 2009 and corresponded to our 2.6 per cent forecast in November 2010. The decrease in the last quarter of 2010 was particularly pronounced in the case of project loans, although we saw a decline at other corporate loans as well. Taking a look at 2010 as a whole reveals diverging trends regarding the two aforementioned segments: while losses on commercial property loans were significantly higher than in 2009, those on other corporate loans were lower than a year earlier (Chart 55). Loan loss coverage for non-performing loans grew at a banking system level in 2010.

Chart 56
90+ delinquency ratio for certain retail product types

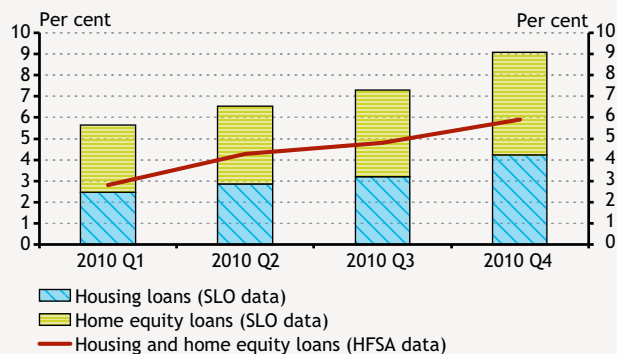


Source: MNB.

The abolition of the moratorium and the success of restructurings will be key to future developments in the household loan portfolio.

Deterioration of the household loan portfolio continued in 2010; however, its pace had slowed down by the end of the year. Within one quarter the share of loans past due for over 90 days in the household loan portfolio grew from 10.6 per cent to near 11 per cent by the end of 2010, with the annual increase exceeding 3 percentage points. This was attributable to the consistently high unemployment rate and the strong Swiss franc. A steady rise could be observed throughout the entire banking system. A similar trend, i.e. a slower-than-earlier rise, could be observed in the case of various other products as well. The only exception to this is unsecured foreign currency denominated loans, because an increase in sales of the loans to third parties (companies dealing with factoring and collection) led to a lower ratio of non-performing loans (Chart 56).

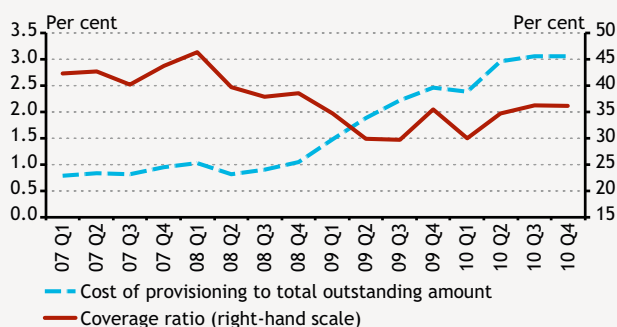
Chart 57
Restructured housing and home equity loans to total mortgage loans outstanding



Note: HFSA data on restructured mortgage loans without arrears. MNB data on the entire restructured portfolio whether past due or not. Source: HFSA, MNB.

Increasing restructuring activity contributed significantly to the slower deterioration of the household loan portfolio. The ratio of restructured mortgage loans (without arrears) increased by over 1 percentage point in the last quarter; the increase was over 3 percentage points in the whole year (Chart 57). Restructured loans, both those restructured for the first time and for the second time (in the latter case the grace period is extended) increased. Although restructuring mitigate the surge in non-performing loans, it also increases the likelihood that the ratio of non-performing loans will continue to rise, albeit along a longer timeline. All this depends on the success of restructuring, i.e. the ratio of clients who will be able to service their debts when the grace period is over. (For a more detailed discussion of the topic see Box 6.)

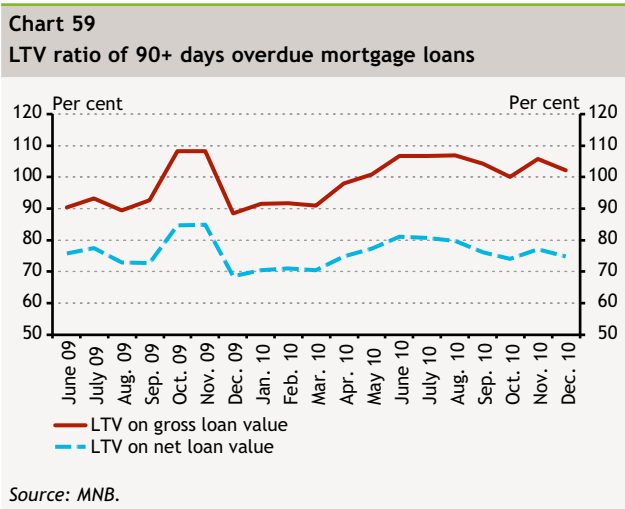
Chart 58
Cost of provisioning to total outstanding amount (12-month moving average) and loan loss coverage ratio of household loans



Source: MNB.

As the ratio of non-performing loans increased, so did loan losses. Following a hike towards the end of the first half-year, the cost of provisioning to total outstanding amount only increased moderately, edging up to above 3 per cent. At the end of the last quarter of 2010 this ratio remained unchanged, which is in line with our forecast in November 2010. However, accelerating restructuring activity prevented increase in this case as well (Chart 58). Due to the rise of provisioning, the loan loss coverage ratio of non-performing loans remained over 35 per cent.

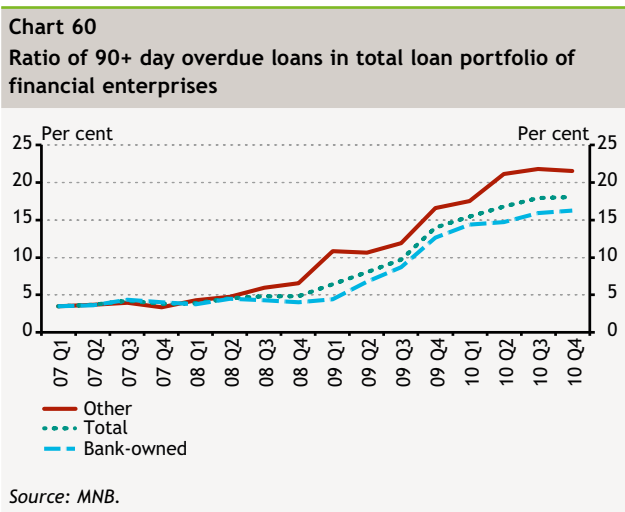
When real estate collaterals of mortgage loans are sold, further losses may be incurred. By the end of 2010 loan loss coverage ratio of non-performing loans had risen to 27 per cent. LTV stood at 102 per cent at the end of the year, with net LTV amounting to 75 per cent, which is far behind 100 per cent. If we also take into account the fact that



banks sometimes sell properties at a price well below the collateral value, further losses are likely to be incurred after the moratorium is abolished (Chart 59). (For further details see Box 7.)

The quality of the credit portfolio held by non-bank financial intermediaries is worse than that of banks

The quality of the portfolios held by non-bank financial intermediaries deteriorated further, though at a slower pace. The composition of the portfolios held by financial corporation differs from that of banks markedly, as a significant portion of the loans is not secured by mortgage. This is indeed why, in 2009, the growth in the non-performing loan portfolio was faster than that of banks, due, in part, to the fact that the inclination to pay in the case of unsecured loans and vehicle loans is lower. There was a significant slowdown in the second half of 2010, which was in line with the dynamics of default on unsecured bank loans. Even so, by the end of 2010, the ratio of loans past due for over 90 days had exceeded 18 per cent (Chart 60). Due to marked deterioration, the loan loss rate was rather high at 3.2 per cent, which was, however, much better than the 4 per cent experienced in 2009. Due to massive provisioning, the loan-loss coverage ratio of non-performing loans remained above 50 per cent.



The quality of loan portfolio held by cooperative credit institutions is worse than that of banks. The share of non-performing loans in the corporate portfolio exceeded 17 per cent at the end of 2010, representing a 2.6 percentage points increase on a year-on-year basis (Table 2). The corresponding figure for the household portfolio was 14 per cent, representing an increase of slightly over 2 percentage points since end-2009 (Table 3). The high proportion of non-performing loans and relatively low provisioning, especially on the corporate segment, pose significant risks and increase the vulnerability of cooperative credit institutions' sector.

Though at a slower pace, the ratio of non-performing loans is likely to edge up further; meanwhile the loan loss provisioning may become lower

Economic recovery improves corporations' ability to repay their debt. In 2011 economic outlook is better than in 2010; accordingly, their income position may improve this year. The growth in the ratio of non-performing loans may slow down (as mentioned, the decrease at the end of 2010 was due to one-off items); even so, it may still hover around

Table 2
Main corporate portfolio quality indicators of cooperative credit institutions

Per cent	2007	2008	2009	2010 Q1	2010 Q2
90+ delinquent loans to total loans	9.6	12.8	13.8	17.8	17.3
Coverage ratio of non-performing loans	51.7	40.9	42.9	35.0	35.2
Cost of provisioning to total outstanding amount	1.0	1.2	1.3	-	1.9

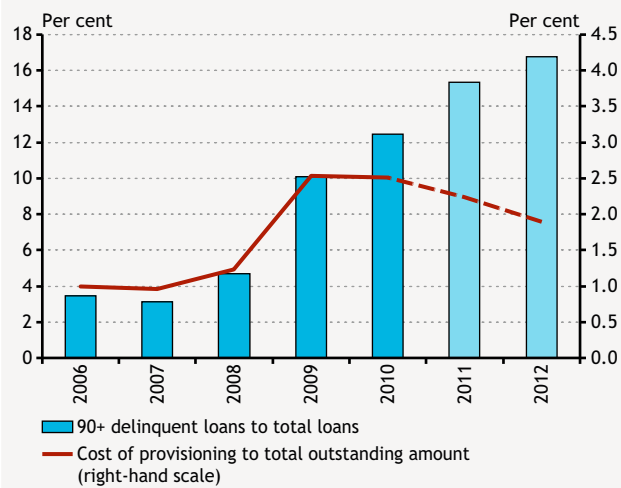
Source: MNB.

Table 3
Main household portfolio quality indicators of cooperative credit institutions

Per cent	2007	2008	2009	2010 H1	2010 H2
90+ delinquent loans to total loans	6.4	9.1	11.4	13.0	13.8
Coverage ratio of non-performing loans	53.1	47.9	50.6	46.7	46.6
Cost of provisioning to total outstanding amount	0.7	0.9	1.3	-	1.2

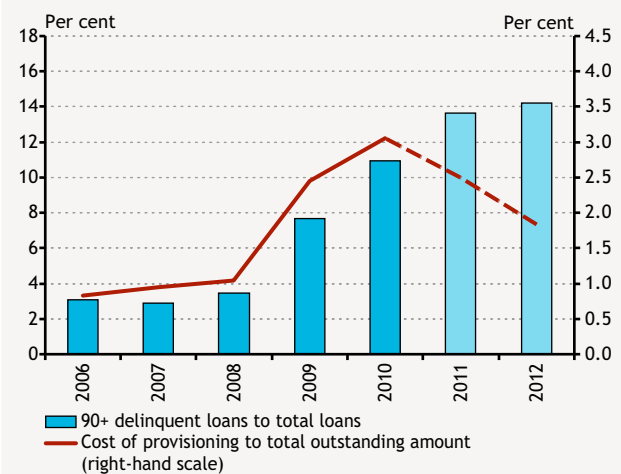
Source: MNB.

Chart 61
Forecasts for corporate loan portfolio quality indicators



Source: MNB.

Chart 62
Forecasts for household loan portfolio quality indicators



Source: MNB.

15 to 16 per cent. Loan losses may be lower in the wake of lower default frequency. As a consequence, the loan loss provisioning is likely to amount to 2 to 2.2 per cent as a proportion of the total corporate loans (Chart 61).

Increase in income may be beneficial in regard to quality of household loans. In 2011 amendments to the tax system and the disbursement of real return on private pension contributions will improve households' income position to a large extent. Simultaneously, economic recovery may gradually lead to higher employment. As a combined result, the ratio of non-performing loans is expected to grow at a slower pace reaching 13 to 14 per cent at the end of 2011. In line with such a slowdown, loan losses are likely to be lower in 2011. Nevertheless, similar to 2009, the loan loss ratio will still stand at around 2.4 to 2.6 per cent as a proportion of the total household loans (Chart 62). However, there are robust upward risks in the household segment due to the sizeable restructured portfolio. In case, at the end of the grace period, default materialises at a massive scale that would lead to a significant deterioration in the portfolio quality indicators.

Box 6

The impact of loan restructuring and portfolio cleaning on portfolio quality and loan loss provisioning

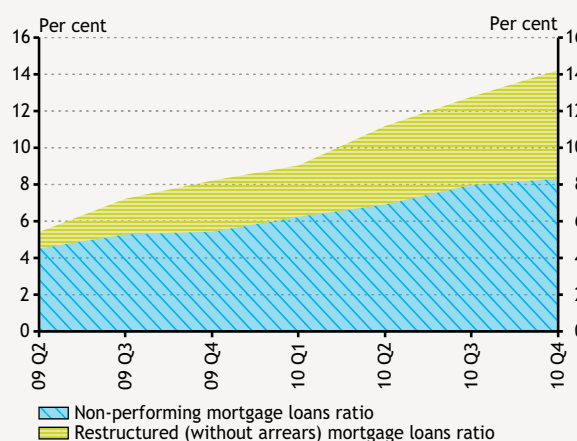
Loan restructuring and portfolio cleaning play an important role in developments in non-performing loans (those past due for over 90 days). Restructuring means that banks modify the cash flow of repayments in order to keep debtors solvent or restore debtors' debt servicing ability if they have already defaulted or they are likely to do so in the future. During portfolio cleaning non-performing loans are removed from banks' books by writing off or selling them to third parties (companies dealing factoring and collection).

Non-performing loan ratio in mortgage segment grew from 4.5 per cent to 8.3 per cent between 2009 Q2 and 2010 Q4, while the share of restructured mortgage loans (those without arrears) increased from 1 per cent to approximately 6 per cent. Although banks did manage to slow down the deterioration of portfolio quality, it remains uncertain as to what extent it will be successful. Currently, 30 per cent of the restructured loans have been past due for over 30 days; and 18 per cent have been overdue for longer than 90 days. However, it is still early to arrive at a definitive conclusion about the success of restructuring. Typically, the grace period for mortgage loans, when reduced instalments are paid, is 1 year. At the end of the grace period the instalment rises significantly because the original instalment is restored and, the temporarily suspended interest payment is capitalised. As a consequence, the success of restructuring, i.e. the restored debt servicing abilities, can be concluded only after the grace periods. In other words, up to that time restructured loans can be regarded as potential non-performing loans. Under an extreme scenario, if the entire portfolio of the restructured loans defaults, non-performing loans to the mortgage loans outstanding may reach 14 per cent. In the corporate segment non-performing loans rose from 8 per cent to 12.5 per cent to total corporate loans, while the share of restructured loans (those without arrears) remained broadly flat at around 3-4 per cent. However, this ratio could well have exceeded 16 per cent without restructuring.

The degree of portfolio cleaning also markedly affects the non-performing portfolio. If portfolio deterioration outpaces the extent to which portfolios are cleaned during any given period, outstanding non-performing loans will increase further. This trend could be observed in both the household and the corporate segment in Hungary. In spite of the annual cleaning of 15 to 20 per cent of the non-performing portfolio during the crisis, portfolio deterioration was larger, thus overall the non-performing portfolio edged up gradually.

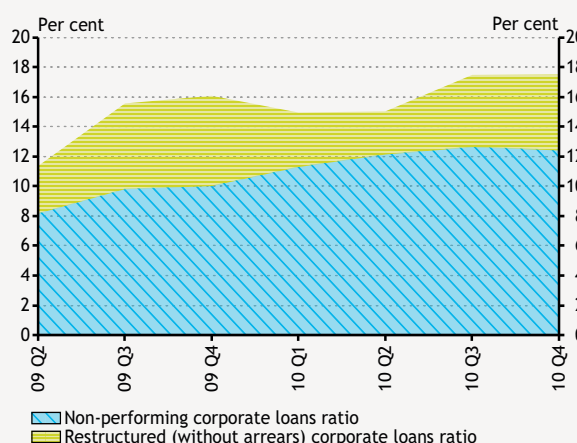
Restructuring and portfolio cleaning are also important for the banking system from the perspective of loan loss provisioning. The effect is simple in the case of portfolio cleaning, because the only question is whether provisioning for expected losses can cover realised losses, i.e. the difference between gross value and the sales price of the claim. The provisioning is subject to accounting standards in case of restructurings.¹⁴ In general, banks have to set aside at least 1 per cent provision on restructured loans that are likely to default in the future, but that are restructured before they default. If, however, a restructured loan had been a non-

The share of non-performing and restructured household mortgage loans



Source: MNB.

The share of non-performing and restructured corporate loans



Source: MNB.

¹⁴ Government Decree no. 250/2000. (XII.24.) on annual reporting and book-keeping requirements of credit institutions and financial corporations.

performing one, provision set aside earlier can be released only if the debtor services the instalments for six months in succession. If that is the case, the bank only needs to set aside 1 per cent provision on the loan and release the rest. The 1 per cent loan loss provision requirement can be considered rather low, especially when the cost of provisioning is 2 to 3 per cent on total outstanding household and corporate loans. Opportunities opened up by regulations are also reflected in the loan loss coverage of outstanding loans: the degree to which restructured, but not yet overdue loans are impaired is 7.5 per cent; the corresponding figure for non-performing mortgage loans is 27 per cent. This encourages banks to act proactively and restructure loans before they default. To conclude, restructuring is financially more favourable not only because it improves the chances that clients can service their debts later on, but also because it improves banks' profitability due to the loan loss provisioning rules. At the same time, this may give rise to prudential concerns. Unless the macroeconomic situation improves significantly or sentiments in financial markets become more benign, evergreen potentially bad loans may incur substantial losses for which financial institutions are seemingly not prepared. Therefore, we find it important to review and, if necessary, tighten regulation on loan loss provisioning of restructured loans.

Box 7

What can occur after the abolition of the moratorium foreclosures and evictions?

In Hungary, except for shorter periods, a moratorium on foreclosures and home evictions has been preventing portfolio cleaning since early 2010;¹⁵ as a result, in effect, there have been no auctions where the residential properties of defaulted mortgage borrowers could have been sold. By the increasing number of the houses needed to be repossessed and sold increased and this has built up of tremendous latent tensions in the real estate market. The moratorium also caused uncertainty as to the legal enforceability of the real estate collaterals, which, in turn, reduced the value of the collaterals securing mortgage loans. In addition, it affected clients' willingness to service their debts, because it may have made many debtors believe that defaulting on loans has no consequence. The moratorium on foreclosures, which was originally planned to expire on 15 April 2011, and the moratorium on evictions, only for housing loans, are extended up to 1st of July. In favour of the proper operation of the financial intermediary system and the economy, the lifting of the two moratoriums cannot be postponed over a long time, as tensions on the real estate market would otherwise have continued to build up.

The number of the residential properties encumbered with mortgage loans past due for longer than 90 days was over 90,000 at the end of 2010. The majority, approximately 67,000 homes, back loans provided by the banking sector; the remaining part secures loans by financial enterprises and – to a smaller extent – by savings cooperatives. Although the number of home owners in a precarious situation may be higher than the above 90,000 with loans past due for longer than 90 days,¹⁶ we will focus on them as seriously distressed borrowers.

The nationwide distribution of non-performing loans is roughly proportionate to the distribution of population. This holds true for a breakdown by both counties and settlement types. Approximately 60 per cent of homes serving as collateral are in the lower middle market category, in the HUF 5 to 15 million range. Mortgage lending has not prevailed in the below HUF 5 million downmarket segment (where close to one-fifth of the national home stock belongs) because of the poor creditworthiness of the related homeowners and the low collateral value of these residential properties. Although residential properties in the above HUF 30 million upmarket category are over-represented among homes encumbered with mortgage loans, their share in the total portfolio of non-performing loans is only 7 per cent. Due to the weakening of the forint and a drop in the prices of residential properties, currently, 20-30 per cent of the borrowers have a loan contract with negative equity, i.e. where the outstanding loan amount exceeds the collateral value (LTV>100 per cent).

Due, also in part, to the moratorium on home evictions, over the past few years the number of residential properties of defaulted mortgage debtors has increased relative to the overall number of residential property transactions. The number of the real estates of defaulted mortgage debtors (approximately 90,000) was about 25 per cent higher than that of residential property sales in 2010 (72,000)

¹⁵ The legal context of the moratorium was discussed in detail in the November 2010 issue of MNB's *Report on Financial Stability*.

¹⁶ Beyond borrowers having more than 90 days overdue the potentially endangered group may also include a further approximately 95,000 mortgage loan debtors: some are with restructured loans (approx. 50,000 contracts), other are debtors whose loan has been in default for 30 to 90 days (approx. 45,000 contracts). The situation of those with public utilities arrears or other unsecured debt is also precarious because such debts can also be enforced in a litigation process in a manner that the home-owner's real property is foreclosed or auctioned.

Non-performing mortgage loans and real estates in the financial system

	Dec. 2008	Dec. 2009	Dec. 2010
Mortgage loans 90 days overdue in the banking system			
Loan volume, gross (HUF billion)	97.8	317.5	541.6
Loan volume, net (HUF billion)	81	244.9	393.8
Number of loan contracts	45,099	68,464	83,350
Number of real estate collaterals (mortgages)	17,754	48,536	66,867
Mortgage loans 90 days overdue in other financial intermediaries			
Loan volume, gross (HUF billion)	49.4	93.3	119*
Number of loan contracts	15,900	21,900	23,800*
Number of real estates covering non-performing mortgage loans (estimation)			
	33,654	70,436	90,667

Note: Figures with * regard data as of June 30, 2010.
HFSA, MNB.

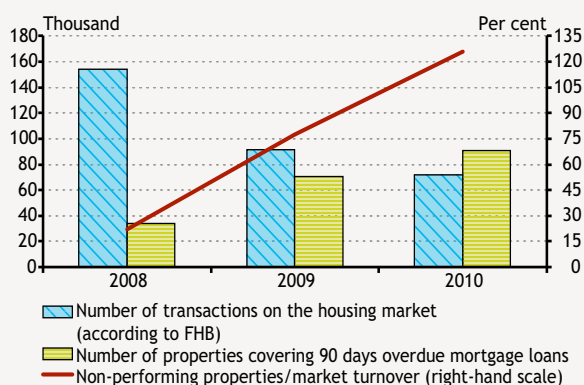
and accounts for 2.2 per cent of the national stock of homes (4.3 million). In some regions and in small settlements, compared with the national average, the non-performing loans ratio had become especially high by 2010. Thus, for instance, in Békés, Borsod-Abaúj-Zemplén, Heves, Nógrád, Komárom-Esztergom and Pest counties the number of homes owned by defaulted debtors is twice as the number of 2010 regional residential property transactions. On the other hand, the advantages of the regions in a better situation are also relative. Even in Budapest where indicators are the best in this respect, the ratio of properties backing mortgage NPLs to the 2010 transactions is 86 per cent.

After the expiry of the moratorium, the flood of repossessed properties for sale and the resulting potentially sharp drop in residential property prices will affect banks adversely via several channels:

- further write-offs of loan losses on the non-performing portfolio may become inevitable;
- a drop in the value of collaterals may entail a higher capital requirement even for performing loans;
- additional collateral may have to be provided in the case of mortgage bonds issued against residential properties (although the banks affected have enough liquidity);
- if banks' portfolio cleaning slows down, capital and opportunity costs will be incurred on an on-going basis;
- due to declining housing prices, the LTV of the residential properties of an increasingly high number of debtors will exceed 100 per cent, which may lead to lower willingness to service their debts (although it must be stressed that in the current legal environment (i.e. lack of personal bankruptcy, it is highly irrational for debtors to default even on loans backed by residential properties with LTV exceeding 100 per cent).

In addition to direct impacts indirect ones may also materialise. Due to higher loan loss provisioning and reduction in bank's excess capital, a further drop in residential property prices may undermine banks' lending capacity and, hence, economic growth. As the value of eligible collaterals drops, there may be a similar drop in the number of newly granted housing and home equity loans, thereby reducing household consumption and investments. Deeper recession in the residential property market may also lead to significant contraction in the construction industry. In order to mitigate financial stability risks and to avoid weaker economic growth, measures over coordinated portfolio cleaning aimed at preventing negative price shocks in the residential property market are welcome.

Tensions on the housing market – number of "non-performing" real estates related to the total turnover of the housing market

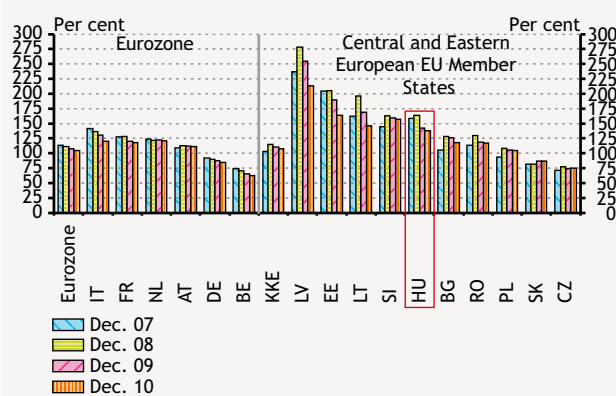


Source: MNB, FHB.

2.3 The outflow of external funds accelerates, while the maturity profile of the outstanding amount shortens

The short-term liquidity of the banking sector is stable. Due to the high reliance on external funding, the domestic banking sector is facing significant funding difficulties; therefore, on longer term rising rollover risks are expected. In 2010 H2 there was a sizeable outflow of external funds, with the largest share withdrawn in the last quarter. This outflow can be linked to banks' deleveraging only in part. The decrease in external funds entailed the sale of central bank bills and a rise in the FX swap portfolio, i.e. banks started to downsize the sizeable liquidity buffers that they had built up earlier. At the same time, the decreasing country exposure may also suggest a change in banks' funding strategy and the reallocation of funds to other subsidiaries. This is corroborated by the fact that the outstanding amount of external funds either remained broadly flat or increased in the neighbouring countries in the second half of 2010. The outflow of external funds affected mainly those with long-term original maturity, resulting in a shorter maturity profile. The shortening of maturities driven by cost saving considerations was faster in Hungary than elsewhere in the region. This adds to domestic banks' maturity risks significantly. Therefore, it is important for banks to give priority to risk considerations over the cost-related ones.

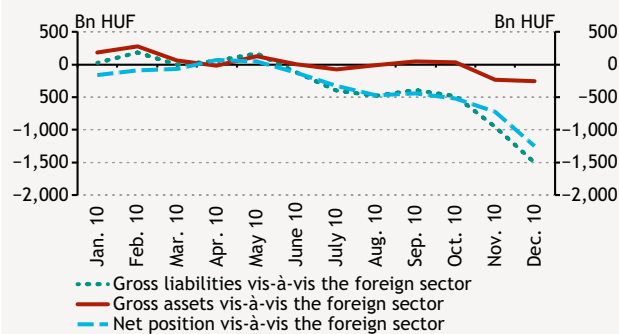
Chart 63
The loan-to-deposit ratio in international comparison



Source: ECB, MNB.

Chart 64
The foreign sector's gross assets and liabilities vis-à-vis the banking sector

(exchange rate adjusted and cumulated)



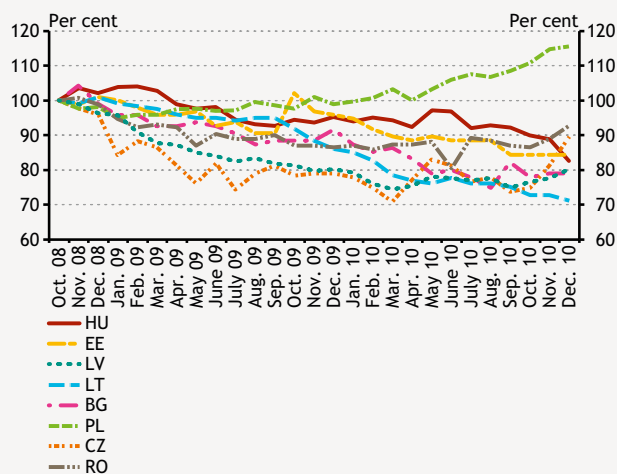
Source: MNB.

Domestic banks' external funds decreased fast and significantly in the second half of 2010. Since the first quarter of 2009 external funds had stagnated for nearly a year despite an declining loan-to-deposit ratio (Chart 63). The reason for this was that foreign parent banks were willing to fund a liquidity buffer of the banking sector. The fact that the government had had the central bank to convert the IMF loan into HUF and then used the converted amount to repay government bonds issued in HUF allowed an increase in the mainly HUF-denominated liquidity buffer at a system level. This led to a huge increase in the outstanding amount of MNB bills of the banking sector. Foreign investors funded the increase in the asset side liquidity buffer steadily up to mid-2010. However, approximately HUF 1,371 billion (EUR 4.9 billion) was withdrawn from the banking sector in the second half of 2010, with the most sizeable part withdrawn in the last quarter (Chart 64). Simultaneously, the domestic banking sector's claims vis-à-vis the MNB (central bank deposits and MNB bills) also declined. The outstanding amount of external funds of the banking sector is approximately HUF 1,460, i.e. 17 per cent, which is lower with than the pre-crisis levels. If we also account for the decline in external assets, the net position vis-à-vis the foreign sector only decreased to a lesser extent, by HUF 1,200 billion or 20 per cent.

The main reason for the withdrawal of external funds is the downsizing of the liquidity buffer, while the minor one might be the weakened capability of the banking system to attract capital. The banks had built up a significant amount of (HUF) liquidity, with the ratio of liquid

Chart 65
Foreign liabilities of the banking sector in international comparison

(October 2008 = 100 per cent)

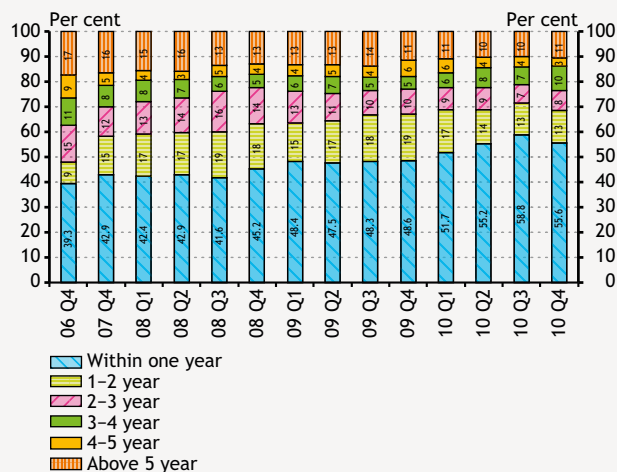


Source: ECB.

assets to total assets reaching 24 per cent. With some caution, banks may downsize such a sizeable liquidity buffer. This is shown by the fact that several banks converted their HUF liquidity into FX liquidity via swap transactions to repay their foreign loans. Furthermore, the domestic banking sector's foreign currency denominated assets also decreased due to foreign currency denominated loan repayments and reduction in foreign currency denominated lending (to foreign sector and financial enterprises). The downsizing of external funds on such a large scale, relative to the downsizing of foreign currency denominated assets, and in such a short time (most of it took place in the final quarter of 2010) suggests a turning point in the strategy of banks. The fact that parent banks allocate funding to other subsidiaries due to the low profitability of the domestic banking sector poses a risk,¹⁷ which reduces its lending capacity. This is corroborated by the fact that – in comparison with CEE countries – the downsizing of the external funds in the domestic banking sector in November-December 2010 is a country-specific phenomenon, as external funding stagnated or increased in most of the neighbouring countries (Chart 65).

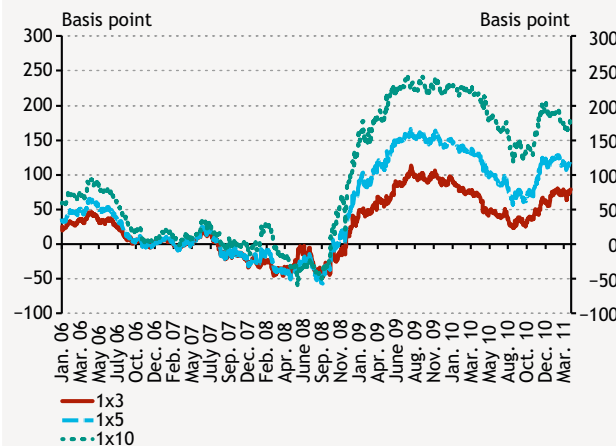
The maturity of external funds shortens at a fast pace. The share of external funds with remaining maturity of less than 1 year to the total external funds rose from 49 per cent to 56 per cent in 2010 (Chart 66), while that of those with original maturity of less than one year rose from 30 per cent to 37 per cent. This trend is not specific to Hungary; it is a widespread phenomenon in the euro area. Higher

Chart 66
Breakdown of the external liabilities of the banking sector and branches by remaining maturity



Source: MNB.

Chart 67
Term premia derived from the euro interest rate swap yield curve

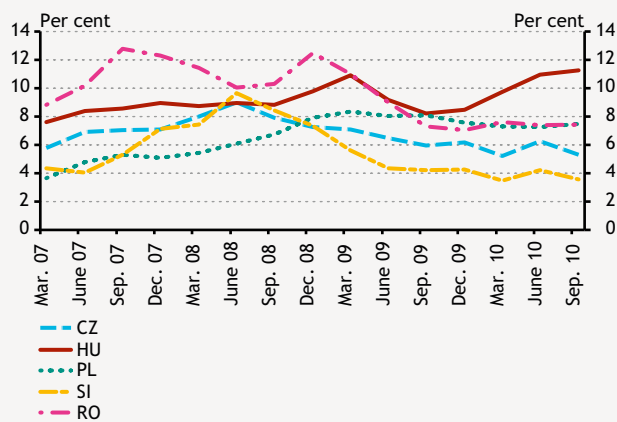


Note: The 1x3, 1x5 and 1x10 premia indicate the extent to which the 3, 5, 10-year euro interest rate swap yield exceed the 1-year euro interest rate swap yield.

Source: Thomson Reuters.

¹⁷ Price conditions have made parent bank funding difficult: the CDS premia charged by parent banks are 50 to 100 basis points higher than they had been before the onset of the crisis.

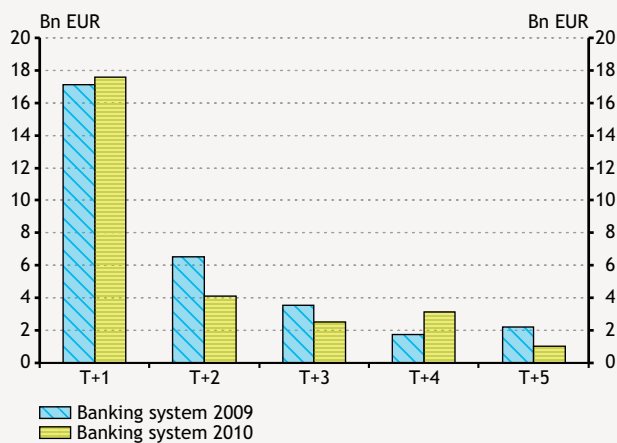
Chart 68
The ratio of short-term original maturity external funds to total assets in international comparison



Source: IMF, ECB and the websites of the individual central banks.

sovereign risks in the euro area and its rather adverse impact on the funding of the banking sector have made longer-term funds significantly more expensive compared to short-term ones. (Chart 67). Shorter-term funding is also actuated by the fact that euro area parent banks can easily obtain short-term funds from the European Central Bank. Giving priority to profitability considerations, banks are tilted toward short-term funding despite the fact that this adds to the roll-over risk. Hungary, due to the high level of its financial integration, i.e. its heavy reliance on external funds, cannot cut itself adrift from these adverse trends. It is important to add that the shortening of the maturity of external funds in the Hungarian banking system was faster than in other regional countries (Chart 68). Due to the shortening, short-term roll-over needs of external funds are increasing (see Box 8) (Chart 69). The roll-over risk is cushioned by the fact that the share of parent bank funding to total external funding is 63 per cent.

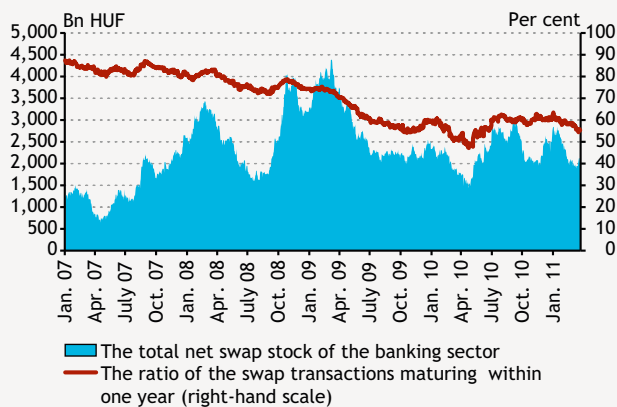
Chart 69
Maturing external funds of the banking sector



Source: MNB.

In parallel to the decreasing external funds the high reliance on the FX swap market remains. The on-balance sheet open FX position of the banking sector as well as the total net currency swap portfolio have declined since March 2009, and at the same time, banks were able to lengthen the maturity of swap transactions (Chart 70). However, in mid-2010, i.e. when the outflow of external funds started and margin calls increased due to the appreciation of the Swiss franc, the net FX swap portfolio began to rise again, accordingly, and accelerated in the final quarter against a background of a sharp rise in the outflow of funds. An adverse development is a simultaneous increase in the ratio of short-term swaps, which increased the roll-over risk of FX swaps as well. In Q1 2011, the net FX swap portfolio decreased markedly; however the domestic banking sector remains highly reliant on the FX swap market. On the other hand, the roll-over risk arising from larger maturing volumes may be cushioned by the fact that the ratio of the transactions with parent banks is high relative to the pre-crisis level, amounting to 35 to 40 per cent among members of non-resident banking groups.

Chart 70
The total net swap outstanding of the banking system and the ratio of the currency swap transactions maturing in one year



Source: MNB.

Box 8

Simulation of developments in short-term external funds

The external funds of Hungarian banks started to fall fast, with their maturity becoming shorter. Although the shortening of the maturity of funding is not pertaining only to Hungary, its impact is stronger in Hungary than elsewhere in the region due, in part, to the pace of shortening and, in part, to Hungary's steadily high reliance on external funds.

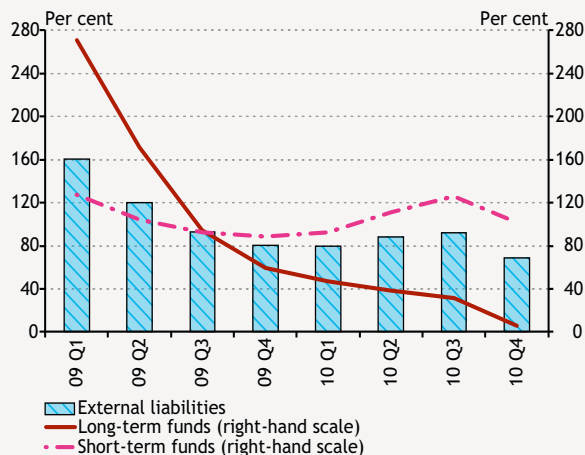
Shortening is easy to trace through the developments in the roll-over of short-term and long-term external funds. In 2010 only 6 per cent of the external funds with an original long-term maturity were renewed. As for funds with a short maturity, the rate of renewal exceeded 100 per cent, i.e. the portfolio increased. This means that the banking sector either replaced its long-term funds with short-term ones or decided not to roll-over some.

Based on this, we examined how the share of short-term external funds in the entire portfolio may change in the coming two years, assuming that the roll-over rate will remain at the end-2010 level. Our further assumption is that the long-term funds that are renewed do not mature within 1 year during the examined horizon, meaning their original maturity will be after December 2013. Our results show that the rate of external funds with an original maturity of less than 1 year will rise from 36.5 per cent to 52.5 per cent; in contrast, funds with a remaining maturity of less than 1 year will increase at a slower pace from 55.6 per cent to 63 per cent. Although the roll-over rate of short-term external funds only slightly exceeds 100 per cent, i.e. the outstanding amount of external funds would rise only moderately, given the reduction in the total portfolio, the relative role of short-term funds would increase faster.

This suggests that the importance of short-term external funding may increase significantly in the future. Heavy reliance on short-term funds adds to the roll-over risk in the banking sector. Accordingly, it is not only banks' resilience against shocks, but, due to increased liquidity risk, their lending capacity will also be weakened.

These trends will also lead to the deterioration of the liquidity ratios under Basel III to be phased in from 2015. Although it is still a long time before the full adoption of Basel III, it cannot be ruled out that banks will be in a much worse situation in which to adjust to the new liquidity ratios (i.e. liquidity coverage ratio and the net stable funding/stable assets). This will exacerbate the real economic impacts of an adjustment. Therefore, these risks should be managed as soon as reasonably possible.

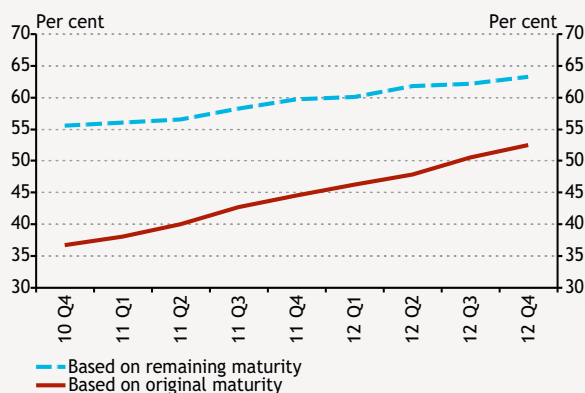
The estimated rollover ratio of external funds



Note: The rollover ratio is equal to the new funding with same original maturity type/the maturing funding in the respective quarter.

Source: MNB.

The estimated share of external funds in total external funds according to original and remaining maturity

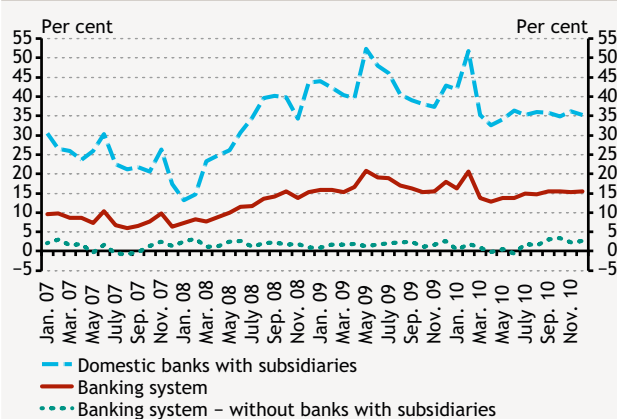


Source: MNB.

2.4 Through its exposure to government securities, the banking sector is vulnerable to changes in longer-term yields

The HUF/FX swap market continues to play a key role in hedging the on-balance sheet exchange rate risks of the domestic banking sector; therefore, its smooth operation is crucial for financial stability to be maintained. Most domestic banks, with the exceptions of those with foreign subsidiaries, keep their open FX positions at a prudently low level. The income position of banks is increasingly vulnerable to a possible devaluation of the growing government securities portfolio that might be incurred in response to market turbulence. However, the banking sector's direct market exposure to short-term interest rate risk remains relatively low.

Chart 71
The banking sector's total open position to own funds for solvency purposes

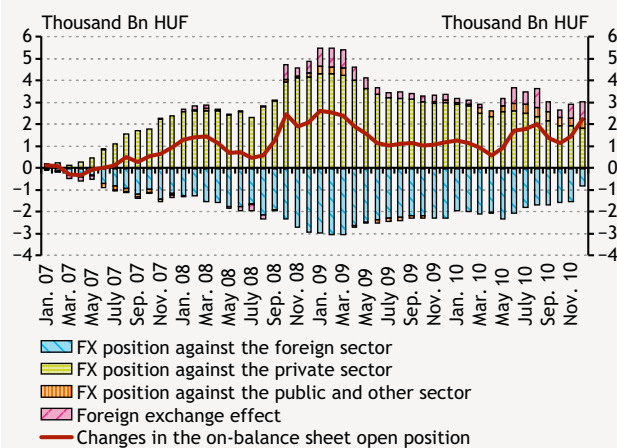


Source: MNB.

The banking sector's total open FX positions remain stable at low levels; nevertheless, the increasing exposure to the swap market carries risks. Most domestic banks, with the exceptions of those with foreign subsidiaries, hedged their on-balance sheet exchange rate exposures predominantly via FX swaps (Chart 71). The Hungarian banking sector's on-balance sheet exchange rate exposure rose markedly in the second half of 2010 (Chart 72). In the meantime, implied FX yields priced in FX swaps diverged from international interbank yields at both short and long maturities, meaning that the hedging of OBS positions became more expensive. Therefore, in 2010, in addition to FX swaps, futures/forwards with corporations and FX swaps with the central bank played an important role in closing open FX positions (Chart 73). Banks with foreign subsidiaries do not hedge their capital investments in other members of their banking group by way of off-balance sheet items; accordingly, their overall FX positions remained sizeable.

Chart 72
The on-balance sheet open position of the banking system and its breakdown

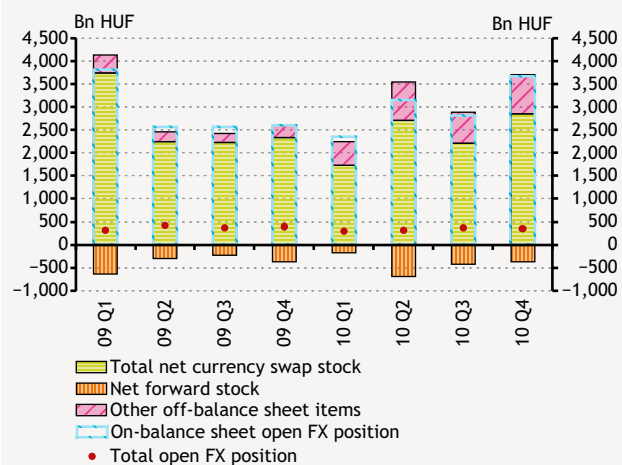
(cumulated)



Source: MNB.

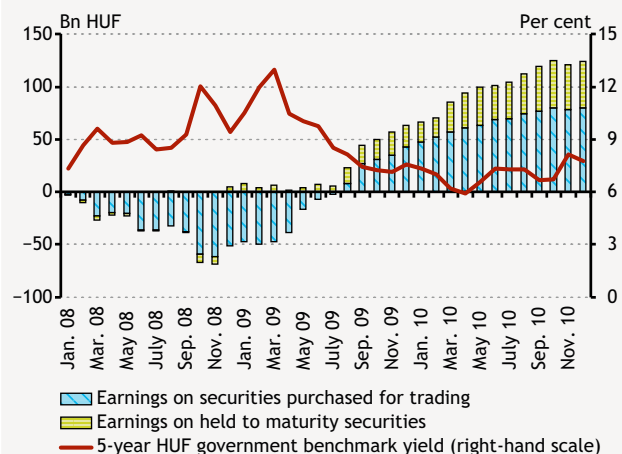
Due to reduction in HUF yields with longer maturity in the first half of 2010, the banking sector realized significant gains on its government securities portfolio. The capital market exposure of the banking sector accounts for 8-12 per cent of total assets, of which a significant part is government securities. The majority, 80 to 85 per cent, of government securities denominated in forint are of longer maturities. A persistent and substantial decrease in HUF yields could result in a significant profit increase for the banking sector on the government bond portfolio having an average remaining maturity of 2.4 to 2.9 years. The extent of this profit depends on the share of exposure hedged by interest rate swaps and other derivatives, hence accounting standards applied by the banks. Accordingly, due to decreasing yields, the banking sector realized gains in both 2009 and 2010 (Chart 74). Nevertheless, this points to the fact that the banking sector is, through its exposure to government securities, vulnerable to potential market turmoil.

Chart 73
Decomposition of the hedging of the on-balance sheet open FX position



Note: The stock of different types of transactions is the sum of foreign currency amounts calculated at actual foreign exchange rates.
Source: MNB.

Chart 74
The effect of HUF yields on P/L of the banking sector through the government securities portfolio (cumulated from January 2008)



Source: MNB.

The banking sector's exposure to short-term interest rate risk remains relatively low. As regards the forint, the three-month re-pricing gap¹⁸ is negative, which is mainly attributable to the sizeable variable rate and sight deposit portfolio denominated in forint. Based on this indicator, interest rate hikes might pose risks to profitability in the short run; however by adjusting for sight deposits, that are rigid, the re-pricing gap is almost closed. To conclude, changes in the HUF policy rate only affect the profitability of the banking sector to a small extent. The EUR and USD re-pricing gap is in the negative range, close to zero; that of CHF is somewhat lower than the 2010 annual average, but is still in the positive domain.¹⁹ The interest rate gap narrowed somewhat in the case of all three currencies in the final quarter of 2010.

¹⁸ The re-pricing gap denotes the difference between the assets and liabilities that are re-priced within 90 days as a proportion of total assets. It includes both on- and off-balance sheet items.

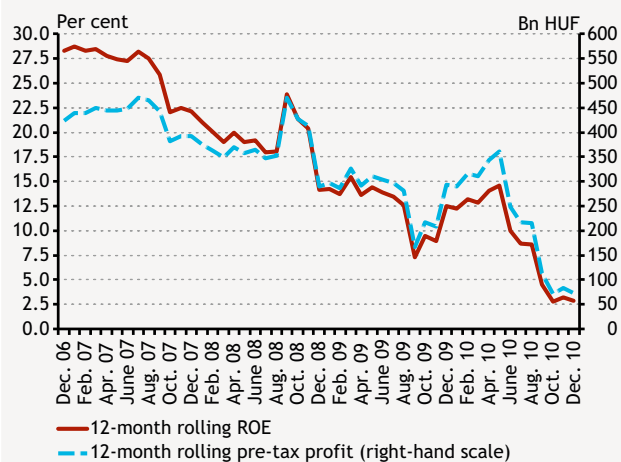
¹⁹ In the case of the Swiss franc, due to the variable rate loans, the re-pricing gap is positive.

2.5 The profitability of the domestic banking sector is low in regional comparison

Banking sector profitability deteriorated drastically in 2010, while the previously noted asymmetry between banks has increased. This poorer performance was, however, due basically to the bank levy. In order to maintain the profitability of banking operation, banks passed part of their impairment and funding cost onto their well-performing customers. If the entire bank levy is maintained in 2011 and 2012, profitability is expected to remain low, which will in turn weaken banks' ability to accumulate internal capital and attract new capital and funds. Moreover, the risk will increase that parent banks reallocate their funds from their Hungarian subsidiaries to regional banking systems promising higher profitability. All this may further deteriorate Hungarian banks' lending capacity. The banking sector is sufficiently capitalised. Due to decline in lending and capital injections, the capital adequacy ratio (CAR) grew. Simultaneously, the outcome of the intensified ICAAP-SREP dialogues in 2010 involved a significant increase in the regulatory capital requirements.

Given the increasing losses of financial enterprises additional capital injection is needed in this segment. The cooperative credit institutions continue to generate a small profit; meanwhile, provisioning does not follow the deteriorating portfolio quality, which generates latent risks.

Chart 75
ROE indicator and pre-tax profit of the banking sector, including branches



Source: MNB.

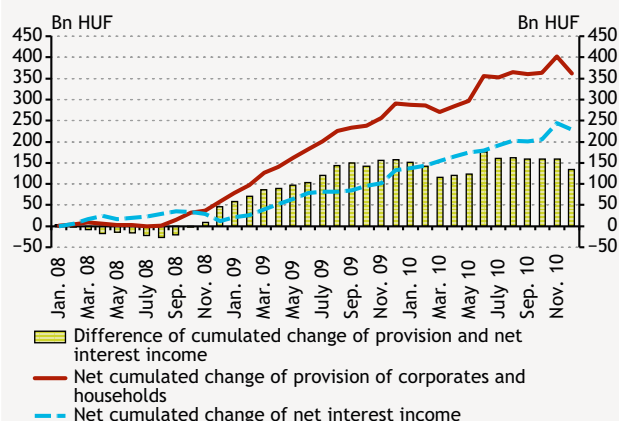
Excluding the bank levy and one-off items, the banking sector profit in 2010 was similar to that of 2009. The banking sector pre-tax profit dropped significantly from HUF 294 billion recorded at the end of 2009 to HUF 73 billion by the end of 2010, and its ROE (return on equity) decreased from 12.5 per cent to 2.8 per cent, indicating an extremely low internal capital accumulation capacity (Chart 75). However, in evaluating these data, consideration should be given to the pivotal role of the HUF 126 billion bank levy, and the tighter provisioning policy of a bank, which resulted in a loss of nearly HUF 90 billion. Excluding these items, the banking sector pre-tax profit would be nearly identical to the corresponding 2009 data.

The banking sector's favourable profitability resulted from increase in net interest income. Interest income increased in conjunction with a decline in business activity, thus actually increasing bank profitability. There are three reasons that explain increase in interest incomes: first, the ratio of cheaper, short-term funds increased relative to long-term funds; second, the weaker HUF exchange rate on average increased interest income expressed in HUF; and third, banks managed to pass financing costs and higher loan loss provisioning due to portfolio deterioration onto their well performing customers (Chart 76).²⁰ Trading income remained significantly below the corresponding 2009 data, as expected. Corporate loan loss provisioning remained broadly flat, while the aggregate loan loss provisioning on household loans slightly exceeded the level of 2009.

²⁰ The higher interest burden on the existing costumers increased the probability of default. Although, the increase on provisioning was lower than the increased interest income.

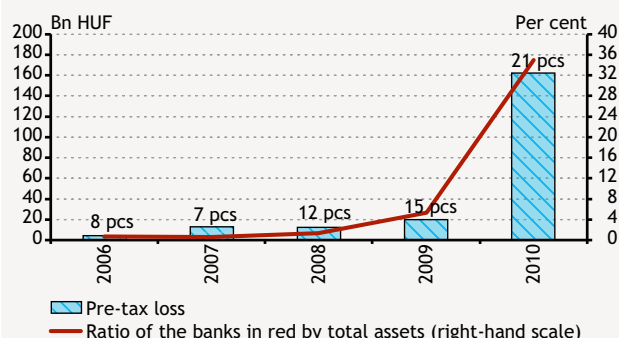
Chart 76
Net interest income and provisioning of corporate and household loans within the banking sector including branches

(12-month rolling data)



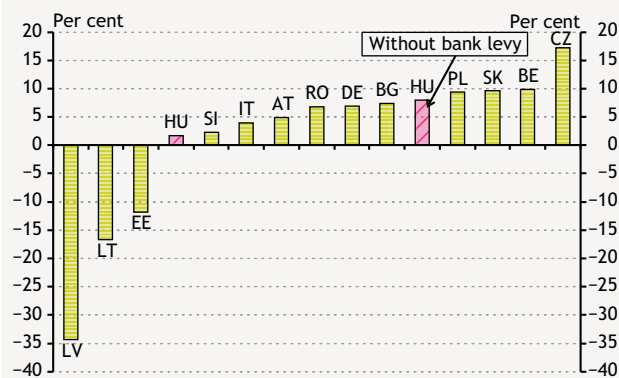
Source: MNB.

Chart 77
The number and pre-tax loss of the banks in the red and their market share by total assets



Source: MNB.

Chart 78
ROE indicators of banking sector in international comparison



Note: In the case of Hungary, non-consolidated data for end of 2010; in the case of other countries, consolidated annualised data for H1 of 2010. Source: MNB, ECB CDB database.

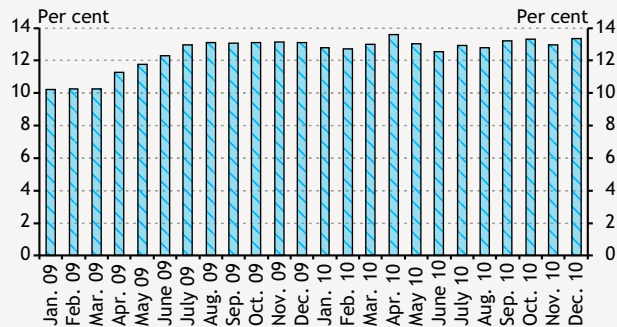
Decrease in the pre-tax profit entailed increased asymmetry in profitability. Based on pre-tax profit, the number of banks in the red increased from 15 to 21, and their share based on balance-sheet total from 5 per cent to 35 per cent of the balance sheet of the total banking sector between end 2009 and end 2010 (Chart 77). The total profit raised by profitable banks dropped from HUF 314 billion to HUF 235 billion, while the total loss made by banks in the red increased from HUF 20 billion recorded at the end of 2009 to HUF 162 billion at the end of 2010. Without the bank levy, 18 banks would have made losses, with a balance-sheet based market share nearing 25 per cent. Without the bank levy, 18 banks would have been in the red, while their market share by total assets would have reached 25 per cent.

With the exception of the Baltic countries, profitability is lower in the domestic banking sector than in the countries of the parent banks and other countries of the region. A comparison of profitability within the region reveals that the Czech Republic, Slovakia and Poland are the leaders in Central Eastern Europe. In contrast, the Baltic countries and Hungary are among the countries with the lowest profitability. If this low profitability remains for a longer period, in addition to banks' weakening ability to accumulate internal capital, Hungarian banks may suffer a competitive disadvantage in the allocation of parent banks' funds and capital. This, in turn, may have an adverse impact on lending capacity, and consequently, on economic growth (Chart 78). This risk is considerably increased by the upholding of the current level of the bank levy in both 2011 and 2012. Meanwhile, in respect of the fundamental developments, it is a favourable that the Hungarian banking sector's earning capacity on its core business activity is high. Without the bank levy Hungary would be in the leader's group of Europe instead of in its current poor placing (for further information on banks' business expectations, see Box 9).

At a banking sector level, the capital adequacy ratio slightly increased in 2010, and is considered adequate at a sector level. The 13.3 per cent capital adequacy ratio is only very slightly above the late 2009 figure. This growth is explained by several factors offsetting each other: while the registered capital, capital and profit reserves and the audited profit, increased, the individual banks' losses reduced the indicator (Chart 79). The capital adequacy appropriate on a sector level is also satisfactory at the level of the individual banks. The CAR indicators of the individual banks are mostly above 9.5 per cent (Chart 80). The non-group level CAR concluded after ICAAP-SREP dialogues was 11.5 per cent at the end of December 2010 (for further details see Box 10).

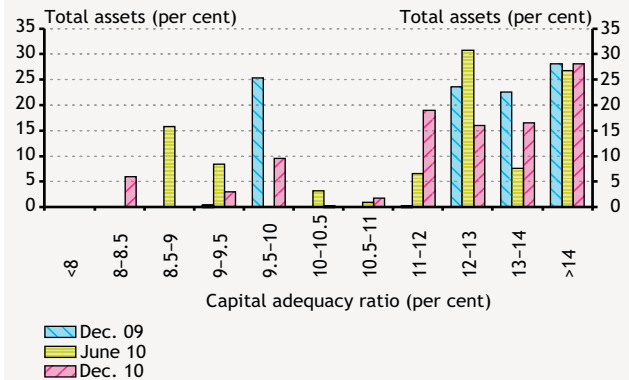
Since financial enterprises' pre-tax profit deteriorated considerably, bank owners have to raise capital further.

Chart 79
Capital adequacy ratio of the banking sector



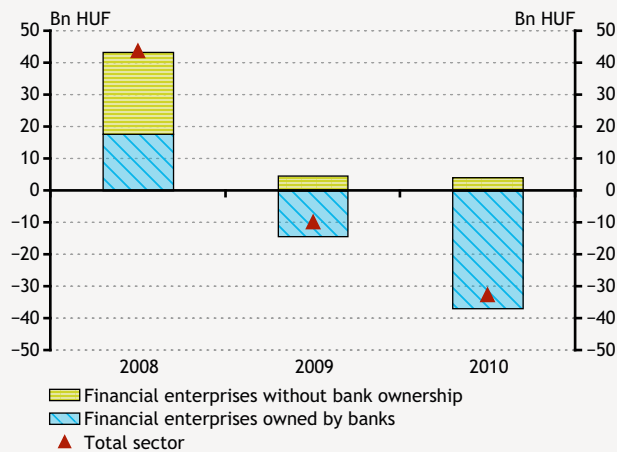
Source: MNB.

Chart 80
Dispersion of banks' total assets by capital adequacy ratio



Source: MNB.

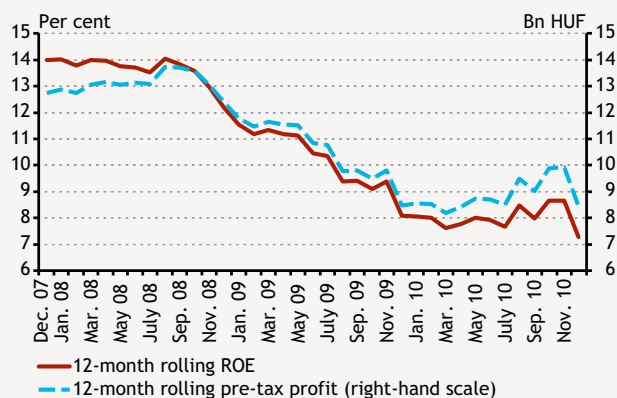
Chart 81
Pre-tax profit of financial enterprises



Source: MNB.

In 2010 the financial enterprises as a whole accumulated HUF 33 billion losses before taxation (Chart 81). An interesting asymmetry can be observed between ownership structures. While non-bank-owned financial enterprises realised HUF 4 billion pre-tax profit, those in banks' ownership made losses in the amount of HUF 37 billion. The material difference can be partly explained by the lower loan loss coverage of non-performing loans by the non-bank owned financial enterprises, which implies less loan loss provisioning. The bank-owned financial enterprises might need capital injections due to their losses.

Chart 82
ROE indicator and pre-tax profit of the cooperative credit institutions



Source: MNB.

The actual profitability and the capital position of the cooperative credit institutions may fast deteriorate due to additional loan loss provision needed. Savings co-operatives' pre-tax profit practically did not change: the HUF 8.5 billion profit recorded for 2009 fell to HUF 8.4 billion in 2010 (Chart 82). The better profitability than that of the banking sector can be attributed to several factors. The cooperative credit institutions' balance sheet composition considerably differs from that of the banking sector: the ratio of corporate and household loans is lower and foreign currency denominated loans have only a very slight share, while loans to credit institutions and government securities have higher shares. Nevertheless, low loan loss provisioning also contributes to better profitability. Another difference lies in the fact that 75 per cent of the cooperative credit institutions have adjusted balance-sheet totals below HUF 50 billion, thus they were required to pay the bank levy based on lower rates. The capital adequacy ratio of the cooperative credit institutions was 14.7 per cent at the end of 2010 presuming strong capital position. Nevertheless, there is considerable risk owing to the non-prudential provisioning practices of the sector; the capital adequacy ratio might actually be lower than the reported one.

Box 9

Business expectations of domestic banks for 2011 based on MNB's Market Intelligence meetings

Within the framework of its Market Intelligence survey, in February and March 2011 the MNB contacted the eight largest Hungarian commercial banks and two branches of foreign banks active in the financial markets abroad to gain insight into the key figures of their 2011 business plans and their expectations over the market. Building on the experience of previous surveys, in addition to their own targets, this year MNB surveyed banks' expectations regarding the entire bank sector. Based on the responses, the overall conclusion is that the most significant objectives for 2011 are the improvement of the credit risk indicators, the strengthening of profitability and efficiency position, and the increase in self-financing capacity.

Concerning lending to non-financial corporations, the individual banks' plans suggest a definite intention to grow in 2011, although at a sector level banks expect only a moderate 1.6 per cent expansion. This fundamentally differs from the central bank's forecast

Banks' target figures for the financial year of 2011

Indicators	End of 2010 values		Weighted average of individual banks' plans for 2011	Mean of banks' expectations regarding overall banking system for 2011	
	Banking sector	Surveyed banks			
I. Balance sheet developments					
1. Increase of balance sheet total (y-o-y growth in per cent)	-1.8%	-3.3%	-1.1%	1.4%	
2. Credit growth targets (y-o-y growth in per cent):					
a. Households	-3.6%	-4.5%	-4.6%	-0.4%	
b. Non financial corporations	-5.3%	-7.0%	3.7%	1.9%	
c. Financial corporations	-20.0%	-18.3%	-3.7%	-2.9%	
3. Growth targets for deposit taking (y-o-y growth in per cent):					
a. Households	-5.7%	-6.9%	4.1%	4.2%	
b. Non financial corporations	6.8%	7.7%	8.8%	1.6%	
c. Financial corporations	4.2%	4.8%	2.5%	4.9%	
II. Liquidity, asset-liability matching					
1. Loan-to-deposit ratio (change in percentage point)	-6.0 percentage point	-6.6 percentage point	-13.9 percentage point	3.7 percentage point	
2. Foreign funding / balance sheet total (per cent)	29.5%	28.4%	19.4%	29.4%	
3. On balance sheet open FX position (per cent)	12.1%	14.5%	12.1%	8.0%	
III. Portfolio quality					
1. Non-performing loans' ratio (per cent)				not enough responses for drawing conclusion	
a. Households	10.9%	10.5%	14.0%		
b. Non financial corporations	12.5%	12.2%	13.1%		
c. Loans total	8.7%	8.6%	10.1%		
2. Loan loss provisioning (as per cent of total loans)					
a. Households	3.0%	2.8%	2.9%		
b. Non financial corporations	2.6%	2.6%	1.7%		
c. Loans total	2.2%	2.1%	1.6%		
III. Profitability					
Profit before tax (HUF billion)	73 Bn HUF	43 Bn HUF	210 Bn HUF		
ROA (%) (before tax)	0.2%	0.2%	0.7%		
ROE (%) (before tax)	2.8%	2.0%	7.1%		
IV. Capital position					
Growth in Risk Weighted Assets total (y-o-y change, in per cents)	-2.4%	-3.0%	-0.1%		
Capital adequacy ratio	13.3%	13.2%	12.6%		

Note: Individual banks' target figures based on balance-sheet totals and weighted for share in the particular business segment. Facts and projected data as of the year-end. The projected bank sector average is an arithmetic average.
Source: MNB's Market Intelligence survey.

projecting 1.3 per cent contraction. The difference between individual and sector-level expectations suggests that the individual banks are likely to continue their efforts to gain share among the best borrowers (“cherry picking”). Based on the banks’ expectations, the individual banks as well as the sector as a whole will further reduce loans outstanding in the household sector in 2011, in line with the central bank’s forecast. What is striking, however, is that while the central bank’s forecast is for a nearly 3 per cent decline, banks expect only 0.4 per cent. Lending to households could be constrained also by the fact that the surveyed institutions expect to further cut lending to financial corporations.

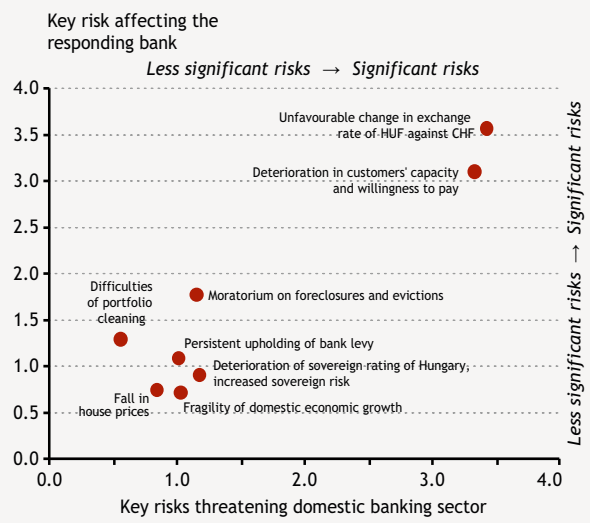
On the deposit side, growth is planned in deposits from households, non-financial corporations and financial corporations (partly from investment funds). In the household segment, as a result of personal income tax amendments and the disbursements of real yields on private pension funds, larger disposable income may increase savings. Based on banks’ individual plans for deposits by non-financial corporations, the targeted deposit growth far exceeds the projected sector total. This is in line with the efforts that banks intend to reduce their reliance on external funds. Overall, banks plan to moderately reduce the loan-to-deposit ratio in 2011, similarly to the previous year, while the balance-sheet open FX position may level out.

Regarding portfolio quality, banks expect, in line with the central bank’s forecasts, a rise in the proportion of loans past due for over 90 days, albeit at a decelerating pace in both the household and non-financial corporation segment. In the non-financial and financial corporation segments, the need for further loan loss provisioning may decline. Consequently, the cost of provisioning to the total corporate loans may also decline, according to the banks’ plans. This overall picture corresponds to the central bank’s forecast; however, it is important to highlight that banks expect a mere 1.7 per cent loan loss provisioning as a percentage of total corporate loans, while MNB’s projection is 2.2 per cent. In turn, in the household segment banks are far more pessimistic and assume 2.9 per cent loan loss provisioning, while the central bank expects 2.4 per cent.

Based on individual plans, banks are aiming at a significant increase in profitability. The profitability for 2011, based on individual business plans is higher than projected by the central bank. Banks’ target data show that capital adequacy may drop at a banking sector level, however, this is fundamentally due to the switch from the standardised credit risk approach to the advanced IRB (internal rating based) method.

Similar to the Market Intelligence survey for 2010, this year MNB has surveyed the institutions’ assessment on the most significant risks facing the whole Hungarian banking sector and their own bank. The findings reveal that banks consider the unfavourable change in HUF/CHF exchange rate, and customers’ weakening capacity and willingness to pay as the most important risks for their own bank and the banking sector as a whole. Lower but still significant risks include a moratorium on foreclosures and evictions, an eventual increase in Hungary’s sovereign risk, and the permanent upholding of the bank levy. It is worth noting that with rapid improvement in economic outlook, the risks related to economic growth fade away from the most significant risks in banks’ risk assessment.

Key risks characterising year 2011 based on assessment of banks



Box 10**The effects of the ICAAP-SREP dialogues on banks' capital adequacy**

In the framework of ICAAP, the economic capital requirement is determined. This was first allowed under the Basel II regulations in 2008, posing a novel task for banks and supervisory authorities alike. The unfolding financial crisis and the shortage of resources of supervisory bodies slowed down the progress in this framework internationally. In Hungary nearly complete ICAAP-SREP dialogues had been made for the first time by the end of 2010.

Following the internal capital adequacy assessment procedure (ICAAP) performed by the particular credit institution, within the framework of the ICAAP-SREP dialogue, the supervisor examines whether - based on its strategy, regulations and established procedures and internal audit - the reviewed institution has sufficient capital to cover the risks assumed by it. As a result of the dialogue, typically an additional capital requirement is concluded by the supervisor to determine the percentage of the additional capital required to be set aside above the minimum regulatory capital at a group level up to the next review. The supervisory review must be performed once a year in order to keep the assessment updated and corresponding to the actual situation.

In the course of the ICAAP internal capital calculation and the SREP dialogue, the bank computes the capital requirements in the following fields and discusses them with the supervisor:

1. Economically reasonable capital required under Pillar 1 to cover credit, market and operational risks (in the course of the ICAAP-SREP dialogue, the Pillar 1 capital requirement may be reduced within certain limits in justified cases).
2. Risks not completely hedged in Pillar 1: residual risk (e.g. if the recognised credit risk mitigation techniques applied by the credit institution have proven to be less efficient than expected), securitisation risk, and modelling risk.
3. Risks hedged in Pillar 2: concentration, sovereign and banking book interest rate risk, liquidity risk, settlement risk and other significant risks (reputation and strategic risks as a minimum requirement).
4. In the framework of SREP, the supervisor regularly determines the portfolio types carrying particularly high risks and prescribes additional capital requirements for them. According to the prevailing conditions in Hungary, these are as follows: loosening credit conditions; funding financial enterprises offering mortgage loans or engaged in work-out; funding financial enterprises in the case of credit institutions with a capital below HUF 1 billion; lending to debtors resident in countries with a sovereign rating lower than Hungary's; the calculation of capital requirement for the FX risk as long as volatile market conditions prevail; cross-border services and the establishment of branches abroad in the case of credit institutions with a capital below HUF 1 billion; factored portfolios in the case of credit institutions with a capital below HUF 1 billion; and retail car financing.
5. In the course of the ICAAP-SREP dialogue, stress tests are also performed. Institutions are required to perform stress tests for each of their significant risks (macroeconomic and significant risk categories: credit, market, liquidity and operational). Thus in the capital plan, stress test findings must be taken into consideration for the purposes of determining the future capital, and the capital must be planned in a way that provides appropriate coverage even during economic recessions.

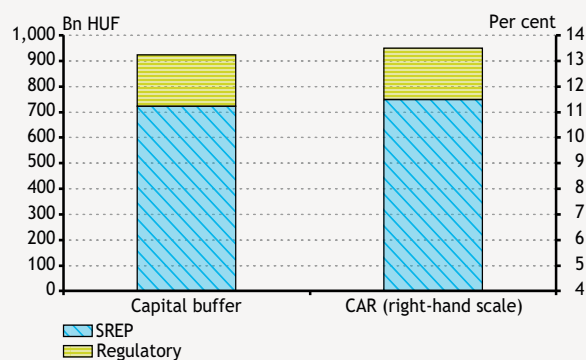
In Hungary SREP dialogues have been performed since 2009, and reconciliation had been completed by the end of 2010 in the major part of the banking sector. The funding sets additional capital requirement at a group level, as a percentage of the regulatory capital, and the additional capital must be held as a buffer above the regulatory capital up to the dialogue performed the following year.

The effect of the ICAAP-SREP dialogues performed up to late 2010 corresponds to a minimum capital adequacy ratio increase from 8 per cent to 9.3 per cent. As a result of the dialogues the 13.3 per cent capital adequacy ratio recorded in December 2010 dropped

to 11.5 per cent, while the capital buffer according to the increased capital need fell by HUF 200 billion.²¹ This drop in CAR was due to the following two effects: first, at a banking sector level, the post-SREP capital requirement increased by HUF 250 billion spread among banks to a varying extent, and exceeded HUF 1,640 billion, while the available SREP capital rose by HUF 50 billion to HUF 2,370 billion. Each bank meets the ICAAP-SREP capital requirements.

ICAAP-SREP dialogues have two main effects. First, in comparison to the method used under Basel II Pillar 1, this method better reflects banks' risks through the increased capital requirement. However, a more prudent risk evaluation and better capitalisation have cost implications. As a result of shrinking available capital buffers, the banking sector's lending ability may weaken, and this may limit the willingness to lend, therefore, the ICAAP-SREP dialogues may have pro-cyclical effects.

SREP, capital buffer and capital adequacy ratio of the banking system at the end of 2010



Source: MNB.

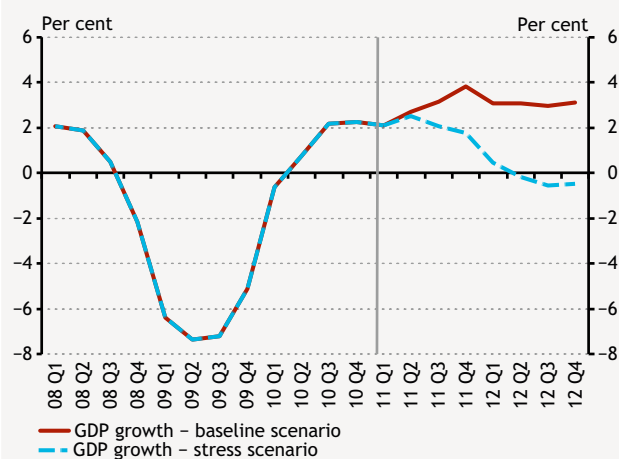
²¹ Monthly non-group level data are suitable for the assessment of the group-level capital adequacy ratio only within limits; however, we found that based on monthly data services, the ratio of regulatory and SREP capital requirements were broadly unchanged and corresponded to the additional capital requirement. Consequently, these data allow a fairly good estimate of a bank's capital adequacy ratio after the SREP dialogue.

2.6 Integrated credit and market risk stress test and the short-term liquidity stress test reflect strong resilience

The findings of integrated credit and market risk stress tests show that under the baseline scenario, the banking sector's capitalisation meets the regulatory requirements, so there is no additional capital need, on the two-year forecast horizon, until the end of 2012. The capital need along the stress scenario, which is more than HUF 80 billion by the end of 2012, can be considered manageable in the light of the owners' commitment and the HUF 300 billion allocated to the government capital enhancement fund. The fact that this value exceeds the results of the stress test published in the previous Report is explained by methodological changes. First, market risks are integrated into the credit risk stress test and second, additional loan-loss provisioning has been accounted for the non-performing loans outstanding in the stress scenario. As a result, among other options capital shortage could be considerably limited by accelerated portfolio cleaning by the banks. Without amendments in the methodology, the additional capital need of about HUF 50 billion in line with the stress scenario corresponds to the findings published in the previous Report.

Based on the short-term liquidity stress test, the banks have an appropriate liquidity buffer even in the case of the assumed simultaneous occurrence of turmoil on the financial markets, withdrawal of deposits and exchange rate shocks. Nevertheless, its level decreased in 2010, while the asymmetry between banks has remained. Several banks would suffer a moderate shortage of FX liquidity, which points to the fact that under protracted distressed circumstances the fundamental condition of a stable liquidity position is to ensure exchangeability between HUF and FX liquidity, i.e. the smooth operation of the FX swap market.

Chart 83
GDP growth rate in the scenarios
(yoy)

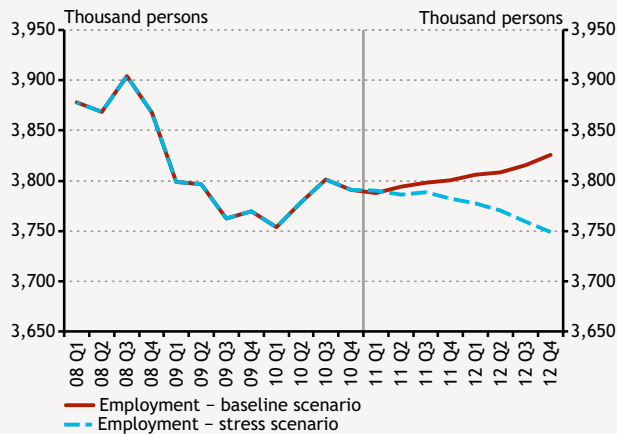


Source: MNB.

Credit risk and market risk stress tests indicate low additional capital need

The domestic consequences of a global economic downturn and confidence crisis were quantified in the stress scenario. Our baseline macroeconomic scenario is the same as set out in the March 2011 Report on Inflation. While we outlined the most likely scenario under a baseline scenario, the stress scenario examines the consequences of a 'severe but plausible' series of events. The macroeconomic scenario was based on a new model capable of taking endogenous monetary policy into account. In the stress scenario, a global economic downturn is assumed (double-dip recession), coupled with a considerable rise in sovereign risks in the euro area and re-emerging European interbank market turmoil. The aggregate of these two effects leads to significant yield increase in the European markets. The confidence of European households and corporations in the economic recovery becomes significantly eroded and this sets back consumption as well as investment in the euro area. As a result of the international events, yields also rise fast in Hungary, and not only external demand but domestic consumption and investment decrease as well. Thus in 2011 economic growth slows down, and stops by 2012 (Chart 83), giving rise to a wave of dismissals (Chart 84). All this is accompanied by a consistent weakening of the forint and rise in both domestic and external funding costs (Table 4).

Chart 84
Employment in the scenarios



Source: MNB.

Table 4
Macroeconomic scenarios in the stress test

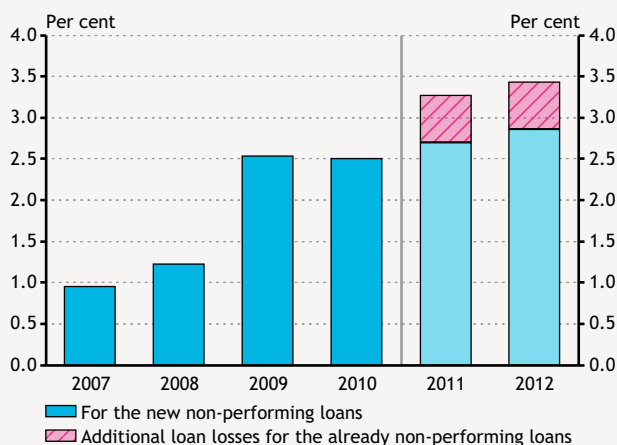
	Baseline scenario		Stress scenario	
	2011	2012	2011	2012
GDP*	2.9	3.0	2.0	-0.2
Inflation*	4.0	3.4	4.3	3.3
HUF interest rate (%)	6.1	5.9	7.2	8.4
HUF/EUR exchange rate at the end of the year	272	275	317	334
HUF/CHF exchange rate at the end of the year	210	212	245	257
Employment*	0.4	0.5	0.2	-0.6
House prices**	-3.0	-5.0	-10.0	-10.0

* *yoj percentage change.*

** *Percentage change to the end of the year before.*

Source: MNB.

Chart 85
Loan loss rate for the corporate portfolio in the stress scenario



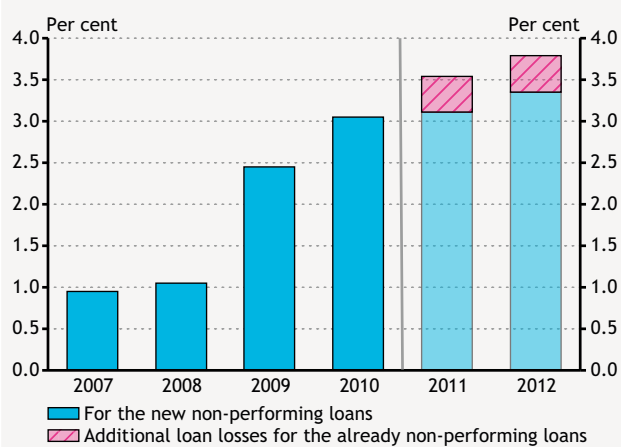
Source: MNB.

The probability of default of corporations and households are estimated by models. The probability of default (PD) was approximated by the aggregate bankruptcy model under various scenarios for the corporate credit portfolios of banks and their financial enterprises. The ratio of bankrupt corporations under the baseline and the stress scenarios was projected with a distributed lag model, including the variables of the macroeconomic environment (GDP growth, exchange rates) as explanatory variables. The probability of default of the household credit portfolio was estimated with Cox's proportional hazard model described in details in the previous Reports on Financial Stability. The explanatory macroeconomic variables are: exchange rates, interest rates and employment. When the Loss Given Default (LGD) on non-performing loans was quantified, we accounted for – along the baseline and the stress scenario – the effects of exchange rate developments in the case of foreign currency denominated loans, and the expected developments of residential and commercial property prices in the case of collateralised loans. The assumptions for housing prices is determined by the moratorium on eviction, which is planned to be abolished in mid-2011. Under the baseline scenario, a subdued price drop is calculated after the abolition of the moratorium, while in the stress scenario, a more pronounced and protracted negative price impact is assumed.

Assumptions on banks' earnings before loan losses are based on the data of the previous three years. In order to determine profitability, the profit on ordinary activities was taken as a basis, the value of unscheduled depreciation, the total loan loss provisioning and the bank levy were added. The resulting earnings was calculated for the past three years, and the average of the period between 2008 and 2010 was used for characterisation of the individual banks' annual profit generating capacity under the baseline scenario. 85 percent of this was then taken into account in the stress scenario, assuming that the opportunities of granting new loans would considerably narrow in the stress scenario, an increasing number of loans become non-performing, and no effective leeway is left for cutting banks' operating costs. The loan losses calculated on the basis of risk parameters and the special bank levy were then deducted from this income.

In the stress scenario, additional loan loss provisioning may be required for loans that have already been in default. We quantified the cost of additional provisioning on the non-performing loan portfolio at the end of 2010 warranted by less favourable real estate market conditions and exchange rates assumed in the stress scenario. This risk had to be included because a considerable amount of non-performing loan has been accumulated in the banking

Chart 86
Loan loss rate for the household portfolio in the stress scenario

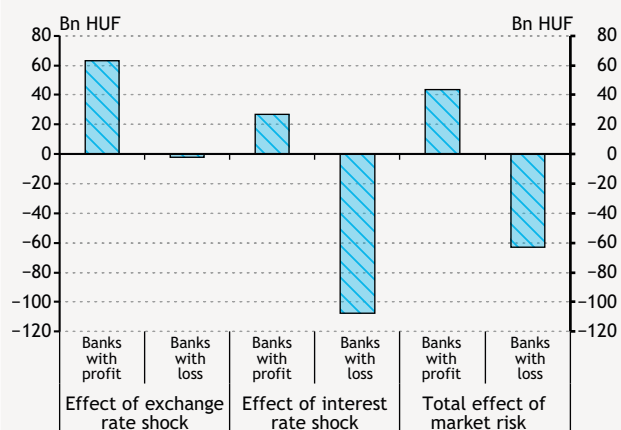


Source: MNB.

system. Additional loan loss provisioning was determined as the average difference of LGD parameters assumed under the baseline and stress scenario, and accounted in two equal parts for the two years. All this further increases the loan loss ratio, which is already on the rise in the corporate (Chart 85) and the household (Chart 86) portfolios alike.

In addition, the market stress test was also integrated into the stress scenario: according to the results a rise in the yields on government securities would have a considerably adverse impact on income. In the market stress test, the effects through the immediate revaluation of market exposures of interest and exchange rate shocks are analysed. In the case of interest and exchange rate shock, the average difference between the baseline and the stress scenario was also considered as the extent of the shock. The resulting effect on the profitability was then distributed evenly for the two years of the forecast horizon. The parallel upward shift in the yield curve (by 200 basis points) resulted in HUF 110-120 billion losses at a banking system level mainly through government securities portfolio revaluation.

Chart 87
Market stress test results



Source: MNB.

Although exchange rate depreciation improves the profitability in the market risk stress test, in the aggregate, weaker exchange rates cause massive deterioration in banks' income position through the loan losses. All other conditions remaining unchanged, an average 17 per cent depreciation of the exchange rate in the stress scenario increases the profitability of the banks with foreign exchange surplus by HUF 63 billion on aggregate level, and reduces the overall profitability for banks with HUF surplus by HUF 2 billion through the total open FX position (Chart 87). This positive effect on profitability is, however, exceeded several times by the adverse impact of the exchange rate exerted through loan losses: in a partial exchange rate analysis, loan losses might be 3.5-4.5 times higher than the profit realised on the total open FX position at the banking sector level.

Table 5
Aggregate capital need of the banking system at the end of 2012

	Based on regulatory capital requirement (8%), billion HUF		Based on proportionally higher capital requirement (9%), billion HUF	
	Baseline	Stress	Baseline	Stress
Only credit risk	0	-48	0	-97
Market and credit risk		-32		-72
Market and credit risk with additional provision		-83		-167

Source: MNB.

Under the baseline scenario banks meet the regulatory capital requirement. Under the baseline scenario all the banks fully complied with the capital requirements calculated in accordance with the regulatory minimum on a two-year horizon (Table 5). The capital requirement would be met also if the required capital level was 9 per cent.

In the stress scenario, the capital need is higher than it was in the previous Report, which can be explained by changes in the methodology. In the stress scenario the value best comparable with the findings of the last stress test is the result calculated according to the regulatory minimum requirement allowing only for credit risks (and

Table 6
Positive capital buffer of the banking system at the end of 2012

	Based on regulatory capital requirement (8%), billion HUF		Based on proportionally higher capital requirement (9%), billion HUF	
	Baseline	Stress	Baseline	Stress
Only credit risk	1378	731	1212	596
Market and credit risk		694		550
Market and credit risk with additional provision		592		491

Source: MNB.

Table 7
Aggregate capital adequacy ratio of the banking system at the end of 2012

	Based on regulatory capital requirement, %	
	Baseline scenario	Stress scenario
Only credit risk	16.3	11.7
Market and credit risk		11.6
Market and credit risk with additional provision		10.8

Source: MNB.

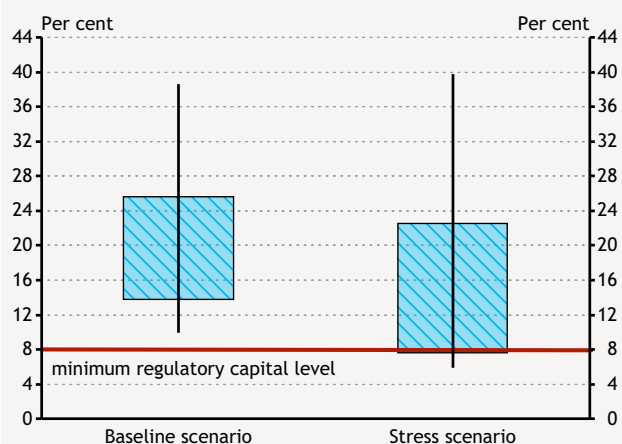
excluding market risks and additional provisioning). This calculation shows near HUF 50 billion capital need, which does not significantly exceed the results of the calculations made in our previous stress test (performed in November 2010). However, the moderate capital need is coupled with significant fall in positive capital buffers (Table 6) and in capital adequacy ratios (Table 7). Under severely distressed macroeconomic conditions, lending would considerably tighten in the banking system due to the massive melt-down of capital buffers. If market risks are also integrated into our system, the positive capital buffer declines, but the capital need slightly decreases. The reason for the diverging effects is that market risks generate profit for certain banks and losses for others in the stress scenario. If the additional loan loss provisioning is also taken into consideration, the positive capital buffer decreases further, while the capital need considerably increases.

In the stress scenario, the capital need by the end of the two-year horizon for the entire banking system according to the new methodology remains manageable. In the stress scenario, many banks should raise capital. In this adverse scenario, the capital need of HUF 83 billion for the 8 per cent regulatory level and HUF 167 billion for the 9 per cent level remain manageable due to the owners' commitment and the HUF 300 billion allocated to the government capital emergency fund.

The results in the stress scenario underscore the significance of removing the non-performing portfolio from the balance sheet. In the case of a highly unfavourable macroeconomic scenario, the non-performing loans outstanding accumulated in the banking system so far may become the source a significant risk: potential need for additional loan loss provisioning would not only hit banks' income position but also affect their ability to comply with the capital requirements. The recognition of the additional loan loss provisioning in the stress scenario increases the capital needs and reduces the capital buffers. However, such a massive impact could be mitigated by portfolio cleaning: by reducing non-performing loans outstanding, the potential losses could be reduced.

Despite the fact that the average capital adequacy seems to be adequate, the banking system is still characterised by asymmetry. The average capital adequacy ratio of the banking system is close to 11 per cent in the stress scenario as well. Certain market participants have considerable capital buffers even under the stress scenario, but some banks would need considerable capital injections. Based on the number of banks, under the stress scenario 28 per cent of the banks would need additional capital to meet the regulatory requirement (Chart 88), and based on total

Chart 88
CAR distribution based on numbers of banks
(intervals of 10–90 per cent and 25–75 per cent)



Source: MNB.

assets of banks 25 percent of the banking system should raise capital.

Although the stress test indicates an adequate liquidity position in the banking sector, the smooth operation of the FX swap market is a prerequisite for that.

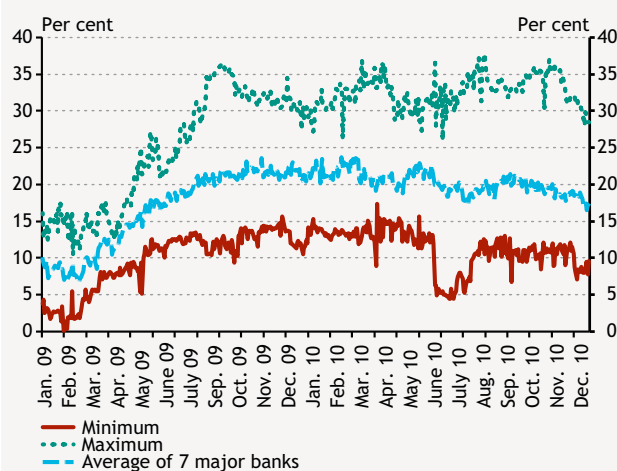
Currently the Hungarian banking sector's short-term liquidity position is measured on the basis of a 30-day forward-looking maturity gap, which is a stress indicator in itself. The 30-day cumulated total maturity gap reflects the effects of the balance-sheet and off-balance sheet treasury assets and liabilities maturing in the next 30 days without any adjustment on the bank's liquidity position. A comparison with the level of liquidity reserve reveals the liquidity buffer available for the bank relative to the balance sheet total at the end of the 30th day. The liquidity buffer available for the seven large banks fell from 21-22 per cent to about 18 per cent in early 2010 (Chart 89). Liquidity buffer around zero indicates distressed liquidity conditions, and if permanent banks would need additional funds or stronger deleveraging.

Short-term liquidity stress tests measure the effects of the assumed simultaneous occurrence of turmoil on the financial markets, withdrawal of deposits and exchange rate shocks. Deposit withdrawal by households and corporations, and plummeting price of eligible securities were determined by stresses based on value at risk (VaR) using historical data from the seven largest banks. Foreign exchange rate shocks are consistent with the data included in our macroeconomic stress scenario. The other stresses were determined on the basis of the crisis experience (Table 8).

Banks' post-stress liquidity buffer deteriorated in 2010. Asymmetry between the individual banks remains substantial. The post-stress liquidity buffer of the seven large banks dropped from 10 per cent in early 2010 to 5-6 per cent by the end of the year. An analysis of the minimum value reveals that following intra-year improvement, the value dropped at the end of the year. If the minimum value is below zero, this means that in a relatively permanent extreme stress situation there would be a bank that encounters liquidity problems (Chart 90).

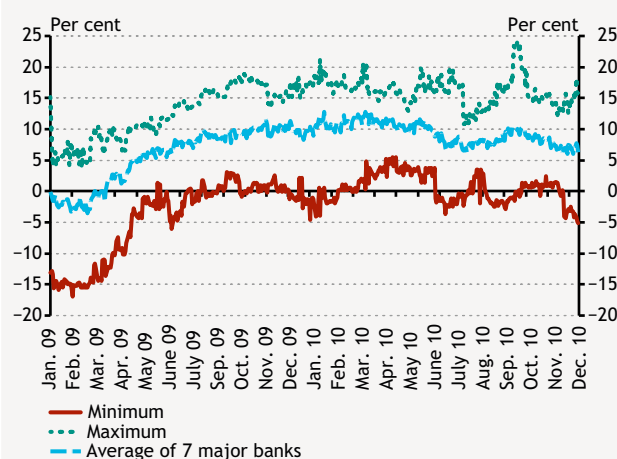
In a stress situation, steady FX illiquidity may emerge. A distinction should be made between the denomination of

Chart 89
Liquidity buffer of the seven major banks as a percentage of balance sheet totals²²



Source: MNB.

Chart 90
Liquidity buffer after the stress as a percentage of total assets



Source: MNB.

²² Liquidity buffer: the 30 day total cumulated gap (difference between in- and outflows) + liquidity reserve available 30 days later. Total cumulated gap: treasury financing deficit or surplus calculated on the basis of the static maturity cash-flow. Available liquidity reserve: FX nostro account + disposable MNB-eligible securities + undrawn stand-by credit facilities + (settlement account current balance - average settlement account holding requirement during maintenance period).

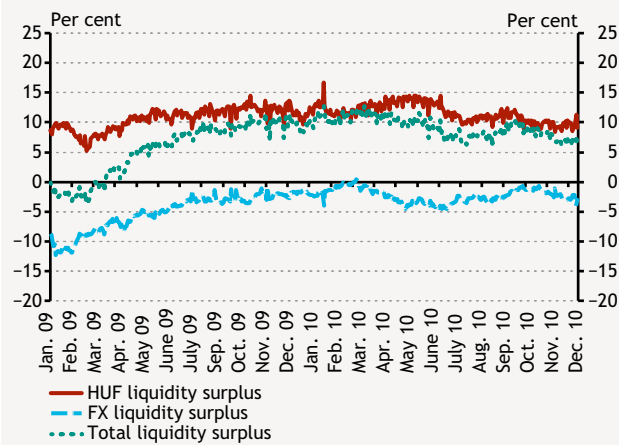
Table 8
Main parameters of the liquidity stress test

Assets	Degree (%)	Liabilities	Degree (%)
Default at HUF interbank assets	20	Withdrawals in household deposits	10
Exchange rate shock on swaps	17	Withdrawals in corporate deposits	15
Depreciation of central bank eligible assets	10	Standby credit cancellation	100

Note: As the forward-looking maturity gap does not include BS-adjustments, basically it expresses the fact that less than 100 per cent of the maturing interbank and foreign funds are rolled over.

Source: MNB.

Chart 91
Liquidity buffer after the stress as a percentage of total assets



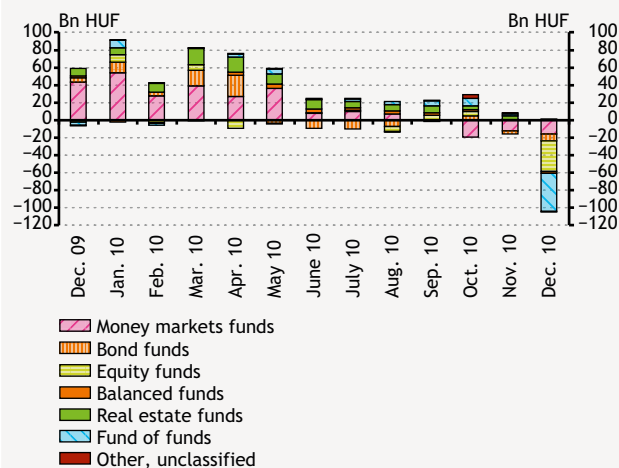
Source: MNB.

liquidity buffer because in extreme cases the exchangeability of the various currencies may not be warranted. In a breakdown by HUF and FX positions, in 2010 the liquidity buffer characteristic of stress situations revealed that banks' short-term buffer denominated in foreign currency was permanently in the negative domain (Chart 91). In such an environment, it would be difficult to provide FX liquidity in the case of a protracted massive liquidity crisis, even if powerful support is provided from the parent bank. The FX liquidity problem indicated by the short-term FX liquidity stress test can be reduced by increasing reliance on longer-term external funds and FX swaps.

2.7 The insurance sector made losses in 2010

Capital inflows into investment funds having positive yields were extremely dynamic in 2010 H1. However, in the second half of 2010 inflows slowed down considerably, due to risk aversion caused by the European sovereign crisis and the deposit campaigns launched in the wake of the central bank's policy rate hikes. The amendments of the mandatory private pension fund scheme will have a marginal effect on the banking system through bank deposits channelled back to the public pension fund. However, the prompt secondary market sale of mortgage bonds transferred to the government and accounting for 25 per cent of the 2010 secondary market turnover could cause turbulence. In the course of 2010 the insurance sector made losses as a result of more indemnity payments and the levied windfall tax.

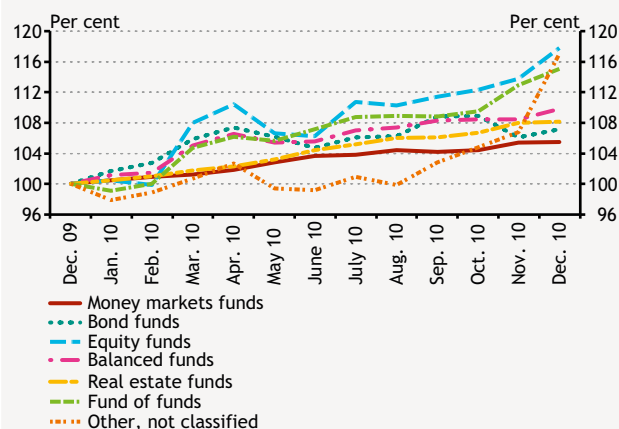
Chart 92
Net monthly sales of investment funds registered in Hungary



The assets managed by investment funds increased by more than 20 per cent in the course of 2010; however, the inflows slowed down in 2010 H2. During the first half of 2010, total assets increased as a result of positive yields on the managed assets and significant capital inflows. However, in the second half of the year, due to slowdown in the inflows and the outflows in December, increase in the assets under management remained broadly flat despite the fact that, on average, around 9 per cent yields were gained. These changes in the dynamics of capital inflows may be attributed to investors' declining risk appetite in the wake of the European sovereign debt crisis, and the fact that, in line with rising central bank policy rates, more attractive bank deposit campaigns were again launched. In the course of 2010 the fastest rise was recorded for money market funds primarily during the capital inflows in the first half of 2010, because, responding to falling interest rates, investors considered them as substitutes for bank deposits (Chart 92).

Chart 93
Net adjusted asset values of investment funds registered in Hungary

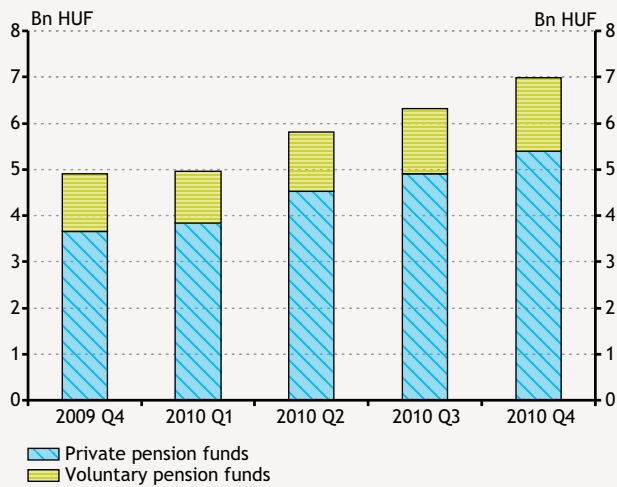
(Dec. 09 = 100 per cent)



In the course of 2010 investment funds achieved positive yields, with equity funds as flagships. In 2010 the highest yields were achieved by equity funds, followed by unclassified funds that forged ahead in the fourth quarter from a drop-behind position. Other funds in the lead included the fund of funds type investment funds (Chart 93), which have already caught up with equity funds in terms of sales volumes and net asset value. Thus it is already perceptible that due to equity market consolidation, in addition to traditional securities, investors allocate assets to an increasingly large extent into alternative investment opportunities.

The amendments of the mandatory private pension scheme may have an adverse impact on the profitability of the banking sector. Barely more than 100,000 of the 3 million members decided to stay in their mandatory private pension funds. According to the estimates, they hold at most HUF 310 billion, i.e. 10 per cent of the HUF 3,100

Chart 94
Quarterly fund management and custody services fees paid by private and voluntary pension funds

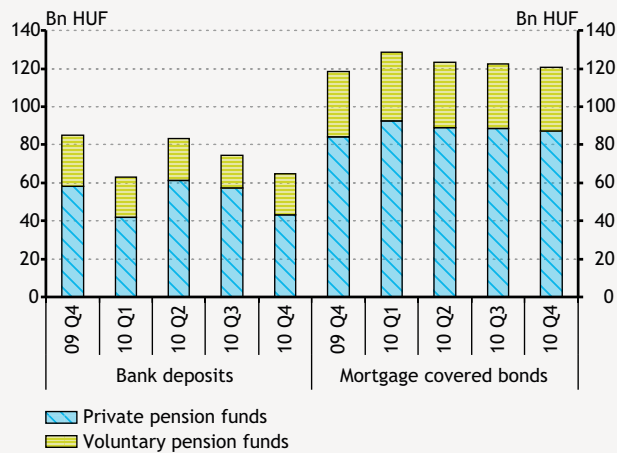


Source: HFSA, MNB.

billion assets of the total private pension fund assets. The asset management fees related to the private pension scheme and the custody management fees charged in connection with the securities portfolio represented a highly lucrative activity for the Hungarian banking sector. The banking sector, including group members, earned HUF 18-20 billion on these items on an annual basis (Chart 94), which is rather sizeable in comparison with the approximately HUF 70 billion pre-tax profit of the banking sector reported in 2010.

The effects of deposit withdrawals on liquidity are marginal. The withdrawal of deposits from private pension funds is not likely to trigger any perceptible change. The deposit portfolios of the private pension funds fluctuated around HUF 50 billion, which is not significant in comparison to the banking system's total deposit portfolio of nearly HUF 13,000 billion.

Chart 95
Bank accounts and mortgage bonds held by private and voluntary pension funds



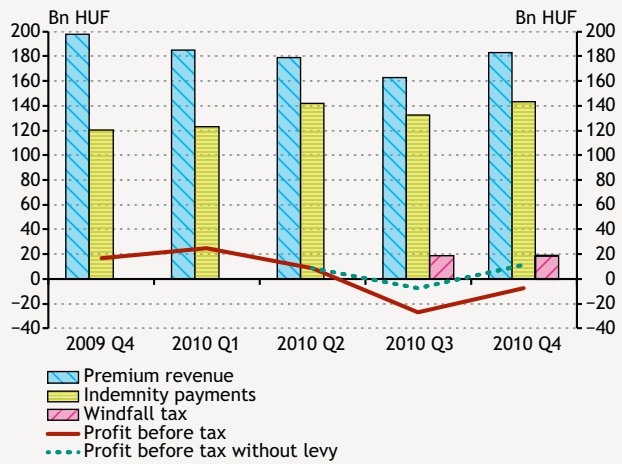
Source: HFSA, MNB.

Mandatory private pension funds have a significant portfolio of mortgage bonds. Private pension funds provided nearly HUF 90 billion of funds to Hungarian mortgage banks (Chart 95). The total mortgage bond portfolio owned by residents amounts to HUF 1,200 billion. Assuming that the 90 percent of the mortgage bonds portfolio is transferred to the public system, that would mean approximately HUF 80 billion, while in 2010 mortgage bonds worth HUF 250 billion were traded in the secondary market.

It is advisable to avoid rapid secondary market sale of the mortgage bond portfolio under government management. In comparison to the total amount of issued mortgage bonds, the government portfolio can be considered small. At the same time, market liquidity is very low. Should the government sell the mortgage bonds within a very short time, market turbulences may evolve and mortgage banks would incur higher funding costs. By contrast, these securities would have no perceptible impact on the market if they are kept by the government until maturity or sold evenly distributed over time, in adjustment to the prevailing size of the market.

In the course of 2010, the insurance sector made losses as a result of more frequent indemnity payments and the levied windfall tax. Due to the flat premium revenues, salient damages in the wake of natural disasters, lower profit made on investments and the HUF 38 billion windfall tax levied in the second half of the year, insurance companies' profitability dropped significantly. Practically, there was no annual profit before taxation, and after-tax losses amounted to HUF 3.3 billion (Chart 96). Decline in revenues from non-life insurance was offset by a rise in

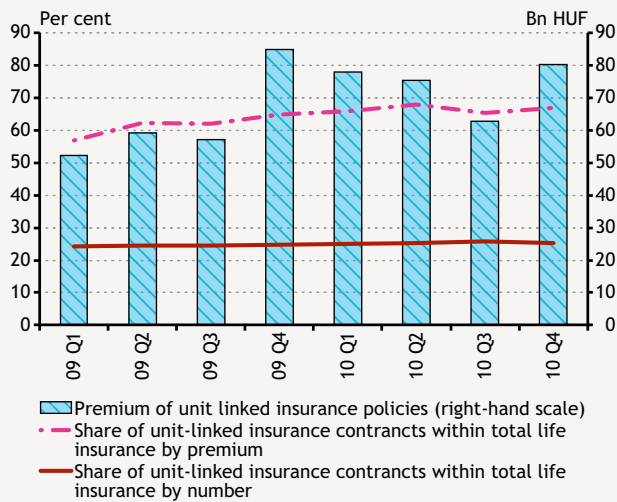
Chart 96
Quarterly premium revenue, indemnity payments and profit before taxation by insurance companies



Source: HFSA, MNB.

revenues from life insurance. As an important trend, in 2010 Q4, premium revenues from unit-linked life insurances rose rapidly (Chart 97). Households' increasing propensity to save, the endeavour to tax-optimization and increasingly intense agency activity contributed largely to the rising proportion of unit-linked products.

Chart 97
Quarterly premium revenue from unit-linked life insurances and their share within the life insurance profile

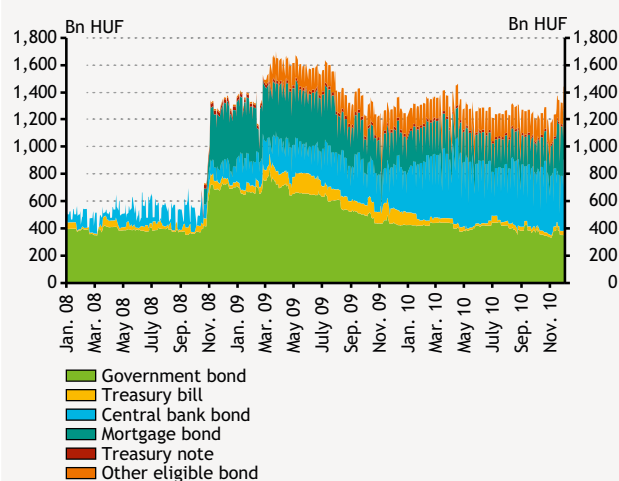


Source: HFSA, MNB.

2.8 Low risks in the Hungarian payment and settlement systems

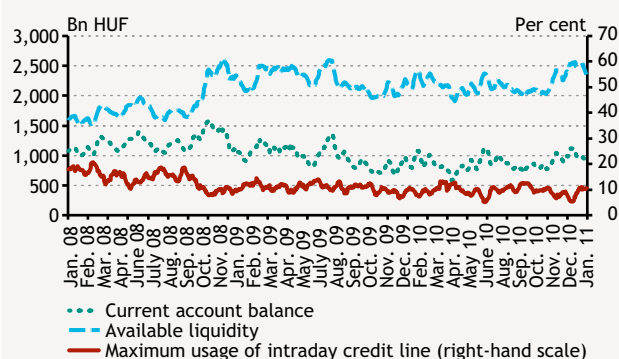
The operation of Hungarian payment and settlement systems in 2010 remained stable, with adequate liquidity and system availability. According to the overall oversight assessment, the BKR (ICS – Interbank Clearing System) and VIBER (the domestic RTGS – Real Time Gross Settlement system) is in compliance with the domestic requirement adopted on the basis of international principles. VIBER’s operating hours will be extended by one hour in connection with the launch of the intraday BKR clearings in 2012. (VIBER is the settlement platform for the ICS). KELER (the central counterparty) has extended its guaranteed clearing services to energy, natural gas and electricity market transactions.

Chart 98
The portfolio of securities deposited as collateral by banks for intraday credit in the RTGS system



Source: MNB.

Chart 99
Account balances and liquidity of RTGS members, and maximum credit limit used by the system



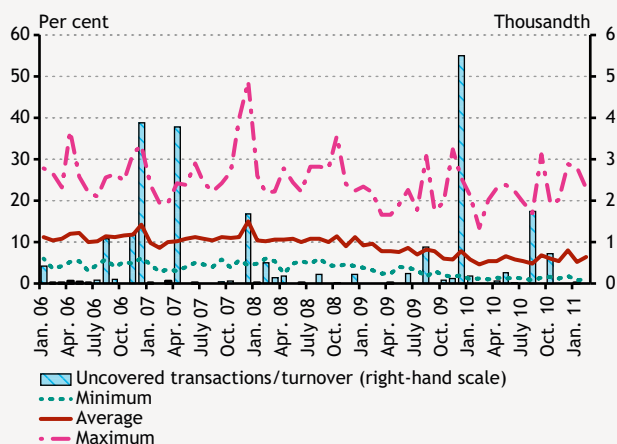
Note: The RTGS liquidity comprises the account balance and the securities provided as collateral to MNB and not used for monetary operations. Adjusted for start-of-day balance-sheet settlement items and the items of MNB and the Hungarian State Treasury. Calculated with a 10-day moving average.

Source: MNB.

VIBER continued to be characterised by ample intraday liquidity, high system availability, while the turnover was stabilising at a higher level than in the previous year. The overall oversight assessment states that the VIBER complied fundamentally with the requirements established in accordance with the international expectations. The operational availability was above the expected level in 2010. The average annual system availability indicator was nearly 100 per cent in 2010. Payment system participants significantly did not reduce their central bank credit limits in 2010, which increased considerably since 2008. The level of intraday liquidity remained ample at both the aggregate and individual participant level (Chart 98). Another factor that may affect liquidity at participants disposal is that in contrast to the previously applied 2 per cent fixed reserve requirement ratio, the central bank introduced an optional (in a range between 2 and 5 per cent) reserve requirement ratio regime. As a result of this measure credit institutions with high turnover in payment systems relative to their previous low reserve requirement increased their average account balances. In the composition of the collateral provided to the central bank by system participants, the share of treasury bills shrank relative to mortgage bonds. Turnover in VIBER increased by 11 per cent, primarily due to a rise in interbank and securities-related transactions, while the proportion of central bank transactions decreased (Chart 99).

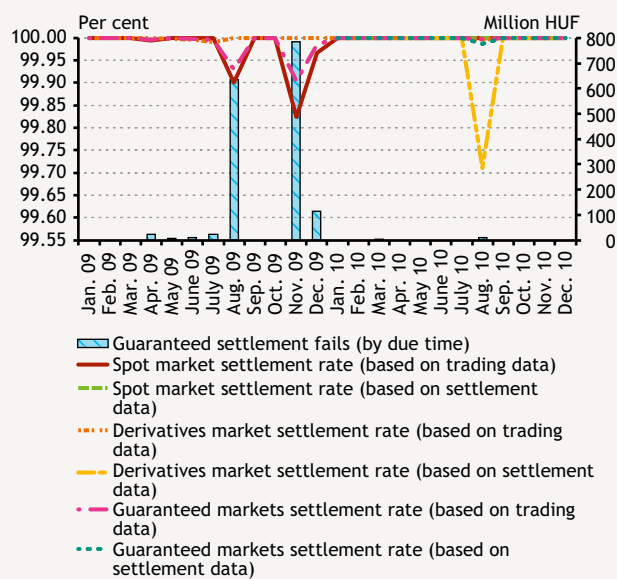
In VIBER from 2011 the “payment versus payment” method will be introduced for executing linked payments, and from January 2012 the operating hours will be extended by one hour. The “payment versus payment” method offers an opportunity for the secure settlement of large customer transactions while saving substantial liquidity. For this reason the central bank will introduce this payment method in VIBER from the middle of 2011. Another major change is that from January 2012 the central bank will extend the operating hours of VIBER by one hour, namely from the current close at 17.00 to

Chart 100
Ratio of collateral required for ICS settlement to the limit (average, maximum and minimum), and the ratio of unfunded queuing transactions to turnover



Source: MNB.

Chart 101
Value of fails and the ratio of properly settled transactions in CCP-cleared securities markets



Note: Performance rates also reflect the prevailing conditions relative to the stock market turnover and the balanced turnover in the securities settlement and payment system as a result of the new methodology as from 2010.

Source: BÉT, MNB.

18.00 CET; as from July 2012, small-value transfers can also be transferred in several cycles during the day instead of the current practice of night settlement. In the new settlement scheme, VIBER will be the settlement platform for the ICS.

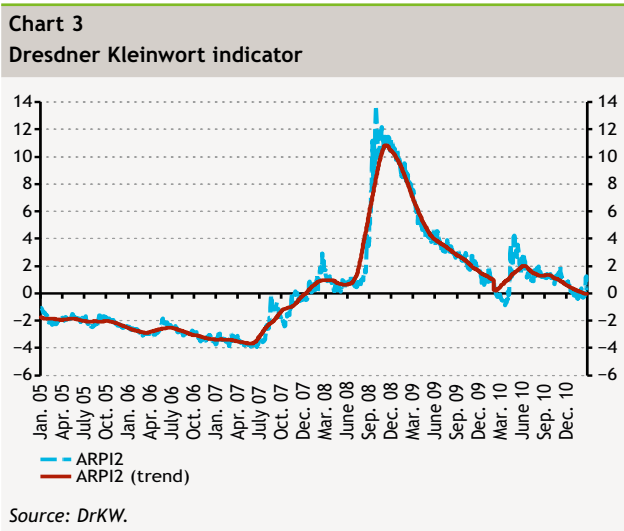
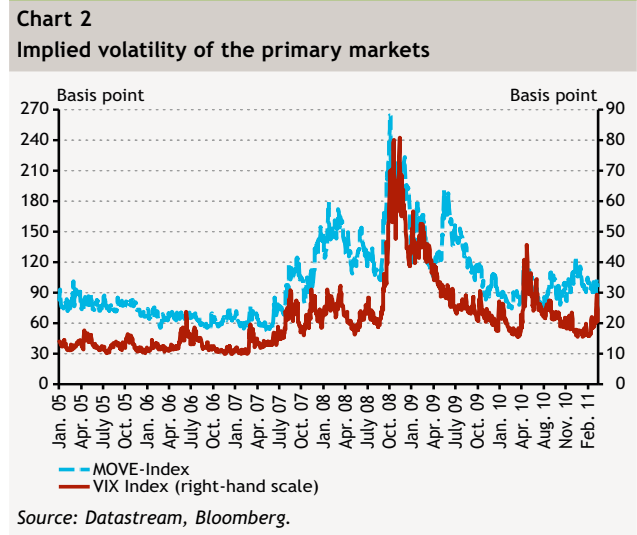
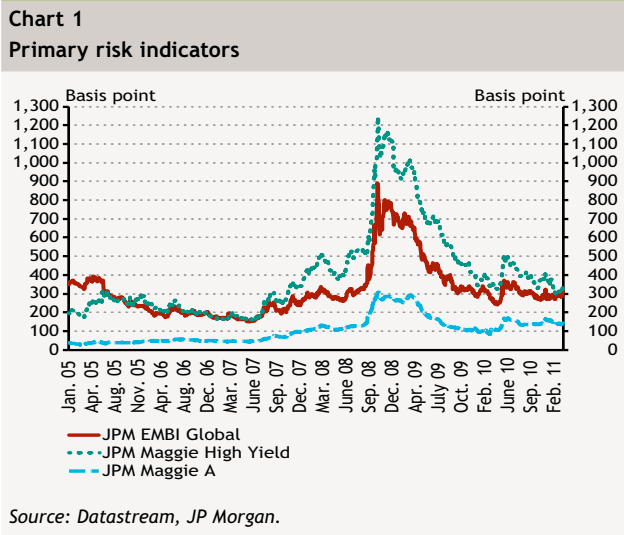
The liquidity available in ICS is also abundant. The ratio of uncovered batches of transactions remaining in the queue during ICS clearing to turnover remains insignificant. The clearing members in the ICS use the same liquidity they use in VIBER; meanwhile, the average value of the turnover of ICS is less than 10 per cent of the total value of transactions processed in VIBER. The annual turnover slightly exceeded the corresponding 2009 value and its composition indicates a decrease in the number of individual transactions. Within the rejected transactions, the share of direct debits increased mainly due to lack of funds. The ratio of uncovered batches of transactions remaining in the queue during ICS clearing to the total turnover remains insignificant. As a follow up to the oversight recommendations by the MNB for clearing members in 2009, the latter have further improved their liquidity management related to payments, therefore, queuing is only a result of the actual lack of available liquidity and it is insignificant to turnover of ICS (Chart 100). Another significant step will be the introduction of intraday ICS clearing from 1 July 2012. Instead of the current practice of overnight clearing, customers' electronically submitted payment orders will be executed within no more than 4 hours following submission.

In 2010 the liquidity was mostly available for settlement at settlement date. Central counterparty guaranteed fails posed no significant liquidity risk and the ratio of properly settled transactions remained below 100 per cent only in August 2010 (Chart 101).

The system availability ratio reflects decreasing operational risk. In accordance with MNB's proposals, in 2009 the central counterparty made considerable progress in the determination of financial resources required under extreme market conditions (stress tests). A major disruption occurred only once during 2010. In order to prevent its recurrence, actions were taken by the system in compliance with the overseer's recommendations.

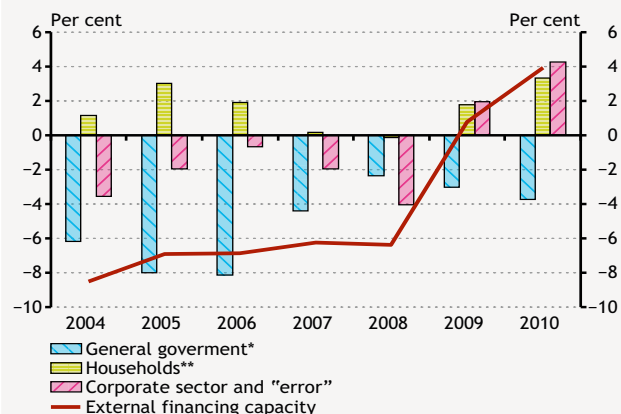
Appendix: Macro-prudential indicators

1 RISK APPETITE



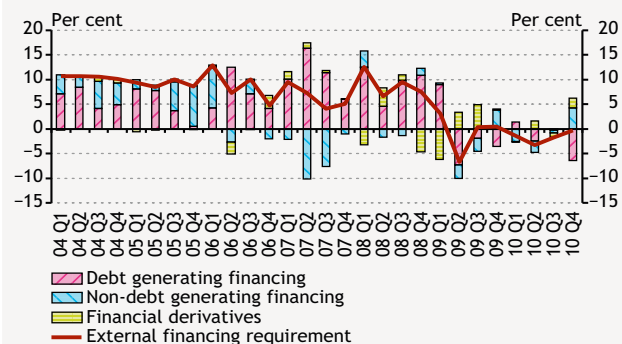
2 EXTERNAL BALANCE AND VULNERABILITY

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



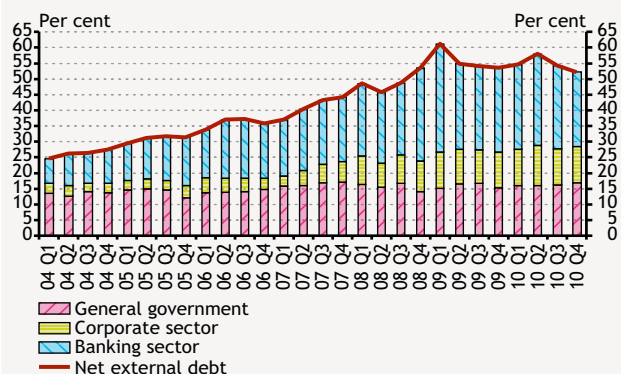
Source: MNB.

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



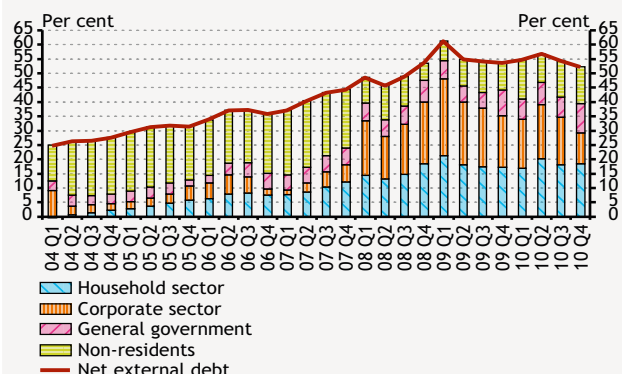
Source: MNB.

Chart 6
Net external debt as percentage of GDP



Source: MNB.

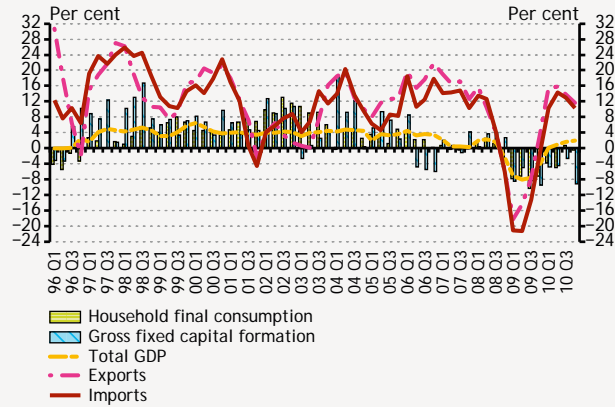
Chart 7
Open FX position of the main sectors as percentage of GDP



Source: MNB.

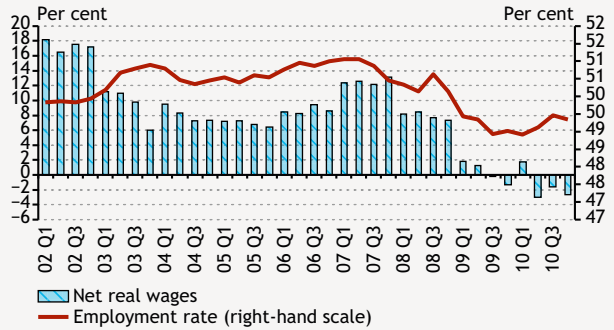
3 MACROECONOMIC PERFORMANCE

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



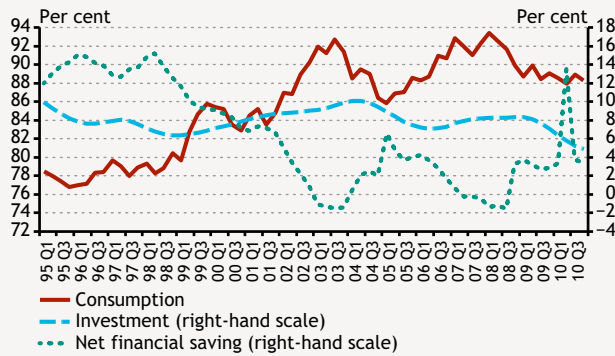
Source: HCSO.

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



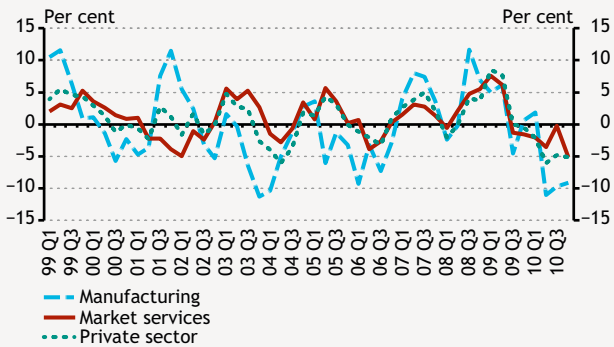
Source: HCSO.

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



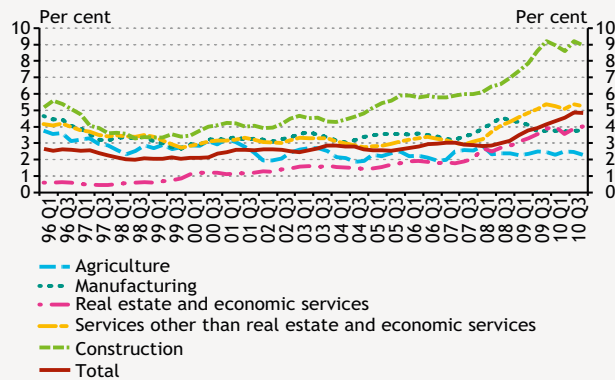
Source: HCSO, MNB.

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



Source: HCSO.

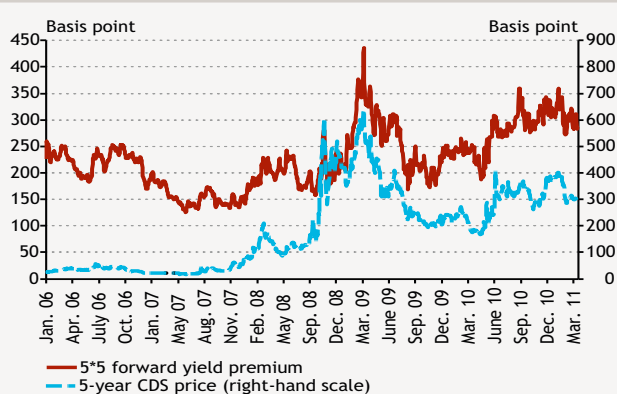
Chart 12
Sectoral bankruptcy rates



Source: Opten, HCSO, MNB.

4 MONETARY AND FINANCIAL CONDITIONS

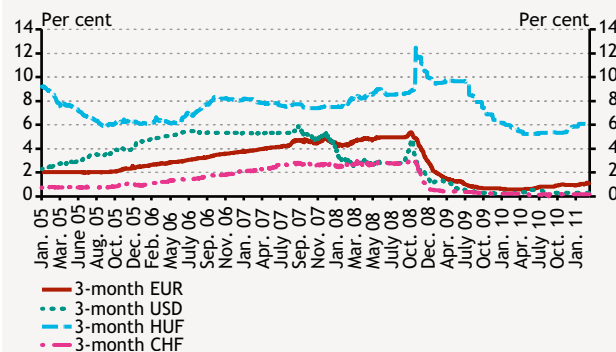
Chart 13
Long-term default risk and forward premium of Hungary



Source: Datastream, Reuters.

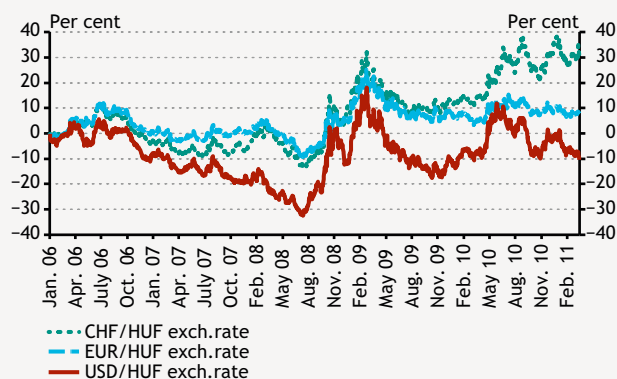
Chart 14
Three-month EUR, USD, CHF and HUF money market interest rates

(LIBOR and BUBOR fixing)



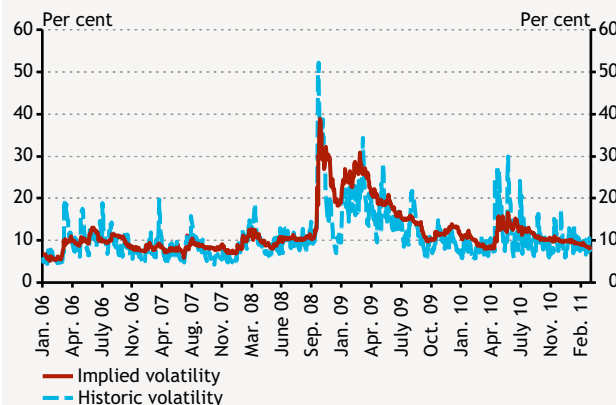
Source: Reuters.

Chart 15
HUF/EUR, HUF/USD and HUF/CHF exchange rates compared to January 3, 2005



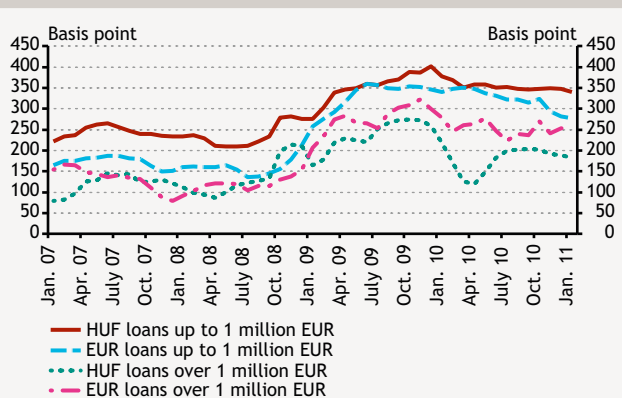
Source: Reuters.

Chart 16
Volatility of the HUF/EUR exchange rate



Source: Reuters.

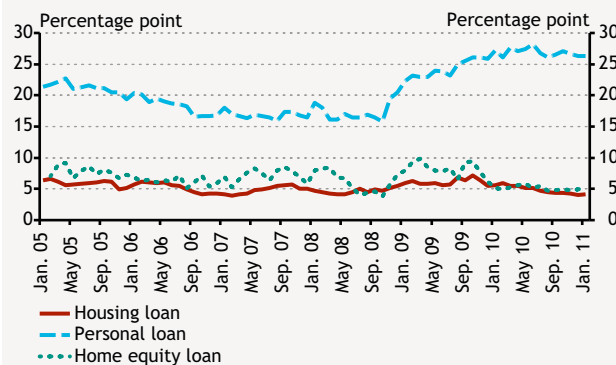
Chart 17
Interest rate premium of new loans to non-financial enterprises



Source: MNB, Euribor.

Chart 18
Interest rate premium of new HUF loans to households

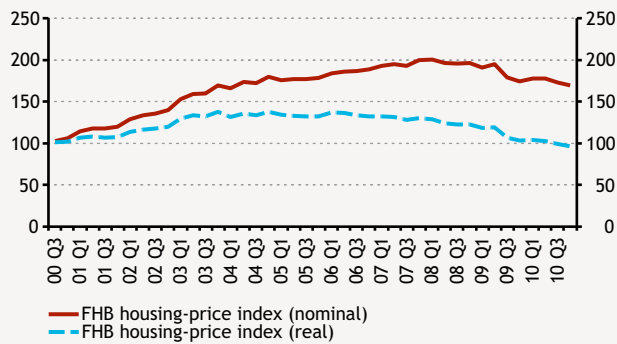
(over 3-month BUBOR)



Source: MNB.

Chart 19
FHB housing-price index

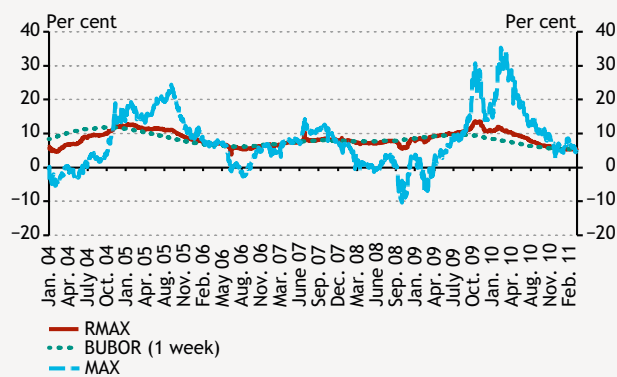
(2000 = 100)



Source: FHB.

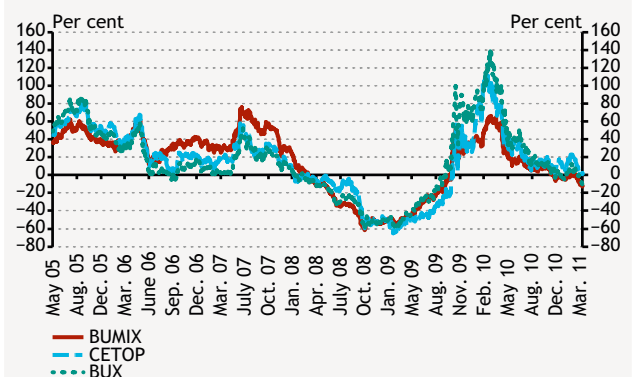
5 PRICES OF INSTRUMENTS

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



Source: FHB.

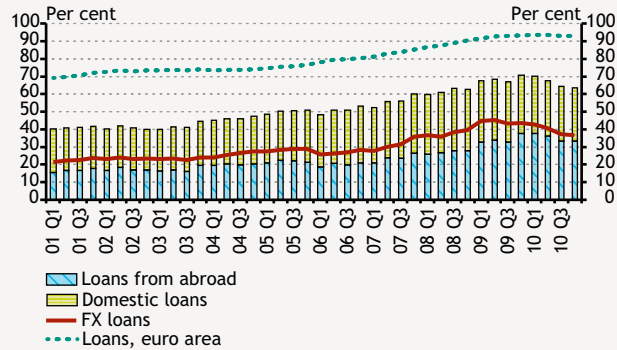
Chart 21
Annual yield of key Hungarian and Central and Eastern European stock market indices



Source: ÁKK, portfolio.hu, MNB.

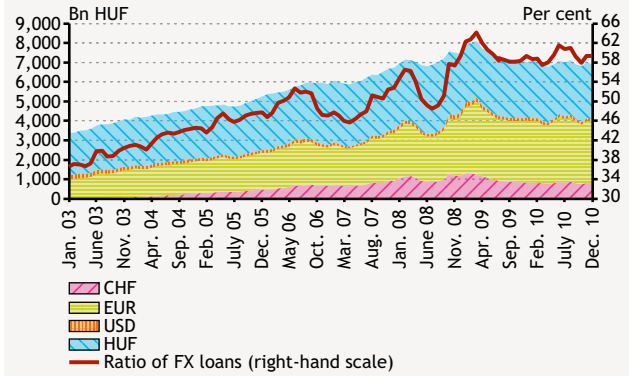
6 RISKS OF THE FINANCIAL INTERMEDIARY SYSTEM

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



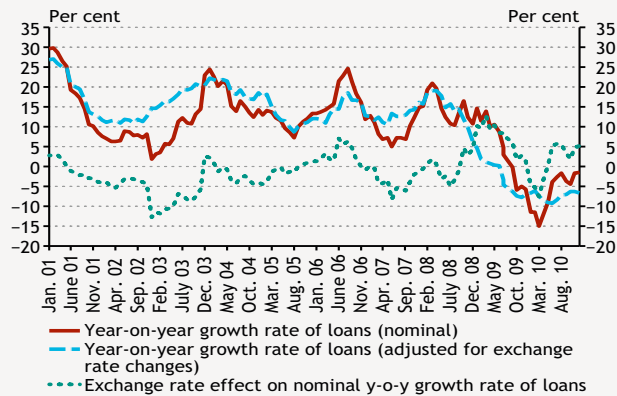
Source: MNB, Eurostat.

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



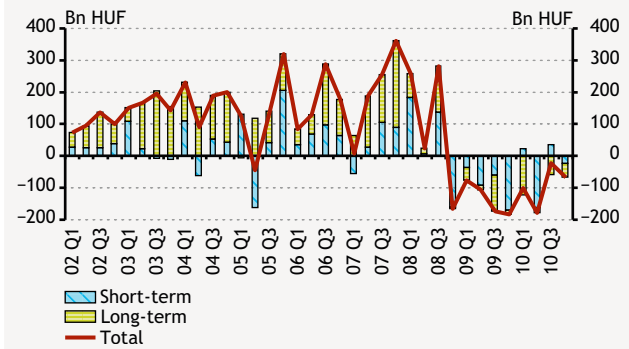
Source: MNB.

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



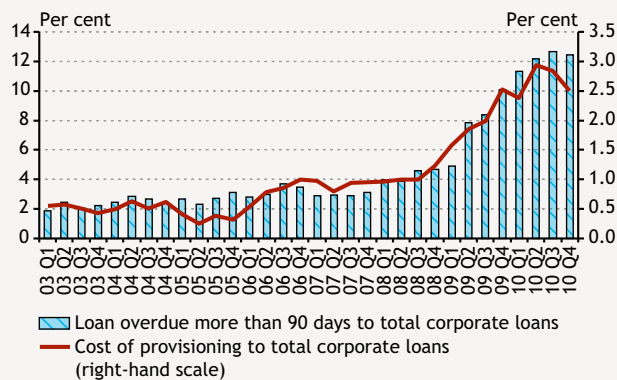
Source: MNB.

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



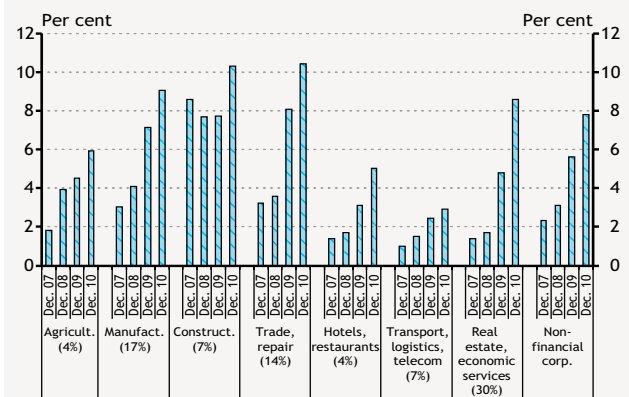
Source: MNB.

Chart 26
Quality of the corporate loan portfolio



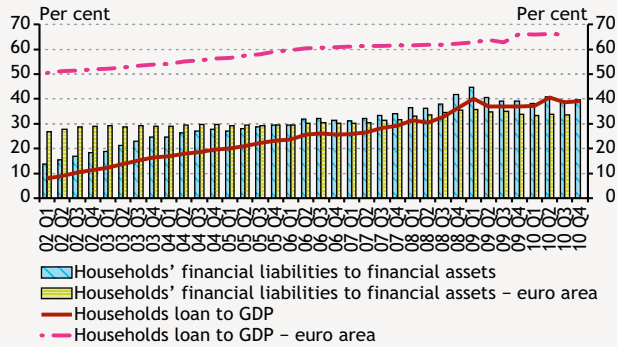
Source: MNB.

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



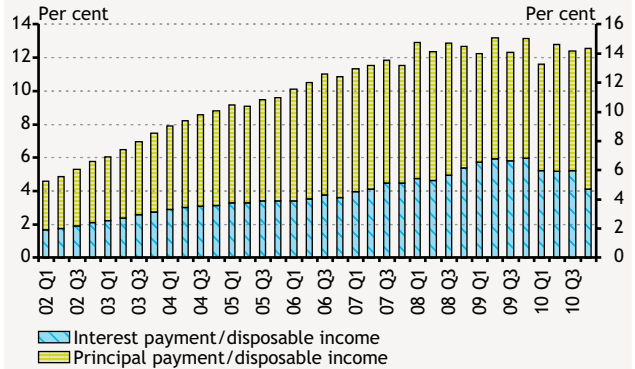
Source: MNB.

Chart 28
Indebtedness of households in international comparison



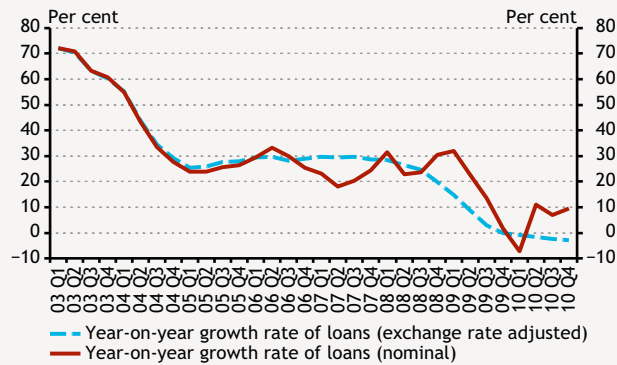
Source: ECB, MNB.

Chart 29
Debt service burden of the household sector



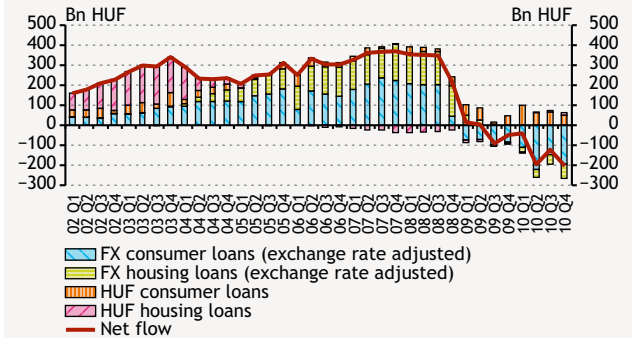
Source: MNB.

Chart 30
Annual growth rate of total household loans



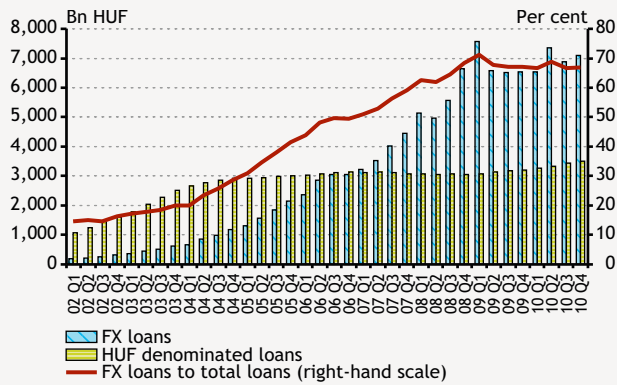
Source: MNB.

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



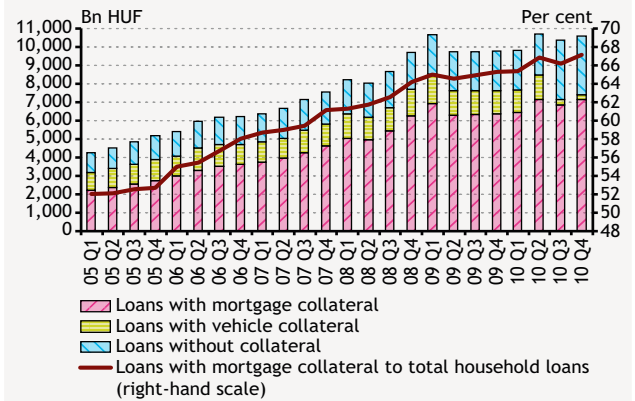
Source: MNB.

Chart 32
Household loans distribution by denomination



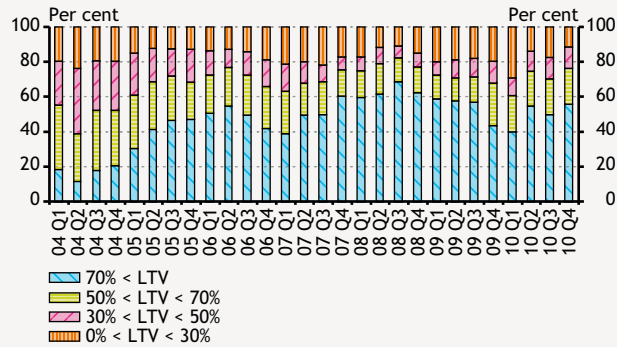
Source: MNB.

Chart 33
Household loans distribution by collateral



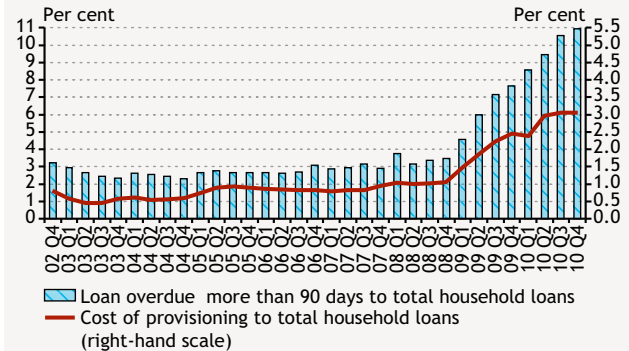
Source: MNB.

Chart 34
Distribution of new housing loans by LTV



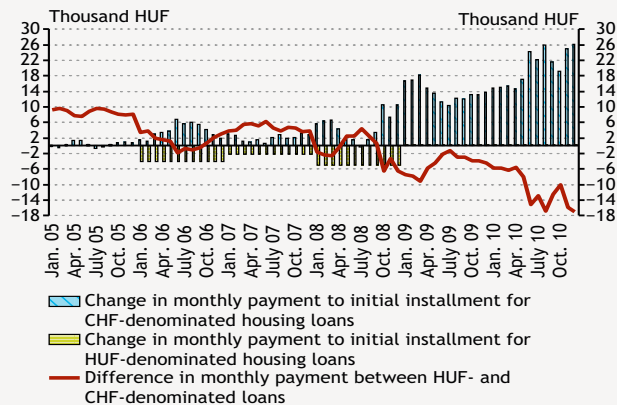
Source: MNB, ECB.

Chart 35
Quality of the household loan portfolio



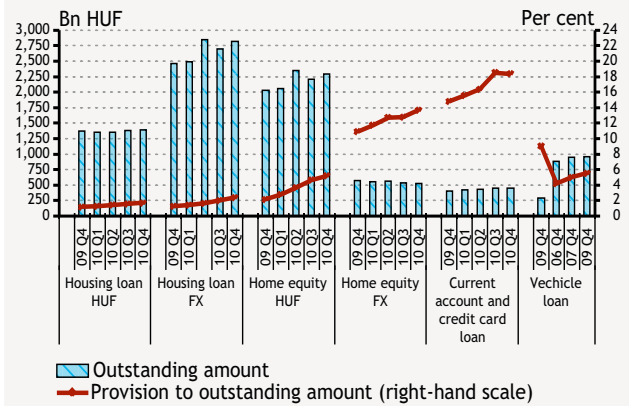
Source: MNB.

Chart 36
Comparison of instalment payments of CHF- and HUF-denominated housing loans



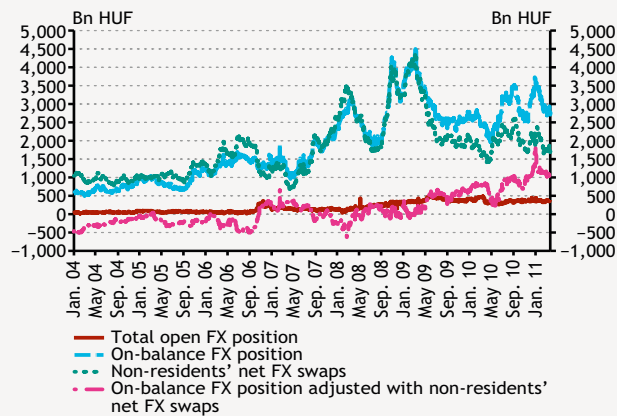
Source: MNB.

Chart 37
Provisioning on household loans



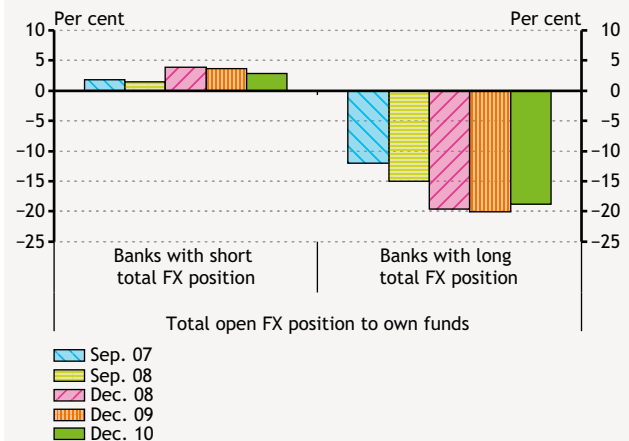
Source: MNB.

Chart 38
Open FX position of the domestic banking system



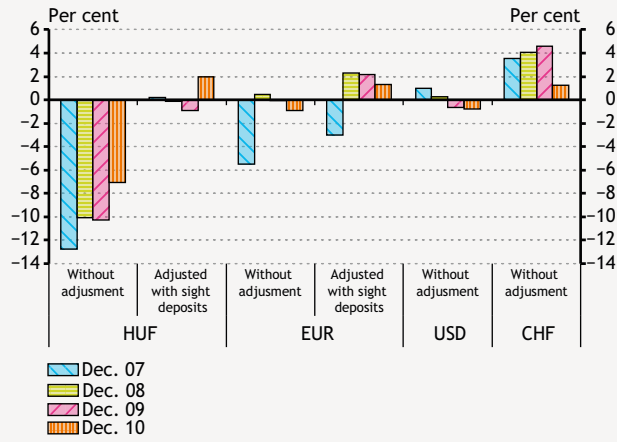
Source: MNB.

Chart 39
Banking sector's exchange rate exposure



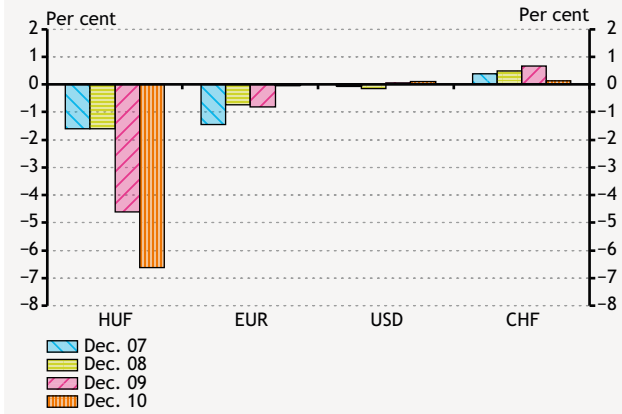
Source: MNB.

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



Source: MNB.

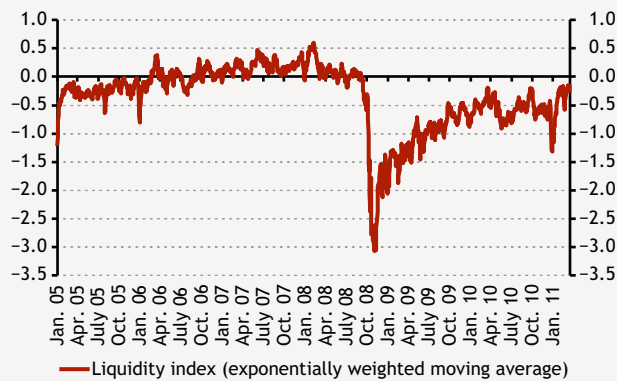
Chart 41
Estimated maximum loss based on interest rate risk stress tests relative to equity



Source: MNB.

Chart 42
Liquidity index

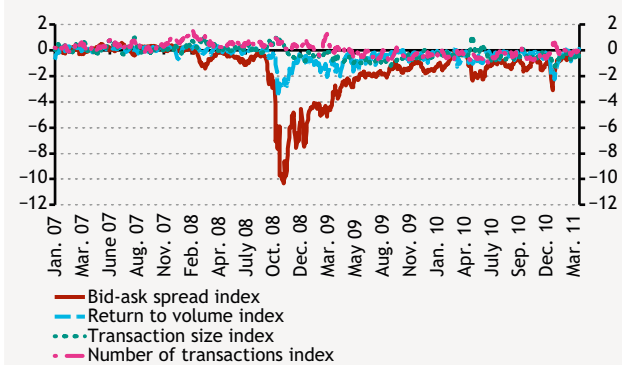
(exponentially weighted moving average)



Source: MNB, Keler, Reuters, DrKW.

Chart 43
Liquidity sub-indices

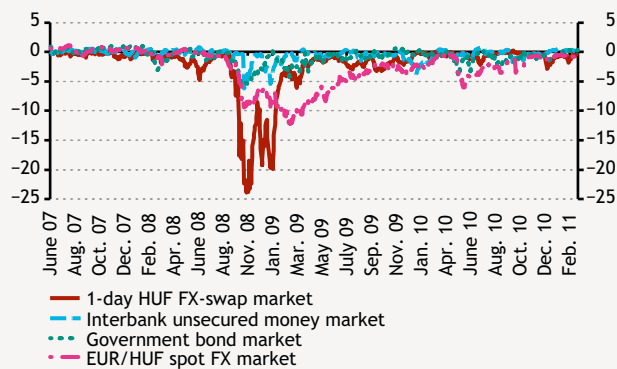
(exponentially weighted moving average)



Source: MNB, Keler, Reuters, DrKW.

Chart 44
Bid-ask spread indices of the major domestic financial markets

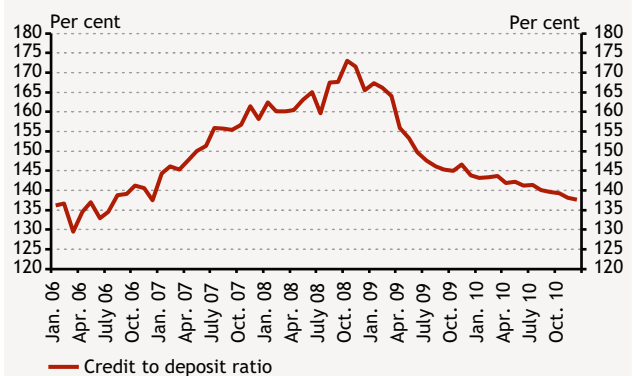
(exponentially weighted moving average)



Source: MNB, Keler, Reuters, DrKW.

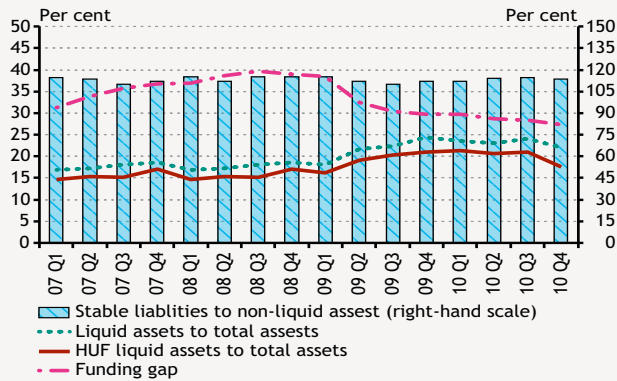
Chart 45
Credit to deposit ratio of the banking sector

(adjusted for exchange rate changes)



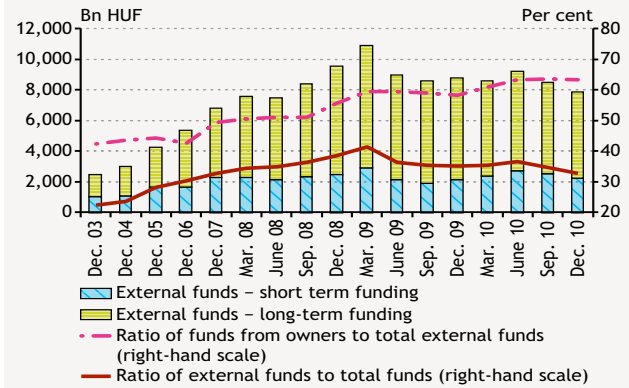
Source: MNB.

Chart 46
Liquidity ratios of the banking sector



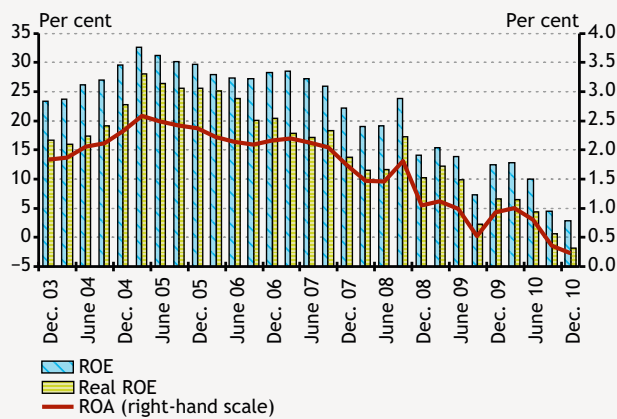
Source: MNB.

Chart 47
External funds of the banking sector



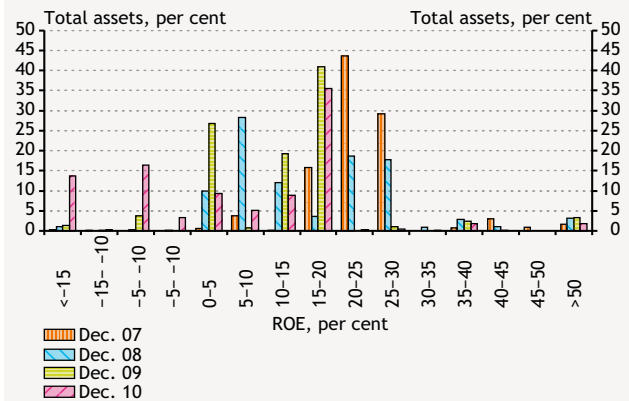
Source: MNB.

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



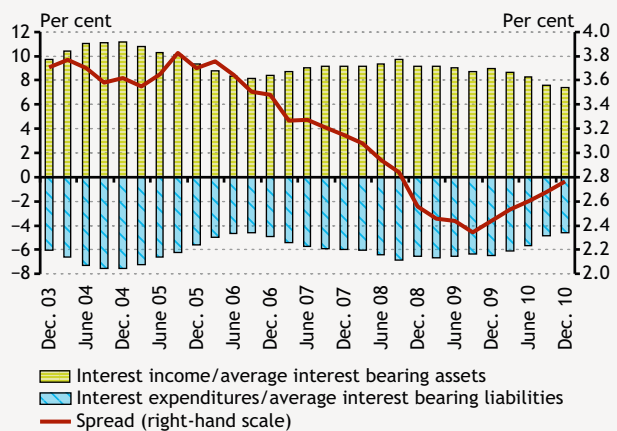
Source: MNB.

Chart 49
Dispersion of banks' total assets by ROE



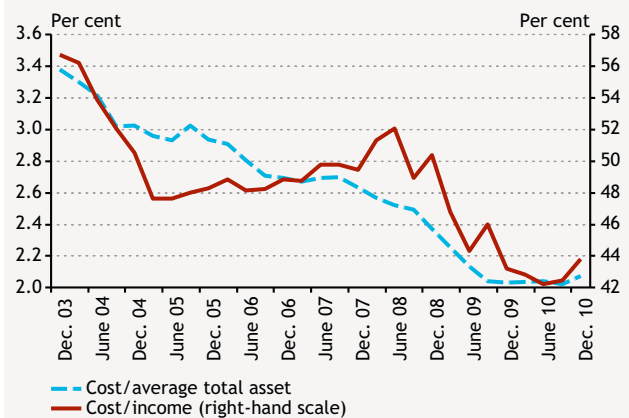
Source: MNB.

Chart 50
Banking sector spread and its components



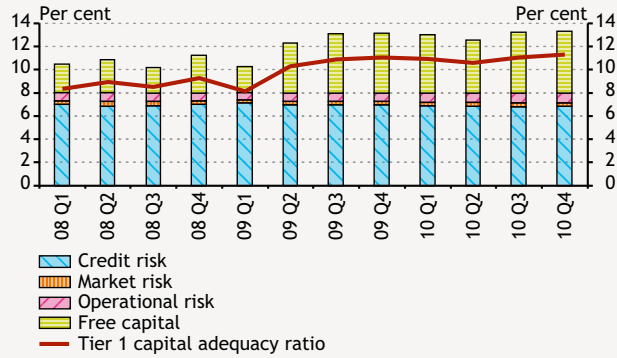
Source: MNB.

Chart 51
Operating efficiency indicators of the banking sector



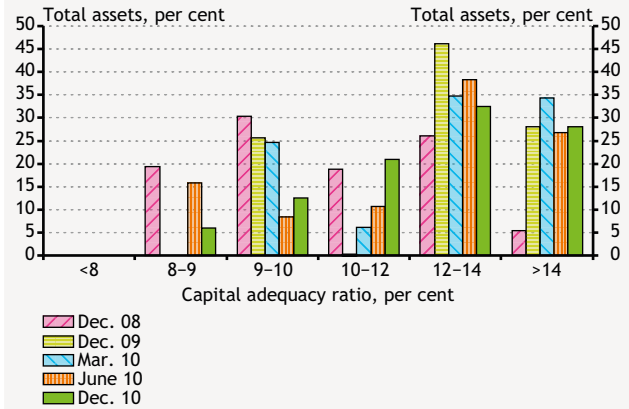
Source: MNB.

Chart 52
Banks' capital adequacy ratios



Source: MNB.

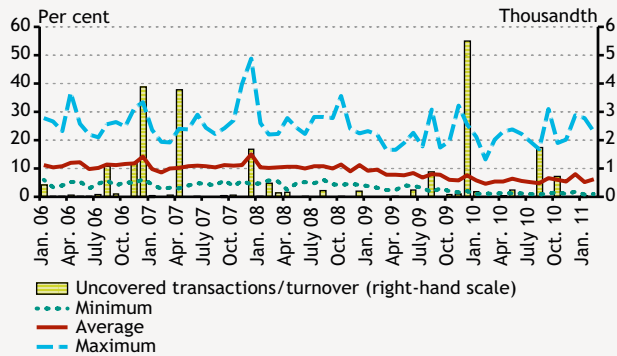
Chart 53
Dispersion of banks' minimum capital requirement by capital adequacy ratio



Source: MNB.

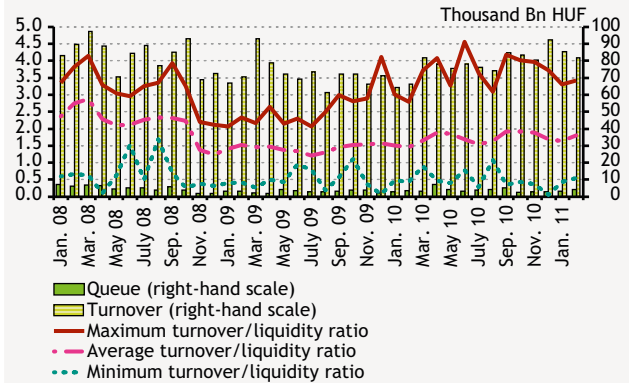
7 RISKS OF THE PAYMENT SYSTEMS

Chart 54
Liquidity needed for settling IBC-turnover as a percentage of available liquidity and uncovered transactions as a percentage of the turnover



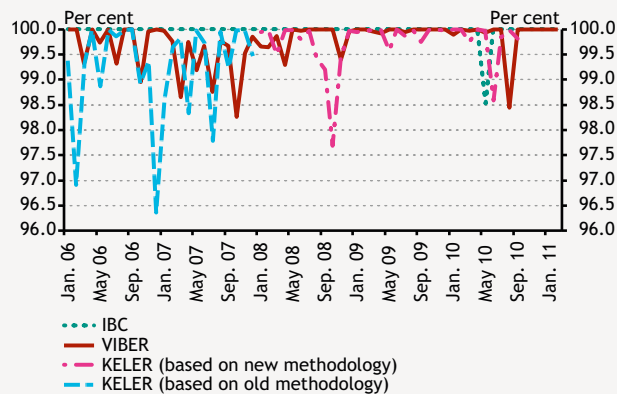
Source: MNB.

Chart 55
Monthly turnover/liquidity ratio (VIBER) and monthly turnover and queue statistics



Source: MNB.

Chart 56
Availability of domestic overseen systems (IBC, KELER, VIBER)



Source: MNB.

Notes to the appendix

The chart date (e.g. 2008) means the end of the year (the 31st of December) if it's not indicated otherwise.

Chart 1:

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

Chart 2:

VIX: implied volatility of S&P 500.

MOVE: implied volatility of US Treasuries (Merrill Lynch).

Chart 3:

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

Chart 4:

* Augmented SNA deficit which 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 ignores private pension savings.

** Financing capacity consistent with the SNA deficit of the general government which, does not take account savings in private pension funds. The official financing capacity of households in 2011 could be significantly lower (see Table).

Chart 10:

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

Chart 12:

Number of bankruptcy proceedings of legal entities, summed according to the date of publication, cumulated for 4 quarters, divided by the number of legal entities operating a year before.

Chart 13:

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

Chart 16:

Historic volatility: weighted historic volatility of the exchange rate (GARCH method).

Implied volatility: implied volatility of quoted 30-day ATM FX options.

Chart 19:

FHB House Price Index.

Chart 24:

FX loans, exchange rate as of end-December 2000, HUF loans adjusted by state loan refinancing in December 2002.

Chart 25:

FX loans on December 2000, end of month exchange rate.

Chart 38:

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

Chart 41:

The interest rate risk stress test indicates the projected result of an extreme interest rate event; in this scenario this event is a parallel upward shift of the yield curve by 500 basis points for the forint, and by 200 basis points for the euro, the US dollar, and the Swiss franc. 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, increase in liquidity sub-indices suggests an improvement in the given dimension of liquidity.

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:

Interim data are annualised.

Interest income: previous 12 months

Interest expenditure: previous 12 months

Average interest bearing assets: mean of previous 12 months

Average interest bearing liabilities: mean of previous 12 months

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 55:

Start-of-day balance adjustments and central bank payments are excluded.

Chart 56:

Due to differences in the nature of the overseen systems and in the calculation methodology, comparing the availability ratios can be misleading. The calculation methodology for the availability ratio for KELER was changed in January 2008. The ratios based on the new and old methodologies are not comparable, which is why we will publish the data based on the new methods for KELER in separate time-series.

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